Molecular Therapy
Nucleic Acids
Original Article

sgRNA-PSM: Predict sgRNAs On-Target Activity Based on Position-Specific Mismatch

Bin Liu,[1,2] Zhihua Luo,[3] and Juan He[4]

[1]School of Computer Science and Technology, Beijing Institute of Technology, Beijing, China; [2]Advanced Research Institute of Multidisciplinary Science, Beijing Institute of Technology, Beijing, China; [3]Affiliated Shenzhen Maternity & Child Healthcare Hospital, Southern Medical University, Shenzhen, Guangdong, China; [4]School of Computer Science and Technology, Harbin Institute of Technology, Shenzhen, Guangdong, China

As a key technique for the CRISPR-Cas9 system, identification of single-guide RNAs (sgRNAs) on-target activity is critical for both theoretical research (investigation of RNA functions) and real-world applications (genome editing and synthetic biology). Because of its importance, several computational predictors have been proposed to predict sgRNAs on-target activity. All of these methods have clearly contributed to the developments of this very important field. However, they are suffering from certain limitations. We proposed two new methods called "sgRNA-PSM" and "sgRNA-ExPSM" for sgRNAs on-target activity prediction via capturing the long-range sequence information and evolutionary information using a new way to reduce the dimension of the feature vector to avoid the risk of overfitting. Rigorous leave-one-gene-out cross-validation on a benchmark dataset with 11 human genes and 6 mouse genes, as well as an independent dataset, indicated that the two new methods outperformed other competing methods. To make it easier for users to use the proposed sgRNA-PSM predictor, we have established a corresponding web server, which is available at http://bliulab.net/sgRNA-PSM/.

INTRODUCTION

Three main genome editing tools, including zinc-finger nucleases (ZFNs),[1] transcription activator-like effector nucleases (TALENs),[2] and CRISPR-Cas9 RNA-guided technologies,[3,4], can be used to recognize and cleave specific DNA sequences.[5] Compared with ZFNs and TALENs, CRISPR-Cas9 has been widely applied in various cell types and organisms in recent years. In the type II CRISPR-Cas9 system, single-guide RNA (sgRNA) directs Cas9 protein to the target site to cleave the DNA target sequences, and sgRNA should be designed to have around a 20-nt sequence to be complementary to the guide sequence in the DNA target sequences.[6,7]. Rational design of sgRNA is a crucial part for CRISPR-Cas9. Therefore, the prediction of sgRNAs on-target activity is very important for CRISPR-Cas9.

Researchers have proposed several computational methods for sgRNAs on-target activity prediction. Most of them treat the prediction problem of sgRNA as a binary classification task or a regression task, and the computational predictors were constructed based on machine learning algorithms. The differences between these approaches are feature extraction methods and machine learning techniques, such as gradient boosting regression (GBR),[8] support vector machines (SVMs),[9–18] ensemble classifiers[19–24], and deep learning,[25–32] among others. As shown in the aforementioned studies,[33,34] discriminative features are critical for constructing the computational predictors. Accordingly, some features have been proposed to capture the characteristics of sgRNAs, for example, because the position of a nucleotide in sgRNA will affect its activity, and thus the position-specific (PS)[35] feature was proposed to incorporate these sequence patterns, which has been used in ge-CRISPR,[36], Azimuth,[37] and CRISPRpred.[38] Kaur et al.[36] proposed an integrated pipeline called ge-CRISPR to predict and analyze the genome editing efficiency of sgRNAs. Azimuth[37] employed GBR to train the model, achieving state-of-the-art performance. CRISPRpred[38] is another efficient predictor, combining the discriminative features selected by random forest (RF)[39] and the SVM regression.

All of the aforementioned predictors have obtained encouraging results and played a role in the development of computational predictors for sgRNAs on-target activity prediction, but they are also suffering from some problems or limitations. Further work is required for the following reasons: (1) these predictors are only able to consider the short-range sequence information of the DNA sequences, otherwise they will cause "high-dimension disaster";[40,41] and (2) these predictors failed to incorporate the evolutionary information, ignoring information between non-consecutive nucleotides.

In order to solve these aforementioned problems, we proposed a novel feature, PS mismatch (PSM), sharing the advantages of both PS[35] and mismatch features.[41] RNA sequence evolution involves single nucleotides, insertions and deletions of several nucleotides, and other factors. With the long-term accumulation of these changes in evolution, although the similarities between the initial and the final RNA sequences are gradually reduced, these RNA sequences still have many features in common. PSM is such a method for extracting

Received 8 August 2019; accepted 23 January 2020;
https://doi.org/10.1016/j.omtn.2020.01.029.

Correspondence: Bin Liu, School of Computer Science and Technology, Beijing Institute of Technology, No. 5, South Zhongguancun Street, Haidian District, Beijing 100081, China.
E-mail: bliu@bliulab.net

This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).

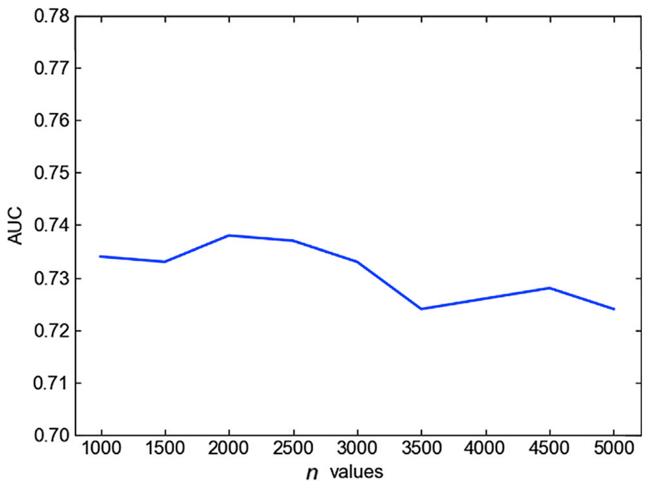

Figure 1. Graph Showing AUC Scores of the sgRNA-PSM Predictors with Different *n* Values, where *n* Denotes the Number of Selected Features

the evolutionary information from RNA sequences by allowing mismatches occurring in *k*-mers from specific positions.[41] PSM has been applied to predict sgRNAs on-target activity, and two predictors were established called "sgRNA-PSM" and "sgRNA-ExPSM" (sgRNA-extended PSM). Finally, a corresponding web server has been constructed (http://bliulab.net/sgRNA-PSM/).

RESULTS AND DISCUSSION

Parameter Optimization

According to Equations 9 and 10, there are two parameters in PSM, *k* and *m*, and three parameters in the XGBoost algorithm, *C*, *R*, and *F*. These parameters were optimized according to AUC (area under the curve) by using leave-one-gene-out cross-validation on the benchmark dataset S (cf. Equation 3). In this study, these parameters were optimized in the ranges listed in the following:

$$\begin{cases} 1 \le k \le 6, & with\ step \Delta k = 1 \\ 0 < m \le k-1, & with\ step \Delta m = 1 \\ 3 \le C \le 10, & with\ step \Delta C = 1 \\ 0.05 \le R \le 0.1, & with\ step \Delta R = 0.05 \\ 100 \le F \le 1000, & with\ step \Delta F = 100 \end{cases} . \quad \text{(Equation 1)}$$

The final optimal values of the five parameters (cf. Equation 1) were optimized based on the AUC on the benchmark dataset S (cf. Equation 3), as given by

$$\begin{cases} k=5,\ m=2,\ C=3,\ R=0.1, F=800 & for\ sgRNA - PSM \\ k=5,\ m=2,\ C=3,\ R=0.1, F=800 & for\ sgRNA - ExPSM \end{cases} . \quad \text{(Equation 2)}$$

Feature Selection and Analysis

In order to remove the redundant features and reduce the dimension of the resulting feature vectors, here we used SelectKBest in scikit-learn[42] to select the top number of features with the highest scores based on the scoring function f_regression, which can avoid the overfitting risk with low computational cost.[43] We investigated the influence of the value *n* (number of selected features) in SelectKBest on the predictive performance of sgRNA-PSM, and the results are shown in Figure 1, from which we can see that the values of *n* have little impact on the performance, and sgRNA-PSM can achieve the best performance when *n* is equal to 2,000.

The importance of each feature can be analyzed based on F_score. To explore the reason why the proposed sgRNA-PSM predictor works so well, we analyzed the contribution of each feature. Table 1 lists the 10 most important features, from which we can see that (1) the top 9 most important features belong to the features generated in the sequence positions from 23 to 30. In the CRISPR-Cas9 system, the DNA target sequences are composed of two parts:[44] one is the guide sequence, and the other is the protospacer adjacent motif (PAM). The guide sequence is complementary to around a 20-bp sequence in sgRNA, and PAM is the downstream short sequence of the guide sequence[6] and is recognized by the Cas9 protein.[45] In the benchmark dataset S (cf. Equation 3), the guide sequence is in the sequence positions from 5 to 24, and PAM is the short sequence in the sequence positions from 25 to 27.[37] Therefore, the top 9 most important features all cover PAM, indicating that the proposed PSM is able to incorporate this important sequence pattern. (2) PAM is composed of any nucleotide in sequence position 25 followed by GG in positions 26 and 27.[6,37] 7 of the 10 most important features capture this sequence pattern.

Comparison with Other Methods

The results obtained by sgRNA-PSM and sgRNA-ExPSM on the benchmark dataset S are listed in Table 2, from which we can see that the AUC achieved by sgRNA-PSM was 73.8%. The corresponding AUC achieved by sgRNA-ExPSM was even better, which was 74.4%. This is reasonable because the acid cut position and percent peptide features referred to in Equation 11 are complementary with the PSM features in Equation 9. The PSM feature vector reflects long-range sequence information, while the amino acid cut position and percent peptide are guide-positional features corresponding to the start distance of the protein coding region of the gene where the cleavage site of the sgRNA is positioned.[37]

Then, we made a comparison of the sgRNA-PSM and sgRNA-ExPSM with ge-CRISPR,[36] Azimth,[37] and CRISPRpred.[38] All of these predictors were examined by the leave-one-gene-out cross-validation on the benchmark dataset S (cf. Equation 3). For facilitating comparison, the corresponding results obtained by the ge-CRISPR predictor, the Azimth predictor, and the CRISPRpred predictor are also given in Table 2 and Figure 2. Here, Figure 2 includes the corresponding receiver operating characteristic (ROC) curves showing the performance of the five predictors. A diagonal from the point (0,0) to (1,1) means a random guess. The better performance of the predictor corresponds to a larger AUC.

The following conclusions can be drawn from Table 2 and Figure 2: (1) the AUC score achieved by the proposed sgRNA-PSM predictor is higher than that of ge-CRISPR, and even higher than those of

Table 1. The 10 Most Important Features in the sgRNA-PSM Predictor

No.	PSM Feature[a]	Sequence Position[b]	F_score[c]
1	*G*GG	23–27	185.6
2	G*GG*	24–28	185.6
3	C*G*G	24–28	136.2
4	C**GG	24–28	136.2
5	*C*GG	23–27	129.0
6	C*GG*	24–28	129.0
7	**GGG	24–28	128.0
8	*GGG*	25–29	128.0
9	GGG**	26–30	128.0
10	**TTC	20–24	113.0

[a]Parameters were $k = 5$, $m = 2$.
[b]The sequence position of mismatches.
[c]Calculated by F regression.

Table 2. List of AUC Scores Obtained by Various Methods via the Leave-One-Gene-Out Cross-Validation on the Same Benchmark Dataset S (cf. Equation 3)

Methods	AUC (%)[a]
Azimth[b]	71.9
ge-CRISPR[c]	71.7
CRISPRpred[d]	71.6
sgRNA-PSM[e]	73.8
sgRNA-ExPSM[f]	74.4

[a]AUC means the area under the ROC curve;[56,57] the better predictor corresponds to larger AUC values.
[b]Results obtained by in-house implementation from Doench et al.[37]
[c]Results obtained by in-house implementation from Kaur et al.[36]
[d]Results obtained by in-house implementation from Rahman and Rahman.[38]
[e]For the proposed predictor in this article, see Equations 9 and 10 with $k = 5$, $m = 2$, $\varsigma = 3$, R = 0.1, F = 800.
[f]For the proposed predictor in this article, see Equations 10 and 11 with $k = 5$, $m = 2$, $\varsigma = 3$, R = 0.1, F = 800.

Azimth and CRISPRpred based on the wet experiment features, such as amino acid cut position and percent peptide. Please note that these two features are not sequence-based features, and they are often unavailable. (2) The sgRNA-ExPSM predictor outperforms the sgRNA-PSM predictor by incorporating the amino acid cut position feature and percent peptide feature.

In addition, the sgRNA-PSM predictor was further compared with Azimuth[37] and DeepCRISPR (pt+aug CNN)[46] on the on-target dataset.[46,47]. In order to make a fair comparison, the sgRNA-PSM predictor was trained on the training set of on-target dataset reported in Chuai et al.[46] and tested on the independent test dataset[46] for the hct116, hela, and hl60 cell types. The hek293t dataset reported in Doench et al.[37] is a subset of our benchmark dataset S (cf. Equation 3). Therefore, our method was not tested on the hek293t dataset again. For sgRNA-PSM, SelectKBest with the scoring function chi2 in scikit-learn was used to select 1,100 dimensions of the PSM features and fed into XGBoost for classification. The predictive results of sgRNA-PSM, DeepCRISPR (pt+aug CNN), and Azimuth are shown in Table 3. As shown in this table, our method outperformed Azimuth and DeepCRISPR (pt+aug CNN) on the hct116 and hela cell types, and it is highly comparable to DeepCRISPR (pt+aug CNN) on the hl60 cell type.

To further explore the reasons why our method cannot perform well on the hl60 cell type, we retrained the sgRNA-PSM classifier with each of the three datasets (hct116, hela, and hl60). For each dataset, 20% of the samples were used as the test dataset, which were stratified by labels following Chuai et al.,[46] and the remaining 80% of the samples were used as the training dataset. The results are also listed in Table 3, from which we can see that the sgRNA-PSM trained with the hl60 dataset outperformed the corresponding classifier trained with the training data consisting of all four cell types, and it even outperformed Azimuth. The results are not surprising because the four different cell types have different data distributions. Noise information was introduced when combining all four cell types to train a computational predictor. Therefore, the overall performance of sgRNA-PSM is better than that of all of the other competing methods.

Web Server and User Guide

Providing a user-friendly and freely accessible web server for a new predictor can obviously improve its impact.[48] To make it easier for users to use the proposed predictor, we established the corresponding sgRNA-PSM web server. Because the sgRNA-ExPSM predictor requires two features obtained from wet experiments, which are often unavailable, its corresponding web server is not able to be constructed. The web server has the following functions: (1) it allows users to input sgRNA sequences in reverse-complementary order, and (2) it allows users to input longer sequences (30–1,000 bp). The web server will detect all of the possible sgRNAs and predict their on-target activities. The steps for using the sgRNA-PSM web server are as follows:

Step 1. Click on the website address http://bliulab.net/sgRNA-PSM/ to open the sgRNA-PSM web server, at which point the homepage of the website will appear as shown in Figure 3. The detailed introduction to the web server can be obtained by clicking on the "Read Me" button.

Step 2. Click on the "Browse" button to upload the input file or type your query DNA sequences in FASTA format.

Step 3. Click on the "Submit" button to get the final predictive results. When inputting the four DNA sequences in the "Example" window, you will see that the first and second are predicted as high on-target activity sgRNAs, while the third is the sequence in reverse-complementary order, which is predicted as low on-target activity sgRNA, and the fourth has four low on-target activity sgRNAs and one high on-target activity sgRNA. These results are consistent with the experimental results. In order to help the users to solve the problems when using the web server, the

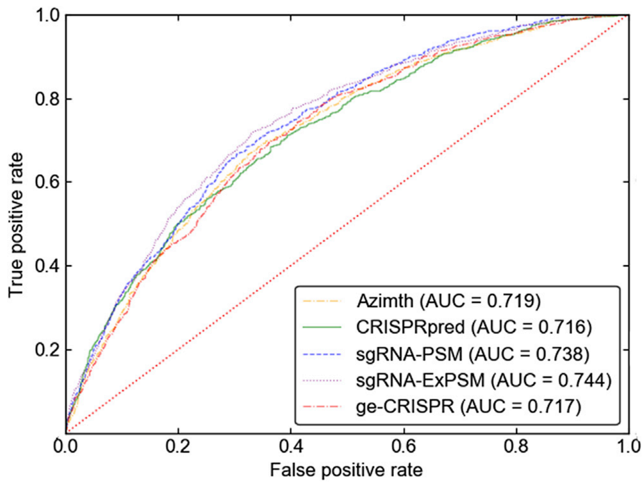

Figure 2. Graph Showing the Predictive Quality of the Aforementioned Predictors via the ROC Curves

The corresponding AUC scores are 0.717, 0.716, 0.719, 0.738, and 0.744 for ge-CRISPR, CRISPRpred, Azimth, sgRNA-PSM, and sgRNA-ExPSM predictors via the leave-one-gene-out cross-validation on the same benchmark dataset S, respectively.

Frequently Questioned Answers (FQA) are provided by clicking on the FQA button.

MATERIALS AND METHODS

Benchmark Datasets

In this study, a widely used benchmark dataset[37] constructed by the FC dataset[35] and the RES dataset[37] was employed to evaluate the performance of different methods. The benchmark dataset consists of 5,310 sequences from 11 human genes (CD33, MED12, NF2, CD13, TADA2B, CUL3, TADA1, HPRT, NF1, CD15, CCDC101) and 6 mouse genes (Cd45, Cd43, Cd28,H2-K, Cd5, Thy1). There are 1,059 high on-target activity sgRNAs and 4,251 low on-target activity sgRNAs. The benchmark dataset S is as follows:

$$\mathbb{S} = \mathbb{S}_1 \cup \mathbb{S}_2 \cup \mathbb{S}_3 \cup \cdots \cup \mathbb{S}_{16} \cup \mathbb{S}_{17} = \cup_{i=1}^{17} \mathbb{S}_i, \qquad \text{(Equation 3)}$$

where

$$\mathbb{S}_i = \mathbb{S}_i^+ \cup \mathbb{S}_i^- (i = 1, 2, \cdots, 17) \qquad \text{(Equation 4)}$$

with

$$\frac{|\mathbb{S}_1^+|}{|\mathbb{S}_1^-|} \approx \frac{|\mathbb{S}_2^+|}{|\mathbb{S}_2^-|} \approx \frac{|\mathbb{S}_3^+|}{|\mathbb{S}_3^-|} \approx \cdots \approx \frac{|\mathbb{S}_{16}^+|}{|\mathbb{S}_{16}^-|} \approx \frac{|\mathbb{S}_{17}^+|}{|\mathbb{S}_{17}^-|} \approx \frac{1}{4}, \qquad \text{(Equation 5)}$$

where $\cup$ represents the union symbol between two sets, $\mathbb{S}_i$ denotes the subset whose sgRNAs are from the ith targeting gene, the positive subset $\mathbb{S}_i^+$ contains high on-target activity sgRNAs, the negative subset $\mathbb{S}_i^-$ contains the low on-target activity sgRNAs, $|\mathbb{S}_i^+|$ represents the number of sgRNAs in $\mathbb{S}_i^+$, $|\mathbb{S}_i^-|$ represents the number of sgRNAs in $\mathbb{S}_i^-$, and $|\mathbb{S}_i^+|/|\mathbb{S}_i^-|$ denotes the number of sgRNAs in $|\mathbb{S}_i^+|$ and $|\mathbb{S}_i^-|$ in a ratio of about 1:4. The corresponding detailed sequences can be found in Data S1.

Table 3. List of the AUC Scores Obtained by Various Methods on the On-Target Dataset Reported in Chuai et al.[46]

Cell Type[a]	Methods	AUC (%)
hct116	Azimuth[b]	74.1
	DeepCRISPR (pt+aug CNN)[c]	87.4
	sgRNA-PSM[d]	91.7
	Retrained sgRNA-PSM[e]	74.0
Hela	Azimuth[b]	67.5
	DeepCRISPR (pt+aug CNN)[c]	78.2
	sgRNA-PSM[d]	82.8
	Retrained sgRNA-PSM[e]	72.1
hl60	Azimuth[b]	79.2
	DeepCRISPR (pt+aug CNN)[c]	73.9
	sgRNA-PSM[d]	77.6
	Retrained sgRNA-PSM[e]	83.7

[a]The cell type of the independent test dataset.
[b]Results reported in Chuai et al.[46]
[c]Results reported in Chuai et al.[46]
[d]The sgRNA-PSM predictor trained with the dataset reported in Chuai et al.;[46] see Equations 9 and 10 with $k = 4$, $m = 2$, $\varsigma = 9$, R = 0.05, F = 2,300.
[e]The sgRNA-PSM predictor trained with each of the three datasets (hct116, hela, and hl60).

The most updated on-target dataset established in Chuai et al.[46] was employed to further evaluate the performance of the proposed method. This on-target dataset was constructed based on hct116,[49] hek293t,[37] hela,[49] and hl60.[50] Those datasets were also employed by Haeussler et al.[47]

PSM

Feature extraction is very important for constructing a computational predictor.[51] Inspired by the PS[35] and mismatch features,[41] here a novel feature extraction method, PSM, was proposed to capture the long-range sequence information and evolutionary information. Furthermore, PSM is able to efficiently reduce the dimension of the feature vectors. The detailed procedures of generating PSM are described as follows.

A DNA sample **D** can be represented as follows:

$$\mathbf{D} = R_1 R_2 R_3 \cdots R_i \cdots R_L \qquad (i = 1, 2, 3, \cdots, L), \qquad \text{(Equation 6)}$$

where

$$R_i \in \{A(adenine),\ C(cytosine),\ G(guanine),\ T(thymine)\}, \quad (i = 1, 2, 3, \cdots, L) \qquad \text{(Equation 7)}$$

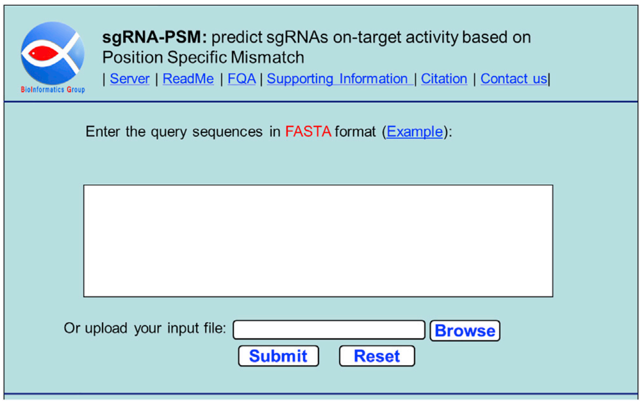

Figure 3. Graphic of the Homepage of the Web Server http://bliulab.net/sgRNA-PSM/

represents the ith nucleobase in the sequence, the symbol $\in$ denotes "member of" in the set, and L represents the length of **D**.

The PS feature is an important and useful feature extraction method widely used in previous studies.[35–38] Because the position of nucleotide in a sgRNA affects its activity, the PS feature incorporates the local sequence position information by representing the k-mers[41,52] along a DNA sample **D** (cf. Equation 6) by "one-hot" encoding.[53] By using the PS feature, **D** can be represented as follows:[35–38]

$$\mathbf{D} = \left[f_1^{\mathrm{PS}} \cdots f_{4^k}^{\mathrm{PS}} \, f_{4^k+1}^{\mathrm{PS}} \cdots f_{2\times 4^k}^{\mathrm{PS}} \, f_{2\times 4^k+1}^{\mathrm{PS}} \cdots f_{(L-k)\times 4^k}^{\mathrm{PS}} f_{(L-k)\times 4^k+1}^{\mathrm{PS}} \cdots f_{(L-k+1)\times 4^k}^{\mathrm{PS}} \right]^{\mathbf{T}}, \quad \text{(Equation 8)}$$

where **T** represents the transpose symbol, $f_{(i-1)\times 4^k+j}^{\mathrm{PS}}$ denotes the jth feature in the one-hot encoding at the ith position in **D**, whose value is 0 or 1, and k is the number of adjacent nucleotides in a k-mer.

From Equation 8, we can see that the dimension of the PS vector will increase rapidly with the incensement of k values. For example, when k is equal to 6, the dimension of the PS feature vector will be $4^6 \times (30 - 6 + 1) = 1.024 \times 10^5$, which will cause high-dimension disaster.[40,41,54] Therefore, Equation 8 is useful only when k is small, and it ignores the information of non-consecutive nucleotides. As a result, it can only incorporate the short-range and consecutive nucleotide information without considering the long-range and non-consecutive nucleotide information.

The mismatch feature considers the evolutionary process and allows mismatches occurring in k-mers. Therefore, the dimension of the corresponding feature vectors can be obviously decreased compared with those of k-mers. In this study, we combined the mismatch with the PS feature and proposed a novel feature, i.e., PSM, which is defined as follows:

$$\mathbf{D} = \left[f_1^{\mathrm{PSM}} \cdots f_{\alpha}^{\mathrm{PSM}} \, f_{\alpha+1}^{\mathrm{PSM}} \cdots f_{2\times\alpha}^{\mathrm{PSM}} \, f_{2\times\alpha+1}^{\mathrm{PSM}} \cdots f_{(L-k)\times\alpha}^{\mathrm{PSM}} f_{(L-k)\times\alpha+1}^{\mathrm{PSM}} \cdots f_{(L-k+1)\times\alpha}^{\mathrm{PSM}} \right]^{\mathbf{T}}, \quad \text{(Equation 9)}$$

where $f_{(i-1)\times\alpha+j}^{\mathrm{PSM}}$ represents the jth feature in one-hot encoding at the ith position in **D**, whose value is 0 or 1, and α denotes the number of mismatch features considering the one-hot encoding, which can be defined as follows:

$$\alpha = 4^{k-m} \times \mathrm{C}_k^{k-m} = 4^{k-m} \times \frac{k!}{(k-m)!m!}, \quad \text{(Equation 10)}$$

where m is the number of mismatches in k-mers.

As shown in Equations 9 and 10, the first $4^{k-m} \times \mathrm{C}_k^{k-m}$ components reflect the one-hot-encoded feature vector corresponding to the first sequence position, whereas the components from $4^{k-m} \times \mathrm{C}_k^{k-m} + 1$ to $2 \times 4^{k-m} \times \mathrm{C}_k^{k-m}$ reflect the one-hot-encoded feature vector corresponding to the second sequence position, and so forth. A feature vector formed with $(L - k + 1) \times 4^{k-m} \times [k!/(k-m)!m!]$ components is called the PSM vector for **D** as defined in Equation 9. A schematic diagram illustrating how to generate the PSM vector for **D** is shown in Figure 4. Compared to the PS vector defined in Equation 8, the dimension of the PSM vector will be significantly reduced. For example, when $k = 6$, the PS feature vector's dimension (cf. Equation 8) is $1.024 \times 10_5$, while the PSM feature vector's dimension is $(L - k + 1) \times 4^{k-m} \times [k!/(k-m)!m!]$ as defined in Equations 9 and 10. Now, when we assume $m = 5$, the dimension will be $(30 - 6 + 1) \times 4^{6-5} \times [6!/(6-5)!5!] = 600$. The size of the latter is around 1/170th that of the former. Namely, PSM can obviously reduce the dimension of the feature vector compared with PS. It is especially true for larger k values (see Table 4).

Therefore, the PSM vector (cf. Equation 9) should be used to represent the DNA samples, because PSM can overcome the aforementioned limitations for large values of k, while avoiding the high-dimension disaster problem.

Finally, we can augment the PSM vector (cf. Equation 9) to

$$\tilde{\mathbf{D}} = \left[f_1^{\mathrm{PSM}} \cdots f_{\alpha}^{\mathrm{PSM}} \, f_{\alpha+1}^{\mathrm{PSM}} \cdots f_{2\times\alpha}^{\mathrm{PSM}} \, f_{2\times\alpha+1}^{\mathrm{PSM}} \cdots f_{(L-k)\times\alpha}^{\mathrm{PSM}} f_{(L-k)\times\alpha+1}^{\mathrm{PSM}} \cdots f_{(L-k+1)\times\alpha}^{\mathrm{PSM}} \, a \, b \right]^{\mathbf{T}}, \quad \text{(Equation 11)}$$

where $\tilde{\mathbf{D}}$ is the augmented PSM, a is the amino acid cut position, and b is the percent peptide given in Doench et al.[37] Both of these two features were obtained by wet experiments, which are often unavailable. The feature vector formed with $(L - k + 1) \times 4^{k-m} \times [k!/(k-m)!m!] + 2$ components is the ExPSM vector for **D**.

XGBoost Algorithm

The XGBoost algorithm[55] is a technique for classification and regression tasks, which is based on tree boosting.[8] The most important advantage

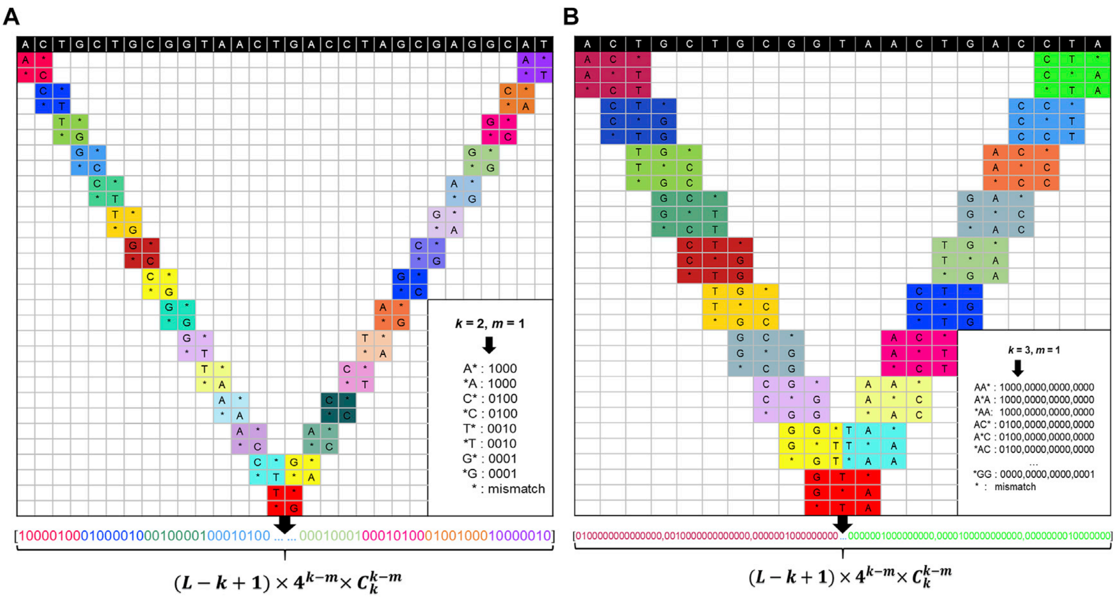

Figure 4. Schematic Diagram Illustrating How to Generate the PSM Vector for a DNA Sequence
(A) Example of PSM with parameters of k = 2, m = 1. (B) Example of PSM with parameters of k = 3, m = 1.

of XGBoost is its scalability in all scenarios. For more detailed information on XGBoost, please refer to Chen and Guestrin.[55]

In this study, the regression model of the XGBoost algorithm was employed. We used the scikit-learn package[42] to implement the XGBoost algorithm. The values of its three main parameters (maximum depth of a tree C, boosting learning rate R, and number of boosted trees F) are given in the following sections, and all the other parameters were set as default values.

Table 4. Comparison between the PS Feature Vector's dimension (cf. Equation 8) and the PSM Feature Vector's Dimension (cf. Equation 9)

k	Dimension of PS Vector[a]	m	Dimension of PSM Vector[b]	Ratio γ[c]
2	464	1	232	~2
3	1,792	1	1,344	~1.3
		2	336	~5.3
4	6,912	1	6,912	1
		2	2,592	~2.7
		3	432	~16
5	26,624	2	16,640	~1.6
		3	4,160	~6.4
		4	520	~51.2
6	102,400	4	6,000	~17.07
		5	600	~170.67
⋮	⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮	⋮

[a]Calculated by Equation 8.
[b]Calculated by Equation 9.
[c]Ratio of the number of column 2 and the number of column 4; it is the same with $\gamma = 4^m \times [(k-m)!m!/k!]$, where m is given in column 3.

Finally, according to Equations 9 and 11, two predictors have been proposed as follows:

$$\begin{cases} sgRNA-PSM, & if\ use\ D\ of\ Eq.7\ to\ denote\ DNA\ samples \\ sgRNA-ExPSM, & if\ use\ \tilde{\mathbf{D}}\ of\ Eq.9\ to\ denote\ DNA\ samples \end{cases} . \quad \text{(Equation 12)}$$

Evaluation Method of Performance

The AUC, as it pertains to the ROC curve,[56–58] is a widely used measure for evaluating the performance of the predictors. The better predictor corresponds to larger AUC values.

Cross-Validation

The cross-validation method is an important step for evaluating the performance of a predictor.[59] In this study, in order to ensure that a predictor can be generalized across genes, the leave-one-gene-out cross-validation[35,37] was used, where each of the 17 subsets of S_i (cf. Equation 3) was selected one by one as the test set, while the other 16 subsets were used to construct the training set to train the predictor. This process was repeated for 17 times, and each subset was selected as the test set once.

Implementation of the Competing Methods

In this study, we compared the proposed methods with three state-of-the-art methods, including ge-CRISPR,[36] Azimuth,[37] and CRISPRpred.[38] The detailed processes of these three approaches were introduced as follows: for ge-CRISPR, the 464 dinucleotide (1-

degree) binary features were finally fed into SVM regressor with a radial basis function (RBF) kernel with a *c* value of 2^5 for regression. For Azimuth, seven features were used to represent the samples, including position-independent, position-specific, GC count, NGGN, thermodynamic features, amino acid cut position, and percent peptide. These features were combined with GBR with the parameters learning_rate = 0.1, max_depth = 3, and n_estimators = 100 to construct the predictor. For CRISPRpred, five different feature extraction methods were employed, including position-independent, position-specific, thermodynamic features, amino acid cut position, and percent peptide. Please note that ViennaRNA package version 2.0[60] was used to generate thermodynamic features. RF[39] was then performed on these features to select 2,899 relevant features according to the importance scores (Mean Decrease Gini) with the maximum number of trees of 500. These features were finally fed into the SVM regressor with linear kernel function with a *c* value of 2^{-2} for regression.

SUPPLEMENTAL INFORMATION

Supplemental Information can be found online at https://doi.org/10.1016/j.omtn.2020.01.029.

ACKNOWLEDGMENTS

This work was supported by the Beijing Natural Science Foundation (JQ19019); the National Natural Science Foundation of China (61822306 and 61672184); the Fok Ying-Tung Education Foundation for Young Teachers in the Higher Education Institutions of China (161063); and the Scientific Research Foundation in Shenzhen (JCYJ20180306172207178, JCYJ20180306172156841, and JCYJ20180507183608379).

REFERENCES

1. Urnov, F.D., Miller, J.C., Lee, Y.L., Beausejour, C.M., Rock, J.M., Augustus, S., Jamieson, A.C., Porteus, M.H., Gregory, P.D., and Holmes, M.C. (2005). Highly efficient endogenous human gene correction using designed zinc-finger nucleases. Nature *435*, 646–651.
2. Mussolino, C., Morbitzer, R., Lütge, F., Dannemann, N., Lahaye, T., and Cathomen, T. (2011). A novel TALE nuclease scaffold enables high genome editing activity in combination with low toxicity. Nucleic Acids Res. *39*, 9283–9293.
3. Cong, L., Ran, F.A., Cox, D., Lin, S., Barretto, R., Habib, N., Hsu, P.D., Wu, X., Jiang, W., Marraffini, L.A., and Zhang, F. (2013). Multiplex genome engineering using CRISPR/Cas systems. Science *339*, 819–823.
4. Mali, P., Yang, L., Esvelt, K.M., Aach, J., Guell, M., DiCarlo, J.E., Norville, J.E., and Church, G.M. (2013). RNA-guided human genome engineering via Cas9. Science *339*, 823–826.
5. Lander, E.S. (2016). The heroes of CRISPR. Cell *164*, 18–28.
6. Hartenian, E., and Doench, J.G. (2015). Genetic screens and functional genomics using CRISPR/Cas9 technology. FEBS J. *282*, 1383–1393.
7. Jinek, M., Chylinski, K., Fonfara, I., Hauer, M., Doudna, J.A., and Charpentier, E. (2012). A programmable dual-RNA-guided DNA endonuclease in adaptive bacterial immunity. Science *337*, 816–821.
8. Friedman, J.H. (2001). Greedy function approximation: a gradient boosting machine. Ann. Stat. *29*, 1189–1232.
9. Fu, X., Zhu, W., Cai, L., Liao, B., Peng, L., Chen, Y., and Yang, J. (2019). Improved pre-miRNAs identification through mutual information of pre-miRNA sequences and structures. Front. Genet. *10*, 119.
10. Cai, Y.D., Zhou, G.P., and Chou, K.C. (2003). Support vector machines for predicting membrane protein types by using functional domain composition. Biophys. J. *84*, 3257–3263.
11. Suykens, J.A.K., and Vandewalle, J. (1999). Least squares support vector machine classifiers. Neural Process. Lett. *9*, 293–300.
12. Li, D., Ju, Y., and Zou, Q. (2016). Protein folds prediction with hierarchical structured SVM. Curr. Proteomics *13*, 79–85.
13. Liu, B., Li, C.C., and Yan, K. (2019). DeepSVM-fold: protein fold recognition by combining support vector machines and pairwise sequence similarity scores generated by deep learning networks. Brief. Bioinform. Published online October 28, 2019. https://doi.org/10.1093/bib/bbz098.
14. Fu, X., Ke, L., Cai, L., Chen, X., Ren, X., and Gao, M. (2019). Improved prediction of cell-penetrating peptides via effective orchestrating amino acid composition feature representation. IEEE Access *7*, 163547–163555.
15. Lu, X., Qian, X., Li, X., Miao, Q., and Peng, S. (2019). DMCM: a data-adaptive mutation clustering method to identify cancer-related mutation clusters. Bioinformatics *35*, 389–397.
16. Lu, X., Li, X., Liu, P., Qian, X., Miao, Q., and Peng, S. (2018). The integrative method based on the module-network for identifying driver genes in cancer subtypes. Molecules *23*, 183.
17. Zeng, X., Liu, L., Lü, L., and Zou, Q. (2018). Prediction of potential disease-associated microRNAs using structural perturbation method. Bioinformatics *34*, 2425–2432.
18. Fu, X., Zhu, W., Liao, B., Cai, L., Peng, L., and Yang, J. (2018). Improved DNA-binding protein identification by incorporating evolutionary information into the Chou's PseAAC. IEEE Access *6*, 66545–66556.
19. Lin, C., Chen, W., Qiu, C., Wu, Y., Krishnan, S., and Zou, Q. (2014). LibD3C: ensemble classifiers with a clustering and dynamic selection strategy. Neurocomputing *123*, 424–435.
20. Zou, Q., Guo, J., Ju, Y., Wu, M., Zeng, X., and Hong, Z. (2015). Improving tRNAscan-SE annotation results via ensemble classifiers. Mol. Inform. *34*, 761–770.
21. Zeng, X., Wang, W., Chen, C., and Yen, G.G. (2019). A Consensus Community-Based Particle Swarm Optimization for Dynamic Community Detection. IEEE Trans. Cybern. Published online September 23, 2019. https://doi.org/10.1109/TCYB.2019.2938895.
22. Wei, L., Chen, H., and Su, R. (2018). M6APred-EL: a sequence-based predictor for identifying N6-methyladenosine sites using ensemble learning. Mol. Ther. Nucleic Acids *12*, 635–644.
23. Wei, L., Wan, S., Guo, J., and Wong, K.K. (2017). A novel hierarchical selective ensemble classifier with bioinformatics application. Artif. Intell. Med. *83*, 82–90.
24. Wei, L., Xing, P., Zeng, J., Chen, J., Su, R., and Guo, F. (2017). Improved prediction of protein-protein interactions using novel negative samples, features, and an ensemble classifier. Artif. Intell. Med. *83*, 67–74.
25. Zeng, X., Lin, Y., He, Y., Lv, L., Min, X., and Rodriguez-Paton, A. (2019). Deep collaborative filtering for prediction of disease genes. IEEE/ACM Trans. Comput. Biol. Bioinformat. Published online March 26, 2019. https://doi.org/10.1109/TCBB.2019.2907536.
26. Wei, L., Ding, Y., Su, R., Tang, J., and Zou, Q. (2018). Prediction of human protein subcellular localization using deep learning. J. Parallel Distrib. Comput. *117*, 212–217.
27. Lin, X., Quan, Z., Wang, Z.-J., Huang, H., and Zeng, X. (2019). A novel molecular representation with BiGRU neural networks for learning atom. Brief. Bioinform. Published online November 15, 2019. doi. https://doi.org/10.1093/bib/bbz125.
28. Yu, L., Sun, X., Tian, S.W., Shi, X.Y., and Yan, Y.L. (2018). Drug and nondrug classification based on deep learning with various feature selection strategies. Curr. Bioinform. *13*, 253–259.
29. Song, T., Rodríguez-Patón, A., Zheng, P., and Zeng, X. (2018). Spiking neural P systems with colored spikes. IEEE Trans. Cogn. Dev. Syst *10*, 1106–1115.
30. Wei, L., Su, R., Wang, B., Li, X., and Zou, Q. (2019). Integration of deep feature representations and handcrafted features to improve the prediction of N^6-methyladenosine sites. Neurocomputing *324*, 3–9.
31. Hong, Z., Zeng, X., Wei, L., and Liu, X. (2019). Identifying enhancer-promoter interactions with neural network based on pre-trained DNA vectors and attention

mechanism. Bioinformatics. Published online September 6, 2019. https://doi.org/10.1093/bioinformatics/btz694.

32. Liu, X., Hong, Z., Liu, J., Lin, Y., Rodríguez-Patón, A., Zou, Q., and Zeng, X. (2019). Computational methods for identifying the critical nodes in biological networks. Brief. Bioinform. Published online February 12, 2019. https://doi.org/10.1093/bib/bbz011.

33. Yan, K., Xu, Y., Fang, X., Zheng, C., and Liu, B. (2017). Protein fold recognition based on sparse representation based classification. Artif. Intell. Med. *79*, 1–8.

34. Liu, B., Weng, F., Huang, D.-S., and Chou, K.-C. (2018). iRO-3wPseKNC: identify DNA replication origins by three-window-based PseKNC. Bioinformatics *34*, 3086–3093.

35. Doench, J.G., Hartenian, E., Graham, D.B., Tothova, Z., Hegde, M., Smith, I., Sullender, M., Ebert, B.L., Xavier, R.J., and Root, D.E. (2014). Rational design of highly active sgRNAs for CRISPR-Cas9-mediated gene inactivation. Nat. Biotechnol. *32*, 1262–1267.

36. Kaur, K., Gupta, A.K., Rajput, A., and Kumar, M. (2016). ge-CRISPR—an integrated pipeline for the prediction and analysis of sgRNAs genome editing efficiency for CRISPR/Cas system. Sci. Rep *6*, 30870.

37. Doench, J.G., Fusi, N., Sullender, M., Hegde, M., Vaimberg, E.W., Donovan, K.F., Smith, I., Tothova, Z., Wilen, C., Orchard, R., et al. (2016). Optimized sgRNA design to maximize activity and minimize off-target effects of CRISPR-Cas9. Nat. Biotechnol. *34*, 184–191.

38. Rahman, M.K., and Rahman, M.S. (2017). CRISPRpred: a flexible and efficient tool for sgRNAs on-target activity prediction in CRISPR/Cas9 systems. PLoS ONE *12*, e0181943.

39. Ho, T.K. (1998). The random subspace method for constructing decision forests. IEEE Trans. Pattern Anal. *20*, 832–844.

40. Wang, T., Yang, J., Shen, H.B., and Chou, K.C. (2008). Predicting membrane protein types by the LLDA algorithm. Protein Pept. Lett. *15*, 915–921.

41. Liu, B., Fang, L., Wang, S., Wang, X., Li, H., and Chou, K.C. (2015). Identification of microRNA precursor with the degenerate K-tuple or Kmer strategy. J. Theor. Biol. *385*, 153–159.

42. Pedregosa, F., Varoquaux, G., Gramfort, A., Michel, V., Thirion, B., Grisel, O., Blondel, M., Müller, A., Nothman, J., Louppe, G., et al. (2011). scikit-learn: machine learning in Python. J. Mach. Learn. Res. *12*, 2825–2830.

43. Chandrashekar, G., and Sahin, F. (2014). A survey on feature selection methods. Comput. Electr. Eng. *40*, 16–28.

44. Zhu, L.J., Holmes, B.R., Aronin, N., and Brodsky, M.H. (2014). CRISPRseek: a bioconductor package to identify target-specific guide RNAs for CRISPR-Cas9 genome-editing systems. PLoS ONE *9*, e108424.

45. Nishimasu, H., Ran, F.A., Hsu, P.D., Konermann, S., Shehata, S.I., Dohmae, N., Ishitani, R., Zhang, F., and Nureki, O. (2014). Crystal structure of Cas9 in complex with guide RNA and target DNA. Cell *156*, 935–949.

46. Chuai, G., Ma, H., Yan, J., Chen, M., Hong, N., Xue, D., Zhou, C., Zhu, C., Chen, K., Duan, B., et al. (2018). DeepCRISPR: optimized CRISPR guide RNA design by deep learning. Genome Biol. *19*, 80.

47. Haeussler, M., Schönig, K., Eckert, H., Eschstruth, A., Mianné, J., Renaud, J.B., Schneider-Maunoury, S., Shkumatava, A., Teboul, L., Kent, J., et al. (2016). Evaluation of off-target and on-target scoring algorithms and integration into the guide RNA selection tool CRISPOR. Genome Biol. *17*, 148.

48. Liu, B., Gao, X., and Zhang, H. (2019). BioSeq-Analysis2.0: an updated platform for analyzing DNA, RNA and protein sequences at sequence level and residue level based on machine learning approaches. Nucleic Acids Res. *47*, e127.

49. Hart, T., Chandrashekhar, M., Aregger, M., Steinhart, Z., Brown, K.R., MacLeod, G., Mis, M., Zimmermann, M., Fradet-Turcotte, A., Sun, S., et al. (2015). High-resolution CRISPR screens reveal fitness genes and genotype-specific cancer liabilities. Cell *163*, 1515–1526.

50. Wang, T., Wei, J.J., Sabatini, D.M., and Lander, E.S. (2014). Genetic screens in human cells using the CRISPR-Cas9 system. Science *343*, 80–84.

51. Liu, B., and Li, K. (2019). iPromoter-2L2.0: identifying promoters and their types by combining smoothing cutting window algorithm and sequence-based features. Mol. Ther. Nucleic Acids *18*, 80–87.

52. Liu, B. (2019). BioSeq-Analysis: a platform for DNA, RNA and protein sequence analysis based on machine learning approaches. Brief. Bioinform. *20*, 1280–1294.

53. Harris, D.M., and Harris, S. (2013). Introductory digital design & computer architecture curriculum. Proceedings of the 2013 IEEE International Conference on Microelectronic Systems Education (IEEE), pp. 14–16.

54. Li, C.-C., and Liu, B. (2019). MotifCNN-fold: protein fold recognition based on fold-specific features extracted by motif-based convolutional neural networks. Brief. Bioinform. Published online November 28, 2019. https://doi.org/10.1093/bib/bbz133.

55. Chen, T., and Guestrin, C. (2016). Xgboost: a scalable tree boosting system. Proceedings of the 22nd ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (ACM), pp. 785–794.

56. Fawcett, T. (2006). An introduction to ROC analysis. Pattern Recognit. Lett. *27*, 861–874.

57. Hanley, J.A., and McNeil, B.J. (1982). The meaning and use of the area under a receiver operating characteristic (ROC) curve. Radiology *143*, 29–36.

58. Liu, B., and Zhu, Y. (2019). ProtDec-LTR3.0: protein remote homology detection by incorporating profile-based features into Learning to Rank. IEEE Access *7*, 102499–102507.

59. Liu, B., Zhu, Y., and Yan, K. (2019). Fold-LTR-TCP: protein fold recognition based on triadic closure principle. Brief. Bioinform. Published online December 8, 2019. https://doi.org/10.1093/bib/bbz139.

60. Lorenz, R., Bernhart, S.H., Höner Zu Siederdissen, C., Tafer, H., Flamm, C., Stadler, P.F., and Hofacker, I.L. (2011). ViennaRNA package 2.0. Algorithms Mol. Biol *6*, 26.

OMTN, Volume *20*

Supplemental Information

sgRNA-PSM: Predict sgRNAs On-Target Activity Based on Position-Specific Mismatch

Bin Liu, Zhihua Luo, and Juan He

Online Supporting Information S1. This benchmark dataset $\mathbb{S}$ consists of 5310 guide sequences targeting 11 human genes (CD13, CD15, CD33, CCDC101, MED12, TADA2B, TADA1, HPRT, CUL3, NF1, NF2) and 6 mouse genes (Cd45, Cd28,Cd43,Cd5, H2-K, Thy1). There are 1059 high on-target activity sgRNAs, and 4251 low on-target activity sgRNAs. See the text of the paper for further explanation.

---

(1) $\mathbb{S}_1^+$: 78 high on-target activity sgRNAs targeting CD13

```
>CD13_HsgRNA1
ATTGAAGAGAGACAGTACATGCCCTGGGAG
>CD13_HsgRNA2
TGACAATGAAGGCCAGCAAGTACGTGGACA
>CD13_HsgRNA3
GTGGAATGACCTGTGGCTGAACGAGGGCTT
>CD13_HsgRNA4
CAGCACCCAGGTACTCCACGTAGGAGGCGA
>CD13_HsgRNA5
GGGAACCTGGTGACCATAGAGTGGTGGAAT
>CD13_HsgRNA6
GTGAACTACGACGAAGAGAACTGGAGGAAG
>CD13_HsgRNA7
TGGAACTCAGTGACATTCCAGTTGGGGTCT
>CD13_HsgRNA8
TCGCACTGTCAGTGGTGTACTCCCAGGAGA
>CD13_HsgRNA9
TTGAAGAGAGACAGTACATGCCCTGGGAGG
>CD13_HsgRNA10
AGTCAGCACCCAGGTACTCCACGTAGGAGG
>CD13_HsgRNA11
GGGAAGCCCATCTGCAGGGTCCAGCGGTTC
>CD13_HsgRNA12
TCTCATACTGGCTGTCCTTCACCAGGGAGC
>CD13_HsgRNA13
GGTCATCACGGTGGATACCAGCACGGGGAC
>CD13_HsgRNA14
TCTTCAGCACATCAGGCAATGAGTGGGTCC
>CD13_HsgRNA15
TCAACATCACGCTTATCCACCCCAAGGACC
>CD13_HsgRNA16
CGGTCATCACGGTGGATACCAGCACGGGGA
>CD13_HsgRNA17
CCATCCAACTCCCCACCACCGTGCGGGACA
>CD13_HsgRNA18
CACACCAGGATCCACCCCAACCTGCGGTCC
```

>CD13_HsgRNA19
TGTGCCCATCACATCCATCAGAGATGGCAG
>CD13_HsgRNA20
TGCACCTCAAGGGCTCCCTGGTGAAGGACA
>CD13_HsgRNA21
ACCACCTTGGACCAAAGTAAAGCGTGGAAT
>CD13_HsgRNA22
TGAACGAGGGCTTCGCCTCCTACGTGGAGT
>CD13_HsgRNA23
GGGCCGGCGTGTTGATCTCCGAGGCGGGTG
>CD13_HsgRNA24
TGGCCGGCTCATCGAAGCATGGGAAGGACT
>CD13_HsgRNA25
AGGACGTATTCAAGCAGGGCCTGGCGGTGA
>CD13_HsgRNA26
GCACCGTCCGTTTCACCTGCAAGGAGGCCA
>CD13_HsgRNA27
ACCGCGTGATGGCAGTGGATGCACTGGCCT
>CD13_HsgRNA28
CCGTCTACTGCAACGCTATCGCCCAGGGCG
>CD13_HsgRNA29
TCTCCTCACACTCTGGAACTCCGTTGGAGC
>CD13_HsgRNA30
TGGTGAAGGACAGCCAGTATGAGATGGACA
>CD13_HsgRNA31
TGATGACCGGGAAGCCCATCTGCAGGGTCC
>CD13_HsgRNA32
AAGAGAGACAGTACATGCCCTGGGAGGCCG
>CD13_HsgRNA33
ATGAGATGGACAGCGAGTTCGAGGGGGAGT
>CD13_HsgRNA34
TACTGCAACGCTATCGCCCAGGGCGGGGAG
>CD13_HsgRNA35
CAACGCCGGCGCCATGGAGAACTGGGGACT
>CD13_HsgRNA36
TCCAGCGGTTCATGATGTCCCGCACGGTGG
>CD13_HsgRNA37
TCAAGCTCATGTTTGACCGCTCCGAGGTCT
>CD13_HsgRNA38
GTGGGCTCCGCATAGTCAGCACCCAGGTAC
>CD13_HsgRNA39
GGATGCTCTCCAGCTTCCTGTCCGAGGACG
>CD13_HsgRNA40
CCCTGCTTGAATACGTCCTCGGACAGGAAG

>CD13_HsgRNA41
TGGTGGAGCCCACCGAGTACCTGGTGGTGC
>CD13_HsgRNA42
TCTGGGCCGGCGTGTTGATCTCCGAGGCGG
>CD13_HsgRNA43
GATTGGCCTGCCAGACTTCAACGCCGGCGC
>CD13_HsgRNA44
CCGAGGCGGGTGTGGACAGCGGGTGGGAGG
>CD13_HsgRNA45
AGATGGGCTTCCCGGTCATCACGGTGGATA
>CD13_HsgRNA46
ACCCGGTAATAGCCCGTCACATTGAGGTTC
>CD13_HsgRNA47
GTGAGGTACGGTCTCAGCGTCACCCGGTAG
>CD13_HsgRNA48
GAGGGGTGGCAGACACTCACCGAGTGGTCT
>CD13_HsgRNA49
GCAAGTACGTGGACATCTTGGGCGTGGTGT
>CD13_HsgRNA50
TGCAGTAGACGGTGGACCGCAGGTTGGGGT
>CD13_HsgRNA51
TGAAGTAGCTCAGGCTGCTCAGGGCGGCCT
>CD13_HsgRNA52
CGTAGTCGAACTCACTGACAATGAAGGCCA
>CD13_HsgRNA53
GCCAGTGCATCCACTGCCATCACGCGGTAC
>CD13_HsgRNA54
CTACGTGGAGAAGCAGGCATCCAATGGTGT
>CD13_HsgRNA55
AGCGGTTCATGATGTCCCGCACGGTGGTGG
>CD13_HsgRNA56
CTCCGTTGGAGCAGGCGGTGCTGATGGCAT
>CD13_HsgRNA57
ACCATAGAGTGGTGGAATGACCTGTGGCTG
>CD13_HsgRNA58
AAGCTCAACTACACCCTCAGCCAGGGGCAC
>CD13_HsgRNA59
GTCATCACGGTGGATACCAGCACGGGGACC
>CD13_HsgRNA60
CTCTTCAGCACATCAGGCAATGAGTGGGTC
>CD13_HsgRNA61
AGACTCAGCTGCAGAGAGACCACTCGGTGA
>CD13_HsgRNA62
CAGCTCAGTCTTGTCAATGTCGGGGGGCTG

>CD13_HsgRNA63
TCCATCCAACTCCCCACCACCGTGCGGGAC
>CD13_HsgRNA64
GATCTCCGAGGCGGGTGTGGACAGCGGGTG
>CD13_HsgRNA65
AGCATCCTGAGGACTGAGGCGCCCTGGGGT
>CD13_HsgRNA66
ACTGTCTCTCTTCAATCAGGAAGAGGGTGT
>CD13_HsgRNA67
CAGTTCTCTTCGTCGTAGTTCACCCGGTAA
>CD13_HsgRNA68
ATGATCTGTGCCCGATTGATGACAGGGATG
>CD13_HsgRNA69
GTGATGACCGGGAAGCCCATCTGCAGGGTC
>CD13_HsgRNA70
GAGGTGCACCACCAGGTACTCGGTGGGCTC
>CD13_HsgRNA71
ACCATGCACCTCCGTACCTTCATGGGGCCA
>CD13_HsgRNA72
ACTCTGGAACTCCGTTGGAGCAGGCGGTGC
>CD13_HsgRNA73
TTCATGGCCGGCTCATCGAAGCATGGGAAG
>CD13_HsgRNA74
CAGCTGGCTTACCAAGTTCCAGGTGGGCTC
>CD13_HsgRNA75
TTCATGGGGCCATAGACCTCGGAGCGGTCA
>CD13_HsgRNA76
GTGCTGGTATCCACCGTGATGACCGGGAAG
>CD13_HsgRNA77
ATGATGTGTACCGCGTGATGGCAGTGGATG
>CD13_HsgRNA78
GTGTTGTTCAGCGCCAGAGTGACAGGGACC

(2) $\mathbb{S}_2^+$: 55 high on-target activity sgRNAs targeting CD15

>CD15_HsgRNA1
TGTGACCGTGGACGTGTTCGGCCGGGGCGG
>CD15_HsgRNA2
TAGGACGCGCGGTCGGTGAGCAGGCGGCAG
>CD15_HsgRNA3
GTCCACGTGGATGAAGGCGCCGCGGGGCAC
>CD15_HsgRNA4
ACCAACTGAGCCAACATGTGACCGTGGACG
>CD15_HsgRNA5
CGCCACTGTCCAGGAAACAGGGGCTGGTGG

>CD15_HsgRNA6
CACCAGCCCCTGTTTCCTGGACAGTGGCGG
>CD15_HsgRNA7
CGGTAGGAGAGCGTCCAGTTGAAGAGGTTA
>CD15_HsgRNA8
TTCGAGTCGCCCTCGCACTCCCCGGGGCTG
>CD15_HsgRNA9
CATCCAAACCCAGCGCTGGCCCGGGGGCCT
>CD15_HsgRNA10
GGCACAAAGACGTCCGAGTCCGCCCGGTAG
>CD15_HsgRNA11
TCTTCAACTGGACGCTCTCCTACCGGGCGG
>CD15_HsgRNA12
CTCCCACCACAGCAGCACGCCCACCGGTCG
>CD15_HsgRNA13
AAAGCACGGCCTGAGCCTCTCCGTAGGACG
>CD15_HsgRNA14
GAGGCACTTGGGAAGTCGTCCACGTGGATG
>CD15_HsgRNA15
GTCGCCAACCCCGTCGCGACCGGTGGGCGT
>CD15_HsgRNA16
GGCACCAAGGCTCGTCCCAGAAGGAGGTGA
>CD15_HsgRNA17
TTTTCCACCACCGCGACCTCGTGAAGGGGC
>CD15_HsgRNA18
TCGTCCACGTGGATGAAGGCGCCGCGGGGC
>CD15_HsgRNA19
AGGCCCCCGGGCCAGCGCTGGGTTTGGATG
>CD15_HsgRNA20
CAGCCCCTGTTTCCTGGACAGTGGCGGGGC
>CD15_HsgRNA21
GGCCCCGCCACTGTCCAGGAAACAGGGGCT
>CD15_HsgRNA22
GGGGCCTGGGGCTGGAGGTCGCCAGGGCTT
>CD15_HsgRNA23
TCACCGACCGCGCGTCCTACGGAGAGGCTC
>CD15_HsgRNA24
GCCCCGAGGCCGCCCCCTGACTGCCGGCTG
>CD15_HsgRNA25
GCTTCGCAGCCCCGGGGAGTGCGAGGGCGA
>CD15_HsgRNA26
GCCCCGCCACTGTCCAGGAAACAGGGGCTG
>CD15_HsgRNA27
ACCGCGCGTCCTACGGAGAGGCTCAGGCCG

>CD15_HsgRNA28
GAGCCTCTCCGTAGGACGCGCGGTCGGTGA
>CD15_HsgRNA29
GCCACTGGGACGAGCGCCAGGCCCGGGTCC
>CD15_HsgRNA30
GCCCCTGTTTCCTGGACAGTGGCGGGGCCA
>CD15_HsgRNA31
ACGACTTCCCAAGTGCCTCCTCCCTGGCCT
>CD15_HsgRNA32
GCCTGAGCCTCTCCGTAGGACGCGCGGTCG
>CD15_HsgRNA33
CGTCGCCAACCCCGTCGCGACCGGTGGGCG
>CD15_HsgRNA34
GCCCGCCCCGGCCGAACACGTCCACGGTCA
>CD15_HsgRNA35
GGGGGCCCCTTCACGAGGTCGCGGTGGTGG
>CD15_HsgRNA36
TATCGCCGCTACTTCCACTGGCGCCGGAGC
>CD15_HsgRNA37
AGTGGCGGGGCCAGGCCTGAGGGCGGGTCG
>CD15_HsgRNA38
TGCTGCTGTGGTGGGAGCCCTTCGGGGGGC
>CD15_HsgRNA39
TGGTGGCATGGGTGGTGAGCCACTGGGACG
>CD15_HsgRNA40
ACCCGGGCCTGGCGCTCGTCCCAGTGGCTC
>CD15_HsgRNA41
TCGGGGGGCCCCTTCACGAGGTCGCGGTGG
>CD15_HsgRNA42
GACCGGTGGGCGTGCTGCTGTGGTGGGAGC
>CD15_HsgRNA43
GCGGGGTTGCGGTCGAGGAAAAGCAGGTAC
>CD15_HsgRNA44
TGCGGTCGAGGAAAAGCAGGTACGAGGCCA
>CD15_HsgRNA45
CGAGGTCGCGGTGGTGGAAAAGCACGGCCT
>CD15_HsgRNA46
GGCAGTGTGCGCCTGGATGCCCCAGGGCGG
>CD15_HsgRNA47
CTCAGTTGGTGGTAGTAGCGGACCCGGGCC
>CD15_HsgRNA48
CAACTACGAGCGCTTTGTGCCCCGCGGCGC
>CD15_HsgRNA49
CTCTTCAACTGGACGCTCTCCTACCGGGCG

>CD15_HsgRNA50
ACGGTCACATGTTGGCTCAGTTGGTGGTAG
>CD15_HsgRNA51
TAGCTCCGGCGCCAGTGGAAGTAGCGGCGA
>CD15_HsgRNA52
GGCTTCGCAGCCCCGGGGAGTGCGAGGGCG
>CD15_HsgRNA53
GAGGTGATGTGGACAGCGTAGCTCCGGCGC
>CD15_HsgRNA54
TACTTGCCAGGCTTCGCAGCCCCGGGGAGT
>CD15_HsgRNA55
AACTTGTAGCGGGCCACTGTGTGCAGGAGC

(3) $\mathbb{S}_3^+$: 28 high on-target activity sgRNAs targeting CD33

>CD33_HsgRNA1
CCTCATCCCTGGCACTCTAGAACCCGGCCA
>CD33_HsgRNA2
GGGTATGGGATGGAAGAAAGTGCAGGGCAC
>CD33_HsgRNA3
ACAGCCACTCACCTGCCCACAGCAGGGGCA
>CD33_HsgRNA4
TCCTCCTGGCGTCTACGATGCTCAGGGAGC
>CD33_HsgRNA5
TCCTCGGTGCTCATAATCACCCCACGGCCC
>CD33_HsgRNA6
CCCGGAACCAGTAACCATGAACTGGGGAGT
>CD33_HsgRNA7
AGCTGACAACCAGGAGAAGATCGGGGGTGT
>CD33_HsgRNA8
GCAGGAGTCAGTGACGGTACAGGAGGGTTT
>CD33_HsgRNA9
GGCTGCAAGTGCAGGAGTCAGTGACGGTAC
>CD33_HsgRNA10
AAGTGCAGGAGTCAGTGACGGTACAGGAGG
>CD33_HsgRNA11
CTGAGCATCGTAGACGCCAGGAGGAGGGAT
>CD33_HsgRNA12
TGGTGCCGTGGTCCTGGGGCCGTGGGGTGA
>CD33_HsgRNA13
TCCCGGAACCAGTAACCATGAACTGGGGAG
>CD33_HsgRNA14
GGATGGAAGAAAGTGCAGGGCACGAGGACG
>CD33_HsgRNA15
TGCAGGAGTCAGTGACGGTACAGGAGGGTT

>CD33_HsgRNA16
GAGTGGCCGGGTTCTAGAGTGCCAGGGATG
>CD33_HsgRNA17
ACCTGTCACATGCACAGAGAGCTGGGGAGA
>CD33_HsgRNA18
GGGAGTTCTTGTCGTAGTAGGGTATGGGAT
>CD33_HsgRNA19
CCATTATATCCAGGGACTCTCCAGTGGCCA
>CD33_HsgRNA20
AGGGTATGGGATGGAAGAAAGTGCAGGGCA
>CD33_HsgRNA21
CTCCTCCTGGCGTCTACGATGCTCAGGGAG
>CD33_HsgRNA22
CAGCTGACAACCAGGAGAAGATCGGGGGTG
>CD33_HsgRNA23
TCCCTGAGCATCGTAGACGCCAGGAGGAGG
>CD33_HsgRNA24
GCCGTGGGGTGATTATGAGCACCGAGGAGT
>CD33_HsgRNA25
CACCTGTCACATGCACAGAGAGCTGGGGAG
>CD33_HsgRNA26
TTCTTGTCGTAGTAGGGTATGGGATGGAAG
>CD33_HsgRNA27
TGTTTGTGGCCACTGGAGAGTCCCTGGATA
>CD33_HsgRNA28
CAGTTGTTCCTACTGGGATCCCCAAGGAGG

(4) $\mathbb{S}_4^+$: 30 high on-target activity sgRNAs targeting CCDC101

>CCDC101_HsgRNA1
ACACAACCGCCAAGGCCGATGCAGAGGCTG
>CCDC101_HsgRNA2
CTCTACAATGACTCGGAGCCACCCCGGAAG
>CCDC101_HsgRNA3
ACTCAGCCTCTGCATCGGCCTTGGCGGTTG
>CCDC101_HsgRNA4
AAACAGGACCGAGTAGTCATCCTGGGGCTG
>CCDC101_HsgRNA5
CTGGAGGCTGCTTTACCCGCTGTGGGGGCG
>CCDC101_HsgRNA6
ATCAAGTCTCTGTTGGAAGAGAGGCGGATT
>CCDC101_HsgRNA7
TGGCATGGCTGTAACTGACCACCTCGGCCA
>CCDC101_HsgRNA8
CCCTCAGCATCCTTCGGAAAGCTCTGGACA

>CCDC101_HsgRNA9
CAAACAGGACCGAGTAGTCATCCTGGGGCT
>CCDC101_HsgRNA10
GTGTCATCCCGCTGCCCCAGTGGAAGGCCA
>CCDC101_HsgRNA11
GGGTCATGGCCGACTGCTGCAGCAGGGTCA
>CCDC101_HsgRNA12
TGTTCCAGAAGGAGCAGCTCGTGCTGGCCC
>CCDC101_HsgRNA13
GTCACCAGGCTTCCCGATCCACAGGGGCAG
>CCDC101_HsgRNA14
CACCCCGGAAGACCATGCGCAGAGGGGTGC
>CCDC101_HsgRNA15
GGCGCGGTAGAAGCAGGTAGTCTGGGGATA
>CCDC101_HsgRNA16
ATGGCTATTCCCCTCCCCTCAATGTGGCTC
>CCDC101_HsgRNA17
ATCTCTGAGCCACATTGAGGGGAGGGGAAT
>CCDC101_HsgRNA18
CCCGCTGTGGGGGCGCATGGATCAGGGCGC
>CCDC101_HsgRNA19
TTCGGAAAGCTCTGGACAAGATCGCGGAAA
>CCDC101_HsgRNA20
CCTGGAGGCTGCTTTACCCGCTGTGGGGGC
>CCDC101_HsgRNA21
CATGGATCAGGGCGCGGTAGAAGCAGGTAG
>CCDC101_HsgRNA22
AGAAGCAGGTAGTCTGGGGATACAGGGCCA
>CCDC101_HsgRNA23
ACGAGCAGTGGATCCTGGCCGAGGTGGTCA
>CCDC101_HsgRNA24
AGCGGGATGACACGGCGCCGGCTCAGGGTG
>CCDC101_HsgRNA25
TGGAGGCTGCTTTACCCGCTGTGGGGGCGC
>CCDC101_HsgRNA26
TCCATCAGCTGATCAAACAAACCCAGGTAA
>CCDC101_HsgRNA27
CGTCTCCGGGTTGGCCTTCCACTGGGGCAG
>CCDC101_HsgRNA28
TATCTCTGAGCCACATTGAGGGGAGGGGAA
>CCDC101_HsgRNA29
CAGGTCTGGCCACGTAGTCTCCTGAGGCAG
>CCDC101_HsgRNA30
GCGATCTTGTCCAGAGCTTTCCGAAGGATG

(5) $\mathbb{S}_5^+$: 370 high on-target activity sgRNAs targeting MED12

>MED12_HsgRNA1
TGCTAAACTGCCCACCTCAGTCCAGGGACA
>MED12_HsgRNA2
TGCTAAACTGCCCACCTCAGTCCAGGGACA
>MED12_HsgRNA3
CGATAAATGCCAGGAAGCTACTGCAGGTAT
>MED12_HsgRNA4
CGATAAATGCCAGGAAGCTACTGCAGGTAT
>MED12_HsgRNA5
TCAAAACACTCAAGCACCCAGGTCAGGAAC
>MED12_HsgRNA6
TCAAAACACTCAAGCACCCAGGTCAGGAAC
>MED12_HsgRNA7
GAGGAACAGAAGAACTTCCAGAGGAGGAGG
>MED12_HsgRNA8
CTTCAACCCCTCAAAAAGATCCCAGGGCGA
>MED12_HsgRNA9
AAGGAAGACTGGCGCATGGTCCACTGGTCC
>MED12_HsgRNA10
AAGGAAGACTGGCGCATGGTCCACTGGTCC
>MED12_HsgRNA11
AAGCAAGGATACAGCGCTCTGCAGAGGAGC
>MED12_HsgRNA12
CGCAAAGGGACAGCAGAAACTGGTGGGTTT
>MED12_HsgRNA13
CGCAAAGGGACAGCAGAAACTGGTGGGTTT
>MED12_HsgRNA14
TGAAAAGGTGAAGGAGGATGCGGCAGGTAA
>MED12_HsgRNA15
TGAAAAGGTGAAGGAGGATGCGGCAGGTAA
>MED12_HsgRNA16
GCCAAATACACAGTGCCTGTGATGCGGGCT
>MED12_HsgRNA17
GCCAAATACACAGTGCCTGTGATGCGGGCT
>MED12_HsgRNA18
GCAAACACGGCTCCATCCACGATGCGGTTC
>MED12_HsgRNA19
GCAAACACTGCCGAGCGATGAGGATGGCAA
>MED12_HsgRNA20
GCAAACACTGCCGAGCGATGAGGATGGCAA
>MED12_HsgRNA21
GTGTACAGAAGTAGGCAAGCCGGCGGGACA

>MED12_HsgRNA22
GTGTACAGAAGTAGGCAAGCCGGCGGGACA
>MED12_HsgRNA23
CTGGACAGACATGAGTTCCTGACCTGGGTG
>MED12_HsgRNA24
CTGGACAGACATGAGTTCCTGACCTGGGTG
>MED12_HsgRNA25
GTGTACAGATCATAGAGATAAGCAAGGATA
>MED12_HsgRNA26
GTGTACAGATCATAGAGATAAGCAAGGATA
>MED12_HsgRNA27
GGATACAGCTGAGGCCAAAAACCAGGGGCC
>MED12_HsgRNA28
GGATACAGCTGAGGCCAAAAACCAGGGGCC
>MED12_HsgRNA29
AGGCACAGGTCATCTTAATGAGCCAGGCAG
>MED12_HsgRNA30
AGGCACAGGTCATCTTAATGAGCCAGGCAG
>MED12_HsgRNA31
TGTTACCCTCTGGCATGGGCAGGTTGGACG
>MED12_HsgRNA32
TGTTACCCTCTGGCATGGGCAGGTTGGACG
>MED12_HsgRNA33
TGCCACCTCTACATCATGGGGCAAGGGCCC
>MED12_HsgRNA34
TGCCACCTCTACATCATGGGGCAAGGGCCC
>MED12_HsgRNA35
ACTGACGGCCTTGAATGTAAAACAAGGTTT
>MED12_HsgRNA36
ACTGACGGCCTTGAATGTAAAACAAGGTTT
>MED12_HsgRNA37
TGGCACTCACCTGCAGGTAGTGGCTGGTTC
>MED12_HsgRNA38
CTGCACTCAGTGACTTGCAATAGCCGGTCA
>MED12_HsgRNA39
TAAGACTCTTGCCTAGCCCCGTGTAGGTGA
>MED12_HsgRNA40
TAAGACTCTTGCCTAGCCCCGTGTAGGTGA
>MED12_HsgRNA41
TCCCACTGCCCTTATCAGGTCTCCCGGAAT
>MED12_HsgRNA42
TCCCACTGCCCTTATCAGGTCTCCCGGAAT
>MED12_HsgRNA43
GTATACTTGCACTCTCATCTCCCGAGGGGA

>MED12_HsgRNA44
GTATACTTGCACTCTCATCTCCCGAGGGGA
>MED12_HsgRNA45
GTGCAGAATGGCTAGGAGTGCTTAAGGCCT
>MED12_HsgRNA46
GTGCAGAATGGCTAGGAGTGCTTAAGGCCT
>MED12_HsgRNA47
GAAGAGACATGTTGACCCTTTCATGGGTGA
>MED12_HsgRNA48
GAAGAGACATGTTGACCCTTTCATGGGTGA
>MED12_HsgRNA49
ACGGAGACTGGCCCTGCAGCTGGATGGTGT
>MED12_HsgRNA50
ACGGAGACTGGCCCTGCAGCTGGATGGTGT
>MED12_HsgRNA51
GACCAGATGGCACAGGTCTTTGAGGGGTAA
>MED12_HsgRNA52
GACCAGATGGCACAGGTCTTTGAGGGGTAA
>MED12_HsgRNA53
CACCAGCATTAAGGAGTGAAGGGATGGCAG
>MED12_HsgRNA54
CACCAGCATTAAGGAGTGAAGGGATGGCAG
>MED12_HsgRNA55
AATGAGCCAGGCAGCCCGCATCACAGGCAC
>MED12_HsgRNA56
AATGAGCCAGGCAGCCCGCATCACAGGCAC
>MED12_HsgRNA57
CAATAGCCGGTCAGCTCTGCACACAGGATT
>MED12_HsgRNA58
CAATAGCCGGTCAGCTCTGCACACAGGATT
>MED12_HsgRNA59
ATGGAGCCGTGTTTGCTGTTCTCAAGGCTG
>MED12_HsgRNA60
ATGGAGCCGTGTTTGCTGTTCTCAAGGCTG
>MED12_HsgRNA61
ACACAGCCTTGAGAACAGCAAACACGGCTC
>MED12_HsgRNA62
ACACAGCCTTGAGAACAGCAAACACGGCTC
>MED12_HsgRNA63
TGTTAGGAGTTACTCACCCATGAAAGGGTC
>MED12_HsgRNA64
TGTTAGGAGTTACTCACCCATGAAAGGGTC
>MED12_HsgRNA65
AATGAGGATGGGGAAAACCCCCAGCGGCAG

>MED12_HsgRNA66
AATGAGGATGGGGAAAACCCCCAGCGGCAG
>MED12_HsgRNA67
ACCAAGGCACTAGGACAGCACAGGAGGATG
>MED12_HsgRNA68
ACCAAGGCACTAGGACAGCACAGGAGGATG
>MED12_HsgRNA69
CTGAAGGCAGCAGCAGCAGCAAGCTGGAAG
>MED12_HsgRNA70
ACTGAGGTGGGCAGTTTAGCAATGAGGGGG
>MED12_HsgRNA71
CCAAAGTATGAAGTACCCGTCCAATGGTGA
>MED12_HsgRNA72
CCAAAGTATGAAGTACCCGTCCAATGGTGA
>MED12_HsgRNA73
GTTCAGTCTGCATACCTGTCCCGCCGGCTT
>MED12_HsgRNA74
GTTCAGTCTGCATACCTGTCCCGCCGGCTT
>MED12_HsgRNA75
TGAGAGTGCAAGTATACATGTTGTGGGAGA
>MED12_HsgRNA76
GCGCATAAAGCGCATTCTCCAGGTAGGCCA
>MED12_HsgRNA77
GCGCATAAAGCGCATTCTCCAGGTAGGCCA
>MED12_HsgRNA78
CCAAATACACAGTGCCTGTGATGCGGGCTG
>MED12_HsgRNA79
CCAAATACACAGTGCCTGTGATGCGGGCTG
>MED12_HsgRNA80
CTCCATCCACGATGCGGTTCTGGGAGGCAG
>MED12_HsgRNA81
CGCAATCCTGTGTGCAGAGCTGACCGGCTA
>MED12_HsgRNA82
CGCAATCCTGTGTGCAGAGCTGACCGGCTA
>MED12_HsgRNA83
CCCCATGATGTAGAGGTGGCAATCCGGCAG
>MED12_HsgRNA84
CCCCATGATGTAGAGGTGGCAATCCGGCAG
>MED12_HsgRNA85
CAGGATTGCGATGTCATTCACCCTAGGGAA
>MED12_HsgRNA86
CAGGATTGCGATGTCATTCACCCTAGGGAA
>MED12_HsgRNA87
TGCCATTGTTAGAGGAGCAGCACAAGGCCT

>MED12_HsgRNA88
TGCCATTGTTAGAGGAGCAGCACAAGGCCT
>MED12_HsgRNA89
CCACCAAACAGAAGATCTCGCCCTGGGATC
>MED12_HsgRNA90
ACCCCAAACAGTACGACCAACCGCTGGTTG
>MED12_HsgRNA91
ACCCCAAACAGTACGACCAACCGCTGGTTG
>MED12_HsgRNA92
TTAGCAAAGATATCTTCAGCAGTGGGGAAG
>MED12_HsgRNA93
GCTTCAACCCCTCAAAAAGATCCCAGGGCG
>MED12_HsgRNA94
GAGGCAAGTGGTATGACATGCCAAGGGCAA
>MED12_HsgRNA95
GAGGCAAGTGGTATGACATGCCAAGGGCAA
>MED12_HsgRNA96
TAGGCAAGTGGTCAAGTGGTGAGCCGGTCT
>MED12_HsgRNA97
TAGGCAAGTGGTCAAGTGGTGAGCCGGTCT
>MED12_HsgRNA98
GCAGCACAGCGAATCAGATCTTCCAGGAGC
>MED12_HsgRNA99
GCAGCACAGCGAATCAGATCTTCCAGGAGC
>MED12_HsgRNA100
TTAACACATGTCCCTGGACTGAGGTGGGCA
>MED12_HsgRNA101
AGTTCACCAGCATTAAGGAGTGAAGGGATG
>MED12_HsgRNA102
AGTTCACCAGCATTAAGGAGTGAAGGGATG
>MED12_HsgRNA103
TTGCCACCTCTACATCATGGGGCAAGGGCC
>MED12_HsgRNA104
TTGCCACCTCTACATCATGGGGCAAGGGCC
>MED12_HsgRNA105
CACCCAGAACCAGCCACTACCTGCAGGTGA
>MED12_HsgRNA106
TGGTCAGACATACCTGCTGAGTGAAGGCAC
>MED12_HsgRNA107
TGGTCAGACATACCTGCTGAGTGAAGGCAC
>MED12_HsgRNA108
TGGACAGACATGAGTTCCTGACCTGGGTGC
>MED12_HsgRNA109
TGGACAGACATGAGTTCCTGACCTGGGTGC

>MED12_HsgRNA110
GATACAGCTGAGGCCAAAAACCAGGGGCCG
>MED12_HsgRNA111
GATACAGCTGAGGCCAAAAACCAGGGGCCG
>MED12_HsgRNA112
GGGCCAGTCTCCGTGTACAGAAGTAGGCAA
>MED12_HsgRNA113
CAGTCAGTGAGTAGTGCCAAACCAAGGCAC
>MED12_HsgRNA114
CAGTCAGTGAGTAGTGCCAAACCAAGGCAC
>MED12_HsgRNA115
TCAGCAGTGGGGAAGGCTTCAGGCCGGTTG
>MED12_HsgRNA116
TCAGCAGTGGGGAAGGCTTCAGGCCGGTTG
>MED12_HsgRNA117
GCCTCATCCTCAACCAGGACCAGATGGCAC
>MED12_HsgRNA118
GCCTCATCCTCAACCAGGACCAGATGGCAC
>MED12_HsgRNA119
AGAACATCGCCAAGGCCACAATCGAGGTTT
>MED12_HsgRNA120
AGAACATCGCCAAGGCCACAATCGAGGTTT
>MED12_HsgRNA121
CTAGCATCTCGCAAGGTAGCATGGAGGAAA
>MED12_HsgRNA122
CTAGCATCTCGCAAGGTAGCATGGAGGAAA
>MED12_HsgRNA123
GAAGCATGGGATGAACCGGTCCGATGGCTC
>MED12_HsgRNA124
TCCACCAAACAGAAGATCTCGCCCTGGGAT
>MED12_HsgRNA125
TGTTCCAAACCAGCCCCAAGAGAGTGGTGC
>MED12_HsgRNA126
TGTTCCAAACCAGCCCCAAGAGAGTGGTGC
>MED12_HsgRNA127
ATGACCAACACCAGGTCACGGCTCAGGTGT
>MED12_HsgRNA128
ATGACCAACACCAGGTCACGGCTCAGGTGT
>MED12_HsgRNA129
CAAACCAAGGCACTAGGACAGCACAGGAGG
>MED12_HsgRNA130
CAAACCAAGGCACTAGGACAGCACAGGAGG
>MED12_HsgRNA131
TGACCCAGAGCACAAGGAGGCTGAAGGCAG

>MED12_HsgRNA132
TGACCCAGAGCACAAGGAGGCTGAAGGCAG
>MED12_HsgRNA133
GTAGCCAGCGAGTCATGAAAAGATAGGTCA
>MED12_HsgRNA134
GTAGCCAGCGAGTCATGAAAAGATAGGTCA
>MED12_HsgRNA135
GCAGCCATGAGTGCAACCAGCGGTTGGTCG
>MED12_HsgRNA136
GCAGCCATGAGTGCAACCAGCGGTTGGTCG
>MED12_HsgRNA137
TAGGCCCACACCTGAGCCGTGACCTGGTGT
>MED12_HsgRNA138
TAGGCCCACACCTGAGCCGTGACCTGGTGT
>MED12_HsgRNA139
TTCTCCCCTACTATGCCCTGTGAGGGGAAG
>MED12_HsgRNA140
TGGGCCCGCCTAGTACCTACCTGTAGGATA
>MED12_HsgRNA141
TGGGCCCGCCTAGTACCTACCTGTAGGATA
>MED12_HsgRNA142
AATGCCCTTATGCACGTCTGTGTGGGGCAC
>MED12_HsgRNA143
AATGCCCTTATGCACGTCTGTGTGGGGCAC
>MED12_HsgRNA144
TGCTCCTCTCCTCGAGCCACTCGCCGGTCC
>MED12_HsgRNA145
ACTCCCTCTTGGAGAACATCGCCAAGGCCA
>MED12_HsgRNA146
ACTCCCTCTTGGAGAACATCGCCAAGGCCA
>MED12_HsgRNA147
CACACCTGAGCCGTGACCTGGTGTTGGTCA
>MED12_HsgRNA148
CACACCTGAGCCGTGACCTGGTGTTGGTCA
>MED12_HsgRNA149
TCCTCCTGCAGTTTCTGGATACACAGGCTC
>MED12_HsgRNA150
TCCTCCTGCAGTTTCTGGATACACAGGCTC
>MED12_HsgRNA151
GGAGCCTGTGTATCCAGAAACTGCAGGAGG
>MED12_HsgRNA152
GGAGCCTGTGTATCCAGAAACTGCAGGAGG
>MED12_HsgRNA153
GACTCCTTACCTCCCTCTACAGCCAGGTGC

>MED12_HsgRNA154
CTTGCCTTTGGAGCCCCTGGTCCCCGGCCT
>MED12_HsgRNA155
GAGTCGAGGGTGTGCTGCTAGTTGGGGGCT
>MED12_HsgRNA156
CTGCCGATGACCCAGAGCACAAGGAGGCTG
>MED12_HsgRNA157
CTGCCGATGACCCAGAGCACAAGGAGGCTG
>MED12_HsgRNA158
GATGCGGCAGGTAAGCCGGGCCCCTGGCTC
>MED12_HsgRNA159
TGAGCGTGCTCATCAATGGGACATTGGCTG
>MED12_HsgRNA160
TGGTCGTGTCTTCACAGTACTCTGGGGAAT
>MED12_HsgRNA161
TGGTCGTGTCTTCACAGTACTCTGGGGAAT
>MED12_HsgRNA162
TCTTCTCAAAACACTCAAGCACCCAGGTCA
>MED12_HsgRNA163
GCTTCTCAAATCCTCGGATCTGGTGGGCAG
>MED12_HsgRNA164
GCAGCTCACACCTTCACCTACACGGGGCTA
>MED12_HsgRNA165
TGGCCTCAGCTGTATCCTACAGGTAGGTAC
>MED12_HsgRNA166
TGGCCTCAGCTGTATCCTACAGGTAGGTAC
>MED12_HsgRNA167
GCAGCTCCAAGGAAGACTGGCGCATGGTCC
>MED12_HsgRNA168
GCAGCTCCAAGGAAGACTGGCGCATGGTCC
>MED12_HsgRNA169
GCTCCTCCTGGAGATCATCATCAGCGGCAC
>MED12_HsgRNA170
GCTCCTCCTGGAGATCATCATCAGCGGCAC
>MED12_HsgRNA171
TACTCTCTACCTGAAACATGAACATGGCCA
>MED12_HsgRNA172
TACTCTCTACCTGAAACATGAACATGGCCA
>MED12_HsgRNA173
CCCTCTGGCATGGGCAGGTTGGACGGGGCA
>MED12_HsgRNA174
CCCTCTGGCATGGGCAGGTTGGACGGGGCA
>MED12_HsgRNA175
GTGGCTGGTCGTAAAGAACCCCAAGGGTCC

>MED12_HsgRNA176
TTCGCTGGTCTTTCGATAAATGCCAGGAAG
>MED12_HsgRNA177
TTCGCTGGTCTTTCGATAAATGCCAGGAAG
>MED12_HsgRNA178
CTGGCTGTCTCCACAGAGATGTTGCGGCCA
>MED12_HsgRNA179
CCGCCTGTCTCTTCTCCAGGAGCTTGGCTA
>MED12_HsgRNA180
CCGCCTGTCTCTTCTCCAGGAGCTTGGCTA
>MED12_HsgRNA181
CAGGCTGTGTGGCGTCGTGAAGCATGGGAT
>MED12_HsgRNA182
CTGACTGTTGGAAAACCTCGATTGTGGCCT
>MED12_HsgRNA183
CTGACTGTTGGAAAACCTCGATTGTGGCCT
>MED12_HsgRNA184
TATACTTGCACTCTCATCTCCCGAGGGGAC
>MED12_HsgRNA185
TATACTTGCACTCTCATCTCCCGAGGGGAC
>MED12_HsgRNA186
CGTACTTGGCATAGACATCCAGACTGGCTG
>MED12_HsgRNA187
CGTACTTGGCATAGACATCCAGACTGGCTG
>MED12_HsgRNA188
CGTTCTTTGCGTGAAGAGGAACCCAGGTGC
>MED12_HsgRNA189
CGTTCTTTGCGTGAAGAGGAACCCAGGTGC
>MED12_HsgRNA190
TCATGAAAAGATAGGTCACTGACCTGGAGG
>MED12_HsgRNA191
TCATGAAAAGATAGGTCACTGACCTGGAGG
>MED12_HsgRNA192
TGAAGAACACCATCTACTGCAACGTGGAGC
>MED12_HsgRNA193
TGAAGAACACCATCTACTGCAACGTGGAGC
>MED12_HsgRNA194
AGAAGAACTTCCAGAGGAGGAGGGAGGAGG
>MED12_HsgRNA195
GCAGGAAGCCCCAAGTGAACCAGAAGGATA
>MED12_HsgRNA196
AGATGAGAAGGGTTCCATCGCCTCTGGCTC
>MED12_HsgRNA197
GCAGGAGGAGCGGATTCCTACTGTAGGCTT

>MED12_HsgRNA198
GCAGGAGGAGCGGATTCCTACTGTAGGCTT
>MED12_HsgRNA199
GAAGGAGGATGCGGCAGGTAAGCCGGGCCC
>MED12_HsgRNA200
GAAGGAGGATGCGGCAGGTAAGCCGGGCCC
>MED12_HsgRNA201
AGTCGAGGGTGTGCTGCTAGTTGGGGGCTG
>MED12_HsgRNA202
AGTCGAGGGTGTGCTGCTAGTTGGGGGCTG
>MED12_HsgRNA203
GCTTGATCATGAGCTGCAGCTCCAAGGAAG
>MED12_HsgRNA204
GCTTGATCATGAGCTGCAGCTCCAAGGAAG
>MED12_HsgRNA205
TGATGATGATCTCCAGGAGGAGCATGGCCC
>MED12_HsgRNA206
TGATGATGATCTCCAGGAGGAGCATGGCCC
>MED12_HsgRNA207
AGGCGATGGAACCCTTCTCATCTGCGGCTT
>MED12_HsgRNA208
AGGCGATGGAACCCTTCTCATCTGCGGCTT
>MED12_HsgRNA209
TTTGGATTGGGACCTAGCAAGGATGGGCAT
>MED12_HsgRNA210
TTTGGATTGGGACCTAGCAAGGATGGGCAT
>MED12_HsgRNA211
AGGAGCAAACACTGCCGAGCGATGAGGATG
>MED12_HsgRNA212
AGGAGCAAACACTGCCGAGCGATGAGGATG
>MED12_HsgRNA213
TATTGCAAGTCACTGAGTGCAGAATGGCTA
>MED12_HsgRNA214
TATTGCAAGTCACTGAGTGCAGAATGGCTA
>MED12_HsgRNA215
CGGGGCAATAGGCAAGTGGTCAAGTGGTGA
>MED12_HsgRNA216
CGGGGCAATAGGCAAGTGGTCAAGTGGTGA
>MED12_HsgRNA217
TTAAGCAATTCATCCTCTCCAGGGCGGATC
>MED12_HsgRNA218
TTAAGCAATTCATCCTCTCCAGGGCGGATC
>MED12_HsgRNA219
GAAGGCACTGTTACCCTCTGGCATGGGCAG

>MED12_HsgRNA220
GAAGGCACTGTTACCCTCTGGCATGGGCAG
>MED12_HsgRNA221
TCATGCAGCCATGAGTGCAACCAGCGGTTG
>MED12_HsgRNA222
TCATGCAGCCATGAGTGCAACCAGCGGTTG
>MED12_HsgRNA223
TGCCGCAGGACAGCCACGATGCACAGGCAC
>MED12_HsgRNA224
TGCCGCAGGACAGCCACGATGCACAGGCAC
>MED12_HsgRNA225
TTCTGCATTGGTAAGCGCACAGGACGGTAT
>MED12_HsgRNA226
TTCTGCATTGGTAAGCGCACAGGACGGTAT
>MED12_HsgRNA227
CAATGCCCTTATGCACGTCTGTGTGGGGCA
>MED12_HsgRNA228
CAATGCCCTTATGCACGTCTGTGTGGGGCA
>MED12_HsgRNA229
TGCAGCGCAGCACCCAGCAGACCACGGAGT
>MED12_HsgRNA230
TAGAGCGCTCTGGTGTATGGCTGGTGGCCC
>MED12_HsgRNA231
TAGAGCGCTCTGGTGTATGGCTGGTGGCCC
>MED12_HsgRNA232
AGCTGCGGTGTCTTGAAAAGGTGAAGGAGG
>MED12_HsgRNA233
AGCTGCGGTGTCTTGAAAAGGTGAAGGAGG
>MED12_HsgRNA234
ACCAGCGGTTGGTCGTACTGTTTGGGGTGG
>MED12_HsgRNA235
GACTGCTCACACCATCCAGCTGCAGGGCCA
>MED12_HsgRNA236
ATGAGCTGCAGCTCCAAGGAAGACTGGCGC
>MED12_HsgRNA237
ATGAGCTGCAGCTCCAAGGAAGACTGGCGC
>MED12_HsgRNA238
GGCTGCTGGGGAAGAATTGGAGAAGGGTCA
>MED12_HsgRNA239
GGCTGCTGGGGAAGAATTGGAGAAGGGTCA
>MED12_HsgRNA240
CGTGGCTGGTCGTAAAGAACCCCAAGGGTC
>MED12_HsgRNA241
CGTGGCTGGTCGTAAAGAACCCCAAGGGTC

>MED12_HsgRNA242
CTGTGCTGTCCTAGTGCCTTGGTTTGGCAC
>MED12_HsgRNA243
CCTTGCTTCTTCATGCAGGCTGTGTGGCGT
>MED12_HsgRNA244
CCTTGCTTCTTCATGCAGGCTGTGTGGCGT
>MED12_HsgRNA245
ATGCGCTTTATGCGCTGCCGCTGGGGGTTT
>MED12_HsgRNA246
GGGAGGAAGGTGAAACTGACCTGTTGGCAG
>MED12_HsgRNA247
GGGAGGAAGGTGAAACTGACCTGTTGGCAG
>MED12_HsgRNA248
TGAAGGAGGATGCGGCAGGTAAGCCGGGCC
>MED12_HsgRNA249
TGAAGGAGGATGCGGCAGGTAAGCCGGGCC
>MED12_HsgRNA250
CGGGGGAGGCGCTCACCTCTGTCTTGGTAG
>MED12_HsgRNA251
GTTAGGAGTTACTCACCCATGAAAGGGTCA
>MED12_HsgRNA252
GTTAGGAGTTACTCACCCATGAAAGGGTCA
>MED12_HsgRNA253
GGCAGGATCATCAAAGGGAGAGGGAGGCCG
>MED12_HsgRNA254
TCCAGGCACTACTCACATTGTTAGGGGTCT
>MED12_HsgRNA255
ATGAGGCAGGCATGATAGTGCCGCAGGACA
>MED12_HsgRNA256
ATGAGGCAGGCATGATAGTGCCGCAGGACA
>MED12_HsgRNA257
CATGGGCAGGTTGGACGGGGCAATAGGCAA
>MED12_HsgRNA258
CATGGGCAGGTTGGACGGGGCAATAGGCAA
>MED12_HsgRNA259
CGCCGGCTTGCCTACTTCTGTACACGGAGA
>MED12_HsgRNA260
CGCCGGCTTGCCTACTTCTGTACACGGAGA
>MED12_HsgRNA261
TTCTGGGAGGCAGCCAGCAGGTGGCGGTCG
>MED12_HsgRNA262
GTGTGGGGCCTCTATCACAGAACTTGGACC
>MED12_HsgRNA263
TTTGGGGTCCTGAGGGTAAACATCGGGAGG

>MED12_HsgRNA264
CTGAGGTGGGCAGTTTAGCAATGAGGGGGG
>MED12_HsgRNA265
ACCTGGTGTTGGTCATAATGTGAAAGGTGC
>MED12_HsgRNA266
ACCTGGTGTTGGTCATAATGTGAAAGGTGC
>MED12_HsgRNA267
ATGCGGTTCTGGGAGGCAGCCAGCAGGTGG
>MED12_HsgRNA268
ATGCGGTTCTGGGAGGCAGCCAGCAGGTGG
>MED12_HsgRNA269
TTCAGTAAGAAGGAAGAGGTGTTTGGGTAC
>MED12_HsgRNA270
AGTGGTAGGGGTCCGTACTCAGCATGGGAG
>MED12_HsgRNA271
AGTGGTAGGGGTCCGTACTCAGCATGGGAG
>MED12_HsgRNA272
AGATGTCATCACGTGTGAGCCACAGGGCTC
>MED12_HsgRNA273
AGATGTCATCACGTGTGAGCCACAGGGCTC
>MED12_HsgRNA274
CCCCGTCCAACCTGCCCATGCCAGAGGGTA
>MED12_HsgRNA275
CCCCGTCCAACCTGCCCATGCCAGAGGGTA
>MED12_HsgRNA276
TCTGGTCCTGGTTGAGGATGAGGCAGGCAT
>MED12_HsgRNA277
TGTAGTGAACAGGACTCTGAGCCAGGGGCC
>MED12_HsgRNA278
TGTAGTGAACAGGACTCTGAGCCAGGGGCC
>MED12_HsgRNA279
CTGAGTGAAGGCACTGTTACCCTCTGGCAT
>MED12_HsgRNA280
CTGAGTGAAGGCACTGTTACCCTCTGGCAT
>MED12_HsgRNA281
ATGGGTGGCGTACTGCACGTGTCGTGGCTG
>MED12_HsgRNA282
ATGGGTGGCGTACTGCACGTGTCGTGGCTG
>MED12_HsgRNA283
TGAGGTGGGCAGTTTAGCAATGAGGGGGGC
>MED12_HsgRNA284
TGAGGTGGGCAGTTTAGCAATGAGGGGGGC
>MED12_HsgRNA285
CTCCGTGTACAGAAGTAGGCAAGCCGGCGG

>MED12_HsgRNA286
CTCCGTGTACAGAAGTAGGCAAGCCGGCGG
>MED12_HsgRNA287
GCCTGTGTATCCAGAAACTGCAGGAGGACA
>MED12_HsgRNA288
GCCTGTGTATCCAGAAACTGCAGGAGGACA
>MED12_HsgRNA289
TGCGGTGTCTTGAAAAGGTGAAGGAGGATG
>MED12_HsgRNA290
TGCGGTGTCTTGAAAAGGTGAAGGAGGATG
>MED12_HsgRNA291
ATTTGTTCTTTAAATGGCTACAGGAGGTGT
>MED12_HsgRNA292
ATTTGTTCTTTAAATGGCTACAGGAGGTGT
>MED12_HsgRNA293
ACTTGTTGTGGCCCTGGCAGGTGGGGGGCA
>MED12_HsgRNA294
TTGCTAAACTGCCCACCTCAGTCCAGGGAC
>MED12_HsgRNA295
TTGCTAAACTGCCCACCTCAGTCCAGGGAC
>MED12_HsgRNA296
CCTTTAACACATGTCCCTGGACTGAGGTGG
>MED12_HsgRNA297
CCTTTAACACATGTCCCTGGACTGAGGTGG
>MED12_HsgRNA298
AGTTTAAGCAATTCATCCTCTCCAGGGCGG
>MED12_HsgRNA299
AGTTTAAGCAATTCATCCTCTCCAGGGCGG
>MED12_HsgRNA300
CGTGTACAGAAGTAGGCAAGCCGGCGGGAC
>MED12_HsgRNA301
CGTGTACAGAAGTAGGCAAGCCGGCGGGAC
>MED12_HsgRNA302
AGGATACAGCTGAGGCCAAAAACCAGGGGC
>MED12_HsgRNA303
CTACTAGCCTGTGCCTGTGCATCGTGGCTG
>MED12_HsgRNA304
CTACTAGCCTGTGCCTGTGCATCGTGGCTG
>MED12_HsgRNA305
GTGGTAGGGGTCCGTACTCAGCATGGGAGC
>MED12_HsgRNA306
GTGGTAGGGGTCCGTACTCAGCATGGGAGC
>MED12_HsgRNA307
CTGCTAGTTGGGGGCTGAGGAGCAGGGGTG

>MED12_HsgRNA308
CCTCTATCACAGAACTTGGACCAGTGGACC
>MED12_HsgRNA309
CCTCTATCACAGAACTTGGACCAGTGGACC
>MED12_HsgRNA310
GTGCTATGGTGGTAGCCAAGCTCCTGGAGA
>MED12_HsgRNA311
GTGCTATGGTGGTAGCCAAGCTCCTGGAGA
>MED12_HsgRNA312
TAGTTCACCAGCATTAAGGAGTGAAGGGAT
>MED12_HsgRNA313
TAGTTCACCAGCATTAAGGAGTGAAGGGAT
>MED12_HsgRNA314
CAAGTCACTGAGTGCAGAATGGCTAGGAGT
>MED12_HsgRNA315
CAAGTCACTGAGTGCAGAATGGCTAGGAGT
>MED12_HsgRNA316
AGAATCAGAAGCCGCAGATGAGAAGGGTTC
>MED12_HsgRNA317
AGAATCAGAAGCCGCAGATGAGAAGGGTTC
>MED12_HsgRNA318
GCTGTCAGCTGCAAGCGTTCTGGTCGGCAT
>MED12_HsgRNA319
GCTGTCAGCTGCAAGCGTTCTGGTCGGCAT
>MED12_HsgRNA320
TGGGTCATCGGCAGGATCATCAAAGGGAGA
>MED12_HsgRNA321
GGGCTCCAAAGGCAAGGTCCCCTCGGGAGA
>MED12_HsgRNA322
GGGCTCCAAAGGCAAGGTCCCCTCGGGAGA
>MED12_HsgRNA323
CCCGTCCAACCTGCCCATGCCAGAGGGTAA
>MED12_HsgRNA324
CCCGTCCAACCTGCCCATGCCAGAGGGTAA
>MED12_HsgRNA325
TGCCTCCCAGAACCGCATCGTGGATGGAGC
>MED12_HsgRNA326
TGCCTCCCAGAACCGCATCGTGGATGGAGC
>MED12_HsgRNA327
GCCTTCCCCAGACAAGCCTACAGTAGGAAT
>MED12_HsgRNA328
ACCCTCTGGCATGGGCAGGTTGGACGGGGC
>MED12_HsgRNA329
ACCCTCTGGCATGGGCAGGTTGGACGGGGC

>MED12_HsgRNA330
TTGTTCTGTCATCTTGCAGCGTTGTGGAGA
>MED12_HsgRNA331
TTGTTCTGTCATCTTGCAGCGTTGTGGAGA
>MED12_HsgRNA332
TCCTTCTTACTGAAAATGGGGACCTGGATG
>MED12_HsgRNA333
GTCTTGAAAAGGTGAAGGAGGATGCGGCAG
>MED12_HsgRNA334
GTCTTGAAAAGGTGAAGGAGGATGCGGCAG
>MED12_HsgRNA335
GTAGTGAACAGGACTCTGAGCCAGGGGCCC
>MED12_HsgRNA336
GTAGTGAACAGGACTCTGAGCCAGGGGCCC
>MED12_HsgRNA337
GGATTGAGCTGCGGTGTCTTGAAAAGGTGA
>MED12_HsgRNA338
AGGCTGAGCTGCTTCTCAAATCCTCGGATC
>MED12_HsgRNA339
AGGCTGAGCTGCTTCTCAAATCCTCGGATC
>MED12_HsgRNA340
TGGCTGCCTCCCAGAACCGCATCGTGGATG
>MED12_HsgRNA341
TGGCTGCCTCCCAGAACCGCATCGTGGATG
>MED12_HsgRNA342
TTGCTGCTCTACCACACACACCTGAGGCCC
>MED12_HsgRNA343
CTGATGCTGAGTGAATATTCCATGAGGTCG
>MED12_HsgRNA344
CTGATGCTGAGTGAATATTCCATGAGGTCG
>MED12_HsgRNA345
AAGGTGCTGGGGAATAGTACCTGGGGGATG
>MED12_HsgRNA346
AAGGTGCTGGGGAATAGTACCTGGGGGATG
>MED12_HsgRNA347
CCATTGGACGGGTACTTCATACTTTGGAAG
>MED12_HsgRNA348
CCTCTGGCATGGGCAGGTTGGACGGGGCAA
>MED12_HsgRNA349
CCTCTGGCATGGGCAGGTTGGACGGGGCAA
>MED12_HsgRNA350
TTTTTGGCCTCAGCTGTATCCTACAGGTAG
>MED12_HsgRNA351
TTTTTGGCCTCAGCTGTATCCTACAGGTAG

>MED12_HsgRNA352
AAAATGGGAGCACTGGGAGCAGAAAGGGAG
>MED12_HsgRNA353
AAAATGGGAGCACTGGGAGCAGAAAGGGAG
>MED12_HsgRNA354
GTTCTGGTCGGCATCGTGCTATGGTGGTAG
>MED12_HsgRNA355
GTTCTGGTCGGCATCGTGCTATGGTGGTAG
>MED12_HsgRNA356
TGCCTGTGCATCGTGGCTGTCCTGCGGCAC
>MED12_HsgRNA357
TGCCTGTGCATCGTGGCTGTCCTGCGGCAC
>MED12_HsgRNA358
CCCTTTAGCAGAGTCAGGGCATGTTGGGAC
>MED12_HsgRNA359
CACATTATGACCAACACCAGGTCACGGCTC
>MED12_HsgRNA360
CACATTATGACCAACACCAGGTCACGGCTC
>MED12_HsgRNA361
ACCTTTCACATTATGACCAACACCAGGTCA
>MED12_HsgRNA362
ACCTTTCACATTATGACCAACACCAGGTCA
>MED12_HsgRNA363
AGCGTTCTGGTCGGCATCGTGCTATGGTGG
>MED12_HsgRNA364
AGCGTTCTGGTCGGCATCGTGCTATGGTGG
>MED12_HsgRNA365
ATACTTGCACTCTCATCTCCCGAGGGGACC
>MED12_HsgRNA366
ATACTTGCACTCTCATCTCCCGAGGGGACC
>MED12_HsgRNA367
CCCTTTGTAACCGAATCTTTGGATTGGGAC
>MED12_HsgRNA368
CCCTTTGTAACCGAATCTTTGGATTGGGAC
>MED12_HsgRNA369
ACTTTTGTTGCCATCCTCATCGCTCGGCAG
>MED12_HsgRNA370
ACTTTTGTTGCCATCCTCATCGCTCGGCAG

(6) $\mathbb{S}_6^+$: 38 high on-target activity sgRNAs targeting TADA2B

>TADA2B_HsgRNA1
CGTGACAGACCACACCTGTCCCAGCGGAGG
>TADA2B_HsgRNA2
CATTACGTGAGCATGTACATCCACGGGAAC

>TADA2B_HsgRNA3
CTGGAGATCCAGCCGCTTTCTGTGAGGAAA
>TADA2B_HsgRNA4
GCTCAGCCACAGAGATGTCCAGCGGGGGCA
>TADA2B_HsgRNA5
CGGAAGCTGAAAGAGAGACAGCGGCGGAAG
>TADA2B_HsgRNA6
GGGGAGTCCGGGAAGCACCAACGTGGGCAG
>TADA2B_HsgRNA7
TAATAGTCTTCACAGTCACGTAGCGGGCTG
>TADA2B_HsgRNA8
TGCTCAGCCACAGAGATGTCCAGCGGGGGC
>TADA2B_HsgRNA9
CTTGCATGACATGAACTGGTACAGCGGCCT
>TADA2B_HsgRNA10
CGGGCCAAGATCCGAGAACTGCAGCGGTAC
>TADA2B_HsgRNA11
CGCGCCCACGTGGACATGTACGTGCGGAAG
>TADA2B_HsgRNA12
GCTTCCGCACGTACATGTCCACGTGGGCGC
>TADA2B_HsgRNA13
AGTACTGCGTGTACTGCCTGGCCGAGGTGA
>TADA2B_HsgRNA14
GCTGCTGGACGCCATCGAGCAGTTCGGCTT
>TADA2B_HsgRNA15
GGCGCTTCACGCTCTGGGGGCCCGAGGCCG
>TADA2B_HsgRNA16
AGCGGAAGCGCAGCGGGCTCACCTCGGCCA
>TADA2B_HsgRNA17
CTGGGACAGGTGTGGTCTGTCACGCGGTTG
>TADA2B_HsgRNA18
CAGAGAGCCCGCTGATGAGCGTCTCGGCAT
>TADA2B_HsgRNA19
AAGCGCAGCGGGCTCACCTCGGCCAGGCAG
>TADA2B_HsgRNA20
TCGAGCAGTTCGGCTTCGGAAACTGGGTGA
>TADA2B_HsgRNA21
CGCTGCAGTTCTCGGATCTTGGCCCGGAGC
>TADA2B_HsgRNA22
CTCAGCCACAGAGATGTCCAGCGGGGGCAG
>TADA2B_HsgRNA23
GGTAGCGGCGGTGGTGGCCGATCTCGGCGC
>TADA2B_HsgRNA24
CACGGCTACCAGCTGGTGGACGGCGGGCGC

>TADA2B_HsgRNA25
GTGCGGAAGCTGAAAGAGAGACAGCGGCGG
>TADA2B_HsgRNA26
CGGGGGCAGCGGGGTGGTGAGGCTGGGTGA
>TADA2B_HsgRNA27
CTCTGTGGCTGAGCAGCAGCAGCTGGGCTA
>TADA2B_HsgRNA28
CACGTAATGCTCCATCACCTCTTGGGGAGT
>TADA2B_HsgRNA29
GCATTACGTGAGCATGTACATCCACGGGAA
>TADA2B_HsgRNA30
AGTTTCCGAAGCCGAACTGCTCGATGGCGT
>TADA2B_HsgRNA31
AGCTTCCGCACGTACATGTCCACGTGGGCG
>TADA2B_HsgRNA32
GCACTCGGTGCAGCGGAAGCGCAGCGGGCT
>TADA2B_HsgRNA33
TTGGTGCTTCCCGGACTCCCCAAGAGGTGA
>TADA2B_HsgRNA34
AGGCTGGCACCAGATTGTAGTCACGGGCGA
>TADA2B_HsgRNA35
AGCATGTACATCCACGGGAACCTGGGGAAG
>TADA2B_HsgRNA36
TCGATGTCCTGGCACTCGGTGCAGCGGAAG
>TADA2B_HsgRNA37
AGTCTTCACAGTCACGTAGCGGGCTGGACT
>TADA2B_HsgRNA38
GCCCTTTGTCATCGTAGGAAGATATGGCTG

(7) $\mathbb{S}_7^+$: 22 high on-target activity sgRNAs targeting TADA1

>TADA1_HsgRNA1
AGACAACAGCTGAAACAGCCTCCTCGGTGA
>TADA1_HsgRNA2
TGACAACGCGTGAGAATGGCCAGGAGGAAA
>TADA1_HsgRNA3
CAAGAAGAACTTAAGCGAGGCCCTGGGGGA
>TADA1_HsgRNA4
CCAAAATCTGACAACGCGTGAGAATGGCCA
>TADA1_HsgRNA5
AGATACTGGGCTAACCTAAAGCTGTGGTTC
>TADA1_HsgRNA6
TCTTACTGTTTCACGTTGTCCCCCAGGGCC
>TADA1_HsgRNA7
AAGAAGAACTTAAGCGAGGCCCTGGGGGAC

>TADA1_HsgRNA8
GTTAAGAGCATAGACAGTATGTGTAGGGAT
>TADA1_HsgRNA9
TTTCAGCTGTTGTCTATGCTGTGGAGGTTG
>TADA1_HsgRNA10
AATGATAGTGACTGCTTATGAGCATGGGCT
>TADA1_HsgRNA11
GGTTCAAGCAGAAGATCAGCAAAGAGGAGT
>TADA1_HsgRNA12
CTTACTGTTTCACGTTGTCCCCCAGGGCCT
>TADA1_HsgRNA13
AGAAGAACTTAAGCGAGGCCCTGGGGGACA
>TADA1_HsgRNA14
CCAAGAAGAACTTAAGCGAGGCCCTGGGGG
>TADA1_HsgRNA15
CCTCGAGTGGGAAGCATCATTGTGTGGGAA
>TADA1_HsgRNA16
TAGGGATGACTTCCCTGTGCACCTGGGATT
>TADA1_HsgRNA17
AGGCGGCCAAGAAGAACTTAAGCGAGGCCC
>TADA1_HsgRNA18
CAATGGCGACCTTTGTGAGCGAGCTGGAGG
>TADA1_HsgRNA19
ATGATAGTGACTGCTTATGAGCATGGGCTG
>TADA1_HsgRNA20
AGCATGGGCTGGACAATGTCACCGAGGAGG
>TADA1_HsgRNA21
CTGTTTCAGCTGTTGTCTATGCTGTGGAGG
>TADA1_HsgRNA22
TCCATTCTCACAATGATTTCCTCCTGGCCA

(8) $\mathbb{S}_8^+$: 13 high on-target activity sgRNAs targeting HPRT1

>HPRT1_HsgRNA1
TTATAGCCCCCCTTGAGCACACAGAGGGCT
>HPRT1_HsgRNA2
TTGTAGCCCTCTGTGTGCTCAAGGGGGGCT
>HPRT1_HsgRNA3
GCCGAGCTGCTCACCACGACGCCAGGGCTG
>HPRT1_HsgRNA4
AATCATTATGCTGAGGATTTGGAAAGGGTG
>HPRT1_HsgRNA5
TGGTCAGGCAGTATAATCCAAAGATGGTCA
>HPRT1_HsgRNA6
TTAACTAGAATGACCAGTCAACAGGGGACA

>HPRT1_HsgRNA7
TTTGGAAAGGGTGTTTATTCCTCATGGACT
>HPRT1_HsgRNA8
TGGCGACCCGCAGCCCTGGCGTCGTGGTGA
>HPRT1_HsgRNA9
TATAGCCCCCCTTGAGCACACAGAGGGCTA
>HPRT1_HsgRNA10
TGTAGCCCTCTGTGTGCTCAAGGGGGGCTA
>HPRT1_HsgRNA11
GGCAGTATAATCCAAAGATGGTCAAGGTCG
>HPRT1_HsgRNA12
CTCCGTTATGGCGACCCGCAGCCCTGGCGT
>HPRT1_HsgRNA13
TTGCTCGAGATGTGATGAAGGAGATGGGAG

(9) $\mathbb{S}_9^+$: 31 high on-target activity sgRNAs targeting CUL3

>CUL3_HsgRNA1
TCAAAAGCATGTCTTGGTGCTGGTGGGATG
>CUL3_HsgRNA2
AAACAAGGTGAATCCGACCCAGAGAGGAAA
>CUL3_HsgRNA3
GCACAAGTAACTGGCTCTAATACACGGAAG
>CUL3_HsgRNA4
GGCCAATATCCTGTCGTGAGCACCCGGACT
>CUL3_HsgRNA5
TCAAACACAACGATGGATGAATTCAGGCAA
>CUL3_HsgRNA6
TCTTACAGTCCGGGTGCTCACGACAGGATA
>CUL3_HsgRNA7
GTTTACCACAGGCGAGGGACTGTAGGGCTC
>CUL3_HsgRNA8
GATAAGCTGAAAAAGGGAGTCAAAGGGGTA
>CUL3_HsgRNA9
CTAAATAACTTGTACATGCAACCAAGGTCT
>CUL3_HsgRNA10
GAACCAATTGTAAAGGTGGTTGAAAGGGAA
>CUL3_HsgRNA11
GAAACAGGAAGATGGATCTGAAGTTGGTGT
>CUL3_HsgRNA12
ACGCCGAGGAGAGACTCACCGGAAAGGCCC
>CUL3_HsgRNA13
AGGGCTCTAACAAGCTCTCTTTCAGGGATA
>CUL3_HsgRNA14
TTTACTTACCTGGATATAGTCAACAGGATT

>CUL3_HsgRNA15
TGCACTTTGGTGTGGCTGACTGAGTGGGCC
>CUL3_HsgRNA16
ATATGAGCATCTCAAACACAACGATGGATG
>CUL3_HsgRNA17
TGATGCACTGCCTTGACAAATCAACGGAAG
>CUL3_HsgRNA18
TAGAGCCCTACAGTCCCTCGCCTGTGGTAA
>CUL3_HsgRNA19
GTCCGGGTGCTCACGACAGGATATTGGCCC
>CUL3_HsgRNA20
TATGGGTGTATTAGGGATCATCTACGGCAA
>CUL3_HsgRNA21
TGATTAGAGACATACTAATGTACATGGTAA
>CUL3_HsgRNA22
AGCTTATCATCAATAAATAATGAGAGGTAT
>CUL3_HsgRNA23
ATAATGAGAGGTATTCAGGAGACCTGGAGT
>CUL3_HsgRNA24
GCTGTGTTGGTTTACCACAGGCGAGGGACT
>CUL3_HsgRNA25
TTTTTTAGGTAACTCAGCAGTTGAAGGCGC
>CUL3_HsgRNA26
AAGGTTCTACTTAGCCAAACACAGTGGTCG
>CUL3_HsgRNA27
TCTCTTGGATATTACAGATGACCATGGATG
>CUL3_HsgRNA28
CCTTTTTAACTGGTCCATAAAATGTGGCAT
>CUL3_HsgRNA29
CTGTTTTACATAGGTATCTTTAGGTGGTGT
>CUL3_HsgRNA30
TGTTTTTCCTCCACAGACTGAATGTGGATG
>CUL3_HsgRNA31
GCACTTTGGTGTGGCTGACTGAGTGGGCCA

(10) $\mathbb{S}_{10}^{+}$: 148 high on-target activity sgRNAs targeting NF1

>NF1_HsgRNA1
TTTTAAAAAACCTACCGTAAACTCGGGTCA
>NF1_HsgRNA2
TTTAAAACAGACTTTCTCTCTAAGTGGTTT
>NF1_HsgRNA3
ATGCAAAGCCATATGAAATTGTAGTGGACC
>NF1_HsgRNA4
TGCAAAATTAAAACGACTCCTGAAGGGTAA

>NF1_HsgRNA5
CACAAACCTGTGGCAGATACACACTGGTCC
>NF1_HsgRNA6
CTTCAAGCCCCTTTCGATTCTAGGTGGTGG
>NF1_HsgRNA7
TTCGAAGTTGAGGGGGGAATTCTGAGGAGG
>NF1_HsgRNA8
GTTAAATAGCATTGGATACAGAGCAGGACT
>NF1_HsgRNA9
GCTCAATATCGCATTACTTAATTTAGGCAG
>NF1_HsgRNA10
AGTAAATCCACTTACCTATAGGAAGGGTCA
>NF1_HsgRNA11
TGGCACACACTTCGAAGTTGAGGGGGGAAT
>NF1_HsgRNA12
AGTCACACATGCCAGAGATTGCTCAGGAAG
>NF1_HsgRNA13
AGTTACAGTTATAGATATAGACTGCGGAGA
>NF1_HsgRNA14
AGGTACATGAAAAAGAAGAATTCAAGGCTT
>NF1_HsgRNA15
ACGGACCAATGTTAAGGATCTGGTGGGTCT
>NF1_HsgRNA16
TCCTACTGCACCGATGCTGTTCTGAGGGAA
>NF1_HsgRNA17
ATACACTGGAAAAATGTCTTGCTGGGGTAA
>NF1_HsgRNA18
AGATACTTATAGCTTCTTGTCTCCAGGTCT
>NF1_HsgRNA19
CTGAACTTCGGAATTCTGCCTCTGGGGTTT
>NF1_HsgRNA20
ACTAAGAAAGTAACAACGTGGAAGAGGTAG
>NF1_HsgRNA21
GGTTAGAACCATCAGAGAGCCTTGAGGAAA
>NF1_HsgRNA22
TGCCAGAGATTGCTCAGGAAGCAATGGAGG
>NF1_HsgRNA23
TCAGAGAGCCTTGAGGAAAACCAGCGGAAC
>NF1_HsgRNA24
TACCAGCACATAGTGAAATGTAGAAGGTGA
>NF1_HsgRNA25
GAGCAGCACTTCAGAAAAGAGTGATGGCAC
>NF1_HsgRNA26
CAAAAGCCAAAATGGAAGATGGCCAGGTAA

>NF1_HsgRNA27
AAAAAGCCACCACCTAGAATCGAAAGGGGC
>NF1_HsgRNA28
TCTGAGGAGGAACTGATGATGGCATGGAAG
>NF1_HsgRNA29
AGAAAGTAACAACGTGGAAGAGGTAGGGAA
>NF1_HsgRNA30
CCAAAGTCAGTACTGAGCACAACAAGGAAT
>NF1_HsgRNA31
GGACAGTCTACGAAAAGCTCTTGCTGGCCA
>NF1_HsgRNA32
TTGCAGTGCCACTCCAGAGGATTCCGGATT
>NF1_HsgRNA33
GACCAGTGGACAGAACTAGCTCAAAGGTAT
>NF1_HsgRNA34
TCAAAGTTTGAGGAATTTATGACTAGGTAA
>NF1_HsgRNA35
CAAGATAAGGAGAATGATTTGTAGTGGCCA
>NF1_HsgRNA36
CCAGATCCCACAGACTGATATGGCTGGTAA
>NF1_HsgRNA37
AGCAATCTCTGGCATGTGTGACTGAGGGAC
>NF1_HsgRNA38
GGATATGAATGATAGACTGGACAATGGCTT
>NF1_HsgRNA39
ACCAATGCTCTCACCTTAAAGTGTTGGTTG
>NF1_HsgRNA40
TGATATTAATGACCAGTCCATGTGTGGAAG
>NF1_HsgRNA41
CCACATTAGGCTTAGGTTACCACAAGGATC
>NF1_HsgRNA42
CAAGATTCGGCCAAAAGATGTCCCTGGGAC
>NF1_HsgRNA43
CAGGATTGATAAATCTGAGGAACATGGCAC
>NF1_HsgRNA44
CTCCATTGCTTCCTGAGCAATCTCTGGCAT
>NF1_HsgRNA45
TAGAATTGTTACAGTATATCAATGTGGATT
>NF1_HsgRNA46
CTACCAAGCTGGGACTTCCAAAGCTGGGAA
>NF1_HsgRNA47
GTGACAATACACAGCATCAATCTTAGGCCA
>NF1_HsgRNA48
CTGCCACATCAAGGGAATTGTTGAAGGACA

>NF1_HsgRNA49
CCTACAGGAATGGATCAACATGACTGGCTT
>NF1_HsgRNA50
CGCACAGGCCGGTGGAATGGGTCCAGGCCG
>NF1_HsgRNA51
CAGTCATGTTGATCCATTCCTGTAGGGAGT
>NF1_HsgRNA52
ACACCCAAAGACAACAAGAGCTCTTGGTTG
>NF1_HsgRNA53
AAAGCCACCACCTAGAATCGAAAGGGGCTT
>NF1_HsgRNA54
TCAACCACCATGGACTGAACAAGTAGGAAA
>NF1_HsgRNA55
TCAACCACGTCTTTGGATATATCCTGGATT
>NF1_HsgRNA56
CAATCCATGGAATTGTGCAGAGTGTGGTGT
>NF1_HsgRNA57
TTTTCCTACTTGTTCAGTCCATGGTGGTTG
>NF1_HsgRNA58
TGGCCGCGCACAGGCCGGTGGAATGGGTCC
>NF1_HsgRNA59
TGAGCGGCGTGCCCTGGTTTGCAATGGTTA
>NF1_HsgRNA60
GAGTCGGGCTGTGACAGTTCCCAGCGGGTC
>NF1_HsgRNA61
GTGGCTACTAAGAAAGTAACAACGTGGAAG
>NF1_HsgRNA62
CCTGCTCGTCGAAGCGGCTGACCACGGCCT
>NF1_HsgRNA63
TCGCCTCTGCACAAAGCCCTCTTTTGGGTA
>NF1_HsgRNA64
AGTTCTGACAAAAATCCTTCAACAAGGCAC
>NF1_HsgRNA65
TGGTCTGGCCGACAGTTGGATAGGTGGCTG
>NF1_HsgRNA66
TGTCCTGTTTCCGCCACCTCTGTGAGGAAG
>NF1_HsgRNA67
CAATCTTAGGCCACCAATCCAATGCGGACT
>NF1_HsgRNA68
CACTCTTCCAAAAATTCTAACGTGAGGTGT
>NF1_HsgRNA69
ATAGCTTCTTGTCTCCAGGTCTGTAGGTTT
>NF1_HsgRNA70
TTATCTTGTGTCCAGAAATAATCCAGGATA

>NF1_HsgRNA71
AACAGAAACTACCTGCTGCCACCTTGGCTT
>NF1_HsgRNA72
TTCAGAACCTTTGGGAGAGGACCATGGCTG
>NF1_HsgRNA73
TAGGGAAGATGAGCTGCCACATCAAGGGAA
>NF1_HsgRNA74
GTAGGACAATCAGATGCTATATCAAGGAAA
>NF1_HsgRNA75
CAATGAGATTAGATGAAACGATGCTGGTCA
>NF1_HsgRNA76
TTGTGAGCTAGCTTGAGAGCATTGTGGAAT
>NF1_HsgRNA77
CACAGAGGTGGCGGAAACAGGACATGGCAA
>NF1_HsgRNA78
CATGGAGTCATGTATTCCAAACAAAGGTGT
>NF1_HsgRNA79
CAGAGATTGCTCAGGAAGCAATGGAGGTAA
>NF1_HsgRNA80
CCTTGCAGCCACCTATCCAACTGTCGGCCA
>NF1_HsgRNA81
TTAGGCAGTTCTGACCCGAGTTTACGGTAG
>NF1_HsgRNA82
GCGTGCCCTGGTTTGCAATGGTTAAGGTGA
>NF1_HsgRNA83
TTTGGCCGAATCTTGGTGTGTTGGGGGATA
>NF1_HsgRNA84
TATGGCTTTAAAGTCAGTAAGACATGGTAT
>NF1_HsgRNA85
GTGAGGAAGCAGATATCCGGTGTGGGGTGG
>NF1_HsgRNA86
GACTGGACAATGGCTTCACACTCCTGGTGC
>NF1_HsgRNA87
CATGGGACATTCGCCTCTTAACAATGGTCT
>NF1_HsgRNA88
TACAGGGCCACTTCTAGTTTGGTCTGGGCT
>NF1_HsgRNA89
AGTCGGGCTGTGACAGTTCCCAGCGGGTCC
>NF1_HsgRNA90
AAAGGGGCTTGAAGTTAATGTCAAAGGTGA
>NF1_HsgRNA91
AGATGGTAGAATACCTGACAGACTGGGTTA
>NF1_HsgRNA92
GATTGGTGGAACTGGTCACAATGATGGGTG

>NF1_HsgRNA93
TCAGGGTTCCACAGAAACATGTACAGGGCC
>NF1_HsgRNA94
GAAAGTAACAACGTGGAAGAGGTAGGGAAG
>NF1_HsgRNA95
GGCAGTACAGCAGAATTAATTACAGGGCTC
>NF1_HsgRNA96
GGCTGTGACAGTTCCCAGCGGGTCCGGATA
>NF1_HsgRNA97
ATTGGTGGAACTGGTCACAATGATGGGTGA
>NF1_HsgRNA98
AATGGTGTGTAACCATGAGAAAGTGGGACT
>NF1_HsgRNA99
CTTGGTGTGTTGGGGGATAGAGTCGGGCTG
>NF1_HsgRNA100
CAGGGTTCCACAGAAACATGTACAGGGCCA
>NF1_HsgRNA101
CCTTGTTGTGCTCAGTACTGACTTTGGTAT
>NF1_HsgRNA102
CTTTGTTTGGAATACATGACTCCATGGCTG
>NF1_HsgRNA103
AATTTAAAGAAAAACCTACAGACCTGGAGA
>NF1_HsgRNA104
TCTATAACTGTAACTCCTGGGTCAGGGAGT
>NF1_HsgRNA105
GTGCTACCTATCTACAAAAACTCCTGGATC
>NF1_HsgRNA106
ATGTTACCTTAAGATCAACCACCATGGACT
>NF1_HsgRNA107
GTCTTACTAATAGAGACAATAAAGAGGGTG
>NF1_HsgRNA108
CCCTTAGAGCTTCCACACATGGACTGGTCA
>NF1_HsgRNA109
TACGTAGTAATTCTTCATGATCCATGGACA
>NF1_HsgRNA110
ATTGTAGTGGACCTTACCCATACCGGGCCT
>NF1_HsgRNA111
TCTATATCTATAACTGTAACTCCTGGGTCA
>NF1_HsgRNA112
TGTGTCAATTAGTTGAAGTAATGATGGCAA
>NF1_HsgRNA113
TGCTTCATACGGTGAGACAATGGCAGGATT
>NF1_HsgRNA114
TCTATCATTCATATCCGGACCCGCTGGGAA

>NF1_HsgRNA115
AGACTCCATGCAGACTCTCTTCCGAGGCAA
>NF1_HsgRNA116
GAATTCCGAAGTTCAGCTGCATGCTGGTTT
>NF1_HsgRNA117
CGGGTCCGGATATGAATGATAGACTGGACA
>NF1_HsgRNA118
GAATTCGTTGATCAAACTCATCTGTGGTAT
>NF1_HsgRNA119
CTCTTCTAAAGCCAAGGTGGCAGCAGGTAG
>NF1_HsgRNA120
CCCATCTATTCAAGCAAAAATATGGGGAAG
>NF1_HsgRNA121
AAGGTGAACTGGTTCTCATCTACTAGGCAG
>NF1_HsgRNA122
TGCATGAAGGTGAGCGGCGTGCCCTGGTTT
>NF1_HsgRNA123
CTGTTGACATCATATTGCTGACAGAGGCAA
>NF1_HsgRNA124
TGGCTGATCGGTTTGAGAGATTGGTGGAAC
>NF1_HsgRNA125
AATGTGCAGAAAAGCTATTTGACTTGGTGG
>NF1_HsgRNA126
TTTTTGCATCTTGGCAGGCTACACTGGTAA
>NF1_HsgRNA127
CGATTGCTAGGCCCGGTATGGGTAAGGTCC
>NF1_HsgRNA128
ACAATGGCAGGATTGATAAATCTGAGGAAC
>NF1_HsgRNA129
GAAGTGGCCCTGTACATGTTTCTGTGGAAC
>NF1_HsgRNA130
AAGATGGTAGAATACCTGACAGACTGGGTT
>NF1_HsgRNA131
CCAATGTGGTTCCTTGTTCTCAGTGGGTAA
>NF1_HsgRNA132
GGCATGTGTGACTGAGGGACCAGTTGGACG
>NF1_HsgRNA133
GAAGTGTGTGCCACTGTTTATACCAGGTAT
>NF1_HsgRNA134
GGACTTACATTGGTGATGATTCGATGGAGT
>NF1_HsgRNA135
ATCCTTACCAGCCATATCAGTCTGTGGGAT
>NF1_HsgRNA136
TCATTTAGAAAGACTGATTGCCCTAGGACT

>NF1_HsgRNA137
TGTATTAGCAAACGAGTGTCTCATGGGCAG
>NF1_HsgRNA138
TGGATTATTTCTGGACACAAGATAAGGAGA
>NF1_HsgRNA139
TGGCTTCACACTCCTGGTGCATGAAGGTGA
>NF1_HsgRNA140
TTTGTTCGCTCTGCTGAAGTTACTTGGACA
>NF1_HsgRNA141
CACCTTCTACATTTCACTATGTGCTGGTAA
>NF1_HsgRNA142
GCAGTTCTGACCCGAGTTTACGGTAGGTTT
>NF1_HsgRNA143
GAAGTTGAGGGGGGAATTCTGAGGAGGAAC
>NF1_HsgRNA144
TGGTTTGCAATGGTTAAGGTGAACTGGTTC
>NF1_HsgRNA145
GTCATTGCCTTCCGTTCCAGTTACCGGGAC
>NF1_HsgRNA146
TCTTTTGGCCGAATCTTGGTGTGTTGGGGG
>NF1_HsgRNA147
TGGTTTGTTCTACAAATTGAGTATTGGTAT
>NF1_HsgRNA148
CTGTTTTAAAGCGATTGCTAGGCCCGGTATGGACGTGTTCGGCCGGGGCGG

(11) $\mathbb{S}_{11}^{+}$: 45 high on-target activity sgRNAs targeting NF2

>NF2_HsgRNA1
ATGAAAAGATCTACTGCCCTCCTGAGGCTT
>NF2_HsgRNA2
AAGCAACAATGGCCAACGAAGCACTGGTGA
>NF2_HsgRNA3
AAGCAACCCAAGACGTTCACCGTGAGGATC
>NF2_HsgRNA4
TAAAAAGGGCACAGAGCTGCTGCTTGGAGT
>NF2_HsgRNA5
GACTACGACCCCAGTGTTCACAAGCGGGGA
>NF2_HsgRNA6
AGGTACTGGATCATGATGTTTCAAAGGAAG
>NF2_HsgRNA7
CCACAGATTCTCCAGCTATGTATCGGGAAC
>NF2_HsgRNA8
GTTCAGCAGATGAAAGCCCAGGCCAGGGAG
>NF2_HsgRNA9
TTCTAGCCTTCTCCTCCCTGGCCTGGGCTT

>NF2_HsgRNA10
AAAAATCCCCGCTTGTGAACACTGGGGTCG
>NF2_HsgRNA11
GACGATCCTCACGGTGAACGTCTTGGGTTG
>NF2_HsgRNA12
CGAGATGTTTCGGATTTCATTCCACGGGAA
>NF2_HsgRNA13
TTTGATTTGGTGTGCCGGACTCTGGGGCTC
>NF2_HsgRNA14
AGGCCACAGCGATTCGCACGGAGGAGGAGA
>NF2_HsgRNA15
GGCTCACCGGGTACGTGGGCTTGGTGGCAA
>NF2_HsgRNA16
CGTTCACCGTGAGGATCGTCACCATGGACG
>NF2_HsgRNA17
GAAACATCTCGTACAGTGACAAGGAGGTAG
>NF2_HsgRNA18
CATTCCACGGGAAGGAGATCTTGGGGGTCA
>NF2_HsgRNA19
AGGACCTGCAGGAAGCACGCGAGGCGGAGC
>NF2_HsgRNA20
ACGCCGAGATGGAGTTCAATTGCGAGGTAA
>NF2_HsgRNA21
TGGCCTGGCTCAAAATGGACAAGAAGGTTG
>NF2_HsgRNA22
AGGAGAAGCGCCTGATGGAGCAGAAGGTGC
>NF2_HsgRNA23
TGACGATCCTCACGGTGAACGTCTTGGGTT
>NF2_HsgRNA24
CTTTGATTTGGTGTGCCGGACTCTGGGGCT
>NF2_HsgRNA25
AGAAGCCAGGAGCACAGAAGCCTCAGGAGG
>NF2_HsgRNA26
ATCGGGAACCATGATCTATTTATGAGGAGA
>NF2_HsgRNA27
AAATGGAATATCTGAAGATAGCTCAGGACC
>NF2_HsgRNA28
GCCAGGAGCACAGAAGCCTCAGGAGGGCAG
>NF2_HsgRNA29
TGAGGGAGGAGGCTGAACGCACGAGGGATG
>NF2_HsgRNA30
TCAGGGTCATAAATGTGAAGCCCCAGGGCA
>NF2_HsgRNA31
TGCAGTACACAATCAAGGACACAGTGGCCT

>NF2_HsgRNA32
CGGCGTCCATGGTGACGATCCTCACGGTGA
>NF2_HsgRNA33
TTCTTACGCCGTCCAGGCCAAGGTAGGCTC
>NF2_HsgRNA34
GCTGTCACCAATGAGGTTGAAGCTTGGTAT
>NF2_HsgRNA35
TGTATCAGATGACTCCGGAAATGTGGGAGG
>NF2_HsgRNA36
TCATTCCACGGGAAGGAGATCTTGGGGGTC
>NF2_HsgRNA37
AGAGTCCGGCACACCAAATCAAAGAGGTCC
>NF2_HsgRNA38
TTCTTCTTTGAGCCTACCTTGGCCTGGACG
>NF2_HsgRNA39
TCTTTGAGCCTACCTTGGCCTGGACGGCGT
>NF2_HsgRNA40
GTTTTGCCTCCTCCTCGGTGATCTGGGCCT
>NF2_HsgRNA41
TCTTTGGACTGCAGTACACAATCAAGGACA
>NF2_HsgRNA42
ATCTTGGGGGTCAGTCTGTTCTCAGGGTCA
>NF2_HsgRNA43
GAGATGTTTCGGATTTCATTCCACGGGAAG
>NF2_HsgRNA44
AATTTTATCCTGAGAATGCTGAAGAGGAGC
>NF2_HsgRNA45
CAGGTTTCTCGGAGCCCCAGAGTCCGGCAC

(12) $\mathbb{S}_{12}^{+}$: 48 high on-target activity sgRNAs targeting CD5

>CD5_HsgRNA1
CTTCACCAGCTTCTTGTAGACCAGAGGACC
>CD5_HsgRNA2
CCACACTGCAGAGACTTACAGATGAGGTTC
>CD5_HsgRNA3
AGAGACTTACAGATGAGGTTCCCCAGGCCC
>CD5_HsgRNA4
GTGGAGATCCAGATGGAAAACAAGTGGAAA
>CD5_HsgRNA5
ATCCAGGCCAAGACCCAAACCCAGCGGGCC
>CD5_HsgRNA6
CTGTAGTGAGACACAGCTCCCGTTCGGGGC
>CD5_HsgRNA7
TTGGATATAGACCACGGAGATCCTTGGCAG

>CD5_HsgRNA8
ACAGATGAGGTTCCCCAGGCCCAGGGGCCT
>CD5_HsgRNA9
GCCAATTCGATGGGAGGCCCCGAACGGGAG
>CD5_HsgRNA10
TGTTCAATGAAGGGAAAGGACCAAGGGCCA
>CD5_HsgRNA11
AGGCCACCCCTTCCAGACTGTCCGAGGCAG
>CD5_HsgRNA12
CACACACTGCTGCCCCCGACCAGGCGGCTC
>CD5_HsgRNA13
CCAGCAGCACCACCAGGAGTACAAGGGTCA
>CD5_HsgRNA14
CACCCAGCGTTCCCAGCAGGTATGTGGCAG
>CD5_HsgRNA15
ATTGCAGCTGGTGCCAGGACACGAAGGCCT
>CD5_HsgRNA16
AAAACAGTGTGCAGTTCCAGTTGGAGGCTG
>CD5_HsgRNA17
CCTTCCGCTGAGCCTGATCTGCCTAGGTGG
>CD5_HsgRNA18
CCCACCTAGGCAGATCAGGCTCAGCGGAAG
>CD5_HsgRNA19
TCATCCTGACCCTTGTACTCCTGGTGGTGC
>CD5_HsgRNA20
GTGGCGACCTCATCTCCTTCCACACGGTGG
>CD5_HsgRNA21
TCCGCTGAGCCTGATCTGCCTAGGTGGGTG
>CD5_HsgRNA22
GCTGCTGGCTGCCACATACCTGCTGGGAAC
>CD5_HsgRNA23
TCTCCTGGGCACAGAGGAACCCGGGGGAGG
>CD5_HsgRNA24
CACGGAGATCCTTGGCAGAAGACCTGGTTC
>CD5_HsgRNA25
CTCAGATATCCAGGTGATGCTAAGTGGCTC
>CD5_HsgRNA26
GTTTGCACACTGCAGAGGCCTGCTGGGCAT
>CD5_HsgRNA27
TACAGCAGTGCTTCCAGAAAACAACGGCCC
>CD5_HsgRNA28
TCCAGCCCAAGGTTCAGAGCCGCCTGGTCG
>CD5_HsgRNA29
AACAGCTGAGATGTGGTGACCCCTTGGCCC

>CD5_HsgRNA30
TGCTGCTGGCTGCCACATACCTGCTGGGAA
>CD5_HsgRNA31
GAAGGGAAAGGACCAAGGGCCAAGGGGTCA
>CD5_HsgRNA32
TCCTGGCACCAGCTGCAATCTGGGAGGAGC
>CD5_HsgRNA33
CCTAGGCAGATCAGGCTCAGCGGAAGGCAC
>CD5_HsgRNA34
AAGTGGCTCCAATTCCAAGTGTCAGGGTCA
>CD5_HsgRNA35
TGAAGGGAAAGGACCAAGGGCCAAGGGGTC
>CD5_HsgRNA36
CAGCGGGCCTGGCCCCAGGCACTGTGGCAA
>CD5_HsgRNA37
GTCAGGGTCAAGTGGAGATCCAGATGGAAA
>CD5_HsgRNA38
CTGGGGTCTGTTCAATGAAGGGAAAGGACC
>CD5_HsgRNA39
CACAGGTGTGGTGGAATTCTACAATGGCAG
>CD5_HsgRNA40
TCTTGTAGACCAGAGGACCACACATGGCCA
>CD5_HsgRNA41
GCCTGTCCTTGGCCTTGTAGAGGATGGTGC
>CD5_HsgRNA42
TGCAGTGTGCAAACAGCTGAGATGTGGTGA
>CD5_HsgRNA43
CAGATCAGGCTCAGCGGAAGGCACTGGTCT
>CD5_HsgRNA44
TGGTTCTGGGGTCTGTTCAATGAAGGGAAA
>CD5_HsgRNA45
CAGGTCTTCTGCCAAGGATCTCCGTGGTCT
>CD5_HsgRNA46
CCGCTGAGCCTGATCTGCCTAGGTGGGTGA
>CD5_HsgRNA47
TATGTGGCAGCCAGCAGCACTTCGTGGGAG
>CD5_HsgRNA48
GTTGTTGCAGTTGGATATAGACCACGGAGA

(13) $\mathbb{S}_{13}^{+}$: 15 high on-target activity sgRNAs targeting CD28

>CD28_HsgRNA1
GACTACATGAACATGACTCCCCGGAGGCCT
>CD28_HsgRNA2
CACGACCAGTGCCCAAAACAGCTTAGGAGA

>CD28_HsgRNA3
CTCTCGTTGTCTAGGTAAGGCGGAGGGTAC
>CD28_HsgRNA4
TTACCTAGACAACGAGAGGAGCAATGGAAC
>CD28_HsgRNA5
GCTCCTCTCGTTGTCTAGGTAAGGCGGAGG
>CD28_HsgRNA6
CAATGACACTCAGGCTGCTGTTCTTGGCTC
>CD28_HsgRNA7
CCCTGCTTGTGGTAGATAGCAACGAGGTCA
>CD28_HsgRNA8
CCTCGTTGCTATCTACCACAAGCAGGGGCG
>CD28_HsgRNA9
GCCCTCATCAGAACAATGACACTCAGGCTG
>CD28_HsgRNA10
GAACTCGGCATTCGAGCGAAACTGGGGCTG
>CD28_HsgRNA11
TGATTGACGTGCAGATTCCAGAGACGGAAC
>CD28_HsgRNA12
AGGTTGTAGGAATACCTGCAGCTGAGGCTG
>CD28_HsgRNA13
GGAATTCCGGGCATCCCTGTACAAGGGCGT
>CD28_HsgRNA14
CAACTTCTTCTCAGTTCAAGTAACAGGTAA
>CD28_HsgRNA15
CTCGTTGCTATCTACCACAAGCAGGGGCGA

(14) $\mathbb{S}_{14}^{+}$: 34 high on-target activity sgRNAs targeting H2-K

>H2-K_HsgRNA1
GCGGAGAATCCGAGATATGAGCCGCGGGCG
>H2-K_HsgRNA2
AAGCAGAGAGACTCAGGGCCTACCTGGAGG
>H2-K_HsgRNA3
CACCAGCCTGCTCCCACTTGTGTTTGGTGA
>H2-K_HsgRNA4
TCGTAGGCGTACTGCTGGTACCCGCGGAGG
>H2-K_HsgRNA5
CAGGAGGGGCCCGAGTATTGGGAGCGGGAG
>H2-K_HsgRNA6
AGGGCAATGAGCAGAGTTTCCGAGTGGACC
>H2-K_HsgRNA7
CCACCACAGATGCCCACTTCTGGAAGGTTC
>H2-K_HsgRNA8
TGATCACCAAACACAAGTGGGAGCAGGCTG

>H2-K_HsgRNA9
ACTTCCATGTACCGGGGCTCCCCGAGGCCG
>H2-K_HsgRNA10
GTGACGAAATACCTCAGCGAGTGTGGGCCT
>H2-K_HsgRNA11
TGAACGAAGACCTGAAAACGTGGACGGCGG
>H2-K_HsgRNA12
GCGGCGCTGATCACCAAACACAAGTGGGAG
>H2-K_HsgRNA13
CTCCCGGCCCGGTACTCACCCGCGCGGGTC
>H2-K_HsgRNA14
TAGGCGTACTGCTGGTACCCGCGGAGGAGT
>H2-K_HsgRNA15
TCCACGTAGCCGACTTCCATGTACCGGGGC
>H2-K_HsgRNA16
AGACCTGAAGATAAAGTCACCCTGAGGTGC
>H2-K_HsgRNA17
TGCTCTGGTTGTAGTAGCCGAGCAGGGTCC
>H2-K_HsgRNA18
AAATCTTCCACACAGATTCCCCAAAGGCCC
>H2-K_HsgRNA19
CTCGGAAACTCTGCTCATTGCCCTTGGCTT
>H2-K_HsgRNA20
CAGAGAGACTCAGGGCCTACCTGGAGGGCA
>H2-K_HsgRNA21
CCGAGATATGAGCCGCGGGCGCGGTGGATG
>H2-K_HsgRNA22
CCGAGCAGGGTCCTCAGGTCCACTCGGAAA
>H2-K_HsgRNA23
GCGGGCGCGGTGGATGGAGCAGGAGGGGCC
>H2-K_HsgRNA24
CGGCGCTGATCACCAAACACAAGTGGGAGC
>H2-K_HsgRNA25
TCTGGCTGTGAAGTGGGGTCCGACGGGCGA
>H2-K_HsgRNA26
CCCTGGCTCCGACTCAGACCCGCGCGGGTG
>H2-K_HsgRNA27
CGCGGGTCTGAGTCGGAGCCAGGGCGGCCG
>H2-K_HsgRNA28
CCCGGTACATGGAAGTCGGCTACGTGGACG
>H2-K_HsgRNA29
CCACGTAGCCGACTTCCATGTACCGGGGCT
>H2-K_HsgRNA30
CGGGTACCAGCAGTACGCCTACGACGGCTG

>H2-K_HsgRNA31
CACGTAGCCGACTTCCATGTACCGGGGCTC
>H2-K_HsgRNA32
CAGGTCTGCTGTGATGGGTCACATGGGCCT
>H2-K_HsgRNA33
AGGCTGGTGAAGCAGAGAGACTCAGGGCCT
>H2-K_HsgRNA34
TCTGTGTCTCCCGCTCCCAATACTCGGGCC

(15) $\mathbb{S}_{15}^{+}$: 56 high on-target activity sgRNAs targeting CD45

>CD45_HsgRNA1
TGACAAAGACTTCTGTGTCCAGAAGGGCAA
>CD45_HsgRNA2
CCAGAAATGATGATTGCTGCTCAGGGGCCA
>CD45_HsgRNA3
CAGAAACGCCTAAGCCTAGTTGTGGGGATC
>CD45_HsgRNA4
AGCTAAGGCGACAGAGGTGTCTGATGGTGC
>CD45_HsgRNA5
CCAGAAGTTTGAGCCACAAACCCATGGTCA
>CD45_HsgRNA6
AGACAATAGTATAAATGTTACATGTGGTCC
>CD45_HsgRNA7
CATTAATGCATCCTTTGTGATGGTAGGTAC
>CD45_HsgRNA8
CATCAATGTAGCTGGCATTTATGTAGGTGG
>CD45_HsgRNA9
TTGGAATGTCTCAGCTCAAAAGTTCGGAGA
>CD45_HsgRNA10
ACTTACATAGCTGCACACCACCCCAGGCCG
>CD45_HsgRNA11
TGTAACATTTATACTATTGTCTGTCGGCCG
>CD45_HsgRNA12
TCACACGATGTGAAGAAGGAAACAGGGTAA
>CD45_HsgRNA13
CTGCACTTTCCAAGAGATTGAACAAGGCAC
>CD45_HsgRNA14
GCGCAGAATACTGGCCAAGCATGGAGGAAG
>CD45_HsgRNA15
GATGAGACAGTTGATGACTTCTGGAGGATG
>CD45_HsgRNA16
CCTTAGTGCTGGTGTTGGGCGTACAGGTAC
>CD45_HsgRNA17
AACTATAGATTTATATGTACCACCAGGTGA

>CD45_HsgRNA18
TCTTATAGCATAAAACATATCCATGGGGTT
>CD45_HsgRNA19
TTTGATAGGTCCGGACAAGGTCAATGGAAT
>CD45_HsgRNA20
TTTAATCAGATGATTATAACCGTGTGGAAC
>CD45_HsgRNA21
TTTGATCAGGGCTTCAAGGAACCCAGGAAA
>CD45_HsgRNA22
CAGGCAGCTCTTCCCCTTTCCATGTGGTAC
>CD45_HsgRNA23
CCAGCATGGCATCAATTCCAATGTAGGTAC
>CD45_HsgRNA24
AATACATTAATGCATCCTTTGTGATGGTAG
>CD45_HsgRNA25
AGTACCAGTGTACCACATGGAAAGGGGAAG
>CD45_HsgRNA26
AAGGCCTGGAAGCAGAGGGCAAAGTGGATG
>CD45_HsgRNA27
GCTACCTGGTATTCAGCCTCCAGAGGGGAG
>CD45_HsgRNA28
CTCTCTGAAATAAATGGAGATGCAGGGTCC
>CD45_HsgRNA29
GACAGAGATGGATCCCAGCAGACAGGGTTG
>CD45_HsgRNA30
AGGTGAGGGTCTTCAGGAACCCCATGGTCT
>CD45_HsgRNA31
GACAGAGGTGTCTGATGGTGCAAGTGGAGG
>CD45_HsgRNA32
ACCTGAGTCTGCATCTAAACCCCATGGATA
>CD45_HsgRNA33
TCTTGCAGCTGGATCCCCACAACTAGGCTT
>CD45_HsgRNA34
CCCAGCATCGTACCTGGCTCACAGTGGAGT
>CD45_HsgRNA35
GATGGGAAACTTGCTGAATACCCGTGGAAT
>CD45_HsgRNA36
AGCTGGATCCCCACAACTAGGCTTAGGCGT
>CD45_HsgRNA37
TCAGGGGCCACTAAAAGAAACGATCGGTGA
>CD45_HsgRNA38
TTTAGGGCCATTAGTTTCATAAGGAGGACC
>CD45_HsgRNA39
ACTTGTACTTAACTCCTAGGGCCCCGGGAT

>CD45_HsgRNA40
ATGTGTAGCAGAAATCTTATATCGCGGTGT
>CD45_HsgRNA41
ATTTGTATCTTTCAGAGCATTCCACGGGTA
>CD45_HsgRNA42
AGAGGTGTCTGATGGTGCAAGTGGAGGTAC
>CD45_HsgRNA43
GTTATAAATGTGCAGACAGATTTGGGGAGT
>CD45_HsgRNA44
TTCCTAACCTGCAGTGGACGAGGATGGATG
>CD45_HsgRNA45
CTTGTACTTAACTCCTAGGGCCCCGGGATG
>CD45_HsgRNA46
CTTATAGCATAAAACATATCCATGGGGTTT
>CD45_HsgRNA47
TTCTTATAGCATAAAACATATCCATGGGGT
>CD45_HsgRNA48
TTTGTATCTTTCAGAGCATTCCACGGGTAT
>CD45_HsgRNA49
GAAGTCATCAACTGTCTCATCCCGGGGCCC
>CD45_HsgRNA50
CCTTTCCATGTGGTACACTGGTACTGGTAC
>CD45_HsgRNA51
GCTTTGCGTAGAGACTTTACCACTTGGAAA
>CD45_HsgRNA52
ATCGTGTGACCATGACAATAACTGTGGCCT
>CD45_HsgRNA53
GTCTTTACCTGCAGTGCACCACAATGGGAC
>CD45_HsgRNA54
CCATTTATTTCAGAGAGTTCCACACGGTTA
>CD45_HsgRNA55
CCAATTCACCAGCTGGCCAGACCATGGGGT
>CD45_HsgRNA56
TATGTTGTCAAGCTAAGGCGACAGAGGTGT

(16) $\mathbb{S}_{16}^{+}$: 13 high on-target activity sgRNAs targeting THY1

>THY1_HsgRNA1
AGCCAACTTCACCACCAAGGATGAGGGCGA
>THY1_HsgRNA2
GTGCCAGTCTTGCAGGTGTCCCGAGGGCAG
>THY1_HsgRNA3
TTCTCATGGCGGCAGTCCAGGCGAAGGTTT
>THY1_HsgRNA4
TGTGCCAGTCTTGCAGGTGTCCCGAGGGCA

>THY1_HsgRNA5
TTACCCTAGCCAACTTCACCACCAAGGATG
>THY1_HsgRNA6
TTATCCTTGGTGTTATTCTCATGGCGGCAG
>THY1_HsgRNA7
GGTACGTGTGCTCGGGTATCCCAAGGGTGC
>THY1_HsgRNA8
AGGGCTGGTTGGAGAGGGTGACGCGGGAGC
>THY1_HsgRNA9
CATCCTTGGTGGTGAAGTTGGCTAGGGTAA
>THY1_HsgRNA10
CACAGACAAGCTGGTCAAGTGTGGCGGCAT
>THY1_HsgRNA11
CCTTGATATAGGGCTGGTTGGAGAGGGTGA
>THY1_HsgRNA12
TCTCGGGTCAGGCTGAACTCATGCTGGATG
>THY1_HsgRNA13
TTGGTGGTGAAGTTGGCTAGGGTAAGGACC

(17) $\mathbb{S}_{17}^{+}$: 35 high on-target activity sgRNAs targeting CD43

>CD43_HsgRNA1
ACAGAACTGGTTGCTGTGGTAGCAGGGAGT
>CD43_HsgRNA2
CGCCACAACAGCAGTAGCGCCACGAGGGCC
>CD43_HsgRNA3
GAAGACAATTCAGTAGTTTCCAAGGGGGTC
>CD43_HsgRNA4
AAGAAGACAATTCAGTAGTTTCCAAGGGGG
>CD43_HsgRNA5
CTGCAGTTCCGTCTGTCACAGGATTGGCTG
>CD43_HsgRNA6
AAGACAATTCAGTAGTTTCCAAGGGGGTCA
>CD43_HsgRNA7
GTCACCACAGCTACTGGGTCTCTGGGGCCC
>CD43_HsgRNA8
AATGCCAGCCCATCAGTTTCTGTGGGGTCA
>CD43_HsgRNA9
TCTACCCAAGATCCCATAACCACCAGGTCA
>CD43_HsgRNA10
TGGACCCAGCATGCCCCAAAGAGGAGGAGA
>CD43_HsgRNA11
GTCCCTGACCCCACAGAAACTGATGGGCTG
>CD43_HsgRNA12
GGAGCTTACTGTTGTAGCCACAGAGGGTCC

>CD43_HsgRNA13
ATGTCTTGCTGGAAACTTCCTGAGAGGCAG
>CD43_HsgRNA14
GCTGGAAACTTCCTGAGAGGCAGTAGGCTC
>CD43_HsgRNA15
AGAAGACAATTCAGTAGTTTCCAAGGGGGT
>CD43_HsgRNA16
ACAGGATTGGCTGCAGTGACAGGAGGGTCA
>CD43_HsgRNA17
CCTTGCACCTTCTCCTCCTCTTTGGGGCAT
>CD43_HsgRNA18
CACTGCAGCCAATCCTGTGACAGACGGACC
>CD43_HsgRNA19
CACTGCAGCCAATCCTGTGACAGACGGACC
>CD43_HsgRNA20
CACTGCAGCCAATCCTGTGACAGACGGACC
>CD43_HsgRNA21
CACTGCAGCCAATCCTGTGACAGACGGACC
>CD43_HsgRNA22
CACTGCAGCCAATCCTGTGACAGACGGACC
>CD43_HsgRNA23
CACTGCAGCCAATCCTGTGACAGACGGACC
>CD43_HsgRNA24
CACTGCAGCCAATCCTGTGACAGACGGACC
>CD43_HsgRNA25
CACTGCAGCCAATCCTGTGACAGACGGACC
>CD43_HsgRNA26
ATTGGCTGCAGGTCCGTCTGTCACAGGATT
>CD43_HsgRNA27
AGATGCTGCAGTTCCGTCTGTCACAGGATT
>CD43_HsgRNA28
ATGGGCTGGCATTCTGGGCTTCAGAGGTAC
>CD43_HsgRNA29
TGGAGCTGTGATATGTGGGGTAGATGGTAG
>CD43_HsgRNA30
ACCTGGACCCAGCATGCCCCAAAGAGGAGG
>CD43_HsgRNA31
TCTGGGGCCCTCGAGTGAGATGCATGGACT
>CD43_HsgRNA32
TTGTGGTCTGCCCCCAGGGGCTGATGGTCT
>CD43_HsgRNA33
AGAGGTACTTGGAGCTGTGATATGTGGGGT
>CD43_HsgRNA34
TCTTTGGGGCATGCTGGGTCCAGGTGGCGA

>CD43_HsgRNA35
TTGATTCTTGGCTTGGTGACCTGGTGGTTA

(18) $\mathbb{S}_1^-$: 377 low on-target activity sgRNAs targeting CD13

>CD13_LsgRNA1
TCAGAAATAATACCAACAACTGGAGGGAGA
>CD13_LsgRNA2
GTCAAACAGCTCACTGATCTGGGCCGGCGT
>CD13_LsgRNA3
CATGAACCGCTGGACCCTGCAGATGGGCTT
>CD13_LsgRNA4
CCAGAACGATCTCTTCAGCACATCAGGCAA
>CD13_LsgRNA5
CGGTAACGATTCCACGCTTTACTTTGGTCC
>CD13_LsgRNA6
TAAAAACGTACAGGCCCCTGTCATTGGGGG
>CD13_LsgRNA7
GTGGAACTCAGTGACATTCCAGTTGGGGTC
>CD13_LsgRNA8
TGGAAATATAGAAGCCCTTGGCCATGGTGA
>CD13_LsgRNA9
TAGGAATCGGGTTTCAGCGTGTTGGGGAGG
>CD13_LsgRNA10
TCATAATGACCAGCAAAGAAGTTAAGGATG
>CD13_LsgRNA11
CGGTACACATCATTCAGCACCATGAGGTCT
>CD13_LsgRNA12
CAGAACACCATCTACCTGAACCTGTGGGAC
>CD13_LsgRNA13
AACTACACCCTCAGCCAGGGGCACAGGGTG
>CD13_LsgRNA14
CCTCACACCTTGCAGATCCGGATCTGGGCC
>CD13_LsgRNA15
GTGCACACGGCTGCCACGCCCAGGAGGATC
>CD13_LsgRNA16
GGAGACACTCACGGGTTATTATTGGGGTTC
>CD13_LsgRNA17
AGTGACAGGGACCTTATGGGCACTGGGAAT
>CD13_LsgRNA18
TTGGACAGGGCTGTCAGGTCCTTGGGGTGG
>CD13_LsgRNA19
AGTGACATTCCAGTTGGGGTCTTCTGGAAG
>CD13_LsgRNA20
AATGACCAGCAAAGAAGTTAAGGATGGGGC

>CD13_LsgRNA21
CTCCACCCACAGGCTGTGAACAACCGGTCC
>CD13_LsgRNA22
TTCAACGCCGGCGCCATGGAGAACTGGGGA
>CD13_LsgRNA23
GCGGACGGGGTGGTGGAGGCCACGGGGGAG
>CD13_LsgRNA24
AAAAACGTACAGGCCCCTGTCATTGGGGGT
>CD13_LsgRNA25
TCGAACTCGCTGTCCATCTCATACTGGCTG
>CD13_LsgRNA26
GAGAACTGGGGACTGGTGACCTACCGGGAG
>CD13_LsgRNA27
GGGGAGACACTCACGGGTTATTATTGGGGT
>CD13_LsgRNA28
CAGTAGACGGTGGACCGCAGGTTGGGGTGG
>CD13_LsgRNA29
TGCCAGACTTCAACGCCGGCGCCATGGAGA
>CD13_LsgRNA30
ACACAGATGCAGGCTGCAGATGCCCGGAAG
>CD13_LsgRNA31
TATGAGATGGACAGCGAGTTCGAGGGGGAG
>CD13_LsgRNA32
GGCCAGCAAGTACGTGGACATCTTGGGCGT
>CD13_LsgRNA33
CCTCAGCCACCACCAACCCCGCCTCGGCCA
>CD13_LsgRNA34
AGGGAGCCCTTGAGGTGCACCACCAGGTAC
>CD13_LsgRNA35
AGGCAGCGGAGCACTCACCTGGCCAGGTTG
>CD13_LsgRNA36
GAGGAGCGGGCTGCACCTTGCTGTAGGAGA
>CD13_LsgRNA37
TCTCAGCGTCACCCGGTAGGAATCGGGTTT
>CD13_LsgRNA38
CACCAGCTCAGTCTTGTCAATGTCGGGGGG
>CD13_LsgRNA39
GAGGAGGACAGGGGGTCGAACAGCAGGGAG
>CD13_LsgRNA40
TTCTAGGCCATCCCTGTCATCAATCGGGCA
>CD13_LsgRNA41
TCCGAGGCGGGTGTGGACAGCGGGTGGGAG
>CD13_LsgRNA42
GCCCAGGGTGCAGTACTCACCGCCAGGCCC

>CD13_LsgRNA43
GCACAGGGTGGTCCTGCGTGGTGTGGGAGG
>CD13_LsgRNA44
GCCCAGTGCCATTGCGGCGGGCCACGGCGA
>CD13_LsgRNA45
ACGGAGTTCCAGAGTGTGAGGAGATGGTCT
>CD13_LsgRNA46
TTCCAGTTGGGGTCTTCTGGAAGTGGGGTG
>CD13_LsgRNA47
TGCCATCAGCACCGCCTGCTCCAACGGAGT
>CD13_LsgRNA48
CATAATCGCCGTGGCCCGCCGCAATGGCAC
>CD13_LsgRNA49
TGGCATCGCCTCCCCAGACCAGATTGGCCT
>CD13_LsgRNA50
CCCCATCTGCTCACTTGAATTCTGAGGGGC
>CD13_LsgRNA51
AATGATCTGTGCCCGATTGATGACAGGGAT
>CD13_LsgRNA52
ATTAATGACGCCTTCAACCTGGCCAGGTGA
>CD13_LsgRNA53
GTTCATGATGTCCCGCACGGTGGTGGGGAG
>CD13_LsgRNA54
TACCATGCACCTCCGTACCTTCATGGGGCC
>CD13_LsgRNA55
CTTCATGGCCGGCTCATCGAAGCATGGGAA
>CD13_LsgRNA56
CTCCATGGCGCCGGCGTTGAAGTCTGGCAG
>CD13_LsgRNA57
CCTGATGTGCTGAAGAGATCGTTCTGGGCT
>CD13_LsgRNA58
TATTATTTCTGAAGTGAATGAAGAGGGGTG
>CD13_LsgRNA59
ACTGCAACGCTATCGCCCAGGGCGGGGAGG
>CD13_LsgRNA60
GCTCCAACGGAGTTCCAGAGTGTGAGGAGA
>CD13_LsgRNA61
ACCTCAATGTGACGGGCTATTACCGGGTGA
>CD13_LsgRNA62
TGTGCACAATCATCGCACTGTCAGTGGTGT
>CD13_LsgRNA63
AGGTCACCAGTCCCCAGTTCTCCATGGCGC
>CD13_LsgRNA64
AGAACACCATCTACCTGAACCTGTGGGACC

>CD13_LsgRNA65
TGACCACCCGCTCCTTGTTGCTGCTGGAGG
>CD13_LsgRNA66
ACTACACCCTCAGCCAGGGGCACAGGGTGG
>CD13_LsgRNA67
GGACCACCCTGTGCCCCTGGCTGAGGGTGT
>CD13_LsgRNA68
CCAGCACCGTCCGTTTCACCTGCAAGGAGG
>CD13_LsgRNA69
CTCACACCTTGCAGATCCGGATCTGGGCCC
>CD13_LsgRNA70
CCCGCACGGTGGTGGGGAGTTGGATGGACC
>CD13_LsgRNA71
GGAGCACTCACCTGGCCAGGTTGAAGGCGT
>CD13_LsgRNA72
ATGGCACTGGGCCGGGCCCAGATCCGGATC
>CD13_LsgRNA73
TGGTCACTGTGATTGCTCATGAGCTGGCCC
>CD13_LsgRNA74
ACCCCACTTCCAGAAGACCCCAACTGGAAT
>CD13_LsgRNA75
CCATCAGAGATGGCAGACAGCAGCAGGACT
>CD13_LsgRNA76
GCGCCAGAGTGACAGGGACCTTATGGGCAC
>CD13_LsgRNA77
TGACCAGCAAAGAAGTTAAGGATGGGGCCC
>CD13_LsgRNA78
AGGCCAGCAAGTACGTGGACATCTTGGGCG
>CD13_LsgRNA79
ATACCAGCACGGGGACCCTTTCCCAGGAGC
>CD13_LsgRNA80
CCTCCAGCAGCAACAAGGAGCGGGTGGTCA
>CD13_LsgRNA81
CGAACAGCAGGGAGTTCTCCCGGTAGGTCA
>CD13_LsgRNA82
TGGACAGCGAGTTCGAGGGGGAGTTGGCAG
>CD13_LsgRNA83
GTCTCAGCGTCACCCGGTAGGAATCGGGTT
>CD13_LsgRNA84
CCACCAGCTCAGTCTTGTCAATGTCGGGGG
>CD13_LsgRNA85
TGGGCAGCTGGCTTACCAAGTTCCAGGTGG
>CD13_LsgRNA86
GGCACAGGGTGGTCCTGCGTGGTGTGGGAG

>CD13_LsgRNA87
GGTTCAGGTAGATGGTGTTCTGGTAGGCAA
>CD13_LsgRNA88
GCCACAGGTCATTCCACCACTCTATGGTCA
>CD13_LsgRNA89
CTGACAGTGCGATGATTGTGCACACGGCTG
>CD13_LsgRNA90
ATTCCAGTTGGGGTCTTCTGGAAGTGGGGT
>CD13_LsgRNA91
ATCTCATACTGGCTGTCCTTCACCAGGGAG
>CD13_LsgRNA92
GGTTCATGATGTCCCGCACGGTGGTGGGGA
>CD13_LsgRNA93
CTACCATGCACCTCCGTACCTTCATGGGGC
>CD13_LsgRNA94
AGATCATTAATGACGCCTTCAACCTGGCCA
>CD13_LsgRNA95
CCGACATTGACAAGACTGAGCTGGTGGAGC
>CD13_LsgRNA96
GTAACATTGGAATCGGGGTCAAGGAGGAAG
>CD13_LsgRNA97
TGGTCCAAGGTGGTGGCCGAGGCGGGGTTG
>CD13_LsgRNA98
ATTTCCAAGTCCCTGGGCATCCTGGGGATC
>CD13_LsgRNA99
AGGACCACCCTGTGCCCCTGGCTGAGGGTG
>CD13_LsgRNA100
GCTGCCACGCCCAGGAGGATCCCCAGGATG
>CD13_LsgRNA101
GATTCCACGCTTTACTTTGGTCCAAGGTGG
>CD13_LsgRNA102
TTCCCCAGAACTACCTGAAGAAGCAGGTCA
>CD13_LsgRNA103
AGCGCCAGAGTGACAGGGACCTTATGGGCA
>CD13_LsgRNA104
ATGACCAGCAAAGAAGTTAAGGATGGGGCC
>CD13_LsgRNA105
GTGCCCATAAGGTCCCTGTCACTCTGGCGC
>CD13_LsgRNA106
CCTCCCCACCATCACCATGGCCAAGGGCTT
>CD13_LsgRNA107
CCACCCCAGGGCGCCTCAGTCCTCAGGATG
>CD13_LsgRNA108
GGGCCCCATCCTTAACTTCTTTGCTGGTCA

>CD13_LsgRNA109
GGATCCCCAGGATGCCCAGGGACTTGGAAA
>CD13_LsgRNA110
CCAACCCCGCCTCGGCCACCACCTTGGACC
>CD13_LsgRNA111
CTGACCCCTCCCCCCACAGTGGTTCGGGAA
>CD13_LsgRNA112
GTCACCCCTGGGGCAGGTACAGCGAGGTTA
>CD13_LsgRNA113
ATGTCCCGCACGGTGGTGGGGAGTTGGATG
>CD13_LsgRNA114
CCCACCCGCTGTCCACACCCGCCTCGGAGA
>CD13_LsgRNA115
CACACCCTACCCACTCCCAAAATCAGGTGA
>CD13_LsgRNA116
TGACCCCTCCCCCCACAGTGGTTCGGGAAC
>CD13_LsgRNA117
ATCTCCGAGGCGGGTGTGGACAGCGGGTGG
>CD13_LsgRNA118
TGGACCGCAGGTTGGGGTGGATCCTGGTGT
>CD13_LsgRNA119
TGGCCCGCCGCAATGGCACTGGGCCGGGCC
>CD13_LsgRNA120
CCACCCGCTCCTTGTTGCTGCTGGAGGAGG
>CD13_LsgRNA121
GGGCCCGGCCCAGTGCCATTGCGGCGGGCC
>CD13_LsgRNA122
TAGCCCGTCACATTGAGGTTCAGCAGGACC
>CD13_LsgRNA123
ACACCCTCAGCCAGGGGCACAGGGTGGTCC
>CD13_LsgRNA124
TCCTCCTCCAGCAGCAACAAGGAGCGGGTG
>CD13_LsgRNA125
CTGACCTCCTGCAGGTGGTCCCACAGGTTC
>CD13_LsgRNA126
GCATCCTGAGGACTGAGGCGCCCTGGGGTG
>CD13_LsgRNA127
GGGTCCTGCTGAACCTCAATGTGACGGGCT
>CD13_LsgRNA128
GTGACCTGCTTCTTCAGGTAGTTCTGGGGA
>CD13_LsgRNA129
GCATCCTGGGGATCCTCCTGGGCGTGGCAG
>CD13_LsgRNA130
TGAACCTGTGGGACCACCTGCAGGAGGTCA

>CD13_LsgRNA131
CTGTCCTTCACCAGGGAGCCCTTGAGGTGC
>CD13_LsgRNA132
GGGTCGAACAGCAGGGAGTTCTCCCGGTAG
>CD13_LsgRNA133
TCATCGAAGCATGGGAAGGACTTCCGGGCA
>CD13_LsgRNA134
GAGGCGAAGCCCTCGTTCAGCCACAGGTCA
>CD13_LsgRNA135
CCCCCGACATTGACAAGACTGAGCTGGTGG
>CD13_LsgRNA136
TCCCCGAGATGGGGGTCTACCTGGTGGGCC
>CD13_LsgRNA137
GCTCCGAGGTCTATGGCCCCATGAAGGTAC
>CD13_LsgRNA138
ACGGCGATTATGCCCTGAACGTGACGGGCC
>CD13_LsgRNA139
CCGGCGCCATGGAGAACTGGGGACTGGTGA
>CD13_LsgRNA140
GGCCCGCCGCAATGGCACTGGGCCGGGCCC
>CD13_LsgRNA141
TCAACGCCGGCGCCATGGAGAACTGGGGAC
>CD13_LsgRNA142
ATGGCGCCGGCGTTGAAGTCTGGCAGGCCA
>CD13_LsgRNA143
GCTTCGCCTCCTACGTGGAGTACCTGGGTG
>CD13_LsgRNA144
CACCCGCCTCGGAGATCAACACGCCGGCCC
>CD13_LsgRNA145
GCAACGCTATCGCCCAGGGCGGGGAGGAGG
>CD13_LsgRNA146
AACACGCTGAAACCCGATTCCTACCGGGTG
>CD13_LsgRNA147
TACTCGCTGCGGTAGAAGCCCGCCAGGTCA
>CD13_LsgRNA148
TCCACGCTTTACTTTGGTCCAAGGTGGTGG
>CD13_LsgRNA149
GGCCCGGCCCAGTGCCATTGCGGCGGGCCA
>CD13_LsgRNA150
CGGACGGGGTGGTGGAGGCCACGGGGGAGC
>CD13_LsgRNA151
GAATCGGGTTTCAGCGTGTTGGGGAGGCGG
>CD13_LsgRNA152
GGTACGGTCTCAGCGTCACCCGGTAGGAAT

>CD13_LsgRNA153
TAGACGGTGGACCGCAGGTTGGGGTGGATC
>CD13_LsgRNA154
AAAACGTACAGGCCCCTGTCATTGGGGGTG
>CD13_LsgRNA155
AGACCGTACCTCACCCCCAATGACAGGGGC
>CD13_LsgRNA156
ATGGCGTCAAACAGCTCACTGATCTGGGCC
>CD13_LsgRNA157
GTCACGTTCAGGGCATAATCGCCGTGGCCC
>CD13_LsgRNA158
GCTTCTACCGCAGCGAGTACATGGAGGGCA
>CD13_LsgRNA159
GAAGCTCAACTACACCCTCAGCCAGGGGCA
>CD13_LsgRNA160
CCCACTCACCTTTGGGAAGCATGTTGGACA
>CD13_LsgRNA161
TCTGCTCACTTGAATTCTGAGGGGCGGGTA
>CD13_LsgRNA162
CCAGCTCAGTCTTGTCAATGTCGGGGGGCT
>CD13_LsgRNA163
CCTCCTCCAGCAGCAACAAGGAGCGGGTGG
>CD13_LsgRNA164
AGAGCTCCCACTCACTGGTCCATCAGGTTT
>CD13_LsgRNA165
TGGCCTCCTTGCAGGTGAAACGGACGGTGC
>CD13_LsgRNA166
CCCGCTCCTTGTTGCTGCTGGAGGAGGACA
>CD13_LsgRNA167
CACACTCTGGAACTCCGTTGGAGCAGGCGG
>CD13_LsgRNA168
GGTGCTGACTATGCGGAGCCCACCTGGAAC
>CD13_LsgRNA169
CGGGCTGCACCTTGCTGTAGGAGATGGCGT
>CD13_LsgRNA170
CCATCTGCTCACTTGAATTCTGAGGGGCGG
>CD13_LsgRNA171
CAGGCTGCTCAGGGCGGCCTCCCAGGGCAT
>CD13_LsgRNA172
GGTCCTGCTGAACCTCAATGTGACGGGCTA
>CD13_LsgRNA173
CCTGCTGCTGTCTGCCATCTCTGATGGATG
>CD13_LsgRNA174
TGACCTGCTTCTTCAGGTAGTTCTGGGGAA

>CD13_LsgRNA175
AAGTCTGGCAGGCCAATCTGGTCTGGGGAG
>CD13_LsgRNA176
GCAGCTGGCTTACCAAGTTCCAGGTGGGCT
>CD13_LsgRNA177
GCTCCTGGGAAAGGGTCCCCGTGCTGGTAT
>CD13_LsgRNA178
AGAACTGGGGACTGGTGACCTACCGGGAGA
>CD13_LsgRNA179
CGTGCTGGTATCCACCGTGATGACCGGGAA
>CD13_LsgRNA180
GCCCCTGTCATTGGGGGTGAGGTACGGTCT
>CD13_LsgRNA181
AGCCCTGTCCAACATGCTTCCCAAAGGTGA
>CD13_LsgRNA182
GTACCTTCATGGGGCCATAGACCTCGGAGC
>CD13_LsgRNA183
AGTCCTTCCCATGCTTCGATGAGCCGGCCA
>CD13_LsgRNA184
CATGCTTCGATGAGCCGGCCATGAAGGCCG
>CD13_LsgRNA185
CGGGCTTCTACCGCAGCGAGTACATGGAGG
>CD13_LsgRNA186
AGGGCTTCTATATTTCCAAGTCCCTGGGCA
>CD13_LsgRNA187
GGGACTTGGAAATATAGAAGCCCTTGGCCA
>CD13_LsgRNA188
CAGTCTTGTCAATGTCGGGGGGCTGGGAGC
>CD13_LsgRNA189
TCACCTTTGGGAAGCATGTTGGACAGGGCT
>CD13_LsgRNA190
TTCAGAAATAATACCAACAACTGGAGGGAG
>CD13_LsgRNA191
TCATGAACCGCTGGACCCTGCAGATGGGCT
>CD13_LsgRNA192
ACCTGAACCTGTGGGACCACCTGCAGGAGG
>CD13_LsgRNA193
ACAAGAACGCCAACAGCTCCCCCGTGGCCT
>CD13_LsgRNA194
CATCGAAGCATGGGAAGGACTTCCGGGCAT
>CD13_LsgRNA195
GCTTGAAGTAGCTCAGGCTGCTCAGGGCGG
>CD13_LsgRNA196
TCTGGAAGTGGGGTGCTGGGACCTGGGCAG

>CD13_LsgRNA197
GTAGGAATCGGGTTTCAGCGTGTTGGGGAG
>CD13_LsgRNA198
GGTGGAATGACCTGTGGCTGAACGAGGGCT
>CD13_LsgRNA199
TGCTGAATGATGTGTACCGCGTGATGGCAG
>CD13_LsgRNA200
TGGGGAATTTGCAGAAAGACCTCATGGTGC
>CD13_LsgRNA201
GGGAGACACTCACGGGTTATTATTGGGGTT
>CD13_LsgRNA202
GAGTGACAGGGACCTTATGGGCACTGGGAA
>CD13_LsgRNA203
GTTGGACAGGGCTGTCAGGTCCTTGGGGTG
>CD13_LsgRNA204
CAAGGACCCCCACTCACCTGATTTTGGGAG
>CD13_LsgRNA205
GCTGGACCCTGCAGATGGGCTTCCCGGTCA
>CD13_LsgRNA206
GGCGGACGGGGTGGTGGAGGCCACGGGGGA
>CD13_LsgRNA207
TGATGACGTCAGTGGCCTCCTTGCAGGTGA
>CD13_LsgRNA208
GCCAGAGACCATCTCCTCACACTCTGGAAC
>CD13_LsgRNA209
GTATGAGATGGACAGCGAGTTCGAGGGGGA
>CD13_LsgRNA210
CCCCGAGATGGGGGTCTACCTGGTGGGCCA
>CD13_LsgRNA211
CAAGGAGGAAGTGCTCCTGGGAAAGGGTCC
>CD13_LsgRNA212
CCAGGAGGATCCCCAGGATGCCCAGGGACT
>CD13_LsgRNA213
CCTTGAGGTGCACCACCAGGTACTCGGTGG
>CD13_LsgRNA214
TCCAGAGTGTGAGGAGATGGTCTCTGGCCT
>CD13_LsgRNA215
GGGGGAGTTGGCAGATGACCTGGCGGGCTT
>CD13_LsgRNA216
GGTGGATAAGCGTGATGTTGAACTCGGCCT
>CD13_LsgRNA217
GGGCGATAGCGTTGCAGTAGACGGTGGACC
>CD13_LsgRNA218
TGCAGATGGGCTTCCCGGTCATCACGGTGG

>CD13_LsgRNA219
TAAGGATGGGGCCCGTCACGTTCAGGGCAT
>CD13_LsgRNA220
GGTAGATGGTGTTCTGGTAGGCAAAGGTGT
>CD13_LsgRNA221
GCGTGATGTTGAACTCGGCCTTCATGGCCG
>CD13_LsgRNA222
CGGCGATTATGCCCTGAACGTGACGGGCCC
>CD13_LsgRNA223
GATGGCAGACAGCAGCAGGACTACTGGCTG
>CD13_LsgRNA224
CCACGCAGGACCACCCTGTGCCCCTGGCTG
>CD13_LsgRNA225
AGAAGCAGGCATCCAATGGTGTCTTGGTAT
>CD13_LsgRNA226
CCTTGCAGGTGAAACGGACGGTGCTGGAGC
>CD13_LsgRNA227
TCCTGCAGGTGGTCCCACAGGTTCAGGTAG
>CD13_LsgRNA228
GGAAGCATGTTGGACAGGGCTGTCAGGTCC
>CD13_LsgRNA229
GTCTGCCATCTCTGATGGATGTGATGGGCA
>CD13_LsgRNA230
CCAGGCCCTGCTTGAATACGTCCTCGGACA
>CD13_LsgRNA231
CCCAGCCTCATACCAAGACACCATTGGATG
>CD13_LsgRNA232
CTTCGCCTCCTACGTGGAGTACCTGGGTGC
>CD13_LsgRNA233
AGAAGCTCAACTACACCCTCAGCCAGGGGC
>CD13_LsgRNA234
ACCAGCTCAGTCTTGTCAATGTCGGGGGGC
>CD13_LsgRNA235
ACACGCTGAAACCCGATTCCTACCGGGTGA
>CD13_LsgRNA236
TCAGGCTGCTCAGGGCGGCCTCCCAGGGCA
>CD13_LsgRNA237
TTCGGGAACCTGGTGACCATAGAGTGGTGG
>CD13_LsgRNA238
GACAGGAAGCTGGAGAGCATCCTGAGGACT
>CD13_LsgRNA239
TTCTGGAAGTGGGGTGCTGGGACCTGGGCA
>CD13_LsgRNA240
GGTAGGAATCGGGTTTCAGCGTGTTGGGGA

>CD13_LsgRNA241
TGTTGGACAGGGCTGTCAGGTCCTTGGGGT
>CD13_LsgRNA242
AGGAGGACAGGGGGTCGAACAGCAGGGAGT
>CD13_LsgRNA243
AGGCGGACGGGGTGGTGGAGGCCACGGGGG
>CD13_LsgRNA244
CCGAGGACGTATTCAAGCAGGGCCTGGCGG
>CD13_LsgRNA245
AGCTGGAGAGCATCCTGAGGACTGAGGCGC
>CD13_LsgRNA246
GGAGGGAGATCCCAGAAAACCTGATGGACC
>CD13_LsgRNA247
TCAAGGAGGAAGTGCTCCTGGGAAAGGGTC
>CD13_LsgRNA248
CCCAGGAGGATCCCCAGGATGCCCAGGGAC
>CD13_LsgRNA249
TGGTGGAGGCCACGGGGGAGCTGTTGGCGT
>CD13_LsgRNA250
AGGGGGAGTTGGCAGATGACCTGGCGGGCT
>CD13_LsgRNA251
TTAAGGATGGGGCCCGTCACGTTCAGGGCA
>CD13_LsgRNA252
CGCAGGCAGGGCCCACTCACCTTTGGGAAG
>CD13_LsgRNA253
CCTGGGCATCCTGGGGATCCTCCTGGGCGT
>CD13_LsgRNA254
TCTAGGCCATCCCTGTCATCAATCGGGCAC
>CD13_LsgRNA255
TACAGGCCCCTGTCATTGGGGGTGAGGTAC
>CD13_LsgRNA256
TCTGGGCCCGGCCCAGTGCCATTGCGGCGG
>CD13_LsgRNA257
TGGTGGCCGAGGCGGGGTTGGTGGTGGCTG
>CD13_LsgRNA258
CCTGGGCGATAGCGTTGCAGTAGACGGTGG
>CD13_LsgRNA259
CCGAGGCGGGGTTGGTGGTGGCTGAGGCGG
>CD13_LsgRNA260
GAGGGGCGGGTAACATTGGAATCGGGGTCA
>CD13_LsgRNA261
GGCCGGCGTGTTGATCTCCGAGGCGGGTGT
>CD13_LsgRNA262
TGTTGGCGTTCTTGTTCTTCTCCTGGGAGT

>CD13_LsgRNA263
TGGTGGCTGAGGCGGACGGGGTGGTGGAGG
>CD13_LsgRNA264
GGCTGGCTGCTACTGACCTCCTGCAGGTGG
>CD13_LsgRNA265
GGCTGGGAGCCTCCCACACCACGCAGGACC
>CD13_LsgRNA266
CCAGGGGCACAGGGTGGTCCTGCGTGGTGT
>CD13_LsgRNA267
CCCTGGGCATCCTGGGGATCCTCCTGGGCG
>CD13_LsgRNA268
TGAGGGGCGGGTAACATTGGAATCGGGGTC
>CD13_LsgRNA269
GACAGGGCTGTCAGGTCCTTGGGGTGGATA
>CD13_LsgRNA270
CTGAGGGGCGGGTAACATTGGAATCGGGGT
>CD13_LsgRNA271
TCGAGGGGGAGTTGGCAGATGACCTGGCGG
>CD13_LsgRNA272
AAGAGGGGTGTGACCTGCTTCTTCAGGTAG
>CD13_LsgRNA273
AGGCGGGGTTGGTGGTGGCTGAGGCGGACG
>CD13_LsgRNA274
AGGCGGGTGTGGACAGCGGGTGGGAGGAGG
>CD13_LsgRNA275
TCGGGGTCAAGGAGGAAGTGCTCCTGGGAA
>CD13_LsgRNA276
TGGTGGTGCACCTCAAGGGCTCCCTGGTGA
>CD13_LsgRNA277
AGCTGGTGGAGCCCACCGAGTACCTGGTGG
>CD13_LsgRNA278
GGGTGGTGGCCACTACACAGATGCAGGCTG
>CD13_LsgRNA279
AGGTGGTGGCCGAGGCGGGGTTGGTGGTGG
>CD13_LsgRNA280
TGGTGGTGGCTGAGGCGGACGGGGTGGTGG
>CD13_LsgRNA281
CCAAGGTGGTGGCCGAGGCGGGGTTGGTGG
>CD13_LsgRNA282
GGTTGGTGGTGGCTGAGGCGGACGGGGTGG
>CD13_LsgRNA283
CACAGGTTCAGGTAGATGGTGTTCTGGTAG
>CD13_LsgRNA284
AAACGTACAGGCCCCTGTCATTGGGGGTGA

>CD13_LsgRNA285
GACCGTACCTCACCCCCAATGACAGGGGCC
>CD13_LsgRNA286
TGGAGTACCTGGGTGCTGACTATGCGGAGC
>CD13_LsgRNA287
CCGAGTACCTGGTGGTGCACCTCAAGGGCT
>CD13_LsgRNA288
TCTGGTAGGCAAAGGTGTGGAGGTAGGACT
>CD13_LsgRNA289
TGGCGTCAAACAGCTCACTGATCTGGGCCG
>CD13_LsgRNA290
CGGGGTCAAGGAGGAAGTGCTCCTGGGAAA
>CD13_LsgRNA291
TTTGGTCCAAGGTGGTGGCCGAGGCGGGGT
>CD13_LsgRNA292
GGTGGTCCCACAGGTTCAGGTAGATGGTGT
>CD13_LsgRNA293
TCCTGTCCGAGGACGTATTCAAGCAGGGCC
>CD13_LsgRNA294
CCCTGTCCTCCTCCAGCAGCAACAAGGAGC
>CD13_LsgRNA295
TACTGTCTCTCTTCAATCAGGAAGAGGGTG
>CD13_LsgRNA296
TGGGGTCTTCTGGAAGTGGGGTGCTGGGAC
>CD13_LsgRNA297
TGAGGTGCACCACCAGGTACTCGGTGGGCT
>CD13_LsgRNA298
TGCTGTGGATGATGATGACGTCAGTGGCCT
>CD13_LsgRNA299
CGCCGTGGCCCGCCGCAATGGCACTGGGCC
>CD13_LsgRNA300
CAGGGTGGTCCTGCGTGGTGTGGGAGGCTC
>CD13_LsgRNA301
GTGAGTTCGACTACGTGGAGAAGCAGGCAT
>CD13_LsgRNA302
GCGTGTTGATCTCCGAGGCGGGTGTGGACA
>CD13_LsgRNA303
CCTTGTTGCTGCTGGAGGAGGACAGGGGGT
>CD13_LsgRNA304
TCCAGTTGGGGTCTTCTGGAAGTGGGGTGC
>CD13_LsgRNA305
CTCTGTTTATTCCCAGTGCCCATAAGGTCC
>CD13_LsgRNA306
TCGGGTTTCAGCGTGTTGGGGAGGCGGTAA

>CD13_LsgRNA307
CGGGTAACATTGGAATCGGGGTCAAGGAGG
>CD13_LsgRNA308
CTTCTACCGCAGCGAGTACATGGAGGGCAA
>CD13_LsgRNA309
ACCGTACCTCACCCCCAATGACAGGGGCCT
>CD13_LsgRNA310
CGAGTACCTGGTGGTGCACCTCAAGGGCTC
>CD13_LsgRNA311
TGAATACGTCCTCGGACAGGAAGCTGGAGA
>CD13_LsgRNA312
CGTCTACTGCAACGCTATCGCCCAGGGCGG
>CD13_LsgRNA313
GGACTACTGGCTGATAGATGTAAGAGGTAA
>CD13_LsgRNA314
GCAGTAGACGGTGGACCGCAGGTTGGGGTG
>CD13_LsgRNA315
ACGCTATCGCCCAGGGCGGGGAGGAGGAGT
>CD13_LsgRNA316
GTATTATTTCTGAAGTGAATGAAGAGGGGT
>CD13_LsgRNA317
AACCTCAATGTGACGGGCTATTACCGGGTG
>CD13_LsgRNA318
CTGCTCACTTGAATTCTGAGGGGCGGGTAA
>CD13_LsgRNA319
CACTTCAGAAATAATACCAACAACTGGAGG
>CD13_LsgRNA320
TTGGTCCAAGGTGGTGGCCGAGGCGGGGTT
>CD13_LsgRNA321
TATTTCCAAGTCCCTGGGCATCCTGGGGAT
>CD13_LsgRNA322
TCATTCCACCACTCTATGGTCACCAGGTTC
>CD13_LsgRNA323
CCAGTCCCCAGTTCTCCATGGCGCCGGCGT
>CD13_LsgRNA324
CCTGTCCGAGGACGTATTCAAGCAGGGCCT
>CD13_LsgRNA325
GGGTTCTCCATCCACTGCTTGAAAAGGCCA
>CD13_LsgRNA326
CCCATCTGCTCACTTGAATTCTGAGGGGCG
>CD13_LsgRNA327
GAAGTCTGGCAGGCCAATCTGGTCTGGGGA
>CD13_LsgRNA328
GTGTTCTGGTAGGCAAAGGTGTGGAGGTAG

>CD13_LsgRNA329
GGGGTCTTCTGGAAGTGGGGTGCTGGGACC
>CD13_LsgRNA330
TCAGTCTTGTCAATGTCGGGGGGCTGGGAG
>CD13_LsgRNA331
TGGATCTTTAATTGCAGCTACGTGTGGATT
>CD13_LsgRNA332
CGGGTGAACTACGACGAAGAGAACTGGAGG
>CD13_LsgRNA333
AGCTTGAAGTAGCTCAGGCTGCTCAGGGCG
>CD13_LsgRNA334
GCGTTGAAGTCTGGCAGGCCAATCTGGTCT
>CD13_LsgRNA335
TGTTTGACGCCATCTCCTACAGCAAGGTGC
>CD13_LsgRNA336
AGTATGAGATGGACAGCGAGTTCGAGGGGG
>CD13_LsgRNA337
TGGCTGAGGCGGACGGGGTGGTGGAGGCCA
>CD13_LsgRNA338
TTCATGATGTCCCGCACGGTGGTGGGGAGT
>CD13_LsgRNA339
CTACTGCAACGCTATCGCCCAGGGCGGGGA
>CD13_LsgRNA340
ATTGTGCACACGGCTGCCACGCCCAGGAGG
>CD13_LsgRNA341
CATCTGCAGCCTGCATCTGTGTAGTGGCCA
>CD13_LsgRNA342
GCGTTGCAGTAGACGGTGGACCGCAGGTTG
>CD13_LsgRNA343
TCTGTGCCCGATTGATGACAGGGATGGCCT
>CD13_LsgRNA344
ACATTGCCCTCCATGTACTCGCTGCGGTAG
>CD13_LsgRNA345
ACTATGCGGAGCCCACCTGGAACTTGGTAA
>CD13_LsgRNA346
ACCGTGCGGGACATCATGAACCGCTGGACC
>CD13_LsgRNA347
TGGCTGCTACTGACCTCCTGCAGGTGGTCC
>CD13_LsgRNA348
TGATTGCTCATGAGCTGGCCCACCAGGTAG
>CD13_LsgRNA349
TTGTTGCTGCTGGAGGAGGACAGGGGGTCG
>CD13_LsgRNA350
TACGTGGACATCTTGGGCGTGGTGTGGAAC

>CD13_LsgRNA351
GTGCTGGAGCCCTTAAAAACGTACAGGCCC
>CD13_LsgRNA352
GCCGTGGCCCGCCGCAATGGCACTGGGCCG
>CD13_LsgRNA353
TCAGTGGCCTCCTTGCAGGTGAAACGGACG
>CD13_LsgRNA354
CTGTTGGCGTTCTTGTTCTTCTCCTGGGAG
>CD13_LsgRNA355
TTTCTGGGATCTCCCTCCAGTTGTTGGTAT
>CD13_LsgRNA356
ACGGTGGTGGGGAGTTGGATGGACCGGTTG
>CD13_LsgRNA357
GGGTTGGTGGTGGCTGAGGCGGACGGGGTG
>CD13_LsgRNA358
GGCATGTACTGTCTCTCTTCAATCAGGAAG
>CD13_LsgRNA359
AGGGTGTAGTTGAGCTTCTTGCTGTGGATG
>CD13_LsgRNA360
TCATTGTCAGTGAGTTCGACTACGTGGAGA
>CD13_LsgRNA361
CTGATGTGCTGAAGAGATCGTTCTGGGCTG
>CD13_LsgRNA362
CGGGTGTGGACAGCGGGTGGGAGGAGGCCA
>CD13_LsgRNA363
ATGGTGTTCTGGTAGGCAAAGGTGTGGAGG
>CD13_LsgRNA364
TCCTTGTTGCTGCTGGAGGAGGACAGGGGG
>CD13_LsgRNA365
ATATTTCCAAGTCCCTGGGCATCCTGGGGA
>CD13_LsgRNA366
AACCTTCCTGTTGGGGCAGGGTGGTGGCCA
>CD13_LsgRNA367
GGGCTTCTATATTTCCAAGTCCCTGGGCAT
>CD13_LsgRNA368
TGAATTCTGAGGGGCGGGTAACATTGGAAT
>CD13_LsgRNA369
GATGTTGAACTCGGCCTTCATGGCCGGCTC
>CD13_LsgRNA370
CTTGTTGCTGCTGGAGGAGGACAGGGGGTC
>CD13_LsgRNA371
TACTTTGGTCCAAGGTGGTGGCCGAGGCGG
>CD13_LsgRNA372
GGGGTTGGTGGTGGCTGAGGCGGACGGGGT

>CD13_LsgRNA373
GGTGTTGTTCAGCGCCAGAGTGACAGGGAC
>CD13_LsgRNA374
ACGCTTTACTTTGGTCCAAGGTGGTGGCCG
>CD13_LsgRNA375
ATTATTTCTGAAGTGAATGAAGAGGGGTGT
>CD13_LsgRNA376
CATGTTTGACCGCTCCGAGGTCTATGGCCC
>CD13_LsgRNA377
CACCTTTGGGAAGCATGTTGGACAGGGCTG

(19) $\mathbb{S}_2^-$: 218 low on-target activity sgRNAs targeting CD15

>CD15_LsgRNA1
GGAAAAGCAGGTACGAGGCCAGGGAGGAGG
>CD15_LsgRNA2
TCGAAAGCCAGGTAGAACTTGTAGCGGGCC
>CD15_LsgRNA3
GTTGAAGCGCAGCCGGCAGTCAGGGGGCGG
>CD15_LsgRNA4
GTGGAAGTAGCGGCGATAGACCGCGGGGTT
>CD15_LsgRNA5
CCGAAATTGGGCTCCTGCACACAGTGGCCC
>CD15_LsgRNA6
CCGAACACGTCCACGGTCACATGTTGGCTC
>CD15_LsgRNA7
GGAAACAGGGGCTGGTGGCATGGGTGGTGA
>CD15_LsgRNA8
TTCCACCACCGCGACCTCGTGAAGGGGCCC
>CD15_LsgRNA9
GGGCACCGTGGGGCTCGCCGACGGCGGCGG
>CD15_LsgRNA10
GGCGACCTCCAGCCCCAGGCCCCCGGGCCA
>CD15_LsgRNA11
AGCCACTGGGACGAGCGCCAGGCCCGGGTC
>CD15_LsgRNA12
CGATAGACCGCGGGGTTGCGGTCGAGGAAA
>CD15_LsgRNA13
ACACAGACGGTCCATGGCAGCCCCCGGCCT
>CD15_LsgRNA14
CAGCAGCACGCCCACCGGTCGCGACGGGGT
>CD15_LsgRNA15
CGAAAGCCAGGTAGAACTTGTAGCGGGCCA
>CD15_LsgRNA16
ACCCAGCGCTGGCCCGGGGGCCTGGGGCTG

>CD15_LsgRNA17
AGGCAGCGGCGGCGGCAGAAGCCCTGGCGA
>CD15_LsgRNA18
CCGTAGGACGCGCGGTCGGTGAGCAGGCGG
>CD15_LsgRNA19
GTGCAGGAGCCCAATTTCGGGCACCGGCTG
>CD15_LsgRNA20
TACGAGGCCAGGGAGGAGGCACTTGGGAAG
>CD15_LsgRNA21
GGCCAGGCCTGAGGGCGGGTCGCCGGGGTG
>CD15_LsgRNA22
TGGAAGTAGCGGCGATAGACCGCGGGGTTG
>CD15_LsgRNA23
GGCCAGTCGGGGGGCCCCTTCACGAGGTCG
>CD15_LsgRNA24
GGACAGTGGCGGGGCCAGGCCTGAGGGCGG
>CD15_LsgRNA25
CGGCAGTGTGCGCCTGGATGCCCCAGGGCG
>CD15_LsgRNA26
TCGAAGTTCATCCAAACCCAGCGCTGGCCC
>CD15_LsgRNA27
GTCCAGTTGAAGAGGTTACTTGCCAGGCTT
>CD15_LsgRNA28
GTTCATCCAAACCCAGCGCTGGCCCGGGGG
>CD15_LsgRNA29
TGCCATGGACCGTCTGTGTGCTGGCGGCCG
>CD15_LsgRNA30
CCCAATTTCGGGCACCGGCTGCCCCGGCCC
>CD15_LsgRNA31
GGCACAAAGCGCTCGTAGTTGGCACGGTCT
>CD15_LsgRNA32
GGCGCAACGCGTTGCTCGCTGGGGCGGTGC
>CD15_LsgRNA33
TTTCCACCACCGCGACCTCGTGAAGGGGCC
>CD15_LsgRNA34
AAGCCACCCCGGCGACCCGCCCTCAGGCCT
>CD15_LsgRNA35
GCAGCACGCCCACCGGTCGCGACGGGGTTG
>CD15_LsgRNA36
CCAACACGCGCAGATCCACCTCCTCGGCAG
>CD15_LsgRNA37
CGTCCACGTGGATGAAGGCGCCGCGGGGCA
>CD15_LsgRNA38
TGATCAGCGCCGTACACGTCAAGCCGGCGG

>CD15_LsgRNA39
AACCCAGCGCTGGCCCGGGGGCCTGGGGCT
>CD15_LsgRNA40
TGGACAGCGTAGCTCCGGCGCCAGTGGAAG
>CD15_LsgRNA41
GCGGCAGCTGCCCCCAGCAAGCGTAGGTGA
>CD15_LsgRNA42
GCCCCAGGCCCCCGGGCCAGCGCTGGGTTT
>CD15_LsgRNA43
GGGCCAGGCCTGAGGGCGGGTCGCCGGGGT
>CD15_LsgRNA44
GCCCCAGGGCGGGGGCCAGTCGGGGGGCCC
>CD15_LsgRNA45
AAAGCAGGTACGAGGCCAGGGAGGAGGCAC
>CD15_LsgRNA46
TGGACAGTGGCGGGGCCAGGCCTGAGGGCG
>CD15_LsgRNA47
GGGGCATCCAGGCGCACACTGCCGAGGAGG
>CD15_LsgRNA48
CCAACATGTGACCGTGGACGTGTTCGGCCG
>CD15_LsgRNA49
TCATCCAAACCCAGCGCTGGCCCGGGGGCC
>CD15_LsgRNA50
AAACCCAGCGCTGGCCCGGGGGCCTGGGGC
>CD15_LsgRNA51
AGCCCCAGGCCCCCGGGCCAGCGCTGGGTT
>CD15_LsgRNA52
GCATCCAGGCGCACACTGCCGAGGAGGTGG
>CD15_LsgRNA53
TGCCCCAGGGCGGGGGCCAGTCGGGGGGCC
>CD15_LsgRNA54
CACGCCCACCGGTCGCGACGGGGTTGGCGA
>CD15_LsgRNA55
ATGCCCCAGGGCGGGGGCCAGTCGGGGGGC
>CD15_LsgRNA56
GATGCCCCAGGGCGGGGGCCAGTCGGGGGG
>CD15_LsgRNA57
GGGCCCCCCGACTGGCCCCCGCCCTGGGGC
>CD15_LsgRNA58
GGCCCCCCGACTGGCCCCCGCCCTGGGGCA
>CD15_LsgRNA59
GCCCCCCGACTGGCCCCCGCCCTGGGGCAT
>CD15_LsgRNA60
TGGCCCCGCCACTGTCCAGGAAACAGGGGC

>CD15_LsgRNA61
GAAGCCCTGGCGACCTCCAGCCCCAGGCCC
>CD15_LsgRNA62
TGCCCCGCGGCGCCTTCATCCACGTGGACG
>CD15_LsgRNA63
GGCACCGGCTGCCCCGGCCCGCCCCGGCCG
>CD15_LsgRNA64
TCGGCCGGGGCGGGCCGGGGCAGCCGGTGC
>CD15_LsgRNA65
TCCACCTCCTCGGCAGTGTGCGCCTGGATG
>CD15_LsgRNA66
ATCACCTCCTTCTGGGACGAGCCTTGGTGC
>CD15_LsgRNA67
AGCCCCTGTTTCCTGGACAGTGGCGGGGCC
>CD15_LsgRNA68
GGCCCCTTCACGAGGTCGCGGTGGTGGAAA
>CD15_LsgRNA69
TCGCCGACGGCGGCGGCGGGCGGGCGGCGC
>CD15_LsgRNA70
GTCGCGACGGGGTTGGCGACGCCCAGGGCA
>CD15_LsgRNA71
TCGGCGAGCCCCACGGTGCCCCCATGGCGC
>CD15_LsgRNA72
ACTTCGAGTCGCCCTCGCACTCCCCGGGGC
>CD15_LsgRNA73
GAAGCGCAGCCGGCAGTCAGGGGGCGGCCT
>CD15_LsgRNA74
GCGCCGCCCGCCCGCCGCCGCCGTCGGCGA
>CD15_LsgRNA75
GGCTCGCCGACGGCGGCGGCGGGCGGGCGG
>CD15_LsgRNA76
TCAGCGCCGTACACGTCAAGCCGGCGGCCG
>CD15_LsgRNA77
TGTGCGCCTGGATGCCCCAGGGCGGGGGCC
>CD15_LsgRNA78
TGTTCGCGCCATGGGGGCACCGTGGGGCTC
>CD15_LsgRNA79
GCGGCGCGGGTGGCGCCGAGGCCGGGGGCT
>CD15_LsgRNA80
GCAACGCGTTGCGCCAGAGCTTCTCGGTGA
>CD15_LsgRNA81
AAAGCGCTCGTAGTTGGCACGGTCTGGGCC
>CD15_LsgRNA82
ACGGCGCTGATCACCTACGCTTGCTGGGGG

>CD15_LsgRNA83
CAGCCGCTGATGTTGAAGCGCAGCCGGCAG
>CD15_LsgRNA84
CAGCCGGCAGTCAGGGGGCGGCCTCGGGGC
>CD15_LsgRNA85
ACCCCGGCGACCCGCCCTCAGGCCTGGCCC
>CD15_LsgRNA86
ACGGCGGCGGCGGGCGGGCGGCGCGGGTGG
>CD15_LsgRNA87
GCGGCGGCGGGCGGGCGGCGCGGGTGGCGC
>CD15_LsgRNA88
CTGCCGGCTGCGCTTCAACATCAGCGGCTG
>CD15_LsgRNA89
TCGCCGGGGTGGCTTCTGGGGTAGAGGTAG
>CD15_LsgRNA90
AGGGCGGGTCGCCGGGGTGGCTTCTGGGGT
>CD15_LsgRNA91
TCCACGGTCACATGTTGGCTCAGTTGGTGG
>CD15_LsgRNA92
GGCACGGTCTGGGCCCAGCACCACCGGCAC
>CD15_LsgRNA93
CGACCGGTGGGCGTGCTGCTGTGGTGGGAG
>CD15_LsgRNA94
GGCTCGTCCCAGAAGGAGGTGATGTGGACA
>CD15_LsgRNA95
TGGACGTGTTCGGCCGGGGCGGGCCGGGGC
>CD15_LsgRNA96
TGGACTACGAGGAGGCAGCGGCGGCGGCAG
>CD15_LsgRNA97
CCTGCTCACCGACCGCGCGTCCTACGGAGA
>CD15_LsgRNA98
CGCACTCCCCGGGGCTGCGAAGCCTGGCAA
>CD15_LsgRNA99
CTACCTCTACCCCAGAAGCCACCCCGGCGA
>CD15_LsgRNA100
AGGCCTGAGGGCGGGTCGCCGGGGTGGCTT
>CD15_LsgRNA101
GGCGCTGATCACCTACGCTTGCTGGGGGCA
>CD15_LsgRNA102
CGTGCTGCTGTGGTGGGAGCCCTTCGGGGG
>CD15_LsgRNA103
TCAACTGGACGCTCTCCTACCGGGCGGACT
>CD15_LsgRNA104
AGCGCTGGCCCGGGGGCCTGGGGCTGGAGG

>CD15_LsgRNA105
GCTTCTGGGGTAGAGGTAGCCATAAGGCAC
>CD15_LsgRNA106
TACGCTGTCCACATCACCTCCTTCTGGGAC
>CD15_LsgRNA107
GCTGCTGTGGTGGGAGCCCTTCGGGGGGCG
>CD15_LsgRNA108
GTTACTTGCCAGGCTTCGCAGCCCCGGGGA
>CD15_LsgRNA109
CGAGGAAAAGCAGGTACGAGGCCAGGGAGG
>CD15_LsgRNA110
CCAGGAAACAGGGGCTGGTGGCATGGGTGG
>CD15_LsgRNA111
TGTTGAAGCGCAGCCGGCAGTCAGGGGGCG
>CD15_LsgRNA112
AGTGGAAGTAGCGGCGATAGACCGCGGGGT
>CD15_LsgRNA113
TTGGGAAGTCGTCCACGTGGATGAAGGCGC
>CD15_LsgRNA114
TCGCGACCGGTGGGCGTGCTGCTGTGGTGG
>CD15_LsgRNA115
ATGTGACCGTGGACGTGTTCGGCCGGGGCG
>CD15_LsgRNA116
TGGCGACCTCCAGCCCCAGGCCCCCGGGCC
>CD15_LsgRNA117
TCGCGACGGGGTTGGCGACGCCCAGGGCAG
>CD15_LsgRNA118
CAAAGACGTCCGAGTCCGCCCGGTAGGAGA
>CD15_LsgRNA119
TGGTGAGCCACTGGGACGAGCGCCAGGCCC
>CD15_LsgRNA120
GTACGAGGCCAGGGAGGAGGCACTTGGGAA
>CD15_LsgRNA121
CTTCGAGTCGCCCTCGCACTCCCCGGGGCT
>CD15_LsgRNA122
AGCAGCACGCCCACCGGTCGCGACGGGGTT
>CD15_LsgRNA123
GGGGGCAGCTGCCGCCGCTGCCCTGGGCGT
>CD15_LsgRNA124
GCCGGCAGTCAGGGGGCGGCCTCGGGGCGC
>CD15_LsgRNA125
GGCCGCCAGCACACAGACGGTCCATGGCAG
>CD15_LsgRNA126
GGCTGCCATGGACCGTCTGTGTGCTGGCGG

>CD15_LsgRNA127
GGATGCCCCAGGGCGGGGGCCAGTCGGGGG
>CD15_LsgRNA128
ACTGGCCCCCGCCCTGGGGCATCCAGGCGC
>CD15_LsgRNA129
GCTGGCCCGGGGGCCTGGGGCTGGAGGTCG
>CD15_LsgRNA130
TGGCGCCGAGGCCGGGGGCTGCCATGGACC
>CD15_LsgRNA131
CGCCGCCGCCGTCGGCGAGCCCCACGGTGC
>CD15_LsgRNA132
GTGCGCCTGGATGCCCCAGGGCGGGGGCCA
>CD15_LsgRNA133
TCAGGCCTGGCCCCGCCACTGTCCAGGAAA
>CD15_LsgRNA134
GGGGGCCTGGGGCTGGAGGTCGCCAGGGCT
>CD15_LsgRNA135
TCTGGCGCAACGCGTTGCTCGCTGGGGCGG
>CD15_LsgRNA136
GTGTGCGCCTGGATGCCCCAGGGCGGGGGC
>CD15_LsgRNA137
GGCGGCGCGGGTGGCGCCGAGGCCGGGGGC
>CD15_LsgRNA138
ATCTGCGCGTGTTGGACTACGAGGAGGCAG
>CD15_LsgRNA139
CGGGGCGCTATCGCGCCCCCCGAAGGGCTC
>CD15_LsgRNA140
GACGGCGGCGGCGGGCGGGCGGCGCGGGTG
>CD15_LsgRNA141
CGGCGCGGGTGGCGCCGAGGCCGGGGGCTG
>CD15_LsgRNA142
CGTTGCTCGCTGGGGCGGTGCCGGTGGTGC
>CD15_LsgRNA143
AAGCGCTCGTAGTTGGCACGGTCTGGGCCC
>CD15_LsgRNA144
GGACGCTCTCCTACCGGGCGGACTCGGACG
>CD15_LsgRNA145
CGGCGCTGATCACCTACGCTTGCTGGGGGC
>CD15_LsgRNA146
CAGCGCTGCCTGTTCGCGCCATGGGGGCAC
>CD15_LsgRNA147
AGGTGCTGCGAGTTCTCGAAAGCCAGGTAG
>CD15_LsgRNA148
CAGAGCTTCTCGGTGATATAATCCAGGTGC

>CD15_LsgRNA149
TCGAGGAAAAGCAGGTACGAGGCCAGGGAG
>CD15_LsgRNA150
TCCAGGAAACAGGGGCTGGTGGCATGGGTG
>CD15_LsgRNA151
TGTTGGACTACGAGGAGGCAGCGGCGGCGG
>CD15_LsgRNA152
CCGAGGAGGTGGATCTGCGCGTGTTGGACT
>CD15_LsgRNA153
TGGGGGCACCGTGGGGCTCGCCGACGGCGG
>CD15_LsgRNA154
CCGGGGCAGCCGGTGCCCGAAATTGGGCTC
>CD15_LsgRNA155
TGGGGGCAGCTGCCGCCGCTGCCCTGGGCG
>CD15_LsgRNA156
AGCCGGCAGTCAGGGGGCGGCCTCGGGGCG
>CD15_LsgRNA157
CAGTGGCCCGCTACAAGTTCTACCTGGCTT
>CD15_LsgRNA158
TGGCGGCCGCCGGCTTGACGTGTACGGCGC
>CD15_LsgRNA159
GCCAGGCCTGAGGGCGGGTCGCCGGGGTGG
>CD15_LsgRNA160
GGTTGGCGACGCCCAGGGCAGCGGCGGCAG
>CD15_LsgRNA161
TAGCGGCGATAGACCGCGGGGTTGCGGTCG
>CD15_LsgRNA162
CTCTGGCGCAACGCGTTGCTCGCTGGGGCG
>CD15_LsgRNA163
TCCAGGCGCACACTGCCGAGGAGGTGGATC
>CD15_LsgRNA164
GGGCGGCGCGGGTGGCGCCGAGGCCGGGGG
>CD15_LsgRNA165
TCGGGGCGCTATCGCGCCCCCCGAAGGGCT
>CD15_LsgRNA166
AGCCGGCGGCCGCCAGCACACAGACGGTCC
>CD15_LsgRNA167
CAGTGGCGGGGCCAGGCCTGAGGGCGGGTC
>CD15_LsgRNA168
TGTTGGCTCAGTTGGTGGTAGTAGCGGACC
>CD15_LsgRNA169
GTGGGGCTCGCCGACGGCGGCGGCGGGCGG
>CD15_LsgRNA170
CGCGGGGCACAAAGCGCTCGTAGTTGGCAC

>CD15_LsgRNA171
GCCGGGGCAGCCGGTGCCCGAAATTGGGCT
>CD15_LsgRNA172
GGGCGGGCGGCGCGGGTGGCGCCGAGGCCG
>CD15_LsgRNA173
CGTGGGGCTCGCCGACGGCGGCGGCGGGCG
>CD15_LsgRNA174
CGCTGGGGCGGTGCCGGTGGTGCTGGGCCC
>CD15_LsgRNA175
TTCGGGGGGCGCGATAGCGCCCCGAGGCCG
>CD15_LsgRNA176
GGGCGGGTCGCCGGGGTGGCTTCTGGGGTA
>CD15_LsgRNA177
TGGTGGTAGTAGCGGACCCGGGCCTGGCGC
>CD15_LsgRNA178
GGCGGGTCGCCGGGGTGGCTTCTGGGGTAG
>CD15_LsgRNA179
CACTGTCCAGGAAACAGGGGCTGGTGGCAT
>CD15_LsgRNA180
GGGCGTCGCCAACCCCGTCGCGACCGGTGG
>CD15_LsgRNA181
GACCGTCTGTGTGCTGGCGGCCGCCGGCTT
>CD15_LsgRNA182
GACCGTGGACGTGTTCGGCCGGGGCGGGCC
>CD15_LsgRNA183
CACCGTGGGGCTCGCCGACGGCGGCGGCGG
>CD15_LsgRNA184
CACTGTGTGCAGGAGCCCAATTTCGGGCAC
>CD15_LsgRNA185
GGACGTGTTCGGCCGGGGCGGGCCGGGGCA
>CD15_LsgRNA186
ACGCGTTGCTCGCTGGGGCGGTGCCGGTGG
>CD15_LsgRNA187
GCGTGTTGGACTACGAGGAGGCAGCGGCGG
>CD15_LsgRNA188
CGGGGTTGGCGACGCCCAGGGCAGCGGCGG
>CD15_LsgRNA189
TTCATCCAAACCCAGCGCTGGCCCGGGGGC
>CD15_LsgRNA190
ACGGTCCATGGCAGCCCCCGGCCTCGGCGC
>CD15_LsgRNA191
TGTTTCCTGGACAGTGGCGGGGCCAGGCCT
>CD15_LsgRNA192
GGGCTCGCCGACGGCGGCGGCGGGCGGGCG

>CD15_LsgRNA193
CTGTTCGCGCCATGGGGGCACCGTGGGGCT
>CD15_LsgRNA194
GGACTCGGACGTCTTTGTGCCTTATGGCTA
>CD15_LsgRNA195
GACCTCGTGAAGGGGCCCCCCGACTGGCCC
>CD15_LsgRNA196
GCGGTCTATCGCCGCTACTTCCACTGGCGC
>CD15_LsgRNA197
TGGATCTGCGCGTGTTGGACTACGAGGAGG
>CD15_LsgRNA198
ATGTTGAAGCGCAGCCGGCAGTCAGGGGGC
>CD15_LsgRNA199
CATGTGACCGTGGACGTGTTCGGCCGGGGC
>CD15_LsgRNA200
GCGCTGATCACCTACGCTTGCTGGGGGCAG
>CD15_LsgRNA201
CCCATGCCACCAGCCCCTGTTTCCTGGACA
>CD15_LsgRNA202
AGTGTGCGCCTGGATGCCCCAGGGCGGGGG
>CD15_LsgRNA203
GTGCTGCTGTGGTGGGAGCCCTTCGGGGGG
>CD15_LsgRNA204
ACCGTGGACGTGTTCGGCCGGGGCGGGCCG
>CD15_LsgRNA205
AGCCTGGCAAGTAACCTCTTCAACTGGACG
>CD15_LsgRNA206
CTGGTGGCATGGGTGGTGAGCCACTGGGAC
>CD15_LsgRNA207
GCTCTGGCGCAACGCGTTGCTCGCTGGGGC
>CD15_LsgRNA208
TCGCTGGGGCGGTGCCGGTGGTGCTGGGCC
>CD15_LsgRNA209
ACGCTGTCCACATCACCTCCTTCTGGGACG
>CD15_LsgRNA210
CTGCTGTGGTGGGAGCCCTTCGGGGGGCGC
>CD15_LsgRNA211
CCACTGTGTGCAGGAGCCCAATTTCGGGCA
>CD15_LsgRNA212
GACGTGTTCGGCCGGGGCGGGCCGGGGCAG
>CD15_LsgRNA213
CCTGTTCGCGCCATGGGGGCACCGTGGGGC
>CD15_LsgRNA214
GATGTTGAAGCGCAGCCGGCAGTCAGGGGG

>CD15_LsgRNA215
TTACTTGCCAGGCTTCGCAGCCCCGGGGAG
>CD15_LsgRNA216
TCAGTTGGTGGTAGTAGCGGACCCGGGCCT
>CD15_LsgRNA217
TGCTTTTCCTCGACCGCAACCCCGCGGTCT
>CD15_LsgRNA218
TGGCTTTCGAGAACTCGCAGCACCTGGATT

(20) $\mathbb{S}_3^-$: 126 low on-target activity sgRNAs targeting CD33

>CD33_LsgRNA1
GAGGAAAGCAGCCAGGACAGCAGTGGGCAG
>CD33_LsgRNA2
ATCCAAATTTCTGGCTGCAAGTGCAGGAGT
>CD33_LsgRNA3
CAGGAATGACACCCACCCTACCACAGGGTC
>CD33_LsgRNA4
GGAAACAAGAGACCAGAGCAGGAGTGGTTC
>CD33_LsgRNA5
GCTCACAGGCCCAGGACACAGAGCAGGTCA
>CD33_LsgRNA6
ACTTACAGGTGACGTTGAGCTGGATGGTTC
>CD33_LsgRNA7
AGAGACCAGAGCAGGAGTGGTTCATGGGGC
>CD33_LsgRNA8
AATCACCCCACGGCCCCAGGACCACGGCAC
>CD33_LsgRNA9
GAGCACCGAGGAGTGAGTAGTCCTGGGGCC
>CD33_LsgRNA10
AAAAACCTGACCTGCTCTGTGTCCTGGGCC
>CD33_LsgRNA11
CCTGACCTGTCAGGTGAAGTTCGCTGGAGC
>CD33_LsgRNA12
AAGAACTCCCCAGTTCATGGTTACTGGTTC
>CD33_LsgRNA13
CAGCACTTACAGGTGACGTTGAGCTGGATG
>CD33_LsgRNA14
AGCCAGAAATTTGGATCCATAGCCAGGGCC
>CD33_LsgRNA15
ATCAAGAAGTACAGGAGGAGACTCAGGGCA
>CD33_LsgRNA16
CCACAGGCCCAAAATCCTCATCCCTGGCAC
>CD33_LsgRNA17
GGGGAGGCTGACCCTGTGGTAGGGTGGGTG

>CD33_LsgRNA18
GCTCAGGGAGCAGTTGTTCCTACTGGGATC
>CD33_LsgRNA19
ACTCAGGGCAGATTCCGCCTCCTTGGGGAT
>CD33_LsgRNA20
CAGCAGGGGCAGCAGTAGCAGCAGCGGCAT
>CD33_LsgRNA21
GGTCAGGTTGGTGCCGTGGTCCTGGGGCCG
>CD33_LsgRNA22
AGTGAGTAGTCCTGGGGCCCAGGGAGGTGG
>CD33_LsgRNA23
GAGTAGTCCTGGGGCCCAGGGAGGTGGGGG
>CD33_LsgRNA24
GAGGAGTGAGTAGTCCTGGGGCCCAGGGAG
>CD33_LsgRNA25
CTAGAGTGCCAGGGATGAGGATTTTGGGCC
>CD33_LsgRNA26
CCCCAGTTCATGGTTACTGGTTCCGGGAAG
>CD33_LsgRNA27
AGGGATAATGGTTCATACTTCTTTCGGATG
>CD33_LsgRNA28
AGGAATGACACCCACCCTACCACAGGGTCA
>CD33_LsgRNA29
GAAAATGCTCACATGAAGAAGATGAGGCAG
>CD33_LsgRNA30
TGTCATTCCTGCCCACTGCTGTCCTGGCTG
>CD33_LsgRNA31
CAAACAAGCTAGATCAAGAAGTACAGGAGG
>CD33_LsgRNA32
TGAGCACCGAGGAGTGAGTAGTCCTGGGGC
>CD33_LsgRNA33
CACTCACCGGGGAGGCTGACCCTGTGGTAG
>CD33_LsgRNA34
CAGCCACTCACCTGCCCACAGCAGGGGCAG
>CD33_LsgRNA35
AGACCAGAGCAGGAGTGGTTCATGGGGCCA
>CD33_LsgRNA36
AAAGCAGCCAGGACAGCAGTGGGCAGGAAT
>CD33_LsgRNA37
TCCCCAGCTCTCTGTGCATGTGACAGGTGA
>CD33_LsgRNA38
TGCTCAGGGAGCAGTTGTTCCTACTGGGAT
>CD33_LsgRNA39
GACTCAGGGCAGATTCCGCCTCCTTGGGGA

>CD33_LsgRNA40
CTGTCAGGTGAAGTTCGCTGGAGCTGGTGT
>CD33_LsgRNA41
AGGTCAGGTTGGTGCCGTGGTCCTGGGGCC
>CD33_LsgRNA42
TCCCCAGTTCATGGTTACTGGTTCCGGGAA
>CD33_LsgRNA43
TGCTCATAATCACCCCACGGCCCCAGGACC
>CD33_LsgRNA44
TGAGCATCGTAGACGCCAGGAGGAGGGATA
>CD33_LsgRNA45
GGTTCATGGGGCCATTGGAGGAGCTGGTGT
>CD33_LsgRNA46
AGTTCATGGTTACTGGTTCCGGGAAGGAGC
>CD33_LsgRNA47
GAGACCAGAGCAGGAGTGGTTCATGGGGCC
>CD33_LsgRNA48
TCTCCCATCAGAGTGAAGACCCACAGGAGG
>CD33_LsgRNA49
AAGACCCACAGGAGGAAAGCAGCCAGGACA
>CD33_LsgRNA50
CAGGCCCAGGACACAGAGCAGGTCAGGTTT
>CD33_LsgRNA51
GTTTCCCCACAGGGGCCCTGGCTATGGATC
>CD33_LsgRNA52
TGGGCCCCAGGACTACTCACTCCTCGGTGC
>CD33_LsgRNA53
GCTGCCCCCACCTCCCTGGGCCCCAGGACT
>CD33_LsgRNA54
TGCTCCCTGAGCATCGTAGACGCCAGGAGG
>CD33_LsgRNA55
AGCACCGAGGAGTGAGTAGTCCTGGGGCCC
>CD33_LsgRNA56
TTCTCCTCACTAGACTTGACCCACAGGCCC
>CD33_LsgRNA57
AAAACCTGACCTGCTCTGTGTCCTGGGCCT
>CD33_LsgRNA58
CTGTCCTGGCTGCTTTCCTCCTGTGGGTCT
>CD33_LsgRNA59
TAGTCCTGGGGCCCAGGGAGGTGGGGGCAG
>CD33_LsgRNA60
CCAGCGAACTTCACCTGACAGGTCAGGTTG
>CD33_LsgRNA61
AGTTCGCTGGAGCTGGTGTGACTACGGAGA

>CD33_LsgRNA62
TTCCCGGAACCAGTAACCATGAACTGGGGA
>CD33_LsgRNA63
ACCACGGCACCAACCTGACCTGTCAGGTGA
>CD33_LsgRNA64
AGATCGGGGGTGTTCCCTGCTCACAGGCCC
>CD33_LsgRNA65
GCAGCTGACAACCAGGAGAAGATCGGGGGT
>CD33_LsgRNA66
GCTACTGCTGCCCCTGCTGTGGGCAGGTGA
>CD33_LsgRNA67
TCACCTGTCACATGCACAGAGAGCTGGGGA
>CD33_LsgRNA68
CGAACTTCACCTGACAGGTCAGGTTGGTGC
>CD33_LsgRNA69
GGAGGAAAGCAGCCAGGACAGCAGTGGGCA
>CD33_LsgRNA70
GCCAGAAATTTGGATCCATAGCCAGGGCCC
>CD33_LsgRNA71
CAGGGAACACCCCCGATCTTCTCCTGGTTG
>CD33_LsgRNA72
TCAAGAAGTACAGGAGGAGACTCAGGGCAG
>CD33_LsgRNA73
CTACGACAAGAACTCCCCAGTTCATGGTTA
>CD33_LsgRNA74
ACCTGACAGGTCAGGTTGGTGCCGTGGTCC
>CD33_LsgRNA75
CGTAGACGCCAGGAGGAGGGATAATGGTTC
>CD33_LsgRNA76
TGAGGCAGAGACAAAGAGCGAGCAGGGCTG
>CD33_LsgRNA77
CACAGCCACTCACCTGCCCACAGCAGGGGC
>CD33_LsgRNA78
TTCCGCCTCCTTGGGGATCCCAGTAGGAAC
>CD33_LsgRNA79
TGCTGCTACTGCTGCCCCTGCTGTGGGCAG
>CD33_LsgRNA80
ACAAGCTAGATCAAGAAGTACAGGAGGAGA
>CD33_LsgRNA81
GGCAGCTGACAACCAGGAGAAGATCGGGGG
>CD33_LsgRNA82
TCCGGGAAGGAGCCATTATATCCAGGGACT
>CD33_LsgRNA83
AGCAGGAGTGGTTCATGGGGCCATTGGAGG

>CD33_LsgRNA84
ATGAGGCAGAGACAAAGAGCGAGCAGGGCT
>CD33_LsgRNA85
GGGAGGCTGACCCTGTGGTAGGGTGGGTGT
>CD33_LsgRNA86
TGCAGGGAAACAAGAGACCAGAGCAGGAGT
>CD33_LsgRNA87
TTCCGGGAAGGAGCCATTATATCCAGGGAC
>CD33_LsgRNA88
GCTGGGGAGATTTGTAACTGTATTTGGTAC
>CD33_LsgRNA89
ACCGGGGAGGCTGACCCTGTGGTAGGGTGG
>CD33_LsgRNA90
CTCAGGGCAGATTCCGCCTCCTTGGGGATC
>CD33_LsgRNA91
CACCGGGGAGGCTGACCCTGTGGTAGGGTG
>CD33_LsgRNA92
AACTGGGGAGTTCTTGTCGTAGTAGGGTAT
>CD33_LsgRNA93
GGGAGGTGGGGGCAGCTGACAACCAGGAGA
>CD33_LsgRNA94
GGTTGTCAGCTGCCCCCACCTCCCTGGGCC
>CD33_LsgRNA95
AGTAGTCCTGGGGCCCAGGGAGGTGGGGGC
>CD33_LsgRNA96
AGGAGTGAGTAGTCCTGGGGCCCAGGGAGG
>CD33_LsgRNA97
GTTGGTGCCGTGGTCCTGGGGCCGTGGGGT
>CD33_LsgRNA98
AGGAGTGGTTCATGGGGCCATTGGAGGAGC
>CD33_LsgRNA99
CTCTGTGTCCTGGGCCTGTGAGCAGGGAAC
>CD33_LsgRNA100
CCGGGTTCTAGAGTGCCAGGGATGAGGATT
>CD33_LsgRNA101
ACCCTACCACAGGGTCAGCCTCCCCGGTGA
>CD33_LsgRNA102
TTCCTACTGGGATCCCCAAGGAGGCGGAAT
>CD33_LsgRNA103
TTCATACTTCTTTCGGATGGAGAGAGGAAG
>CD33_LsgRNA104
GTTGTCAGCTGCCCCCACCTCCCTGGGCCC
>CD33_LsgRNA105
CAGGTCAGGTTGGTGCCGTGGTCCTGGGGC

>CD33_LsgRNA106
CAGCTCCAGCGAACTTCACCTGACAGGTCA
>CD33_LsgRNA107
TTGTTCCTACTGGGATCCCCAAGGAGGCGG
>CD33_LsgRNA108
GCTGTCCTGGCTGCTTTCCTCCTGTGGGTC
>CD33_LsgRNA109
GTAGTCCTGGGGCCCAGGGAGGTGGGGGCA
>CD33_LsgRNA110
TTGATCTAGCTTGTTTGTGGCCACTGGAGA
>CD33_LsgRNA111
AGTATGAACCATTATCCCTCCTCCTGGCGT
>CD33_LsgRNA112
CTCCTGCACTTGCAGCCAGAAATTTGGATC
>CD33_LsgRNA113
AGGATGCCCCATCACTCACCGGGGAGGCTG
>CD33_LsgRNA114
TTGGTGCCGTGGTCCTGGGGCCGTGGGGTG
>CD33_LsgRNA115
CTGCTGCTACTGCTGCCCCTGCTGTGGGCA
>CD33_LsgRNA116
CCACTGGAGAGTCCCTGGATATAATGGCTC
>CD33_LsgRNA117
TCCCTGGATATAATGGCTCCTTCCCGGAAC
>CD33_LsgRNA118
GGAGTGGCCGGGTTCTAGAGTGCCAGGGAT
>CD33_LsgRNA119
GCCCTGGCTATGGATCCAAATTTCTGGCTG
>CD33_LsgRNA120
GAACTGGGGAGTTCTTGTCGTAGTAGGGTA
>CD33_LsgRNA121
ATAATGGTTCATACTTCTTTCGGATGGAGA
>CD33_LsgRNA122
GGGCTGTAACACCAGCTCCTCCAATGGCCC
>CD33_LsgRNA123
GCTCTGTGTCCTGGGCCTGTGAGCAGGGAA
>CD33_LsgRNA124
GGGGTGTTCCCTGCTCACAGGCCCAGGACA
>CD33_LsgRNA125
GTACTTCTTGATCTAGCTTGTTTGTGGCCA
>CD33_LsgRNA126
GGAGTTCTTGTCGTAGTAGGGTATGGGATG

(21) $\mathbb{S}_4^-$: 119 low on-target activity sgRNAs targeting CCDC101

>CCDC101_LsgRNA1
TGAGAAGTTCTGCAATGCGGGAATCGGCAG
>CCDC101_LsgRNA2
CCCCACAGCCCCAGGATGACTACTCGGTCC
>CCDC101_LsgRNA3
TCAAACAGGACCGAGTAGTCATCCTGGGGC
>CCDC101_LsgRNA4
ACTCACAGGCCCCCACCCCTCTGTGGGGCC
>CCDC101_LsgRNA5
GTGAACATCCAGAAGACCCATGAGCGGATG
>CCDC101_LsgRNA6
TGTCACCAGGCTTCCCGATCCACAGGGGCA
>CCDC101_LsgRNA7
GGCCACGCAGCTTTGTCCGGTAATAGGGAG
>CCDC101_LsgRNA8
TTCCACTGGGGCAGCGGGATGACACGGCGC
>CCDC101_LsgRNA9
GTGTAGAGGCCACGCAGCTTTGTCCGGTAA
>CCDC101_LsgRNA10
TAGAAGCAGGTAGTCTGGGGATACAGGGCC
>CCDC101_LsgRNA11
GGGCAGCCACCTTGTCTCCAGGTCTGGCCA
>CCDC101_LsgRNA12
GGGGAGGGGAATAGCCATCTGCATAGGAGG
>CCDC101_LsgRNA13
GGCCATGACCCTGCCCCTGTGGATCGGGAA
>CCDC101_LsgRNA14
AGGGATGGCCCCACAGAGGGGTGGGGGCCT
>CCDC101_LsgRNA15
AGTCATTGTAGAGACCGGCAATCTTGGCCG
>CCDC101_LsgRNA16
GAGACAAGGTGGCTGCCCGGGTGAAGGCCG
>CCDC101_LsgRNA17
CCCTCAATGTGGCTCAGAGATACGTGGTGG
>CCDC101_LsgRNA18
TTGTCACCAGGCTTCCCGATCCACAGGGGC
>CCDC101_LsgRNA19
CTCACAGGCCCCCACCCCTCTGTGGGGCCA
>CCDC101_LsgRNA20
TCTGCATAGGAGGTGTCTTCAAACAGGACC
>CCDC101_LsgRNA21
GGGTCATCAGCACCCCTCTGCGCATGGTCT
>CCDC101_LsgRNA22
CTGGCCACGTAGTCTCCTGAGGCAGGGATG

>CCDC101_LsgRNA23
GGATCCACTGCTCGTCCCCATCCACGGCCT
>CCDC101_LsgRNA24
AGGGCCAGCACGAGCTGCTCCTTCTGGAAC
>CCDC101_LsgRNA25
TCCCCCAGGAGACACACCCTGAGCCGGCGC
>CCDC101_LsgRNA26
CCTTCCCACAGCGGCCAAGATTGCCGGTCT
>CCDC101_LsgRNA27
CGTCCCCATCCACGGCCTTCACCCGGGCAG
>CCDC101_LsgRNA28
TCGTCCCCATCCACGGCCTTCACCCGGGCA
>CCDC101_LsgRNA29
GCCACCCCGGAAGACCATGCGCAGAGGGGT
>CCDC101_LsgRNA30
AGCACCCCTCTGCGCATGGTCTTCCGGGGT
>CCDC101_LsgRNA31
CCTGCCCCTGTGGATCGGGAAGCCTGGTGA
>CCDC101_LsgRNA32
CCACCCCGGAAGACCATGCGCAGAGGGGTG
>CCDC101_LsgRNA33
GCTGCCCGGGTGAAGGCCGTGGATGGGGAC
>CCDC101_LsgRNA34
GCACCCCTCTGCGCATGGTCTTCCGGGGTG
>CCDC101_LsgRNA35
CGGACCCTGAGGCCTTGTTCCAGAAGGAGC
>CCDC101_LsgRNA36
CCATCCCTGCCTCAGGAGACTACGTGGCCA
>CCDC101_LsgRNA37
GGCGCCGGCTCAGGGTGTGTCTCCTGGGGG
>CCDC101_LsgRNA38
CTGCCCGGGTGAAGGCCGTGGATGGGGACG
>CCDC101_LsgRNA39
AAGGCCGTGGATGGGGACGAGCAGTGGATC
>CCDC101_LsgRNA40
CACCCCTCTGCGCATGGTCTTCCGGGGTGG
>CCDC101_LsgRNA41
TTTTCCTTACAGGAAGAGCGTTCGCGGAGC
>CCDC101_LsgRNA42
TGCTCCTTCTGGAACAAGGCCTCAGGGTCC
>CCDC101_LsgRNA43
GGGACGAGCAGTGGATCCTGGCCGAGGTGG
>CCDC101_LsgRNA44
GCCACGCAGCTTTGTCCGGTAATAGGGAGA

>CCDC101_LsgRNA45
AGATCGCGGAAATCAAGTCTCTGTTGGAAG
>CCDC101_LsgRNA46
AGGGCGCGGTAGAAGCAGGTAGTCTGGGGA
>CCDC101_LsgRNA47
CAGTCGGCCATGACCCTGCCCCTGTGGATC
>CCDC101_LsgRNA48
GCATCGGCCTTGGCGGTTGTGTAGAGGCCA
>CCDC101_LsgRNA49
GCGCCGGCTCAGGGTGTGTCTCCTGGGGGA
>CCDC101_LsgRNA50
CACCCGGGCAGCCACCTTGTCTCCAGGTCT
>CCDC101_LsgRNA51
ACCACGTATCTCTGAGCCACATTGAGGGGA
>CCDC101_LsgRNA52
ACTACGTGGCCAGACCTGGAGACAAGGTGG
>CCDC101_LsgRNA53
TGCACTCAGCCTCTGCATCGGCCTTGGCGG
>CCDC101_LsgRNA54
CCGTCTCCGGGTTGGCCTTCCACTGGGGCA
>CCDC101_LsgRNA55
GTATCTCTGAGCCACATTGAGGGGAGGGGA
>CCDC101_LsgRNA56
TGTTCTCTGTCTGCATCCGCTCATGGGTCT
>CCDC101_LsgRNA57
TCCTCTGCAGTTTCTCCCTATTACCGGACA
>CCDC101_LsgRNA58
CCCTCTGCGCATGGTCTTCCGGGGTGGCTC
>CCDC101_LsgRNA59
AGACCTGGAGACAAGGTGGCTGCCCGGGTG
>CCDC101_LsgRNA60
AGCTCTGTGAGAAGTTCTGCAATGCGGGAA
>CCDC101_LsgRNA61
GTCTCTGTTGGAAGAGAGGCGGATTGGTGA
>CCDC101_LsgRNA62
CAGGCTTCCCGATCCACAGGGGCAGGGTCA
>CCDC101_LsgRNA63
CTCACTTGCACTCAGCCTCTGCATCGGCCT
>CCDC101_LsgRNA64
GTTTGAAGACACCTCCTATGCAGATGGCTA
>CCDC101_LsgRNA65
CTCAGAGATACGTGGTGGCTTGTAAGGAAC
>CCDC101_LsgRNA66
GCACGAGCTGCTCCTTCTGGAACAAGGCCT

>CCDC101_LsgRNA67

TCCCGATCCACAGGGGCAGGGTCATGGCCG

>CCDC101_LsgRNA68

CCCTGATCCATGCGCCCCCACAGCGGGTAA

>CCDC101_LsgRNA69

GCGGGATGACACGGCGCCGGCTCAGGGTGT

>CCDC101_LsgRNA70

TGCTGATGACCCTGCTGCAGCAGTCGGCCA

>CCDC101_LsgRNA71

CAGGGATGGCCCCACAGAGGGGTGGGGGCC

>CCDC101_LsgRNA72

TGGGGCAGCGGGATGACACGGCGCCGGCTC

>CCDC101_LsgRNA73

TGAGGCAGGGATGGCCCCACAGAGGGGTGG

>CCDC101_LsgRNA74

GTCTGCATCCGCTCATGGGTCTTCTGGATG

>CCDC101_LsgRNA75

TCTGGCCACGTAGTCTCCTGAGGCAGGGAT

>CCDC101_LsgRNA76

CGCTGCCCCAGTGGAAGGCCAACCCGGAGA

>CCDC101_LsgRNA77

GGCTGCCCGGGTGAAGGCCGTGGATGGGGA

>CCDC101_LsgRNA78

CAATGCGGGAATCGGCAGACACGAGGGCCA

>CCDC101_LsgRNA79

GGGCGCGGTAGAAGCAGGTAGTCTGGGGAT

>CCDC101_LsgRNA80

ACCCGCTGTGGGGGCGCATGGATCAGGGCG

>CCDC101_LsgRNA81

CCAGGCTTCCCGATCCACAGGGGCAGGGTC

>CCDC101_LsgRNA82

GAGGGGAATAGCCATCTGCATAGGAGGTGT

>CCDC101_LsgRNA83

CTCAGGAGACTACGTGGCCAGACCTGGAGA

>CCDC101_LsgRNA84

CCCTGGAGGCTGCTTTACCCGCTGTGGGGG

>CCDC101_LsgRNA85

CTGAGGCAGGGATGGCCCCACAGAGGGGTG

>CCDC101_LsgRNA86

ACGTGGCCAGACCTGGAGACAAGGTGGCTG

>CCDC101_LsgRNA87

AGGTGGCTGCCCGGGTGAAGGCCGTGGATG

>CCDC101_LsgRNA88

GGCAGGGATGGCCCCACAGAGGGGTGGGGG

>CCDC101_LsgRNA89
TGTGGGGGCGCATGGATCAGGGCGCGGTAG
>CCDC101_LsgRNA90
ACCTGGGTTTGTTTGATCAGCTGATGGAGC
>CCDC101_LsgRNA91
CCAGGGTTGGTGTCACTCACTTGTTGGTGG
>CCDC101_LsgRNA92
TGAGGTAGATGACATCGATGAAGAAGGCAA
>CCDC101_LsgRNA93
CCACGTAGTCTCCTGAGGCAGGGATGGCCC
>CCDC101_LsgRNA94
CCACGTATCTCTGAGCCACATTGAGGGGAG
>CCDC101_LsgRNA95
CCCAGTGGAAGGCCAACCCGGAGACGGACC
>CCDC101_LsgRNA96
CGCCGTGTCATCCCGCTGCCCCAGTGGAAG
>CCDC101_LsgRNA97
CACGTATCTCTGAGCCACATTGAGGGGAGG
>CCDC101_LsgRNA98
TCCCTATTACCGGACAAAGCTGCGTGGCCT
>CCDC101_LsgRNA99
GAAATCAAGTCTCTGTTGGAAGAGAGGCGG
>CCDC101_LsgRNA100
GGTGTCACTCACTTGTTGGTGGCATGGCTG
>CCDC101_LsgRNA101
AGGGTCATGGCCGACTGCTGCAGCAGGGTC
>CCDC101_LsgRNA102
CTTCTCCCCGCCCTCAGCATCCTTCGGAAA
>CCDC101_LsgRNA103
CTGCTCCTTCTGGAACAAGGCCTCAGGGTC
>CCDC101_LsgRNA104
CCTGTCTGCCTGCCCCACAGCCCCAGGATG
>CCDC101_LsgRNA105
GCCATGACCCTGCCCCTGTGGATCGGGAAG
>CCDC101_LsgRNA106
GCCCTGATCCATGCGCCCCCACAGCGGGTA
>CCDC101_LsgRNA107
AGATTGCCGGTCTCTACAATGACTCGGAGC
>CCDC101_LsgRNA108
GCAATGCGGGAATCGGCAGACACGAGGGCC
>CCDC101_LsgRNA109
CAGCTGCTGCCCTCACTTGTCACCAGGCTT
>CCDC101_LsgRNA110
TGCGTGGCCTCTACACAACCGCCAAGGCCG

>CCDC101_LsgRNA111
GGGTTGGCCTTCCACTGGGGCAGCGGGATG
>CCDC101_LsgRNA112
TGGATGGGGACGAGCAGTGGATCCTGGCCG
>CCDC101_LsgRNA113
GGGTTGGTGTCACTCACTTGTTGGTGGCAT
>CCDC101_LsgRNA114
TGGCTGTAACTGACCACCTCGGCCAGGATC
>CCDC101_LsgRNA115
GCTCTGTGAGAAGTTCTGCAATGCGGGAAT
>CCDC101_LsgRNA116
TCAATGTGGCTCAGAGATACGTGGTGGCTT
>CCDC101_LsgRNA117
CCTCTGTGGGGCCATCCCTGCCTCAGGAGA
>CCDC101_LsgRNA118
TGCTTTACCCGCTGTGGGGGCGCATGGATC
>CCDC101_LsgRNA119
CGGGTTGGCCTTCCACTGGGGCAGCGGGAT

(22) $\mathbb{S}_5^-$: 1478 low on-target activity sgRNAs targeting MED12

>MED12_LsgRNA1
GCCAAAAACCAGGGGCCGGTGCTGAGGGCA
>MED12_LsgRNA2
GCCAAAAACCAGGGGCCGGTGCTGAGGGCA
>MED12_LsgRNA3
TGAGAAACATAAGGAGTATAGCCCTGGAGG
>MED12_LsgRNA4
TGAGAAACATAAGGAGTATAGCCCTGGAGG
>MED12_LsgRNA5
CCAAAAACCAGGGGCCGGTGCTGAGGGCAC
>MED12_LsgRNA6
CCAAAAACCAGGGGCCGGTGCTGAGGGCAC
>MED12_LsgRNA7
TGTTAAAGGCTGCTGGGGAAGAATTGGAGA
>MED12_LsgRNA8
TGTTAAAGGCTGCTGGGGAAGAATTGGAGA
>MED12_LsgRNA9
CCGCAAAGGGACAGCAGAAACTGGTGGGTT
>MED12_LsgRNA10
CCGCAAAGGGACAGCAGAAACTGGTGGGTT
>MED12_LsgRNA11
GAGGAACAGAAGAACTTCCAGAGGAGGAGG
>MED12_LsgRNA12
CAGCAACAGACAGCAGCTTTGGTCCGGCAA

>MED12_LsgRNA13
CAGCAACAGACAGCAGCTTTGGTCCGGCAA
>MED12_LsgRNA14
GGTCAACATGTCTCTTCTTAACCTTGGTCT
>MED12_LsgRNA15
GGTCAACATGTCTCTTCTTAACCTTGGTCT
>MED12_LsgRNA16
ATAGAACCAGGGTTTGGGTGGTGCAGGAGG
>MED12_LsgRNA17
ATAGAACCAGGGTTTGGGTGGTGCAGGAGG
>MED12_LsgRNA18
CTTCAACCCCTCAAAAAGATCCCAGGGCGA
>MED12_LsgRNA19
TTCGAACGCACCTCCTTCTGTTTGGGGTCC
>MED12_LsgRNA20
TTCGAACGCACCTCCTTCTGTTTGGGGTCC
>MED12_LsgRNA21
CCTTAACTACAGGCAAGGCTCCATAGGCCT
>MED12_LsgRNA22
CCTTAACTACAGGCAAGGCTCCATAGGCCT
>MED12_LsgRNA23
GATGAACTGCACATGCTGCACCAGAGGCAA
>MED12_LsgRNA24
GATGAACTGCACATGCTGCACCAGAGGCAA
>MED12_LsgRNA25
TTTCAACTGTCCCCTCAGGTGGGGAGGATG
>MED12_LsgRNA26
TTTCAACTGTCCCCTCAGGTGGGGAGGATG
>MED12_LsgRNA27
TAGGAAGAGCTGGGAGTCATCTGATGGACA
>MED12_LsgRNA28
TAGGAAGAGCTGGGAGTCATCTGATGGACA
>MED12_LsgRNA29
GCTGAAGCCCCTGGCGCTGGAACTGGGTGG
>MED12_LsgRNA30
GCTGAAGCCCCTGGCGCTGGAACTGGGTGG
>MED12_LsgRNA31
AAGCAAGGATACAGCGCTCTGCAGAGGAGC
>MED12_LsgRNA32
TGGTAAGGCTGGCTGGAGTAGCTGGGGGGC
>MED12_LsgRNA33
TGGTAAGGCTGGCTGGAGTAGCTGGGGGGC
>MED12_LsgRNA34
TTTCAATAACCAGCCTGCTGTCTCTGGGGA

>MED12_LsgRNA35
TTTCAATAACCAGCCTGCTGTCTCTGGGGA
>MED12_LsgRNA36
TCCAAATATGTTGGTACTGGGCTGTGGCTG
>MED12_LsgRNA37
TCCAAATATGTTGGTACTGGGCTGTGGCTG
>MED12_LsgRNA38
AGAAAATCACCAAGGATATCTTGAAGGTTC
>MED12_LsgRNA39
AGAAAATCACCAAGGATATCTTGAAGGTTC
>MED12_LsgRNA40
CTGCAATCCCACATGAGAAACATAAGGAGT
>MED12_LsgRNA41
CTGCAATCCCACATGAGAAACATAAGGAGT
>MED12_LsgRNA42
ATGAAATCCCAGTGCCTTACCCGCAGGATC
>MED12_LsgRNA43
ATGAAATCCCAGTGCCTTACCCGCAGGATC
>MED12_LsgRNA44
CTCCAATGAGTGCCCAGGGCGTCCAGGCAG
>MED12_LsgRNA45
CTCCAATGAGTGCCCAGGGCGTCCAGGCAG
>MED12_LsgRNA46
GCAGACAAAGCTGTAGCGGTTAGCAGGGTT
>MED12_LsgRNA47
GCAGACAAAGCTGTAGCGGTTAGCAGGGTT
>MED12_LsgRNA48
AAGAACAAATTTGGGGAGCTCTTCAGGTAA
>MED12_LsgRNA49
AAGAACAAATTTGGGGAGCTCTTCAGGTAA
>MED12_LsgRNA50
GCCCACAACCATGACTGGCGTCATGGGTTT
>MED12_LsgRNA51
GCCCACAACCATGACTGGCGTCATGGGTTT
>MED12_LsgRNA52
ATCTACAAGAGTAGGATTGGTAGAAGGGTG
>MED12_LsgRNA53
ATCTACAAGAGTAGGATTGGTAGAAGGGTG
>MED12_LsgRNA54
TATAACACACCTTAACTACAGGCAAGGCTC
>MED12_LsgRNA55
TATAACACACCTTAACTACAGGCAAGGCTC
>MED12_LsgRNA56
GCAAACACGGCTCCATCCACGATGCGGTTC

>MED12_LsgRNA57
GTACACAGAGGTCTTATAAGAGGAGGGTTC
>MED12_LsgRNA58
GTACACAGAGGTCTTATAAGAGGAGGGTTC
>MED12_LsgRNA59
TCACACAGGACTATGGAATGGGCCCGGGTC
>MED12_LsgRNA60
TCACACAGGACTATGGAATGGGCCCGGGTC
>MED12_LsgRNA61
AGAGACAGGCGGAGATTGAGGCTGAGGTTA
>MED12_LsgRNA62
AGAGACAGGCGGAGATTGAGGCTGAGGTTA
>MED12_LsgRNA63
AACCACAGGGGATGCGGAACTGAAAGGTTC
>MED12_LsgRNA64
AACCACAGGGGATGCGGAACTGAAAGGTTC
>MED12_LsgRNA65
TGACACATACCTGCAGTAGCTTCCTGGCAT
>MED12_LsgRNA66
TGACACATACCTGCAGTAGCTTCCTGGCAT
>MED12_LsgRNA67
ATCCACATCGACTGCTGGACAATGAGGATG
>MED12_LsgRNA68
ATCCACATCGACTGCTGGACAATGAGGATG
>MED12_LsgRNA69
GTAAACATCGGGAGGCCCCAGCCGCGGCCG
>MED12_LsgRNA70
GTAAACATCGGGAGGCCCCAGCCGCGGCCG
>MED12_LsgRNA71
CTCGACATCTGGCTTCTCAGGGGATGGACT
>MED12_LsgRNA72
CTCGACATCTGGCTTCTCAGGGGATGGACT
>MED12_LsgRNA73
TGGAACATGCCTCCTTCTTGAAGATGGAAT
>MED12_LsgRNA74
TGGAACATGCCTCCTTCTTGAAGATGGAAT
>MED12_LsgRNA75
TAACACATGTCCCTGGACTGAGGTGGGCAG
>MED12_LsgRNA76
TAACACATGTCCCTGGACTGAGGTGGGCAG
>MED12_LsgRNA77
AGGGACATGTGTTAAAGGCTGCTGGGGAAG
>MED12_LsgRNA78
AGGGACATGTGTTAAAGGCTGCTGGGGAAG

>MED12_LsgRNA79
GCAAACCAAAGCAGCTTATGCATGAGGCAC
>MED12_LsgRNA80
GCAAACCAAAGCAGCTTATGCATGAGGCAC
>MED12_LsgRNA81
CGATACCAAGGGCAACAAGATTGCTGGCTT
>MED12_LsgRNA82
CGATACCAAGGGCAACAAGATTGCTGGCTT
>MED12_LsgRNA83
GTGAACCAAGTGTTAATGGCACTCTGGGAT
>MED12_LsgRNA84
GTGAACCAAGTGTTAATGGCACTCTGGGAT
>MED12_LsgRNA85
TGAAACCACAAGTGCCATTGTTAGAGGAGC
>MED12_LsgRNA86
TGAAACCACAAGTGCCATTGTTAGAGGAGC
>MED12_LsgRNA87
CTCTACCACACACACCTGAGGCCCCGGCCC
>MED12_LsgRNA88
CTCTACCACACACACCTGAGGCCCCGGCCC
>MED12_LsgRNA89
ATACACCAGAGCGCTCTAGAGAGCTGGAGA
>MED12_LsgRNA90
ATACACCAGAGCGCTCTAGAGAGCTGGAGA
>MED12_LsgRNA91
TTCCACCCGCTCACTCTCACTTCGAGGGTC
>MED12_LsgRNA92
TTCCACCCGCTCACTCTCACTTCGAGGGTC
>MED12_LsgRNA93
GCGGACCCTCGAAGTGAGAGTGAGCGGGTG
>MED12_LsgRNA94
GCGGACCCTCGAAGTGAGAGTGAGCGGGTG
>MED12_LsgRNA95
GATGACCCTGTCTCTGCTGACTGTTGGAAA
>MED12_LsgRNA96
GATGACCCTGTCTCTGCTGACTGTTGGAAA
>MED12_LsgRNA97
GAACACCGGCCCCTGAAGCGGCCGCGGCTG
>MED12_LsgRNA98
GAACACCGGCCCCTGAAGCGGCCGCGGCTG
>MED12_LsgRNA99
TGGGACCTAGCAAGGATGGGCATGAGGTAA
>MED12_LsgRNA100
TGGGACCTAGCAAGGATGGGCATGAGGTAA

>MED12_LsgRNA101
GCTTACCTCATGCCCATCCTTGCTAGGTCC
>MED12_LsgRNA102
GCTTACCTCATGCCCATCCTTGCTAGGTCC
>MED12_LsgRNA103
TCACACCTTCACCTACACGGGGCTAGGCAA
>MED12_LsgRNA104
TCACACCTTCACCTACACGGGGCTAGGCAA
>MED12_LsgRNA105
AGCTACGAACACCGGCCCCTGAAGCGGCCG
>MED12_LsgRNA106
AGCTACGAACACCGGCCCCTGAAGCGGCCG
>MED12_LsgRNA107
AGGAACGCAAGAAGAAGTCCACCAAGGGCA
>MED12_LsgRNA108
AGGAACGCAAGAAGAAGTCCACCAAGGGCA
>MED12_LsgRNA109
GTACACGGAGACTGGCCCTGCAGCTGGATG
>MED12_LsgRNA110
GTACACGGAGACTGGCCCTGCAGCTGGATG
>MED12_LsgRNA111
AGGCACTAGGACAGCACAGGAGGATGGTCT
>MED12_LsgRNA112
AGGCACTAGGACAGCACAGGAGGATGGTCT
>MED12_LsgRNA113
CCCTACTATGCCCTGTGAGGGGAAGGGCAG
>MED12_LsgRNA114
CCCTACTATGCCCTGTGAGGGGAAGGGCAG
>MED12_LsgRNA115
CAGGACTATGGAATGGGCCCGGGTCGGAGC
>MED12_LsgRNA116
CAGGACTATGGAATGGGCCCGGGTCGGAGC
>MED12_LsgRNA117
AGGCACTCAAACTGCGGCTCAACCTGGTGA
>MED12_LsgRNA118
AGGCACTCAAACTGCGGCTCAACCTGGTGA
>MED12_LsgRNA119
TGCCACTCACACAGGACTATGGAATGGGCC
>MED12_LsgRNA120
TGCCACTCACACAGGACTATGGAATGGGCC
>MED12_LsgRNA121
TGGCACTCACCTGCAGGTAGTGGCTGGTTC
>MED12_LsgRNA122
AGCCACTCACGCAACTAGCCAAAAAGGTAA

>MED12_LsgRNA123
AGCCACTCACGCAACTAGCCAAAAAGGTAA
>MED12_LsgRNA124
CTGCACTCAGTGACTTGCAATAGCCGGTCA
>MED12_LsgRNA125
CTATACTCCTTATGTTTCTCATGTGGGATT
>MED12_LsgRNA126
CTATACTCCTTATGTTTCTCATGTGGGATT
>MED12_LsgRNA127
ACTGACTGATAGCAGAATTAAGACCGGCTC
>MED12_LsgRNA128
ACTGACTGATAGCAGAATTAAGACCGGCTC
>MED12_LsgRNA129
ATCGACTGCTGGACAATGAGGATGGGGAAA
>MED12_LsgRNA130
ATCGACTGCTGGACAATGAGGATGGGGAAA
>MED12_LsgRNA131
GGGTACTTCATACTTTGGAAGTGCTGGACA
>MED12_LsgRNA132
GGGTACTTCATACTTTGGAAGTGCTGGACA
>MED12_LsgRNA133
TAACACTTGGTTCACTGACTTGGCTGGCAC
>MED12_LsgRNA134
TAACACTTGGTTCACTGACTTGGCTGGCAC
>MED12_LsgRNA135
GAGCAGAAAGGGAGCCAGAGGCGATGGAAC
>MED12_LsgRNA136
GAGCAGAAAGGGAGCCAGAGGCGATGGAAC
>MED12_LsgRNA137
GAACAGAAGAACTTCCAGAGGAGGAGGGAG
>MED12_LsgRNA138
GAACAGAAGAACTTCCAGAGGAGGAGGGAG
>MED12_LsgRNA139
TTACAGAAGATGGCTGAATACTACCGGCCA
>MED12_LsgRNA140
TTACAGAAGATGGCTGAATACTACCGGCCA
>MED12_LsgRNA141
AAGGAGAAGATTGAAGGGACCCTTGGGGTT
>MED12_LsgRNA142
AAGGAGAAGATTGAAGGGACCCTTGGGGTT
>MED12_LsgRNA143
GATAAGAAGGGCTGCTGGCTCAATAGGGAC
>MED12_LsgRNA144
GATAAGAAGGGCTGCTGGCTCAATAGGGAC

>MED12_LsgRNA145
TCAAAGACCTGTGCCATCTGGTCCTGGTTG
>MED12_LsgRNA146
TCAAAGACCTGTGCCATCTGGTCCTGGTTG
>MED12_LsgRNA147
CTCTAGAGCGCTCTGGTGTATGGCTGGTGG
>MED12_LsgRNA148
CTCTAGAGCGCTCTGGTGTATGGCTGGTGG
>MED12_LsgRNA149
CTAGAGAGCTGTTGTTGAAGTTGCCGGACC
>MED12_LsgRNA150
CTAGAGAGCTGTTGTTGAAGTTGCCGGACC
>MED12_LsgRNA151
AGGGAGAGGGAGGCCGGGGACCAGGGGCTC
>MED12_LsgRNA152
AGGGAGAGGGAGGCCGGGGACCAGGGGCTC
>MED12_LsgRNA153
ATGTAGAGGTGGCAATCCGGCAGTGGGATT
>MED12_LsgRNA154
ATGTAGAGGTGGCAATCCGGCAGTGGGATT
>MED12_LsgRNA155
CTCTAGAGTGTCGATCATGAACTCAGGTGC
>MED12_LsgRNA156
CTCTAGAGTGTCGATCATGAACTCAGGTGC
>MED12_LsgRNA157
ACTCAGATCATCACCAAGTACTTATGGGAG
>MED12_LsgRNA158
ACTCAGATCATCACCAAGTACTTATGGGAG
>MED12_LsgRNA159
CCAGAGATCTGTACCTGGTGCACCTGGCTG
>MED12_LsgRNA160
CCAGAGATCTGTACCTGGTGCACCTGGCTG
>MED12_LsgRNA161
ACTTAGCAAAGATATCTTCAGCAGTGGGGA
>MED12_LsgRNA162
ACTTAGCAAAGATATCTTCAGCAGTGGGGA
>MED12_LsgRNA163
CAGCAGCAGCAGCAGCAGATCCTGCGGGTA
>MED12_LsgRNA164
CAGCAGCAGCAGCAGCAGATCCTGCGGGTA
>MED12_LsgRNA165
CAGCAGCAGCAGCAGTACCACATCCGGCAG
>MED12_LsgRNA166
CAGCAGCAGCAGCAGTACCACATCCGGCAG

>MED12_LsgRNA167
ACATAGCCACTGGGCCGCTGTTGCAGGTGG
>MED12_LsgRNA168
ACATAGCCACTGGGCCGCTGTTGCAGGTGG
>MED12_LsgRNA169
AGGCAGCCAGCAGGTGGCGGTCGCAGGAGG
>MED12_LsgRNA170
AGGCAGCCAGCAGGTGGCGGTCGCAGGAGG
>MED12_LsgRNA171
CTGTAGCCATTTAAAGAACAAATTTGGGGA
>MED12_LsgRNA172
CTGTAGCCATTTAAAGAACAAATTTGGGGA
>MED12_LsgRNA173
GAGCAGCCCCCGGTTTGTCAGTTTTGGGGG
>MED12_LsgRNA174
GAGCAGCCCCCGGTTTGTCAGTTTTGGGGG
>MED12_LsgRNA175
TTGAAGCCGTCAGCACCACTCTCTTGGGGC
>MED12_LsgRNA176
TTGAAGCCGTCAGCACCACTCTCTTGGGGC
>MED12_LsgRNA177
TCCAAGCCTTACTCGGAGAAGCAGAGGCAG
>MED12_LsgRNA178
TCCAAGCCTTACTCGGAGAAGCAGAGGCAG
>MED12_LsgRNA179
AACCAGCGGTTGGTCGTACTGTTTGGGGTG
>MED12_LsgRNA180
AACCAGCGGTTGGTCGTACTGTTTGGGGTG
>MED12_LsgRNA181
CAGCAGCTACCTGGGGCTGGGACTGGGGCT
>MED12_LsgRNA182
CAGCAGCTACCTGGGGCTGGGACTGGGGCT
>MED12_LsgRNA183
CTGCAGCTCACACCTTCACCTACACGGGGC
>MED12_LsgRNA184
CTGCAGCTCACACCTTCACCTACACGGGGC
>MED12_LsgRNA185
CAGGAGGAACAGAAGAACTTCCAGAGGAGG
>MED12_LsgRNA186
CAGGAGGAACAGAAGAACTTCCAGAGGAGG
>MED12_LsgRNA187
GAACAGGACTCTGAGCCAGGGGCCCGGCTT
>MED12_LsgRNA188
GAACAGGACTCTGAGCCAGGGGCCCGGCTT

>MED12_LsgRNA189
CTGCAGGAGGACATCCTGGAAAATGGGAGC
>MED12_LsgRNA190
CTGCAGGAGGACATCCTGGAAAATGGGAGC
>MED12_LsgRNA191
GGGTAGGATCTACAAGAGTAGGATTGGTAG
>MED12_LsgRNA192
GGGTAGGATCTACAAGAGTAGGATTGGTAG
>MED12_LsgRNA193
TGGCAGGATTGAAGCTGACGTTCTTGGCAC
>MED12_LsgRNA194
TGGCAGGATTGAAGCTGACGTTCTTGGCAC
>MED12_LsgRNA195
GTCCAGGCACTACTCACATTGTTAGGGGTC
>MED12_LsgRNA196
GTCCAGGCACTACTCACATTGTTAGGGGTC
>MED12_LsgRNA197
CTGAAGGCAGCAGCAGCAGCAAGCTGGAAG
>MED12_LsgRNA198
TAATAGGCGCGGGGCCGGGGCCTCAGGTGT
>MED12_LsgRNA199
TAATAGGCGCGGGGCCGGGGCCTCAGGTGT
>MED12_LsgRNA200
GAGCAGGCGGCTCCTCATCTTCTGGGGGCA
>MED12_LsgRNA201
GAGCAGGCGGCTCCTCATCTTCTGGGGGCA
>MED12_LsgRNA202
GGTAAGGCTGGCTGGAGTAGCTGGGGGGCA
>MED12_LsgRNA203
GGTAAGGCTGGCTGGAGTAGCTGGGGGGCA
>MED12_LsgRNA204
GCACAGGCTTGGTCTTGCTGCTGCTGGGCA
>MED12_LsgRNA205
GCACAGGCTTGGTCTTGCTGCTGCTGGGCA
>MED12_LsgRNA206
TGAAAGGGCAGGATGAACAACGCGAGGGAC
>MED12_LsgRNA207
TGAAAGGGCAGGATGAACAACGCGAGGGAC
>MED12_LsgRNA208
CTCCAGGTAATAGGCGCGGGGCCGGGGCCT
>MED12_LsgRNA209
CTCCAGGTAATAGGCGCGGGGCCGGGGCCT
>MED12_LsgRNA210
AAGCAGGTCACTAAAGGGAGTCGAGGGTGT

>MED12_LsgRNA211
AAGCAGGTCACTAAAGGGAGTCGAGGGTGT
>MED12_LsgRNA212
GTGTAGGTGAAGGTGTGAGCTGCAGGGTTC
>MED12_LsgRNA213
GTGTAGGTGAAGGTGTGAGCTGCAGGGTTC
>MED12_LsgRNA214
ACTGAGGTGGGCAGTTTAGCAATGAGGGGG
>MED12_LsgRNA215
TTTCAGTAAGAAGGAAGAGGTGTTTGGGTA
>MED12_LsgRNA216
TTTCAGTAAGAAGGAAGAGGTGTTTGGGTA
>MED12_LsgRNA217
CAAGAGTAGGATTGGTAGAAGGGTGGGTGC
>MED12_LsgRNA218
CAAGAGTAGGATTGGTAGAAGGGTGGGTGC
>MED12_LsgRNA219
CAGAAGTAGGCAAGCCGGCGGGACAGGTAT
>MED12_LsgRNA220
CAGAAGTAGGCAAGCCGGCGGGACAGGTAT
>MED12_LsgRNA221
CTGAAGTCAGAGCGTTCAAAACTATGGCTG
>MED12_LsgRNA222
CTGAAGTCAGAGCGTTCAAAACTATGGCTG
>MED12_LsgRNA223
CCTCAGTCCAGGGACATGTGTTAAAGGCTG
>MED12_LsgRNA224
CCTCAGTCCAGGGACATGTGTTAAAGGCTG
>MED12_LsgRNA225
GAACAGTCCGAGTGGACCGGCGAGTGGCTC
>MED12_LsgRNA226
GAACAGTCCGAGTGGACCGGCGAGTGGCTC
>MED12_LsgRNA227
TTGTAGTGAACAGGACTCTGAGCCAGGGGC
>MED12_LsgRNA228
TTGTAGTGAACAGGACTCTGAGCCAGGGGC
>MED12_LsgRNA229
TGAGAGTGCAAGTATACATGTTGTGGGAGA
>MED12_LsgRNA230
AATGAGTGCCCAGGGCGTCCAGGCAGGCGT
>MED12_LsgRNA231
AATGAGTGCCCAGGGCGTCCAGGCAGGCGT
>MED12_LsgRNA232
TCCTAGTGGCTGGCACTCACCTGCAGGTAG

>MED12_LsgRNA233
TCCTAGTGGCTGGCACTCACCTGCAGGTAG
>MED12_LsgRNA234
CAGAAGTTATCCTTCTGGTTCACTTGGGGC
>MED12_LsgRNA235
CAGAAGTTATCCTTCTGGTTCACTTGGGGC
>MED12_LsgRNA236
TGCTAGTTGGGGGCTGAGGAGCAGGGGTGG
>MED12_LsgRNA237
TGCTAGTTGGGGGCTGAGGAGCAGGGGTGG
>MED12_LsgRNA238
TTCAATAACCAGCCTGCTGTCTCTGGGGAT
>MED12_LsgRNA239
TTCAATAACCAGCCTGCTGTCTCTGGGGAT
>MED12_LsgRNA240
GATCATCAAAGGGAGAGGGAGGCCGGGGAC
>MED12_LsgRNA241
GATCATCAAAGGGAGAGGGAGGCCGGGGAC
>MED12_LsgRNA242
GTCGATCACGTTCTTTGCGTGAAGAGGAAC
>MED12_LsgRNA243
GTCGATCACGTTCTTTGCGTGAAGAGGAAC
>MED12_LsgRNA244
GAGAATCAGAAGCCGCAGATGAGAAGGGTT
>MED12_LsgRNA245
GAGAATCAGAAGCCGCAGATGAGAAGGGTT
>MED12_LsgRNA246
CCCAATCCAAAGATTCGGTTACAAAGGGAG
>MED12_LsgRNA247
CCCAATCCAAAGATTCGGTTACAAAGGGAG
>MED12_LsgRNA248
CTCCATCCACGATGCGGTTCTGGGAGGCAG
>MED12_LsgRNA249
TGCCATCCCTTCACTCCTTAATGCTGGTGA
>MED12_LsgRNA250
TGCCATCCCTTCACTCCTTAATGCTGGTGA
>MED12_LsgRNA251
TTCTATCCGACCTGAGCACAGGCTTGGTCT
>MED12_LsgRNA252
TTCTATCCGACCTGAGCACAGGCTTGGTCT
>MED12_LsgRNA253
GGACATCCTGGAAAATGGGAGCACTGGGAG
>MED12_LsgRNA254
GGACATCCTGGAAAATGGGAGCACTGGGAG

>MED12_LsgRNA255
CCTCATCGACTTTGCCATTCAGGTGGGGAA
>MED12_LsgRNA256
CCTCATCGACTTTGCCATTCAGGTGGGGAA
>MED12_LsgRNA257
AGCCATCGGAATCAAATATGCGCTGGGCAC
>MED12_LsgRNA258
AGCCATCGGAATCAAATATGCGCTGGGCAC
>MED12_LsgRNA259
CGTGATGACATCTCGGGTCTGCTTGGGCAG
>MED12_LsgRNA260
CGTGATGACATCTCGGGTCTGCTTGGGCAG
>MED12_LsgRNA261
ACCCATGACGCCAGTCATGGTTGTGGGCAG
>MED12_LsgRNA262
ACCCATGACGCCAGTCATGGTTGTGGGCAG
>MED12_LsgRNA263
TACCATGACTCCAATGAGTGCCCAGGGCGT
>MED12_LsgRNA264
TACCATGACTCCAATGAGTGCCCAGGGCGT
>MED12_LsgRNA265
TCAGATGACTCCCAGCTCTTCCTACGGTTT
>MED12_LsgRNA266
TCAGATGACTCCCAGCTCTTCCTACGGTTT
>MED12_LsgRNA267
GGACATGCTGAGCGTGCTCATCAATGGGAC
>MED12_LsgRNA268
GGACATGCTGAGCGTGCTCATCAATGGGAC
>MED12_LsgRNA269
GGACATGGACTGACCTCCACTCAAAGGTAC
>MED12_LsgRNA270
GGACATGGACTGACCTCCACTCAAAGGTAC
>MED12_LsgRNA271
GAAGATGGCTGAATACTACCGGCCAGGGCC
>MED12_LsgRNA272
GAAGATGGCTGAATACTACCGGCCAGGGCC
>MED12_LsgRNA273
ACTTATGGGAGCAGTTACAGAAGATGGCTG
>MED12_LsgRNA274
ACTTATGGGAGCAGTTACAGAAGATGGCTG
>MED12_LsgRNA275
CATCATGGGGCAAGGGCCCTATCGTGGAAC
>MED12_LsgRNA276
CATCATGGGGCAAGGGCCCTATCGTGGAAC

>MED12_LsgRNA277
AGTCATGGTTGTGGGCAGCACTCCAGGGTA
>MED12_LsgRNA278
AGTCATGGTTGTGGGCAGCACTCCAGGGTA
>MED12_LsgRNA279
GCGGATTCCTACTGTAGGCTTGTCTGGGGA
>MED12_LsgRNA280
GCGGATTCCTACTGTAGGCTTGTCTGGGGA
>MED12_LsgRNA281
CAGGATTGAACTTACTGAGAAATCAGGCTT
>MED12_LsgRNA282
CAGGATTGAACTTACTGAGAAATCAGGCTT
>MED12_LsgRNA283
CCGGATTGCCACCTCTACATCATGGGGCAA
>MED12_LsgRNA284
CCGGATTGCCACCTCTACATCATGGGGCAA
>MED12_LsgRNA285
AAGAATTGGAGAAGGGTCAGCACCTGGGTT
>MED12_LsgRNA286
AAGAATTGGAGAAGGGTCAGCACCTGGGTT
>MED12_LsgRNA287
CCACCAAACAGAAGATCTCGCCCTGGGATC
>MED12_LsgRNA288
TCCTCAAAGAGAACACTGGAACTAGGGTCA
>MED12_LsgRNA289
TCCTCAAAGAGAACACTGGAACTAGGGTCA
>MED12_LsgRNA290
TTAGCAAAGATATCTTCAGCAGTGGGGAAG
>MED12_LsgRNA291
CAGACAAAGCTGTAGCGGTTAGCAGGGTTC
>MED12_LsgRNA292
CAGACAAAGCTGTAGCGGTTAGCAGGGTTC
>MED12_LsgRNA293
TCCTCAACCAGGACCAGATGGCACAGGTCT
>MED12_LsgRNA294
TCCTCAACCAGGACCAGATGGCACAGGTCT
>MED12_LsgRNA295
GCTTCAACCCCTCAAAAAGATCCCAGGGCG
>MED12_LsgRNA296
TCTCCAAGAGGGAGTTCATCTCCTGGGGAG
>MED12_LsgRNA297
TCTCCAAGAGGGAGTTCATCTCCTGGGGAG
>MED12_LsgRNA298
TCTACAAGAGTAGGATTGGTAGAAGGGTGG

>MED12_LsgRNA299
TCTACAAGAGTAGGATTGGTAGAAGGGTGG
>MED12_LsgRNA300
AAAACAAGCGTGCATACATGAACCTGGCGA
>MED12_LsgRNA301
AAAACAAGCGTGCATACATGAACCTGGCGA
>MED12_LsgRNA302
TGCCCACAACCATGACTGGCGTCATGGGTT
>MED12_LsgRNA303
TGCCCACAACCATGACTGGCGTCATGGGTT
>MED12_LsgRNA304
GGTACACAGAGGTCTTATAAGAGGAGGGTT
>MED12_LsgRNA305
GGTACACAGAGGTCTTATAAGAGGAGGGTT
>MED12_LsgRNA306
AGGGCACATAAGCAGGTCACTAAAGGGAGT
>MED12_LsgRNA307
AGGGCACATAAGCAGGTCACTAAAGGGAGT
>MED12_LsgRNA308
TTAACACATGTCCCTGGACTGAGGTGGGCA
>MED12_LsgRNA309
ATGACACCACAGCATCATCATCTGAGGAGA
>MED12_LsgRNA310
ATGACACCACAGCATCATCATCTGAGGAGA
>MED12_LsgRNA311
TGTGCACCAGCAGGCCCCCACCTATGGACA
>MED12_LsgRNA312
TGTGCACCAGCAGGCCCCCACCTATGGACA
>MED12_LsgRNA313
CCCCCACCCAAGGAGAAGATTGAAGGGACC
>MED12_LsgRNA314
CCCCCACCCAAGGAGAAGATTGAAGGGACC
>MED12_LsgRNA315
GCAGCACCCAGCAGACCACGGAGTGGGCCA
>MED12_LsgRNA316
GCAGCACCCAGCAGACCACGGAGTGGGCCA
>MED12_LsgRNA317
CCGCCACCTGCAACAGCGGCCCAGTGGCTA
>MED12_LsgRNA318
CCGCCACCTGCAACAGCGGCCCAGTGGCTA
>MED12_LsgRNA319
GCAGCACTCCAGGGTAAGTTGGTCGGGTGG
>MED12_LsgRNA320
GCAGCACTCCAGGGTAAGTTGGTCGGGTGG

>MED12_LsgRNA321
TAGCCACTGGGCCGCTGTTGCAGGTGGCGG
>MED12_LsgRNA322
TAGCCACTGGGCCGCTGTTGCAGGTGGCGG
>MED12_LsgRNA323
CCCCCACTTCCTGCAGGCCCTGGCCGGTAG
>MED12_LsgRNA324
CCCCCACTTCCTGCAGGCCCTGGCCGGTAG
>MED12_LsgRNA325
CACCCAGAACCAGCCACTACCTGCAGGTGA
>MED12_LsgRNA326
GGTTCAGAACCTTCAAGATATCCTTGGTGA
>MED12_LsgRNA327
GGTTCAGAACCTTCAAGATATCCTTGGTGA
>MED12_LsgRNA328
CTGGCAGAGTTGTCTCACCTTGGCAGGATT
>MED12_LsgRNA329
CTGGCAGAGTTGTCTCACCTTGGCAGGATT
>MED12_LsgRNA330
GGAGCAGATCACGAGCTTTGCCCTTGGCAT
>MED12_LsgRNA331
GGAGCAGATCACGAGCTTTGCCCTTGGCAT
>MED12_LsgRNA332
GGACCAGATGGCACAGGTCTTTGAGGGGTA
>MED12_LsgRNA333
GGACCAGATGGCACAGGTCTTTGAGGGGTA
>MED12_LsgRNA334
ATTGCAGCAACACACAGGCCCTGCAGGTAC
>MED12_LsgRNA335
ATTGCAGCAACACACAGGCCCTGCAGGTAC
>MED12_LsgRNA336
GCAGCAGCAACCTGCGGTGCCCCAAGGACA
>MED12_LsgRNA337
GCAGCAGCAACCTGCGGTGCCCCAAGGACA
>MED12_LsgRNA338
CCGTCAGCACCACTCTCTTGGGGCTGGTTT
>MED12_LsgRNA339
CCGTCAGCACCACTCTCTTGGGGCTGGTTT
>MED12_LsgRNA340
CAGCCAGCAGGTGGCGGTCGCAGGAGGAGC
>MED12_LsgRNA341
CAGCCAGCAGGTGGCGGTCGCAGGAGGAGC
>MED12_LsgRNA342
AGGACAGCCACGATGCACAGGCACAGGCTA

>MED12_LsgRNA343
AGGACAGCCACGATGCACAGGCACAGGCTA
>MED12_LsgRNA344
GCCACAGCCCAGTACCAACATATTTGGACG
>MED12_LsgRNA345
GCCACAGCCCAGTACCAACATATTTGGACG
>MED12_LsgRNA346
CCAGCAGCCTTTAACACATGTCCCTGGACT
>MED12_LsgRNA347
CCAGCAGCCTTTAACACATGTCCCTGGACT
>MED12_LsgRNA348
TGCCCAGCGCATATTTGATTCCGATGGCTC
>MED12_LsgRNA349
TGCCCAGCGCATATTTGATTCCGATGGCTC
>MED12_LsgRNA350
CAACCAGCGGTTGGTCGTACTGTTTGGGGT
>MED12_LsgRNA351
CAACCAGCGGTTGGTCGTACTGTTTGGGGT
>MED12_LsgRNA352
CCAGCAGCTACCTGGGGCTGGGACTGGGGC
>MED12_LsgRNA353
CCAGCAGCTACCTGGGGCTGGGACTGGGGC
>MED12_LsgRNA354
TTGTCAGCTTCCTCAGGAATGGGTAGGAGA
>MED12_LsgRNA355
TTGTCAGCTTCCTCAGGAATGGGTAGGAGA
>MED12_LsgRNA356
CACACAGGACTATGGAATGGGCCCGGGTCG
>MED12_LsgRNA357
CACACAGGACTATGGAATGGGCCCGGGTCG
>MED12_LsgRNA358
ACTGCAGGAGGACATCCTGGAAAATGGGAG
>MED12_LsgRNA359
ACTGCAGGAGGACATCCTGGAAAATGGGAG
>MED12_LsgRNA360
GGTCCAGGCACTACTCACATTGTTAGGGGT
>MED12_LsgRNA361
GGTCCAGGCACTACTCACATTGTTAGGGGT
>MED12_LsgRNA362
CCAGCAGGCCCCCACCTATGGACATGGACT
>MED12_LsgRNA363
CCAGCAGGCCCCCACCTATGGACATGGACT
>MED12_LsgRNA364
GGAGCAGGCGGCTCCTCATCTTCTGGGGGC

>MED12_LsgRNA365
GGAGCAGGCGGCTCCTCATCTTCTGGGGGC
>MED12_LsgRNA366
GAACCAGGGTTTGGGTGGTGCAGGAGGTCC
>MED12_LsgRNA367
GAACCAGGGTTTGGGTGGTGCAGGAGGTCC
>MED12_LsgRNA368
GCTCCAGGTAATAGGCGCGGGGCCGGGGCC
>MED12_LsgRNA369
GCTCCAGGTAATAGGCGCGGGGCCGGGGCC
>MED12_LsgRNA370
TGCTCAGGTAGGATGGCTGTTGAACGGACG
>MED12_LsgRNA371
TGCTCAGGTAGGATGGCTGTTGAACGGACG
>MED12_LsgRNA372
TAAGCAGGTCACTAAAGGGAGTCGAGGGTG
>MED12_LsgRNA373
TAAGCAGGTCACTAAAGGGAGTCGAGGGTG
>MED12_LsgRNA374
CACTCAGTACACCCCATACCTATCGGGATC
>MED12_LsgRNA375
CACTCAGTACACCCCATACCTATCGGGATC
>MED12_LsgRNA376
AGGTCAGTCCATGTCCATAGGTGGGGGCCT
>MED12_LsgRNA377
AGGTCAGTCCATGTCCATAGGTGGGGGCCT
>MED12_LsgRNA378
GGGCCAGTCTCCGTGTACAGAAGTAGGCAA
>MED12_LsgRNA379
GGCCCAGTGGCTATGTGCACCAGCAGGCCC
>MED12_LsgRNA380
GGCCCAGTGGCTATGTGCACCAGCAGGCCC
>MED12_LsgRNA381
GTTCCAGTGTTCTCTTTGAGGACATGGAGA
>MED12_LsgRNA382
GTTCCAGTGTTCTCTTTGAGGACATGGAGA
>MED12_LsgRNA383
CCACCAGTTTCTGCTGTCCCTTTGCGGTTC
>MED12_LsgRNA384
CCACCAGTTTCTGCTGTCCCTTTGCGGTTC
>MED12_LsgRNA385
ACACCATAAGGGCCGCTCCGACCCGGGCCC
>MED12_LsgRNA386
ACACCATAAGGGCCGCTCCGACCCGGGCCC

>MED12_LsgRNA387
GGATCATCAAAGGGAGAGGGAGGCCGGGGA
>MED12_LsgRNA388
GGATCATCAAAGGGAGAGGGAGGCCGGGGA
>MED12_LsgRNA389
CCCGCATCACAGGCACTGTGTATTTGGCTA
>MED12_LsgRNA390
CCCGCATCACAGGCACTGTGTATTTGGCTA
>MED12_LsgRNA391
ACAGCATCATCATCTGAGGAGATCTGGAGA
>MED12_LsgRNA392
ACAGCATCATCATCTGAGGAGATCTGGAGA
>MED12_LsgRNA393
TGCTCATCCCCAGAGACAGCAGGCTGGTTA
>MED12_LsgRNA394
TGCTCATCCCCAGAGACAGCAGGCTGGTTA
>MED12_LsgRNA395
GCCTCATCGACTTTGCCATTCAGGTGGGGA
>MED12_LsgRNA396
GCCTCATCGACTTTGCCATTCAGGTGGGGA
>MED12_LsgRNA397
GAGCCATCGGAATCAAATATGCGCTGGGCA
>MED12_LsgRNA398
GAGCCATCGGAATCAAATATGCGCTGGGCA
>MED12_LsgRNA399
GAAACATGAACATGGCCAGCTTCTCGGTGT
>MED12_LsgRNA400
GAAACATGAACATGGCCAGCTTCTCGGTGT
>MED12_LsgRNA401
AACCCATGACGCCAGTCATGGTTGTGGGCA
>MED12_LsgRNA402
AACCCATGACGCCAGTCATGGTTGTGGGCA
>MED12_LsgRNA403
GTACCATGACTCCAATGAGTGCCCAGGGCG
>MED12_LsgRNA404
GTACCATGACTCCAATGAGTGCCCAGGGCG
>MED12_LsgRNA405
TGCACATGCTGCACCAGAGGCAAGTGGTAT
>MED12_LsgRNA406
TGCACATGCTGCACCAGAGGCAAGTGGTAT
>MED12_LsgRNA407
GAAGCATGGGATGAACCGGTCCGATGGCTC
>MED12_LsgRNA408
TTGGCATGTCATACCACTTGCCTCTGGTGC

>MED12_LsgRNA409
TTGGCATGTCATACCACTTGCCTCTGGTGC
>MED12_LsgRNA410
TCTCCATGTCCTCAAAGAGAACACTGGAAC
>MED12_LsgRNA411
TCTCCATGTCCTCAAAGAGAACACTGGAAC
>MED12_LsgRNA412
AGGGCATTGCAGACAAAGCTGTAGCGGTTA
>MED12_LsgRNA413
AGGGCATTGCAGACAAAGCTGTAGCGGTTA
>MED12_LsgRNA414
TCCACCAAACAGAAGATCTCGCCCTGGGAT
>MED12_LsgRNA415
ACGACCAACCGCTGGTTGCACTCATGGCTG
>MED12_LsgRNA416
ACGACCAACCGCTGGTTGCACTCATGGCTG
>MED12_LsgRNA417
TTCTCCAAGAGGGAGTTCATCTCCTGGGGA
>MED12_LsgRNA418
TTCTCCAAGAGGGAGTTCATCTCCTGGGGA
>MED12_LsgRNA419
TGAACCAAGTGTTAATGGCACTCTGGGATC
>MED12_LsgRNA420
TGAACCAAGTGTTAATGGCACTCTGGGATC
>MED12_LsgRNA421
GGAACCACAGCCCCCACTTCCTGCAGGCCC
>MED12_LsgRNA422
GGAACCACAGCCCCCACTTCCTGCAGGCCC
>MED12_LsgRNA423
GCCCCCACCCAAGGAGAAGATTGAAGGGAC
>MED12_LsgRNA424
GCCCCCACCCAAGGAGAAGATTGAAGGGAC
>MED12_LsgRNA425
ATTTCCACCCAGTTCCAGCGCCAGGGGCTT
>MED12_LsgRNA426
ATTTCCACCCAGTTCCAGCGCCAGGGGCTT
>MED12_LsgRNA427
ACTGCCACCTCCTCCCTCCTCCTCTGGAAG
>MED12_LsgRNA428
ACTGCCACCTCCTCCCTCCTCCTCTGGAAG
>MED12_LsgRNA429
AGCACCACTCTCTTGGGGCTGGTTTGGAAC
>MED12_LsgRNA430
AGCACCACTCTCTTGGGGCTGGTTTGGAAC

>MED12_LsgRNA431
TGAACCAGAAGGATAACTTCTGGCTGGTGA
>MED12_LsgRNA432
TGAACCAGAAGGATAACTTCTGGCTGGTGA
>MED12_LsgRNA433
AGGACCAGATGGCACAGGTCTTTGAGGGGT
>MED12_LsgRNA434
AGGACCAGATGGCACAGGTCTTTGAGGGGT
>MED12_LsgRNA435
AACACCAGCAGCAACAGCAGCAACAGGCGG
>MED12_LsgRNA436
AACACCAGCAGCAACAGCAGCAACAGGCGG
>MED12_LsgRNA437
TGAGCCAGCAGCCCTTCTTATCGCTGGTGC
>MED12_LsgRNA438
TGAGCCAGCAGCCCTTCTTATCGCTGGTGC
>MED12_LsgRNA439
GTCACCAGCCAGAAGTTATCCTTCTGGTTC
>MED12_LsgRNA440
GTCACCAGCCAGAAGTTATCCTTCTGGTTC
>MED12_LsgRNA441
GCAGCCAGCCAGCTACCAAGACAGAGGTGA
>MED12_LsgRNA442
GCAGCCAGCCAGCTACCAAGACAGAGGTGA
>MED12_LsgRNA443
AGCACCAGCGATAAGAAGGGCTGCTGGCTC
>MED12_LsgRNA444
AGCACCAGCGATAAGAAGGGCTGCTGGCTC
>MED12_LsgRNA445
CTCCCCAGGAGATGAACTCCCTCTTGGAGA
>MED12_LsgRNA446
CTCCCCAGGAGATGAACTCCCTCTTGGAGA
>MED12_LsgRNA447
GTCTCCAGGATTCAGAGGCACAATAGGAGC
>MED12_LsgRNA448
GTCTCCAGGATTCAGAGGCACAATAGGAGC
>MED12_LsgRNA449
CCGGCCAGGGCCTGCAGGAAGTGGGGGCTG
>MED12_LsgRNA450
CCGGCCAGGGCCTGCAGGAAGTGGGGGCTG
>MED12_LsgRNA451
GATCCCAGGGCGAGATCTTCTGTTTGGTGG
>MED12_LsgRNA452
GATCCCAGGGCGAGATCTTCTGTTTGGTGG

>MED12_LsgRNA453
CACTCCAGGGTAAGTTGGTCGGGTGGGCAG
>MED12_LsgRNA454
CACTCCAGGGTAAGTTGGTCGGGTGGGCAG
>MED12_LsgRNA455
GGCTCCAGGTAATAGGCGCGGGGCCGGGGC
>MED12_LsgRNA456
GGCTCCAGGTAATAGGCGCGGGGCCGGGGC
>MED12_LsgRNA457
AGCGCCAGTCAGACAGTCTGGAAAAGGTTC
>MED12_LsgRNA458
AGCGCCAGTCAGACAGTCTGGAAAAGGTTC
>MED12_LsgRNA459
CACACCATAAGGGCCGCTCCGACCCGGGCC
>MED12_LsgRNA460
CACACCATAAGGGCCGCTCCGACCCGGGCC
>MED12_LsgRNA461
GTAGCCATTTAAAGAACAAATTTGGGGAGC
>MED12_LsgRNA462
GTAGCCATTTAAAGAACAAATTTGGGGAGC
>MED12_LsgRNA463
GCTGCCCACCCGACCAACTTACCCTGGAGT
>MED12_LsgRNA464
GCTGCCCACCCGACCAACTTACCCTGGAGT
>MED12_LsgRNA465
CGATCCCAGAGTGCCATTAACACTTGGTTC
>MED12_LsgRNA466
CGATCCCAGAGTGCCATTAACACTTGGTTC
>MED12_LsgRNA467
AGGCCCCAGCCGCGGCCGCTTCAGGGGCCG
>MED12_LsgRNA468
AGGCCCCAGCCGCGGCCGCTTCAGGGGCCG
>MED12_LsgRNA469
AAGACCCAGTGTTGAGTAGTGCCCAGGCGC
>MED12_LsgRNA470
AAGACCCAGTGTTGAGTAGTGCCCAGGCGC
>MED12_LsgRNA471
AGCCCCCCAAAACTGACAAACCGGGGGCTG
>MED12_LsgRNA472
AGCCCCCCAAAACTGACAAACCGGGGGCTG
>MED12_LsgRNA473
AGCTCCCCAAATTTGTTCTTTAAATGGCTA
>MED12_LsgRNA474
AGCTCCCCAAATTTGTTCTTTAAATGGCTA

>MED12_LsgRNA475
ATCTCCCCAACTTCCCCACCTGAATGGCAA
>MED12_LsgRNA476
ATCTCCCCAACTTCCCCACCTGAATGGCAA
>MED12_LsgRNA477
CCAGCCCCAAGAGAGTGGTGCTGACGGCTT
>MED12_LsgRNA478
CCAGCCCCAAGAGAGTGGTGCTGACGGCTT
>MED12_LsgRNA479
GGTGCCCCACACAGACGTGCATAAGGGCAT
>MED12_LsgRNA480
GGTGCCCCACACAGACGTGCATAAGGGCAT
>MED12_LsgRNA481
GAGGCCCCAGCCGCGGCCGCTTCAGGGGCC
>MED12_LsgRNA482
GAGGCCCCAGCCGCGGCCGCTTCAGGGGCC
>MED12_LsgRNA483
TACACCCCATACCTATCGGGATCATGGTGC
>MED12_LsgRNA484
TACACCCCATACCTATCGGGATCATGGTGC
>MED12_LsgRNA485
GAGCCCCCCAAAACTGACAAACCGGGGGCT
>MED12_LsgRNA486
GAGCCCCCCAAAACTGACAAACCGGGGGCT
>MED12_LsgRNA487
ACAGCCCCCACTTCCTGCAGGCCCTGGCCG
>MED12_LsgRNA488
ACAGCCCCCACTTCCTGCAGGCCCTGGCCG
>MED12_LsgRNA489
AGAGCCCCCCAAAACTGACAAACCGGGGGC
>MED12_LsgRNA490
AGAGCCCCCCAAAACTGACAAACCGGGGGC
>MED12_LsgRNA491
TTCTCCCCTACTATGCCCTGTGAGGGGAAG
>MED12_LsgRNA492
CCTTCCCCTCACAGGGCATAGTAGGGGAGA
>MED12_LsgRNA493
CCTTCCCCTCACAGGGCATAGTAGGGGAGA
>MED12_LsgRNA494
CCGGCCCCTGAAGCGGCCGCGGCTGGGGCC
>MED12_LsgRNA495
CCGGCCCCTGAAGCGGCCGCGGCTGGGGCC
>MED12_LsgRNA496
TCCACCCGCTCACTCTCACTTCGAGGGTCC

>MED12_LsgRNA497
TCCACCCGCTCACTCTCACTTCGAGGGTCC
>MED12_LsgRNA498
CCCACCCGTGAACCACAGGGGATGCGGAAC
>MED12_LsgRNA499
CCCACCCGTGAACCACAGGGGATGCGGAAC
>MED12_LsgRNA500
TTTACCCTCAGGACCCCAAACAGAAGGAGG
>MED12_LsgRNA501
TTTACCCTCAGGACCCCAAACAGAAGGAGG
>MED12_LsgRNA502
CGGACCCTCGAAGTGAGAGTGAGCGGGTGG
>MED12_LsgRNA503
CGGACCCTCGAAGTGAGAGTGAGCGGGTGG
>MED12_LsgRNA504
CGGCCCCTGAAGCGGCCGCGGCTGGGGCCT
>MED12_LsgRNA505
CGGCCCCTGAAGCGGCCGCGGCTGGGGCCT
>MED12_LsgRNA506
AATACCCTTCCTGACACTGGTCGCAGGAAG
>MED12_LsgRNA507
AATACCCTTCCTGACACTGGTCGCAGGAAG
>MED12_LsgRNA508
GGCCCCGGCCCCGCGCCTATTACCTGGAGC
>MED12_LsgRNA509
GGCCCCGGCCCCGCGCCTATTACCTGGAGC
>MED12_LsgRNA510
TGGACCGGCGAGTGGCTCGAGGAGAGGAGC
>MED12_LsgRNA511
TGGACCGGCGAGTGGCTCGAGGAGAGGAGC
>MED12_LsgRNA512
GAGGCCGGGGACCAGGGGCTCCAAAGGCAA
>MED12_LsgRNA513
GAGGCCGGGGACCAGGGGCTCCAAAGGCAA
>MED12_LsgRNA514
GGGCCCGGGTCGGAGCGGCCCTTATGGTGT
>MED12_LsgRNA515
GGGCCCGGGTCGGAGCGGCCCTTATGGTGT
>MED12_LsgRNA516
GAAGCCGTCAGCACCACTCTCTTGGGGCTG
>MED12_LsgRNA517
GAAGCCGTCAGCACCACTCTCTTGGGGCTG
>MED12_LsgRNA518
GGTACCTAAGAATGTCAGGTCTCCAGGATT

>MED12_LsgRNA519
GGTACCTAAGAATGTCAGGTCTCCAGGATT
>MED12_LsgRNA520
TGCTCCTATTGTGCCTCTGAATCCTGGAGA
>MED12_LsgRNA521
TGCTCCTATTGTGCCTCTGAATCCTGGAGA
>MED12_LsgRNA522
TACCCCTCAAAGACCTGTGCCATCTGGTCC
>MED12_LsgRNA523
TACCCCTCAAAGACCTGTGCCATCTGGTCC
>MED12_LsgRNA524
GTGGCCTCATCGACTTTGCCATTCAGGTGG
>MED12_LsgRNA525
GTGGCCTCATCGACTTTGCCATTCAGGTGG
>MED12_LsgRNA526
CCTCCCTCTACAGCCAGGTGCACCAGGTAC
>MED12_LsgRNA527
CCTCCCTCTACAGCCAGGTGCACCAGGTAC
>MED12_LsgRNA528
TGCTCCTCTCCTCGAGCCACTCGCCGGTCC
>MED12_LsgRNA529
CTCACCTCTGTCTTGGTAGCTGGCTGGCTG
>MED12_LsgRNA530
CTCACCTCTGTCTTGGTAGCTGGCTGGCTG
>MED12_LsgRNA531
CCCACCTGAATGGCAAAGTCGATGAGGCCA
>MED12_LsgRNA532
CCCACCTGAATGGCAAAGTCGATGAGGCCA
>MED12_LsgRNA533
AGGGCCTGCAGGAAGTGGGGGCTGTGGTTC
>MED12_LsgRNA534
AGGGCCTGCAGGAAGTGGGGGCTGTGGTTC
>MED12_LsgRNA535
CTTTCCTGCCTCAGGATGAACTGACGGCCT
>MED12_LsgRNA536
CTTTCCTGCCTCAGGATGAACTGACGGCCT
>MED12_LsgRNA537
GCTTCCTGCGACCAGTGTCAGGAAGGGTAT
>MED12_LsgRNA538
GCTTCCTGCGACCAGTGTCAGGAAGGGTAT
>MED12_LsgRNA539
CTACCCTGCTAGAGCCTGAGAAAAAGGCTC
>MED12_LsgRNA540
CTACCCTGCTAGAGCCTGAGAAAAAGGCTC

>MED12_LsgRNA541
GAATCCTGGAGACCTGACATTCTTAGGTAC
>MED12_LsgRNA542
GAATCCTGGAGACCTGACATTCTTAGGTAC
>MED12_LsgRNA543
TGCACCTGGCTGTAGAGGGAGGTAAGGAGT
>MED12_LsgRNA544
TGCACCTGGCTGTAGAGGGAGGTAAGGAGT
>MED12_LsgRNA545
TGCGCCTGGGCACTACTCAACACTGGGTCT
>MED12_LsgRNA546
TGCGCCTGGGCACTACTCAACACTGGGTCT
>MED12_LsgRNA547
TGTACCTGGTGCACCTGGCTGTAGAGGGAG
>MED12_LsgRNA548
TGTACCTGGTGCACCTGGCTGTAGAGGGAG
>MED12_LsgRNA549
TCTTCCTGTGCCTGCAGAAGGAGTTGGGGG
>MED12_LsgRNA550
TCTTCCTGTGCCTGCAGAAGGAGTTGGGGG
>MED12_LsgRNA551
TCCTCCTGTGCTGTCCTAGTGCCTTGGTTT
>MED12_LsgRNA552
TCCTCCTGTGCTGTCCTAGTGCCTTGGTTT
>MED12_LsgRNA553
GCCGCCTGTTGCTGCTGTTGCTGCTGGTGT
>MED12_LsgRNA554
GCCGCCTGTTGCTGCTGTTGCTGCTGGTGT
>MED12_LsgRNA555
GACTCCTTACCTCCCTCTACAGCCAGGTGC
>MED12_LsgRNA556
TCCTCCTTAGGCTTCACCATTGGACGGGTA
>MED12_LsgRNA557
TCCTCCTTAGGCTTCACCATTGGACGGGTA
>MED12_LsgRNA558
GGTCCCTTCAATCTTCTCCTTGGGTGGGGG
>MED12_LsgRNA559
GGTCCCTTCAATCTTCTCCTTGGGTGGGGG
>MED12_LsgRNA560
GCTGCCTTCAGCCTCCTTGTGCTCTGGGTC
>MED12_LsgRNA561
GCTGCCTTCAGCCTCCTTGTGCTCTGGGTC
>MED12_LsgRNA562
ACCTCCTTCTGTTTGGGGTCCTGAGGGTAA

>MED12_LsgRNA563
ACCTCCTTCTGTTTGGGGTCCTGAGGGTAA
>MED12_LsgRNA564
GTGGCCTTGGCGATGTTCTCCAAGAGGGAG
>MED12_LsgRNA565
GTGGCCTTGGCGATGTTCTCCAAGAGGGAG
>MED12_LsgRNA566
CTTGCCTTTGGAGCCCCTGGTCCCCGGCCT
>MED12_LsgRNA567
TTTTCGAACGCACCTCCTTCTGTTTGGGGT
>MED12_LsgRNA568
TTTTCGAACGCACCTCCTTCTGTTTGGGGT
>MED12_LsgRNA569
ACATCGACTGCTGGACAATGAGGATGGGGA
>MED12_LsgRNA570
ACATCGACTGCTGGACAATGAGGATGGGGA
>MED12_LsgRNA571
AGATCGAGCAGCAGATCAAGGAGCGGGGAC
>MED12_LsgRNA572
AGATCGAGCAGCAGATCAAGGAGCGGGGAC
>MED12_LsgRNA573
GAGTCGAGGGTGTGCTGCTAGTTGGGGGCT
>MED12_LsgRNA574
TGCTCGATCTCCCGCAACTTTGCACGGACC
>MED12_LsgRNA575
TGCTCGATCTCCCGCAACTTTGCACGGACC
>MED12_LsgRNA576
GCTTCGATTCCATCTTCAAGAAGGAGGCAT
>MED12_LsgRNA577
GCTTCGATTCCATCTTCAAGAAGGAGGCAT
>MED12_LsgRNA578
GAACCGCAAAGGGACAGCAGAAACTGGTGG
>MED12_LsgRNA579
GAACCGCAAAGGGACAGCAGAAACTGGTGG
>MED12_LsgRNA580
GGAACGCAAGAAGAAGTCCACCAAGGGCAA
>MED12_LsgRNA581
GGAACGCAAGAAGAAGTCCACCAAGGGCAA
>MED12_LsgRNA582
TCATCGCTCGGCAGTGTTTGCTCCTGGAAG
>MED12_LsgRNA583
TCATCGCTCGGCAGTGTTTGCTCCTGGAAG
>MED12_LsgRNA584
GTGCCGCTGATGATGATCTCCAGGAGGAGC

>MED12_LsgRNA585
GTGCCGCTGATGATGATCTCCAGGAGGAGC
>MED12_LsgRNA586
AAGGCGCTGTCCTTGGGGCACCGCAGGTTG
>MED12_LsgRNA587
AAGGCGCTGTCCTTGGGGCACCGCAGGTTG
>MED12_LsgRNA588
GGGCCGCTGTTGCAGGTGGCGGGTAGGATC
>MED12_LsgRNA589
GGGCCGCTGTTGCAGGTGGCGGGTAGGATC
>MED12_LsgRNA590
AATGCGCTTTATGCGCTGCCGCTGGGGGTT
>MED12_LsgRNA591
AATGCGCTTTATGCGCTGCCGCTGGGGGTT
>MED12_LsgRNA592
GATGCGGCAGGTAAGCCGGGCCCCTGGCTC
>MED12_LsgRNA593
CTACCGGCCAGGGCCTGCAGGAAGTGGGGG
>MED12_LsgRNA594
CTACCGGCCAGGGCCTGCAGGAAGTGGGGG
>MED12_LsgRNA595
GTGGCGGGTAGGATCTACAAGAGTAGGATT
>MED12_LsgRNA596
GTGGCGGGTAGGATCTACAAGAGTAGGATT
>MED12_LsgRNA597
TGGTCGGGTGGGCAGCTTCTGCATTGGTAA
>MED12_LsgRNA598
TGGTCGGGTGGGCAGCTTCTGCATTGGTAA
>MED12_LsgRNA599
GTGGCGTACTGCACGTGTCGTGGCTGGTCG
>MED12_LsgRNA600
GTGGCGTACTGCACGTGTCGTGGCTGGTCG
>MED12_LsgRNA601
AGAACGTCAGCTTCAATCCTGCCAAGGTGA
>MED12_LsgRNA602
AGAACGTCAGCTTCAATCCTGCCAAGGTGA
>MED12_LsgRNA603
GTAGCGTCCAAATATGTTGGTACTGGGCTG
>MED12_LsgRNA604
GTAGCGTCCAAATATGTTGGTACTGGGCTG
>MED12_LsgRNA605
TGAGCGTGCTCATCAATGGGACATTGGCTG
>MED12_LsgRNA606
GATCCTACCCGCCACCTGCAACAGCGGCCC

>MED12_LsgRNA607
GATCCTACCCGCCACCTGCAACAGCGGCCC
>MED12_LsgRNA608
GGCGCTACGGGCTGGGCAAGATGGCGGCCT
>MED12_LsgRNA609
GGCGCTACGGGCTGGGCAAGATGGCGGCCT
>MED12_LsgRNA610
CTTCCTACGGTTTGCAGACTTCCCAGGTAA
>MED12_LsgRNA611
CTTCCTACGGTTTGCAGACTTCCCAGGTAA
>MED12_LsgRNA612
CCATCTACTGCAACGTGGAGCCATCGGAAT
>MED12_LsgRNA613
CCATCTACTGCAACGTGGAGCCATCGGAAT
>MED12_LsgRNA614
ACCACTACTTTGGGTACCTTTGAGTGGAGG
>MED12_LsgRNA615
ACCACTACTTTGGGTACCTTTGAGTGGAGG
>MED12_LsgRNA616
GCTGCTAGTTGGGGGCTGAGGAGCAGGGGT
>MED12_LsgRNA617
GCTGCTAGTTGGGGGCTGAGGAGCAGGGGT
>MED12_LsgRNA618
GGTTCTATAACACACCTTAACTACAGGCAA
>MED12_LsgRNA619
GGTTCTATAACACACCTTAACTACAGGCAA
>MED12_LsgRNA620
CTCACTATCTTTGCCTGGAGCTGTTGGCGA
>MED12_LsgRNA621
CTCACTATCTTTGCCTGGAGCTGTTGGCGA
>MED12_LsgRNA622
TCTTCTCAAAACACTCAAGCACCCAGGTCA
>MED12_LsgRNA623
GCTTCTCAAATCCTCGGATCTGGTGGGCAG
>MED12_LsgRNA624
TGTTCTCAAGGCTGTGTTTGTACTTGGTAC
>MED12_LsgRNA625
TGTTCTCAAGGCTGTGTTTGTACTTGGTAC
>MED12_LsgRNA626
GCAGCTCAATCCTTGCCAGTCTGATGGAAG
>MED12_LsgRNA627
GCAGCTCAATCCTTGCCAGTCTGATGGAAG
>MED12_LsgRNA628
GCCACTCACACAGGACTATGGAATGGGCCC

>MED12_LsgRNA629
GCCACTCACACAGGACTATGGAATGGGCCC
>MED12_LsgRNA630
GCAGCTCACACCTTCACCTACACGGGGCTA
>MED12_LsgRNA631
GTGGCTCACACGTGATGACATCTCGGGTCT
>MED12_LsgRNA632
GTGGCTCACACGTGATGACATCTCGGGTCT
>MED12_LsgRNA633
GGCGCTCACCTCTGTCTTGGTAGCTGGCTG
>MED12_LsgRNA634
GGCGCTCACCTCTGTCTTGGTAGCTGGCTG
>MED12_LsgRNA635
TGGTCTCAGAGATTGCTGCATAGTAGGCAC
>MED12_LsgRNA636
TGGTCTCAGAGATTGCTGCATAGTAGGCAC
>MED12_LsgRNA637
GGGGCTCCAAAGGCAAGGTCCCCTCGGGAG
>MED12_LsgRNA638
GGGGCTCCAAAGGCAAGGTCCCCTCGGGAG
>MED12_LsgRNA639
ACGGCTCCATCCACGATGCGGTTCTGGGAG
>MED12_LsgRNA640
ACGGCTCCATCCACGATGCGGTTCTGGGAG
>MED12_LsgRNA641
TGTTCTCCCCTACTATGCCCTGTGAGGGGA
>MED12_LsgRNA642
TGTTCTCCCCTACTATGCCCTGTGAGGGGA
>MED12_LsgRNA643
AGATCTCCTCAGATGATGATGCTGTGGTGT
>MED12_LsgRNA644
AGATCTCCTCAGATGATGATGCTGTGGTGT
>MED12_LsgRNA645
GGACCTCCTGCACCACCCAAACCCTGGTTC
>MED12_LsgRNA646
GGACCTCCTGCACCACCCAAACCCTGGTTC
>MED12_LsgRNA647
CAGCCTCCTTGTGCTCTGGGTCATCGGCAG
>MED12_LsgRNA648
CAGCCTCCTTGTGCTCTGGGTCATCGGCAG
>MED12_LsgRNA649
CCTTCTCGACATCTGGCTTCTCAGGGGATG
>MED12_LsgRNA650
CCTTCTCGACATCTGGCTTCTCAGGGGATG

>MED12_LsgRNA651
GTGGCTCGAGGAGAGGAGCAGCAGCGGTTG
>MED12_LsgRNA652
GTGGCTCGAGGAGAGGAGCAGCAGCGGTTG
>MED12_LsgRNA653
AGCTCTCTAGAGCGCTCTGGTGTATGGCTG
>MED12_LsgRNA654
AGCTCTCTAGAGCGCTCTGGTGTATGGCTG
>MED12_LsgRNA655
CTCACTCTCACTTCGAGGGTCCGCTGGAGG
>MED12_LsgRNA656
CTCACTCTCACTTCGAGGGTCCGCTGGAGG
>MED12_LsgRNA657
ACATCTCTGTGGAGACAGCCAGTCTGGATG
>MED12_LsgRNA658
ACATCTCTGTGGAGACAGCCAGTCTGGATG
>MED12_LsgRNA659
ACACCTCTTCCTTCTTACTGAAAATGGGGA
>MED12_LsgRNA660
ACACCTCTTCCTTCTTACTGAAAATGGGGA
>MED12_LsgRNA661
AAGTCTGCAAACCGTAGGAAGAGCTGGGAG
>MED12_LsgRNA662
AAGTCTGCAAACCGTAGGAAGAGCTGGGAG
>MED12_LsgRNA663
CGCTCTGCAGAGGAGCCATCGGACCGGTTC
>MED12_LsgRNA664
CGCTCTGCAGAGGAGCCATCGGACCGGTTC
>MED12_LsgRNA665
TCACCTGCAGGTAGTGGCTGGTTCTGGGTG
>MED12_LsgRNA666
TCACCTGCAGGTAGTGGCTGGTTCTGGGTG
>MED12_LsgRNA667
TGAGCTGCATGAGGCGCTGCGCCTGGGCAC
>MED12_LsgRNA668
TGAGCTGCATGAGGCGCTGCGCCTGGGCAC
>MED12_LsgRNA669
TCCTCTGCCACTCACACAGGACTATGGAAT
>MED12_LsgRNA670
TCCTCTGCCACTCACACAGGACTATGGAAT
>MED12_LsgRNA671
GCTGCTGCTGCTGCTCAGGTAGGATGGCTG
>MED12_LsgRNA672
GCTGCTGCTGCTGCTCAGGTAGGATGGCTG

>MED12_LsgRNA673
GGGCCTGCTGGTGCACATAGCCACTGGGCC
>MED12_LsgRNA674
GGGCCTGCTGGTGCACATAGCCACTGGGCC
>MED12_LsgRNA675
AAAGCTGCTGTCTGTTGCTGCTGCTGGGTC
>MED12_LsgRNA676
AAAGCTGCTGTCTGTTGCTGCTGCTGGGTC
>MED12_LsgRNA677
CTGGCTGGCTGCGTTTCTTGCCCTTGGTGG
>MED12_LsgRNA678
CTGGCTGGCTGCGTTTCTTGCCCTTGGTGG
>MED12_LsgRNA679
TTACCTGGGAAGTCTGCAAACCGTAGGAAG
>MED12_LsgRNA680
TTACCTGGGAAGTCTGCAAACCGTAGGAAG
>MED12_LsgRNA681
CGGGCTGGGCAAGATGGCGGCCTTCGGGAT
>MED12_LsgRNA682
CGGGCTGGGCAAGATGGCGGCCTTCGGGAT
>MED12_LsgRNA683
CGCCCTGGGCACTCATTGGAGTCATGGTAC
>MED12_LsgRNA684
CGCCCTGGGCACTCATTGGAGTCATGGTAC
>MED12_LsgRNA685
GTGGCTGGTCGTAAAGAACCCCAAGGGTCC
>MED12_LsgRNA686
GTACCTGGTGCACCTGGCTGTAGAGGGAGG
>MED12_LsgRNA687
GTACCTGGTGCACCTGGCTGTAGAGGGAGG
>MED12_LsgRNA688
ATCGCTGGTGCTAACATGTCTGAAAGGGCA
>MED12_LsgRNA689
ATCGCTGGTGCTAACATGTCTGAAAGGGCA
>MED12_LsgRNA690
GGGGCTGGTTTGGAACAGTCCGAGTGGACC
>MED12_LsgRNA691
GGGGCTGGTTTGGAACAGTCCGAGTGGACC
>MED12_LsgRNA692
CTGGCTGTCTCCACAGAGATGTTGCGGCCA
>MED12_LsgRNA693
CTTCCTGTGCCTGCAGAAGGAGTTGGGGGA
>MED12_LsgRNA694
CTTCCTGTGCCTGCAGAAGGAGTTGGGGGA

>MED12_LsgRNA695
CAGGCTGTGTGGCGTCGTGAAGCATGGGAT
>MED12_LsgRNA696
ATGGCTGTTGAACGGACGCCTGCCTGGACG
>MED12_LsgRNA697
ATGGCTGTTGAACGGACGCCTGCCTGGACG
>MED12_LsgRNA698
CCTCCTTAGGCTTCACCATTGGACGGGTAC
>MED12_LsgRNA699
CCTCCTTAGGCTTCACCATTGGACGGGTAC
>MED12_LsgRNA700
TCCTCTTATAAGACCTCTGTGTACCGGCAG
>MED12_LsgRNA701
TCCTCTTATAAGACCTCTGTGTACCGGCAG
>MED12_LsgRNA702
GTCCCTTCAATCTTCTCCTTGGGTGGGGGC
>MED12_LsgRNA703
GTCCCTTCAATCTTCTCCTTGGGTGGGGGC
>MED12_LsgRNA704
CTGCCTTCAGCCTCCTTGTGCTCTGGGTCA
>MED12_LsgRNA705
CTGCCTTCAGCCTCCTTGTGCTCTGGGTCA
>MED12_LsgRNA706
AGAACTTCCAGAGGAGGAGGGAGGAGGTGG
>MED12_LsgRNA707
AGAACTTCCAGAGGAGGAGGGAGGAGGTGG
>MED12_LsgRNA708
ACCTCTTCCTTCTTACTGAAAATGGGGACC
>MED12_LsgRNA709
ACCTCTTCCTTCTTACTGAAAATGGGGACC
>MED12_LsgRNA710
CTGGCTTCGATTCCATCTTCAAGAAGGAGG
>MED12_LsgRNA711
CTGGCTTCGATTCCATCTTCAAGAAGGAGG
>MED12_LsgRNA712
ACTTCTTCTTGCGTTCCTCAGTACTGGGTG
>MED12_LsgRNA713
ACTTCTTCTTGCGTTCCTCAGTACTGGGTG
>MED12_LsgRNA714
GGCCCTTGCCCCATGATGTAGAGGTGGCAA
>MED12_LsgRNA715
GGCCCTTGCCCCATGATGTAGAGGTGGCAA
>MED12_LsgRNA716
TGGCCTTGGCGATGTTCTCCAAGAGGGAGT

>MED12_LsgRNA717
TGGCCTTGGCGATGTTCTCCAAGAGGGAGT
>MED12_LsgRNA718
GAATCTTTGGATTGGGACCTAGCAAGGATG
>MED12_LsgRNA719
GAATCTTTGGATTGGGACCTAGCAAGGATG
>MED12_LsgRNA720
ACTACTTTGGGTACCTTTGAGTGGAGGTCA
>MED12_LsgRNA721
ACTACTTTGGGTACCTTTGAGTGGAGGTCA
>MED12_LsgRNA722
GTTGGAAAACCTCGATTGTGGCCTTGGCGA
>MED12_LsgRNA723
GTTGGAAAACCTCGATTGTGGCCTTGGCGA
>MED12_LsgRNA724
TCCAGAAACTGCAGGAGGACATCCTGGAAA
>MED12_LsgRNA725
TCCAGAAACTGCAGGAGGACATCCTGGAAA
>MED12_LsgRNA726
ACATGAACCTGGCGAAGAAGTTGCAGGTAA
>MED12_LsgRNA727
ACATGAACCTGGCGAAGAAGTTGCAGGTAA
>MED12_LsgRNA728
TTTCGAACGCACCTCCTTCTGTTTGGGGTC
>MED12_LsgRNA729
TTTCGAACGCACCTCCTTCTGTTTGGGGTC
>MED12_LsgRNA730
AGAAGAACTTCCAGAGGAGGAGGGAGGAGG
>MED12_LsgRNA731
AACAGAAGAACTTCCAGAGGAGGAGGGAGG
>MED12_LsgRNA732
AACAGAAGAACTTCCAGAGGAGGAGGGAGG
>MED12_LsgRNA733
TGGAGAAGAGACAGGCGGAGATTGAGGCTG
>MED12_LsgRNA734
TGGAGAAGAGACAGGCGGAGATTGAGGCTG
>MED12_LsgRNA735
AGGAGAAGATTGAAGGGACCCTTGGGGTTC
>MED12_LsgRNA736
AGGAGAAGATTGAAGGGACCCTTGGGGTTC
>MED12_LsgRNA737
CTGAGAAGCCAGATGTCGAGAAGGAGGTGA
>MED12_LsgRNA738
CTGAGAAGCCAGATGTCGAGAAGGAGGTGA

>MED12_LsgRNA739
GCAGGAAGCCCCAAGTGAACCAGAAGGATA
>MED12_LsgRNA740
TGCTGAAGCCCCTGGCGCTGGAACTGGGTG
>MED12_LsgRNA741
TGCTGAAGCCCCTGGCGCTGGAACTGGGTG
>MED12_LsgRNA742
ATAAGAAGGGCTGCTGGCTCAATAGGGACA
>MED12_LsgRNA743
ATAAGAAGGGCTGCTGGCTCAATAGGGACA
>MED12_LsgRNA744
GGTAGAAGGGTGGGTGCTCTGGTAAGGCTG
>MED12_LsgRNA745
GGTAGAAGGGTGGGTGCTCTGGTAAGGCTG
>MED12_LsgRNA746
CATGGAATATTCACTCAGCATCAGTGGCCT
>MED12_LsgRNA747
CATGGAATATTCACTCAGCATCAGTGGCCT
>MED12_LsgRNA748
TGCTGAATGAACTGAGTGTAGTTGAGGCTG
>MED12_LsgRNA749
TGCTGAATGAACTGAGTGTAGTTGAGGCTG
>MED12_LsgRNA750
CGGGGACAGGCAGTTGAAGTTCGCTGGTCT
>MED12_LsgRNA751
CGGGGACAGGCAGTTGAAGTTCGCTGGTCT
>MED12_LsgRNA752
TGCAGACATGTCTAGCATCTCGCAAGGTAG
>MED12_LsgRNA753
TGCAGACATGTCTAGCATCTCGCAAGGTAG
>MED12_LsgRNA754
CAGGGACATGTGTTAAAGGCTGCTGGGGAA
>MED12_LsgRNA755
CAGGGACATGTGTTAAAGGCTGCTGGGGAA
>MED12_LsgRNA756
GCAAGACCAAGCCTGTGCTCAGGTCGGATA
>MED12_LsgRNA757
GCAAGACCAAGCCTGTGCTCAGGTCGGATA
>MED12_LsgRNA758
CGGGGACCAGGGGCTCCAAAGGCAAGGTCC
>MED12_LsgRNA759
CGGGGACCAGGGGCTCCAAAGGCAAGGTCC
>MED12_LsgRNA760
AGTGGACCATGCGCCAGTCTTCCTTGGAGC

>MED12_LsgRNA761
AGTGGACCATGCGCCAGTCTTCCTTGGAGC
>MED12_LsgRNA762
AGGGGACCTTGCCTTTGGAGCCCCTGGTCC
>MED12_LsgRNA763
AGGGGACCTTGCCTTTGGAGCCCCTGGTCC
>MED12_LsgRNA764
AACGGACGCCTGCCTGGACGCCCTGGGCAC
>MED12_LsgRNA765
AACGGACGCCTGCCTGGACGCCCTGGGCAC
>MED12_LsgRNA766
ACAGGACGGTATGGGTCCACACGAGGGCCA
>MED12_LsgRNA767
ACAGGACGGTATGGGTCCACACGAGGGCCA
>MED12_LsgRNA768
CATCGACTGCTGGACAATGAGGATGGGGAA
>MED12_LsgRNA769
CATCGACTGCTGGACAATGAGGATGGGGAA
>MED12_LsgRNA770
ATCAGACTGGCAAGGATTGAGCTGCGGTGT
>MED12_LsgRNA771
ATCAGACTGGCAAGGATTGAGCTGCGGTGT
>MED12_LsgRNA772
CAAGGAGAAGATTGAAGGGACCCTTGGGGT
>MED12_LsgRNA773
CAAGGAGAAGATTGAAGGGACCCTTGGGGT
>MED12_LsgRNA774
AGATGAGAAGGGTTCCATCGCCTCTGGCTC
>MED12_LsgRNA775
AGAAGAGACATGTTGACCCTTTCATGGGTG
>MED12_LsgRNA776
AGAAGAGACATGTTGACCCTTTCATGGGTG
>MED12_LsgRNA777
AAGGGAGAGGGAGGCCGGGGACCAGGGGCT
>MED12_LsgRNA778
AAGGGAGAGGGAGGCCGGGGACCAGGGGCT
>MED12_LsgRNA779
GATCGAGCAGCAGATCAAGGAGCGGGGACA
>MED12_LsgRNA780
GATCGAGCAGCAGATCAAGGAGCGGGGACA
>MED12_LsgRNA781
CCTCGAGCCACTCGCCGGTCCACTCGGACT
>MED12_LsgRNA782
CCTCGAGCCACTCGCCGGTCCACTCGGACT

>MED12_LsgRNA783
CCAGGAGGAGCATGGCCCACTCCGTGGTCT
>MED12_LsgRNA784
CCAGGAGGAGCATGGCCCACTCCGTGGTCT
>MED12_LsgRNA785
TTCAGAGGCACAATAGGAGCAAGCTGGTCT
>MED12_LsgRNA786
TTCAGAGGCACAATAGGAGCAAGCTGGTCT
>MED12_LsgRNA787
TCCGGAGGCACTGTCACACCATAAGGGCCG
>MED12_LsgRNA788
TCCGGAGGCACTGTCACACCATAAGGGCCG
>MED12_LsgRNA789
GGAGGAGGTGGCAGTGGTGGTCGGAGGCAG
>MED12_LsgRNA790
GGAGGAGGTGGCAGTGGTGGTCGGAGGCAG
>MED12_LsgRNA791
ACAAGAGTAGGATTGGTAGAAGGGTGGGTG
>MED12_LsgRNA792
ACAAGAGTAGGATTGGTAGAAGGGTGGGTG
>MED12_LsgRNA793
ATGAGAGTGCAAGTATACATGTTGTGGGAG
>MED12_LsgRNA794
ATGAGAGTGCAAGTATACATGTTGTGGGAG
>MED12_LsgRNA795
TGTGGATAGCAAATGAGCTGCATGAGGCGC
>MED12_LsgRNA796
TGTGGATAGCAAATGAGCTGCATGAGGCGC
>MED12_LsgRNA797
CAAAGATATCTTCAGCAGTGGGGAAGGCTT
>MED12_LsgRNA798
CAAAGATATCTTCAGCAGTGGGGAAGGCTT
>MED12_LsgRNA799
CTCAGATCATCACCAAGTACTTATGGGAGC
>MED12_LsgRNA800
CTCAGATCATCACCAAGTACTTATGGGAGC
>MED12_LsgRNA801
TCGTGATCTGCTCCAGAACATTCCGGGAGA
>MED12_LsgRNA802
TCGTGATCTGCTCCAGAACATTCCGGGAGA
>MED12_LsgRNA803
ACGTGATGACATCTCGGGTCTGCTTGGGCA
>MED12_LsgRNA804
ACGTGATGACATCTCGGGTCTGCTTGGGCA

>MED12_LsgRNA805
AGGGGATGCGGAACTGAAAGGTTCAGGCTT
>MED12_LsgRNA806
AGGGGATGCGGAACTGAAAGGTTCAGGCTT
>MED12_LsgRNA807
GGCAGATGCTGCGCAGCACGTACTTGGCAT
>MED12_LsgRNA808
GGCAGATGCTGCGCAGCACGTACTTGGCAT
>MED12_LsgRNA809
GCCGGATTGCCACCTCTACATCATGGGGCA
>MED12_LsgRNA810
GCCGGATTGCCACCTCTACATCATGGGGCA
>MED12_LsgRNA811
CAGAGATTGCTGCATAGTAGGCACAGGTCA
>MED12_LsgRNA812
CAGAGATTGCTGCATAGTAGGCACAGGTCA
>MED12_LsgRNA813
CTTAGCAAAGATATCTTCAGCAGTGGGGAA
>MED12_LsgRNA814
CTTAGCAAAGATATCTTCAGCAGTGGGGAA
>MED12_LsgRNA815
AGCAGCAAGACCAAGCCTGTGCTCAGGTCG
>MED12_LsgRNA816
AGCAGCAAGACCAAGCCTGTGCTCAGGTCG
>MED12_LsgRNA817
AGAGGCAAGTGGTATGACATGCCAAGGGCA
>MED12_LsgRNA818
AGAGGCAAGTGGTATGACATGCCAAGGGCA
>MED12_LsgRNA819
GAGGGCACATAAGCAGGTCACTAAAGGGAG
>MED12_LsgRNA820
GAGGGCACATAAGCAGGTCACTAAAGGGAG
>MED12_LsgRNA821
CGCAGCACCCAGCAGACCACGGAGTGGGCC
>MED12_LsgRNA822
CGCAGCACCCAGCAGACCACGGAGTGGGCC
>MED12_LsgRNA823
TGGGGCACCGCAGGTTGCTGCTGCCGGTAC
>MED12_LsgRNA824
TGGGGCACCGCAGGTTGCTGCTGCCGGTAC
>MED12_LsgRNA825
GGCAGCACTCCAGGGTAAGTTGGTCGGGTG
>MED12_LsgRNA826
GGCAGCACTCCAGGGTAAGTTGGTCGGGTG

>MED12_LsgRNA827
GTCAGCAGAGACAGGGTCATCTTCTGGAAG
>MED12_LsgRNA828
GTCAGCAGAGACAGGGTCATCTTCTGGAAG
>MED12_LsgRNA829
AGCAGCAGATCAAGGAGCGGGGACAGGCAG
>MED12_LsgRNA830
AGCAGCAGATCAAGGAGCGGGGACAGGCAG
>MED12_LsgRNA831
AGCAGCAGCAACAGACAGCAGCTTTGGTCC
>MED12_LsgRNA832
AGCAGCAGCAACAGACAGCAGCTTTGGTCC
>MED12_LsgRNA833
ACCAGCAGCAACAGCAGCAACAGGCGGCTC
>MED12_LsgRNA834
ACCAGCAGCAACAGCAGCAACAGGCGGCTC
>MED12_LsgRNA835
AGCAGCAGCAGCAGCAGATCCTGCGGGTAA
>MED12_LsgRNA836
AGCAGCAGCAGCAGCAGATCCTGCGGGTAA
>MED12_LsgRNA837
ATCGGCAGGATCATCAAAGGGAGAGGGAGG
>MED12_LsgRNA838
ATCGGCAGGATCATCAAAGGGAGAGGGAGG
>MED12_LsgRNA839
AGGAGCAGGCGGCTCCTCATCTTCTGGGGG
>MED12_LsgRNA840
AGGAGCAGGCGGCTCCTCATCTTCTGGGGG
>MED12_LsgRNA841
CATTGCAGGTCCGTGCAAAGTTGCGGGAGA
>MED12_LsgRNA842
CATTGCAGGTCCGTGCAAAGTTGCGGGAGA
>MED12_LsgRNA843
ATGTGCAGTTCATCTTCGACCTCATGGAAT
>MED12_LsgRNA844
ATGTGCAGTTCATCTTCGACCTCATGGAAT
>MED12_LsgRNA845
CACTGCCACTGCCCCCAGAAGATGAGGAGC
>MED12_LsgRNA846
CACTGCCACTGCCCCCAGAAGATGAGGAGC
>MED12_LsgRNA847
CGAAGCCAGCAATCTTGTTGCCCTTGGTAT
>MED12_LsgRNA848
CGAAGCCAGCAATCTTGTTGCCCTTGGTAT

>MED12_LsgRNA849
ACCGGCCAGGGCCTGCAGGAAGTGGGGGCT
>MED12_LsgRNA850
ACCGGCCAGGGCCTGCAGGAAGTGGGGGCT
>MED12_LsgRNA851
TGTAGCCATTTAAAGAACAAATTTGGGGAG
>MED12_LsgRNA852
TGTAGCCATTTAAAGAACAAATTTGGGGAG
>MED12_LsgRNA853
TGGTGCCCCACACAGACGTGCATAAGGGCA
>MED12_LsgRNA854
TGGTGCCCCACACAGACGTGCATAAGGGCA
>MED12_LsgRNA855
GGAGGCCCCAGCCGCGGCCGCTTCAGGGGC
>MED12_LsgRNA856
GGAGGCCCCAGCCGCGGCCGCTTCAGGGGC
>MED12_LsgRNA857
CAGAGCCCCCCAAAACTGACAAACCGGGGG
>MED12_LsgRNA858
CAGAGCCCCCCAAAACTGACAAACCGGGGG
>MED12_LsgRNA859
ACCGGCCCCTGAAGCGGCCGCGGCTGGGGC
>MED12_LsgRNA860
ACCGGCCCCTGAAGCGGCCGCGGCTGGGGC
>MED12_LsgRNA861
TAGGGCCCTTGCCCCATGATGTAGAGGTGG
>MED12_LsgRNA862
TAGGGCCCTTGCCCCATGATGTAGAGGTGG
>MED12_LsgRNA863
CCCAGCCGCGGCCGCTTCAGGGGCCGGTGT
>MED12_LsgRNA864
CCCAGCCGCGGCCGCTTCAGGGGCCGGTGT
>MED12_LsgRNA865
CGGGGCCGGGGCCTCAGGTGTGTGTGGTAG
>MED12_LsgRNA866
CGGGGCCGGGGCCTCAGGTGTGTGTGGTAG
>MED12_LsgRNA867
TGAAGCCGTCAGCACCACTCTCTTGGGGCT
>MED12_LsgRNA868
TGAAGCCGTCAGCACCACTCTCTTGGGGCT
>MED12_LsgRNA869
TCTTGCCTAGCCCCGTGTAGGTGAAGGTGT
>MED12_LsgRNA870
TCTTGCCTAGCCCCGTGTAGGTGAAGGTGT

>MED12_LsgRNA871
GAGTGCCTCATGCATAAGCTGCTTTGGTTT
>MED12_LsgRNA872
GAGTGCCTCATGCATAAGCTGCTTTGGTTT
>MED12_LsgRNA873
TGGGGCCTCCCGATGTTTACCCTCAGGACC
>MED12_LsgRNA874
TGGGGCCTCCCGATGTTTACCCTCAGGACC
>MED12_LsgRNA875
CTGCGCCTGGGCACTACTCAACACTGGGTC
>MED12_LsgRNA876
CTGCGCCTGGGCACTACTCAACACTGGGTC
>MED12_LsgRNA877
TGCAGCGCAGCACCCAGCAGACCACGGAGT
>MED12_LsgRNA878
GGCAGCGCATAAAGCGCATTCTCCAGGTAG
>MED12_LsgRNA879
GGCAGCGCATAAAGCGCATTCTCCAGGTAG
>MED12_LsgRNA880
GACAGCGCCTTCGCCAACAGCTCCAGGCAA
>MED12_LsgRNA881
GACAGCGCCTTCGCCAACAGCTCCAGGCAA
>MED12_LsgRNA882
TACAGCGCTCTGCAGAGGAGCCATCGGACC
>MED12_LsgRNA883
TACAGCGCTCTGCAGAGGAGCCATCGGACC
>MED12_LsgRNA884
GAATGCGCTTTATGCGCTGCCGCTGGGGGT
>MED12_LsgRNA885
GAATGCGCTTTATGCGCTGCCGCTGGGGGT
>MED12_LsgRNA886
ACCAGCGGTTGGTCGTACTGTTTGGGGTGG
>MED12_LsgRNA887
AGTAGCGTCCAAATATGTTGGTACTGGGCT
>MED12_LsgRNA888
AGTAGCGTCCAAATATGTTGGTACTGGGCT
>MED12_LsgRNA889
TGGTGCTAACATGTCTGAAAGGGCAGGATG
>MED12_LsgRNA890
TGGTGCTAACATGTCTGAAAGGGCAGGATG
>MED12_LsgRNA891
AGCAGCTACCTGGGGCTGGGACTGGGGCTG
>MED12_LsgRNA892
AGCAGCTACCTGGGGCTGGGACTGGGGCTG

>MED12_LsgRNA893
GACTGCTCACACCATCCAGCTGCAGGGCCA
>MED12_LsgRNA894
TGCAGCTCACACCTTCACCTACACGGGGCT
>MED12_LsgRNA895
TGCAGCTCACACCTTCACCTACACGGGGCT
>MED12_LsgRNA896
TGTGGCTCACACGTGATGACATCTCGGGTC
>MED12_LsgRNA897
TGTGGCTCACACGTGATGACATCTCGGGTC
>MED12_LsgRNA898
ATGAGCTGCATGAGGCGCTGCGCCTGGGCA
>MED12_LsgRNA899
ATGAGCTGCATGAGGCGCTGCGCCTGGGCA
>MED12_LsgRNA900
ACGTGCTGCGCAGCATCTGCCAACAGGTCA
>MED12_LsgRNA901
ACGTGCTGCGCAGCATCTGCCAACAGGTCA
>MED12_LsgRNA902
GCTGGCTGCGTTTCTTGCCCTTGGTGGACT
>MED12_LsgRNA903
GCTGGCTGCGTTTCTTGCCCTTGGTGGACT
>MED12_LsgRNA904
TGCTGCTGCTGCTGCTGCCGGATGTGGTAC
>MED12_LsgRNA905
TGCTGCTGCTGCTGCTGCCGGATGTGGTAC
>MED12_LsgRNA906
TGCTGCTGCTGCTGCTGCTCAGGTAGGATG
>MED12_LsgRNA907
TGCTGCTGCTGCTGCTGCTCAGGTAGGATG
>MED12_LsgRNA908
AGAAGCTGGCCATGTTCATGTTTCAGGTAG
>MED12_LsgRNA909
AGAAGCTGGCCATGTTCATGTTTCAGGTAG
>MED12_LsgRNA910
TGCTGCTGGGTCTGCTGAAGCCCCTGGCGC
>MED12_LsgRNA911
TGCTGCTGGGTCTGCTGAAGCCCCTGGCGC
>MED12_LsgRNA912
ATGGGCTGTCAGCTGCAAGCGTTCTGGTCG
>MED12_LsgRNA913
ATGGGCTGTCAGCTGCAAGCGTTCTGGTCG
>MED12_LsgRNA914
CTGTGCTGTCCTAGTGCCTTGGTTTGGCAC

>MED12_LsgRNA915
GCCTGCTGTCTCTGGGGATGAGCATGGCAG
>MED12_LsgRNA916
GCCTGCTGTCTCTGGGGATGAGCATGGCAG
>MED12_LsgRNA917
AGCTGCTTCTCAAATCCTCGGATCTGGTGG
>MED12_LsgRNA918
AGCTGCTTCTCAAATCCTCGGATCTGGTGG
>MED12_LsgRNA919
GTCTGCTTGGGCAGTGGCAGCAGCTGGCGA
>MED12_LsgRNA920
GTCTGCTTGGGCAGTGGCAGCAGCTGGCGA
>MED12_LsgRNA921
ATGCGCTTTATGCGCTGCCGCTGGGGGTTT
>MED12_LsgRNA922
CTATGGAATGGGCCCGGGTCGGAGCGGCCC
>MED12_LsgRNA923
CTATGGAATGGGCCCGGGTCGGAGCGGCCC
>MED12_LsgRNA924
CCAGGGACATGTGTTAAAGGCTGCTGGGGA
>MED12_LsgRNA925
CCAGGGACATGTGTTAAAGGCTGCTGGGGA
>MED12_LsgRNA926
GAACGGACGCCTGCCTGGACGCCCTGGGCA
>MED12_LsgRNA927
GAACGGACGCCTGCCTGGACGCCCTGGGCA
>MED12_LsgRNA928
CACAGGACGGTATGGGTCCACACGAGGGCC
>MED12_LsgRNA929
CACAGGACGGTATGGGTCCACACGAGGGCC
>MED12_LsgRNA930
GGATGGACTGCCCTTCCCCTCACAGGGCAT
>MED12_LsgRNA931
GGATGGACTGCCCTTCCCCTCACAGGGCAT
>MED12_LsgRNA932
AAAGGGAGAGGGAGGCCGGGGACCAGGGGC
>MED12_LsgRNA933
AAAGGGAGAGGGAGGCCGGGGACCAGGGGC
>MED12_LsgRNA934
TGCGGGAGATCGAGCAGCAGATCAAGGAGC
>MED12_LsgRNA935
TGCGGGAGATCGAGCAGCAGATCAAGGAGC
>MED12_LsgRNA936
TGGGGGAGCGCCAGTCAGACAGTCTGGAAA

>MED12_LsgRNA937
TGGGGGAGCGCCAGTCAGACAGTCTGGAAA
>MED12_LsgRNA938
GTCCGGAGGCACTGTCACACCATAAGGGCC
>MED12_LsgRNA939
GTCCGGAGGCACTGTCACACCATAAGGGCC
>MED12_LsgRNA940
CGGGGGAGGCGCTCACCTCTGTCTTGGTAG
>MED12_LsgRNA941
GAGTGGAGGTCAGTCCATGTCCATAGGTGG
>MED12_LsgRNA942
GAGTGGAGGTCAGTCCATGTCCATAGGTGG
>MED12_LsgRNA943
AGAAGGAGGTGAAGCCCCCACCCAAGGAGA
>MED12_LsgRNA944
AGAAGGAGGTGAAGCCCCCACCCAAGGAGA
>MED12_LsgRNA945
GGCTGGAGTAGCTGGGGGGCACCATGGTAC
>MED12_LsgRNA946
GGCTGGAGTAGCTGGGGGGCACCATGGTAC
>MED12_LsgRNA947
CATTGGAGTCATGGTACTTATCATGGGTGT
>MED12_LsgRNA948
CATTGGAGTCATGGTACTTATCATGGGTGT
>MED12_LsgRNA949
CCACGGAGTGGGCCATGCTCCTCCTGGAGA
>MED12_LsgRNA950
CCACGGAGTGGGCCATGCTCCTCCTGGAGA
>MED12_LsgRNA951
GGCAGGATCATCAAAGGGAGAGGGAGGCCG
>MED12_LsgRNA952
TTCGGGATCTTGAGCTACGAACACCGGCCC
>MED12_LsgRNA953
TTCGGGATCTTGAGCTACGAACACCGGCCC
>MED12_LsgRNA954
TCCAGGATGTCCTCCTGCAGTTTCTGGATA
>MED12_LsgRNA955
TCCAGGATGTCCTCCTGCAGTTTCTGGATA
>MED12_LsgRNA956
TGCCGGATTGCCACCTCTACATCATGGGGC
>MED12_LsgRNA957
TGCCGGATTGCCACCTCTACATCATGGGGC
>MED12_LsgRNA958
CTTTGGATTGGGACCTAGCAAGGATGGGCA

>MED12_LsgRNA959
CTTTGGATTGGGACCTAGCAAGGATGGGCA
>MED12_LsgRNA960
TCCAGGCACTACTCACATTGTTAGGGGTCT
>MED12_LsgRNA961
TGAAGGCACTGTTACCCTCTGGCATGGGCA
>MED12_LsgRNA962
TGAAGGCACTGTTACCCTCTGGCATGGGCA
>MED12_LsgRNA963
GATGGGCAGAAGCGGCGACGCAACCGGCCT
>MED12_LsgRNA964
GATGGGCAGAAGCGGCGACGCAACCGGCCT
>MED12_LsgRNA965
TGTGGGCAGCACTCCAGGGTAAGTTGGTCG
>MED12_LsgRNA966
TGTGGGCAGCACTCCAGGGTAAGTTGGTCG
>MED12_LsgRNA967
CATCGGCAGGATCATCAAAGGGAGAGGGAG
>MED12_LsgRNA968
CATCGGCAGGATCATCAAAGGGAGAGGGAG
>MED12_LsgRNA969
AGGTGGCAGTGGTGGTCGGAGGCAGGGTGG
>MED12_LsgRNA970
AGGTGGCAGTGGTGGTCGGAGGCAGGGTGG
>MED12_LsgRNA971
TACCGGCCAGGGCCTGCAGGAAGTGGGGGC
>MED12_LsgRNA972
TACCGGCCAGGGCCTGCAGGAAGTGGGGGC
>MED12_LsgRNA973
GCATGGCCCACTCCGTGGTCTGCTGGGTGC
>MED12_LsgRNA974
GCATGGCCCACTCCGTGGTCTGCTGGGTGC
>MED12_LsgRNA975
AGCAGGCGGCTCCTCATCTTCTGGGGGCAG
>MED12_LsgRNA976
AGCAGGCGGCTCCTCATCTTCTGGGGGCAG
>MED12_LsgRNA977
TTTTGGCTAGTTGCGTGAGTGGCTTGGTGC
>MED12_LsgRNA978
TTTTGGCTAGTTGCGTGAGTGGCTTGGTGC
>MED12_LsgRNA979
CAGTGGCTCCAGGTAATAGGCGCGGGGCCG
>MED12_LsgRNA980
CAGTGGCTCCAGGTAATAGGCGCGGGGCCG

>MED12_LsgRNA981
ACAGGGCTCCCTTATCGATACCAAGGGCAA
>MED12_LsgRNA982
ACAGGGCTCCCTTATCGATACCAAGGGCAA
>MED12_LsgRNA983
CTCAGGCTCTAGCAGGGTAGGAGCAGGCGG
>MED12_LsgRNA984
CTCAGGCTCTAGCAGGGTAGGAGCAGGCGG
>MED12_LsgRNA985
CGGGGGCTGCTCCACCCAGTACTGAGGAAC
>MED12_LsgRNA986
CGGGGGCTGCTCCACCCAGTACTGAGGAAC
>MED12_LsgRNA987
GTAAGGCTGGCTGGAGTAGCTGGGGGGCAC
>MED12_LsgRNA988
GTAAGGCTGGCTGGAGTAGCTGGGGGGCAC
>MED12_LsgRNA989
TTGGGGCTTCCTGCGACCAGTGTCAGGAAG
>MED12_LsgRNA990
TTGGGGCTTCCTGCGACCAGTGTCAGGAAG
>MED12_LsgRNA991
CACAGGCTTGGTCTTGCTGCTGCTGGGCAT
>MED12_LsgRNA992
CACAGGCTTGGTCTTGCTGCTGCTGGGCAT
>MED12_LsgRNA993
GCTGGGGAATAGTACCTGGGGGATGGGAAA
>MED12_LsgRNA994
GCTGGGGAATAGTACCTGGGGGATGGGAAA
>MED12_LsgRNA995
AAATGGGAGCACTGGGAGCAGAAAGGGAGC
>MED12_LsgRNA996
AAATGGGAGCACTGGGAGCAGAAAGGGAGC
>MED12_LsgRNA997
CACTGGGAGCAGAAAGGGAGCCAGAGGCGA
>MED12_LsgRNA998
CACTGGGAGCAGAAAGGGAGCCAGAGGCGA
>MED12_LsgRNA999
TTCTGGGAGGCAGCCAGCAGGTGGCGGTCG
>MED12_LsgRNA1000
GAAAGGGCAGGATGAACAACGCGAGGGACT
>MED12_LsgRNA1001
GAAAGGGCAGGATGAACAACGCGAGGGACT
>MED12_LsgRNA1002
AGGTGGGCAGTTTAGCAATGAGGGGGGCCA

>MED12_LsgRNA1003
AGGTGGGCAGTTTAGCAATGAGGGGGGCCA
>MED12_LsgRNA1004
CACTGGGCCGCTGTTGCAGGTGGCGGGTAG
>MED12_LsgRNA1005
CACTGGGCCGCTGTTGCAGGTGGCGGGTAG
>MED12_LsgRNA1006
CCCAGGGCGAGATCTTCTGTTTGGTGGAAA
>MED12_LsgRNA1007
CCCAGGGCGAGATCTTCTGTTTGGTGGAAA
>MED12_LsgRNA1008
CACAGGGCTCCCTTATCGATACCAAGGGCA
>MED12_LsgRNA1009
CACAGGGCTCCCTTATCGATACCAAGGGCA
>MED12_LsgRNA1010
TGCTGGGGAATAGTACCTGGGGGATGGGAA
>MED12_LsgRNA1011
TGCTGGGGAATAGTACCTGGGGGATGGGAA
>MED12_LsgRNA1012
CTGGGGGGCACCATGGTACCTGCAGGGCCT
>MED12_LsgRNA1013
CTGGGGGGCACCATGGTACCTGCAGGGCCT
>MED12_LsgRNA1014
TCTGGGGGCAGTGGCAGTGGCTCCAGGTAA
>MED12_LsgRNA1015
TCTGGGGGCAGTGGCAGTGGCTCCAGGTAA
>MED12_LsgRNA1016
GTGTGGGGCCTCTATCACAGAACTTGGACC
>MED12_LsgRNA1017
AGTGGGGGCTGTGGTTCCACGATAGGGCCC
>MED12_LsgRNA1018
AGTGGGGGCTGTGGTTCCACGATAGGGCCC
>MED12_LsgRNA1019
GCTGGGGGGCACCATGGTACCTGCAGGGCC
>MED12_LsgRNA1020
GCTGGGGGGCACCATGGTACCTGCAGGGCC
>MED12_LsgRNA1021
AAGTGGGGGCTGTGGTTCCACGATAGGGCC
>MED12_LsgRNA1022
AAGTGGGGGCTGTGGTTCCACGATAGGGCC
>MED12_LsgRNA1023
GTTTGGGGTCCTGAGGGTAAACATCGGGAG
>MED12_LsgRNA1024
GTTTGGGGTCCTGAGGGTAAACATCGGGAG

>MED12_LsgRNA1025
TTTGGGGTCCTGAGGGTAAACATCGGGAGG
>MED12_LsgRNA1026
GGCAGGGTGGCCGCAACATCTCTGTGGAGA
>MED12_LsgRNA1027
GGCAGGGTGGCCGCAACATCTCTGTGGAGA
>MED12_LsgRNA1028
GTTTGGGTGGTGCAGGAGGTCCGGAGGCAC
>MED12_LsgRNA1029
GTTTGGGTGGTGCAGGAGGTCCGGAGGCAC
>MED12_LsgRNA1030
CATTGGTAAGCGCACAGGACGGTATGGGTC
>MED12_LsgRNA1031
CATTGGTAAGCGCACAGGACGGTATGGGTC
>MED12_LsgRNA1032
TGGAGGTCAGTCCATGTCCATAGGTGGGGG
>MED12_LsgRNA1033
TGGAGGTCAGTCCATGTCCATAGGTGGGGG
>MED12_LsgRNA1034
TGTTGGTCATAATGTGAAAGGTGCTGGAAC
>MED12_LsgRNA1035
TGTTGGTCATAATGTGAAAGGTGCTGGAAC
>MED12_LsgRNA1036
CAAGGGTCCCTTCAATCTTCTCCTTGGGTG
>MED12_LsgRNA1037
CAAGGGTCCCTTCAATCTTCTCCTTGGGTG
>MED12_LsgRNA1038
GGTGGGTGCTCTGGTAAGGCTGGCTGGAGT
>MED12_LsgRNA1039
GGTGGGTGCTCTGGTAAGGCTGGCTGGAGT
>MED12_LsgRNA1040
GGCCGGTGCTGAGGGCACATAAGCAGGTCA
>MED12_LsgRNA1041
GGCCGGTGCTGAGGGCACATAAGCAGGTCA
>MED12_LsgRNA1042
AGCAGGTGGCGGTCGCAGGAGGAGCGGATT
>MED12_LsgRNA1043
AGCAGGTGGCGGTCGCAGGAGGAGCGGATT
>MED12_LsgRNA1044
CTGAGGTGGGCAGTTTAGCAATGAGGGGGG
>MED12_LsgRNA1045
AGCGGGTGGGGATGCTTTACTTGTTGGACT
>MED12_LsgRNA1046
AGCGGGTGGGGATGCTTTACTTGTTGGACT

>MED12_LsgRNA1047
GGCAGGTGGGGGGCATGTTTGACACGGTGC
>MED12_LsgRNA1048
GGCAGGTGGGGGGCATGTTTGACACGGTGC
>MED12_LsgRNA1049
GAAGGGTGGGTGCTCTGGTAAGGCTGGCTG
>MED12_LsgRNA1050
GAAGGGTGGGTGCTCTGGTAAGGCTGGCTG
>MED12_LsgRNA1051
CTGTGGTGTCATTGCTATGTGAATGGGCTG
>MED12_LsgRNA1052
CTGTGGTGTCATTGCTATGTGAATGGGCTG
>MED12_LsgRNA1053
GAAAGGTTCAGGCTTCACTGTGACAGGAGG
>MED12_LsgRNA1054
GAAAGGTTCAGGCTTCACTGTGACAGGAGG
>MED12_LsgRNA1055
TTCAGTAAGAAGGAAGAGGTGTTTGGGTAC
>MED12_LsgRNA1056
ATTGGTAAGCGCACAGGACGGTATGGGTCC
>MED12_LsgRNA1057
ATTGGTAAGCGCACAGGACGGTATGGGTCC
>MED12_LsgRNA1058
TCTGGTAAGGCTGGCTGGAGTAGCTGGGGG
>MED12_LsgRNA1059
TCTGGTAAGGCTGGCTGGAGTAGCTGGGGG
>MED12_LsgRNA1060
GCCGGTACACAGAGGTCTTATAAGAGGAGG
>MED12_LsgRNA1061
GCCGGTACACAGAGGTCTTATAAGAGGAGG
>MED12_LsgRNA1062
CTCAGTACTGGGTGGAGCAGCCCCCGGTTT
>MED12_LsgRNA1063
CTCAGTACTGGGTGGAGCAGCCCCCGGTTT
>MED12_LsgRNA1064
TAGTGTAGCTGCCCACCAGATCCGAGGATT
>MED12_LsgRNA1065
TAGTGTAGCTGCCCACCAGATCCGAGGATT
>MED12_LsgRNA1066
CTTGGTATCGATAAGGGAGCCCTGTGGCTC
>MED12_LsgRNA1067
CTTGGTATCGATAAGGGAGCCCTGTGGCTC
>MED12_LsgRNA1068
CAGGGTCACTTACTTCCATCAGACTGGCAA

>MED12_LsgRNA1069
CAGGGTCACTTACTTCCATCAGACTGGCAA
>MED12_LsgRNA1070
GAATGTCAGGTCTCCAGGATTCAGAGGCAC
>MED12_LsgRNA1071
GAATGTCAGGTCTCCAGGATTCAGAGGCAC
>MED12_LsgRNA1072
GGAGGTCAGTCCATGTCCATAGGTGGGGGC
>MED12_LsgRNA1073
GGAGGTCAGTCCATGTCCATAGGTGGGGGC
>MED12_LsgRNA1074
CCAAGTCAGTGAACCAAGTGTTAATGGCAC
>MED12_LsgRNA1075
CCAAGTCAGTGAACCAAGTGTTAATGGCAC
>MED12_LsgRNA1076
CTGGGTCATCGGCAGGATCATCAAAGGGAG
>MED12_LsgRNA1077
CTGGGTCATCGGCAGGATCATCAAAGGGAG
>MED12_LsgRNA1078
TGTAGTCCAGCAGCTACCTGGGGCTGGGAC
>MED12_LsgRNA1079
TGTAGTCCAGCAGCTACCTGGGGCTGGGAC
>MED12_LsgRNA1080
CCATGTCCATAGGTGGGGGCCTGCTGGTGC
>MED12_LsgRNA1081
CCATGTCCATAGGTGGGGGCCTGCTGGTGC
>MED12_LsgRNA1082
AACTGTCCCCTCAGGTGGGGAGGATGGGCA
>MED12_LsgRNA1083
AACTGTCCCCTCAGGTGGGGAGGATGGGCA
>MED12_LsgRNA1084
AAGGGTCCCTTCAATCTTCTCCTTGGGTGG
>MED12_LsgRNA1085
AAGGGTCCCTTCAATCTTCTCCTTGGGTGG
>MED12_LsgRNA1086
TCTGGTCCTGGTTGAGGATGAGGCAGGCAT
>MED12_LsgRNA1087
GGGAGTCGAGGGTGTGCTGCTAGTTGGGGG
>MED12_LsgRNA1088
GGGAGTCGAGGGTGTGCTGCTAGTTGGGGG
>MED12_LsgRNA1089
GATGGTCGTGTCTTCACAGTACTCTGGGGA
>MED12_LsgRNA1090
GATGGTCGTGTCTTCACAGTACTCTGGGGA

>MED12_LsgRNA1091
CCAAGTCTCACATCAACATTGCAGAGGAGA
>MED12_LsgRNA1092
CCAAGTCTCACATCAACATTGCAGAGGAGA
>MED12_LsgRNA1093
TACTGTGAGGTACCTAAGAATGTCAGGTCT
>MED12_LsgRNA1094
TACTGTGAGGTACCTAAGAATGTCAGGTCT
>MED12_LsgRNA1095
GAACGTGATCGACAAAAGCAGAAGAGGTAA
>MED12_LsgRNA1096
GAACGTGATCGACAAAAGCAGAAGAGGTAA
>MED12_LsgRNA1097
CTTGGTGATGATCTGAGTCCATTCTGGAGG
>MED12_LsgRNA1098
CTTGGTGATGATCTGAGTCCATTCTGGAGG
>MED12_LsgRNA1099
CCTGGTGCACCTGGCTGTAGAGGGAGGTAA
>MED12_LsgRNA1100
CCTGGTGCACCTGGCTGTAGAGGGAGGTAA
>MED12_LsgRNA1101
ACCTGTGCCATCTGGTCCTGGTTGAGGATG
>MED12_LsgRNA1102
ACCTGTGCCATCTGGTCCTGGTTGAGGATG
>MED12_LsgRNA1103
TTATGTGCCCTCAGCACCGGCCCCTGGTTT
>MED12_LsgRNA1104
TTATGTGCCCTCAGCACCGGCCCCTGGTTT
>MED12_LsgRNA1105
TCCTGTGCCTGCAGAAGGAGTTGGGGGAGC
>MED12_LsgRNA1106
TCCTGTGCCTGCAGAAGGAGTTGGGGGAGC
>MED12_LsgRNA1107
TGGAGTGCTGCCCACAACCATGACTGGCGT
>MED12_LsgRNA1108
TGGAGTGCTGCCCACAACCATGACTGGCGT
>MED12_LsgRNA1109
GGGTGTGCTGCTAGTTGGGGGCTGAGGAGC
>MED12_LsgRNA1110
GGGTGTGCTGCTAGTTGGGGGCTGAGGAGC
>MED12_LsgRNA1111
CCGAGTGGACCGGCGAGTGGCTCGAGGAGA
>MED12_LsgRNA1112
CCGAGTGGACCGGCGAGTGGCTCGAGGAGA

>MED12_LsgRNA1113
GGCAGTGGCTCCAGGTAATAGGCGCGGGGC
>MED12_LsgRNA1114
GGCAGTGGCTCCAGGTAATAGGCGCGGGGC
>MED12_LsgRNA1115
GGTAGTGGCTGGTTCTGGGTGTACAGGCCT
>MED12_LsgRNA1116
GGTAGTGGCTGGTTCTGGGTGTACAGGCCT
>MED12_LsgRNA1117
GGCAGTGGGATTACACCGAGAAGCTGGCCA
>MED12_LsgRNA1118
GGCAGTGGGATTACACCGAGAAGCTGGCCA
>MED12_LsgRNA1119
TCATGTGGGATTGCAGCAACACACAGGCCC
>MED12_LsgRNA1120
TCATGTGGGATTGCAGCAACACACAGGCCC
>MED12_LsgRNA1121
TCAGGTGGGGAGGATGGGCAGAAGCGGCGA
>MED12_LsgRNA1122
TCAGGTGGGGAGGATGGGCAGAAGCGGCGA
>MED12_LsgRNA1123
AGGTGTGTTATAGAACCAGGGTTTGGGTGG
>MED12_LsgRNA1124
AGGTGTGTTATAGAACCAGGGTTTGGGTGG
>MED12_LsgRNA1125
ACATGTTAGCACCAGCGATAAGAAGGGCTG
>MED12_LsgRNA1126
ACATGTTAGCACCAGCGATAAGAAGGGCTG
>MED12_LsgRNA1127
AGAAGTTATCCTTCTGGTTCACTTGGGGCT
>MED12_LsgRNA1128
AGAAGTTATCCTTCTGGTTCACTTGGGGCT
>MED12_LsgRNA1129
TTATGTTCTATGCCCTCAGGATCCAGGGCT
>MED12_LsgRNA1130
TTATGTTCTATGCCCTCAGGATCCAGGGCT
>MED12_LsgRNA1131
GCTGGTTCTGGGTGTACAGGCCTATGGAGC
>MED12_LsgRNA1132
GCTGGTTCTGGGTGTACAGGCCTATGGAGC
>MED12_LsgRNA1133
TCTTGTTGCCCTTGGTATCGATAAGGGAGC
>MED12_LsgRNA1134
TCTTGTTGCCCTTGGTATCGATAAGGGAGC

>MED12_LsgRNA1135
AGCTGTTGGCGAAGGCGCTGTCCTTGGGGC
>MED12_LsgRNA1136
AGCTGTTGGCGAAGGCGCTGTCCTTGGGGC
>MED12_LsgRNA1137
ATATGTTGGTACTGGGCTGTGGCTGGGTAT
>MED12_LsgRNA1138
ATATGTTGGTACTGGGCTGTGGCTGGGTAT
>MED12_LsgRNA1139
AGCGGTTGGTCGTACTGTTTGGGGTGGGAA
>MED12_LsgRNA1140
AGCGGTTGGTCGTACTGTTTGGGGTGGGAA
>MED12_LsgRNA1141
ACTTGTTGTGGCCCTGGCAGGTGGGGGGCA
>MED12_LsgRNA1142
TTTGGTTTGCAATCATCTAAGTACTGGTCA
>MED12_LsgRNA1143
TTTGGTTTGCAATCATCTAAGTACTGGTCA
>MED12_LsgRNA1144
GTTCTAAACCCATGACGCCAGTCATGGTTG
>MED12_LsgRNA1145
GTTCTAAACCCATGACGCCAGTCATGGTTG
>MED12_LsgRNA1146
CCATTAACACTTGGTTCACTGACTTGGCTG
>MED12_LsgRNA1147
CCATTAACACTTGGTTCACTGACTTGGCTG
>MED12_LsgRNA1148
AGGGTAACAGTGCCTTCACTCAGCAGGTAT
>MED12_LsgRNA1149
AGGGTAACAGTGCCTTCACTCAGCAGGTAT
>MED12_LsgRNA1150
TCAATAACCAGCCTGCTGTCTCTGGGGATG
>MED12_LsgRNA1151
TCAATAACCAGCCTGCTGTCTCTGGGGATG
>MED12_LsgRNA1152
TCTGTAACTGCTCCCATAAGTACTTGGTGA
>MED12_LsgRNA1153
TCTGTAACTGCTCCCATAAGTACTTGGTGA
>MED12_LsgRNA1154
CTGGTAAGGCTGGCTGGAGTAGCTGGGGGG
>MED12_LsgRNA1155
CTGGTAAGGCTGGCTGGAGTAGCTGGGGGG
>MED12_LsgRNA1156
TAGTTAAGGTGTGTTATAGAACCAGGGTTT

>MED12_LsgRNA1157
TAGTTAAGGTGTGTTATAGAACCAGGGTTT
>MED12_LsgRNA1158
AGGATACAGCTGAGGCCAAAAACCAGGGGC
>MED12_LsgRNA1159
ATAGTACCTGGGGGATGGGAAAATGGGTGG
>MED12_LsgRNA1160
ATAGTACCTGGGGGATGGGAAAATGGGTGG
>MED12_LsgRNA1161
TGAATACTACCGGCCAGGGCCTGCAGGAAG
>MED12_LsgRNA1162
TGAATACTACCGGCCAGGGCCTGCAGGAAG
>MED12_LsgRNA1163
CCCCTACTATGCCCTGTGAGGGGAAGGGCA
>MED12_LsgRNA1164
CCCCTACTATGCCCTGTGAGGGGAAGGGCA
>MED12_LsgRNA1165
GCACTACTCAACACTGGGTCTTGCAGGTCA
>MED12_LsgRNA1166
GCACTACTCAACACTGGGTCTTGCAGGTCA
>MED12_LsgRNA1167
GCTATACTCCTTATGTTTCTCATGTGGGAT
>MED12_LsgRNA1168
GCTATACTCCTTATGTTTCTCATGTGGGAT
>MED12_LsgRNA1169
GATGTAGAGGTGGCAATCCGGCAGTGGGAT
>MED12_LsgRNA1170
GATGTAGAGGTGGCAATCCGGCAGTGGGAT
>MED12_LsgRNA1171
CCTTTAGCAGAGTCAGGGCATGTTGGGACA
>MED12_LsgRNA1172
CCTTTAGCAGAGTCAGGGCATGTTGGGACA
>MED12_LsgRNA1173
TGTCTAGCATCTCGCAAGGTAGCATGGAGG
>MED12_LsgRNA1174
TGTCTAGCATCTCGCAAGGTAGCATGGAGG
>MED12_LsgRNA1175
TTGCTAGGTCCCAATCCAAAGATTCGGTTA
>MED12_LsgRNA1176
TTGCTAGGTCCCAATCCAAAGATTCGGTTA
>MED12_LsgRNA1177
CGTGTAGGTGAAGGTGTGAGCTGCAGGGTT
>MED12_LsgRNA1178
CGTGTAGGTGAAGGTGTGAGCTGCAGGGTT

>MED12_LsgRNA1179
TGAGTAGTGCCAAACCAAGGCACTAGGACA
>MED12_LsgRNA1180
TGAGTAGTGCCAAACCAAGGCACTAGGACA
>MED12_LsgRNA1181
ACCCTAGTTCCAGTGTTCTCTTTGAGGACA
>MED12_LsgRNA1182
ACCCTAGTTCCAGTGTTCTCTTTGAGGACA
>MED12_LsgRNA1183
CTGCTAGTTGGGGGCTGAGGAGCAGGGGTG
>MED12_LsgRNA1184
TTTCTATTCTAGATTGTGAATAATTGGCGA
>MED12_LsgRNA1185
TTTCTATTCTAGATTGTGAATAATTGGCGA
>MED12_LsgRNA1186
GTCCTCAAAGAGAACACTGGAACTAGGGTC
>MED12_LsgRNA1187
GTCCTCAAAGAGAACACTGGAACTAGGGTC
>MED12_LsgRNA1188
ATCATCAAAGGGAGAGGGAGGCCGGGGACC
>MED12_LsgRNA1189
ATCATCAAAGGGAGAGGGAGGCCGGGGACC
>MED12_LsgRNA1190
CCCTTCAATCTTCTCCTTGGGTGGGGGCTT
>MED12_LsgRNA1191
CCCTTCAATCTTCTCCTTGGGTGGGGGCTT
>MED12_LsgRNA1192
ATCTTCAGCAGTGGGGAAGGCTTCAGGCCG
>MED12_LsgRNA1193
ATCTTCAGCAGTGGGGAAGGCTTCAGGCCG
>MED12_LsgRNA1194
ACCCTCAGGACCCCAAACAGAAGGAGGTGC
>MED12_LsgRNA1195
ACCCTCAGGACCCCAAACAGAAGGAGGTGC
>MED12_LsgRNA1196
AGGTTCAGGCTTCACTGTGACAGGAGGAAC
>MED12_LsgRNA1197
AGGTTCAGGCTTCACTGTGACAGGAGGAAC
>MED12_LsgRNA1198
CTTATCAGGTCTCCCGGAATGTTCTGGAGC
>MED12_LsgRNA1199
CTTATCAGGTCTCCCGGAATGTTCTGGAGC
>MED12_LsgRNA1200
TCACTCAGTACACCCCATACCTATCGGGAT

>MED12_LsgRNA1201
TCACTCAGTACACCCCATACCTATCGGGAT
>MED12_LsgRNA1202
TGGCTCAGTAGCGTCCAAATATGTTGGTAC
>MED12_LsgRNA1203
TGGCTCAGTAGCGTCCAAATATGTTGGTAC
>MED12_LsgRNA1204
GAGGTCAGTCCATGTCCATAGGTGGGGGCC
>MED12_LsgRNA1205
GAGGTCAGTCCATGTCCATAGGTGGGGGCC
>MED12_LsgRNA1206
TGGGTCATCGGCAGGATCATCAAAGGGAGA
>MED12_LsgRNA1207
ATCCTCATTGTCCAGCAGTCGATGTGGATA
>MED12_LsgRNA1208
ATCCTCATTGTCCAGCAGTCGATGTGGATA
>MED12_LsgRNA1209
CCAATCCAAAGATTCGGTTACAAAGGGAGT
>MED12_LsgRNA1210
CCAATCCAAAGATTCGGTTACAAAGGGAGT
>MED12_LsgRNA1211
GTTTTCCAACAGTCAGCAGAGACAGGGTCA
>MED12_LsgRNA1212
GTTTTCCAACAGTCAGCAGAGACAGGGTCA
>MED12_LsgRNA1213
TATTTCCACCCAGTTCCAGCGCCAGGGGCT
>MED12_LsgRNA1214
TATTTCCACCCAGTTCCAGCGCCAGGGGCT
>MED12_LsgRNA1215
GTAGTCCAGCAGCTACCTGGGGCTGGGACT
>MED12_LsgRNA1216
GTAGTCCAGCAGCTACCTGGGGCTGGGACT
>MED12_LsgRNA1217
GTTCTCCAGCTCTCTAGAGCGCTCTGGTGT
>MED12_LsgRNA1218
GTTCTCCAGCTCTCTAGAGCGCTCTGGTGT
>MED12_LsgRNA1219
AGGATCCAGGGCTCTCAGAATCTATGGACA
>MED12_LsgRNA1220
AGGATCCAGGGCTCTCAGAATCTATGGACA
>MED12_LsgRNA1221
GCACTCCAGGGTAAGTTGGTCGGGTGGGCA
>MED12_LsgRNA1222
GCACTCCAGGGTAAGTTGGTCGGGTGGGCA

>MED12_LsgRNA1223
AATGTCCATAGATTCTGAGAGCCCTGGATC
>MED12_LsgRNA1224
AATGTCCATAGATTCTGAGAGCCCTGGATC
>MED12_LsgRNA1225
CGGCTCCATCCACGATGCGGTTCTGGGAGG
>MED12_LsgRNA1226
CGGCTCCATCCACGATGCGGTTCTGGGAGG
>MED12_LsgRNA1227
GCCTTCCCCAGACAAGCCTACAGTAGGAAT
>MED12_LsgRNA1228
GTTCTCCCCTACTATGCCCTGTGAGGGGAA
>MED12_LsgRNA1229
GTTCTCCCCTACTATGCCCTGTGAGGGGAA
>MED12_LsgRNA1230
CCCTTCCCCTCACAGGGCATAGTAGGGGAG
>MED12_LsgRNA1231
CCCTTCCCCTCACAGGGCATAGTAGGGGAG
>MED12_LsgRNA1232
ACTGTCCCCTCAGGTGGGGAGGATGGGCAG
>MED12_LsgRNA1233
ACTGTCCCCTCAGGTGGGGAGGATGGGCAG
>MED12_LsgRNA1234
CATCTCCCGAGGGGACCTTGCCTTTGGAGC
>MED12_LsgRNA1235
CATCTCCCGAGGGGACCTTGCCTTTGGAGC
>MED12_LsgRNA1236
TGACTCCCTTTGTAACCGAATCTTTGGATT
>MED12_LsgRNA1237
TGACTCCCTTTGTAACCGAATCTTTGGATT
>MED12_LsgRNA1238
CGGCTCCTCATCTTCTGGGGGCAGTGGCAG
>MED12_LsgRNA1239
CGGCTCCTCATCTTCTGGGGGCAGTGGCAG
>MED12_LsgRNA1240
CTTTTCCTCCTTAGGCTTCACCATTGGACG
>MED12_LsgRNA1241
CTTTTCCTCCTTAGGCTTCACCATTGGACG
>MED12_LsgRNA1242
CTGCTCCTCTAACAATGGCACTTGTGGTTT
>MED12_LsgRNA1243
CTGCTCCTCTAACAATGGCACTTGTGGTTT
>MED12_LsgRNA1244
GGGGTCCTGAGGGTAAACATCGGGAGGCCC

>MED12_LsgRNA1245
GGGGTCCTGAGGGTAAACATCGGGAGGCCC
>MED12_LsgRNA1246
GGCTTCCTGCGACCAGTGTCAGGAAGGGTA
>MED12_LsgRNA1247
GGCTTCCTGCGACCAGTGTCAGGAAGGGTA
>MED12_LsgRNA1248
GACATCCTGGAAAATGGGAGCACTGGGAGC
>MED12_LsgRNA1249
GACATCCTGGAAAATGGGAGCACTGGGAGC
>MED12_LsgRNA1250
CACCTCCTTCTGTTTGGGGTCCTGAGGGTA
>MED12_LsgRNA1251
CACCTCCTTCTGTTTGGGGTCCTGAGGGTA
>MED12_LsgRNA1252
ACCCTCGAAGTGAGAGTGAGCGGGTGGAAT
>MED12_LsgRNA1253
ACCCTCGAAGTGAGAGTGAGCGGGTGGAAT
>MED12_LsgRNA1254
GAGATCGAGCAGCAGATCAAGGAGCGGGGA
>MED12_LsgRNA1255
GAGATCGAGCAGCAGATCAAGGAGCGGGGA
>MED12_LsgRNA1256
GGAGTCGAGGGTGTGCTGCTAGTTGGGGGC
>MED12_LsgRNA1257
GGAGTCGAGGGTGTGCTGCTAGTTGGGGGC
>MED12_LsgRNA1258
GGCGTCGTGAAGCATGGGATGAACCGGTCC
>MED12_LsgRNA1259
GGCGTCGTGAAGCATGGGATGAACCGGTCC
>MED12_LsgRNA1260
ATGGTCGTGTCTTCACAGTACTCTGGGGAA
>MED12_LsgRNA1261
ATGGTCGTGTCTTCACAGTACTCTGGGGAA
>MED12_LsgRNA1262
AGGCTCTAGCAGGGTAGGAGCAGGCGGCTC
>MED12_LsgRNA1263
AGGCTCTAGCAGGGTAGGAGCAGGCGGCTC
>MED12_LsgRNA1264
TCCTTCTCGACATCTGGCTTCTCAGGGGAT
>MED12_LsgRNA1265
TCCTTCTCGACATCTGGCTTCTCAGGGGAT
>MED12_LsgRNA1266
TGGGTCTGCTGAAGCCCCTGGCGCTGGAAC

>MED12_LsgRNA1267
TGGGTCTGCTGAAGCCCCTGGCGCTGGAAC
>MED12_LsgRNA1268
GCCATCTGGTCCTGGTTGAGGATGAGGCAG
>MED12_LsgRNA1269
GCCATCTGGTCCTGGTTGAGGATGAGGCAG
>MED12_LsgRNA1270
TCCTTCTTACTGAAAATGGGGACCTGGATG
>MED12_LsgRNA1271
CACCTCTTCCTTCTTACTGAAAATGGGGAC
>MED12_LsgRNA1272
CACCTCTTCCTTCTTACTGAAAATGGGGAC
>MED12_LsgRNA1273
CTCATCTTCTGGGGGCAGTGGCAGTGGCTC
>MED12_LsgRNA1274
CTCATCTTCTGGGGGCAGTGGCAGTGGCTC
>MED12_LsgRNA1275
CAAGTGAACCAGAAGGATAACTTCTGGCTG
>MED12_LsgRNA1276
CAAGTGAACCAGAAGGATAACTTCTGGCTG
>MED12_LsgRNA1277
ATCTTGAAGGTTCTGAACCGCAAAGGGACA
>MED12_LsgRNA1278
ATCTTGAAGGTTCTGAACCGCAAAGGGACA
>MED12_LsgRNA1279
GTTTTGAGAAGATCCGCCCTGGAGAGGATG
>MED12_LsgRNA1280
GTTTTGAGAAGATCCGCCCTGGAGAGGATG
>MED12_LsgRNA1281
CCCCTGAGAAGCCAGATGTCGAGAAGGAGG
>MED12_LsgRNA1282
CCCCTGAGAAGCCAGATGTCGAGAAGGAGG
>MED12_LsgRNA1283
TCAGTGAGCTCTTCACTACTGTGTTGGACA
>MED12_LsgRNA1284
TCAGTGAGCTCTTCACTACTGTGTTGGACA
>MED12_LsgRNA1285
GGATTGAGCTGCGGTGTCTTGAAAAGGTGA
>MED12_LsgRNA1286
CAGCTGAGGCCAAAAACCAGGGGCCGGTGC
>MED12_LsgRNA1287
CAGCTGAGGCCAAAAACCAGGGGCCGGTGC
>MED12_LsgRNA1288
CTCGTGATCTGCTCCAGAACATTCCGGGAG

>MED12_LsgRNA1289
CTCGTGATCTGCTCCAGAACATTCCGGGAG
>MED12_LsgRNA1290
AGTCTGCAAACCGTAGGAAGAGCTGGGAGT
>MED12_LsgRNA1291
AGTCTGCAAACCGTAGGAAGAGCTGGGAGT
>MED12_LsgRNA1292
TCTCTGCAATAATGCTGCTGAAGTTGGAAC
>MED12_LsgRNA1293
TCTCTGCAATAATGCTGCTGAAGTTGGAAC
>MED12_LsgRNA1294
ACTATGCAGCAATCTCTGAGACCAAGGTTA
>MED12_LsgRNA1295
ACTATGCAGCAATCTCTGAGACCAAGGTTA
>MED12_LsgRNA1296
CACCTGCAGGTAGTGGCTGGTTCTGGGTGT
>MED12_LsgRNA1297
CACCTGCAGGTAGTGGCTGGTTCTGGGTGT
>MED12_LsgRNA1298
ACATTGCAGGTCCGTGCAAAGTTGCGGGAG
>MED12_LsgRNA1299
ACATTGCAGGTCCGTGCAAAGTTGCGGGAG
>MED12_LsgRNA1300
CTTATGCATGAGGCACTCAAACTGCGGCTC
>MED12_LsgRNA1301
CTTATGCATGAGGCACTCAAACTGCGGCTC
>MED12_LsgRNA1302
GCCATGCCATCAAGAAAATCACCAAGGATA
>MED12_LsgRNA1303
GCCATGCCATCAAGAAAATCACCAAGGATA
>MED12_LsgRNA1304
GCAATGCCCTTATGCACGTCTGTGTGGGGC
>MED12_LsgRNA1305
GCAATGCCCTTATGCACGTCTGTGTGGGGC
>MED12_LsgRNA1306
ATCCTGCCGATGACCCAGAGCACAAGGAGG
>MED12_LsgRNA1307
ATCCTGCCGATGACCCAGAGCACAAGGAGG
>MED12_LsgRNA1308
ACAGTGCCGCTGATGATGATCTCCAGGAGG
>MED12_LsgRNA1309
ACAGTGCCGCTGATGATGATCTCCAGGAGG
>MED12_LsgRNA1310
ATCATGCCTGCCTCATCCTCAACCAGGACC

>MED12_LsgRNA1311
ATCATGCCTGCCTCATCCTCAACCAGGACC
>MED12_LsgRNA1312
ACAGTGCCTGTGATGCGGGCTGCCTGGCTC
>MED12_LsgRNA1313
ACAGTGCCTGTGATGCGGGCTGCCTGGCTC
>MED12_LsgRNA1314
AGAATGCGCTTTATGCGCTGCCGCTGGGGG
>MED12_LsgRNA1315
AGAATGCGCTTTATGCGCTGCCGCTGGGGG
>MED12_LsgRNA1316
TGACTGCTCACACCATCCAGCTGCAGGGCC
>MED12_LsgRNA1317
TGACTGCTCACACCATCCAGCTGCAGGGCC
>MED12_LsgRNA1318
GCCATGCTCATCCCCAGAGACAGCAGGCTG
>MED12_LsgRNA1319
GCCATGCTCATCCCCAGAGACAGCAGGCTG
>MED12_LsgRNA1320
TTGCTGCTCTACCACACACACCTGAGGCCC
>MED12_LsgRNA1321
GACATGCTGAGCGTGCTCATCAATGGGACA
>MED12_LsgRNA1322
GACATGCTGAGCGTGCTCATCAATGGGACA
>MED12_LsgRNA1323
CTGTTGCTGCTGCTGCTGCTGCTCAGGTAG
>MED12_LsgRNA1324
CTGTTGCTGCTGCTGCTGCTGCTCAGGTAG
>MED12_LsgRNA1325
AGGCTGCTGGGGAAGAATTGGAGAAGGGTC
>MED12_LsgRNA1326
AGGCTGCTGGGGAAGAATTGGAGAAGGGTC
>MED12_LsgRNA1327
GGCCTGCTGGTGCACATAGCCACTGGGCCG
>MED12_LsgRNA1328
GGCCTGCTGGTGCACATAGCCACTGGGCCG
>MED12_LsgRNA1329
AAGCTGCTGTCTGTTGCTGCTGCTGGGTCT
>MED12_LsgRNA1330
AAGCTGCTGTCTGTTGCTGCTGCTGGGTCT
>MED12_LsgRNA1331
GACCTGCTTATGTGCCCTCAGCACCGGCCC
>MED12_LsgRNA1332
GACCTGCTTATGTGCCCTCAGCACCGGCCC

>MED12_LsgRNA1333
TGCCTGGACGCCCTGGGCACTCATTGGAGT
>MED12_LsgRNA1334
TGCCTGGACGCCCTGGGCACTCATTGGAGT
>MED12_LsgRNA1335
AGGTTGGACGGGGCAATAGGCAAGTGGTCA
>MED12_LsgRNA1336
AGGTTGGACGGGGCAATAGGCAAGTGGTCA
>MED12_LsgRNA1337
CCATTGGACGGGTACTTCATACTTTGGAAG
>MED12_LsgRNA1338
GGGATGGACTGCCCTTCCCCTCACAGGGCA
>MED12_LsgRNA1339
GGGATGGACTGCCCTTCCCCTCACAGGGCA
>MED12_LsgRNA1340
CCTATGGAGCCTTGCCTGTAGTTAAGGTGT
>MED12_LsgRNA1341
CCTATGGAGCCTTGCCTGTAGTTAAGGTGT
>MED12_LsgRNA1342
TCATTGGAGTCATGGTACTTATCATGGGTG
>MED12_LsgRNA1343
TCATTGGAGTCATGGTACTTATCATGGGTG
>MED12_LsgRNA1344
TGGCTGGCACTCACCTGCAGGTAGTGGCTG
>MED12_LsgRNA1345
TGGCTGGCACTCACCTGCAGGTAGTGGCTG
>MED12_LsgRNA1346
GCAGTGGCAGTGGCTCCAGGTAATAGGCGC
>MED12_LsgRNA1347
GCAGTGGCAGTGGCTCCAGGTAATAGGCGC
>MED12_LsgRNA1348
GAGGTGGCAGTGGTGGTCGGAGGCAGGGTG
>MED12_LsgRNA1349
GAGGTGGCAGTGGTGGTCGGAGGCAGGGTG
>MED12_LsgRNA1350
AGCATGGCCCACTCCGTGGTCTGCTGGGTG
>MED12_LsgRNA1351
AGCATGGCCCACTCCGTGGTCTGCTGGGTG
>MED12_LsgRNA1352
CTGTTGGCGAAGGCGCTGTCCTTGGGGCAC
>MED12_LsgRNA1353
CTGTTGGCGAAGGCGCTGTCCTTGGGGCAC
>MED12_LsgRNA1354
CCGATGGCTCCACGTTGCAGTAGATGGTGT

>MED12_LsgRNA1355
CCGATGGCTCCACGTTGCAGTAGATGGTGT
>MED12_LsgRNA1356
GCAGTGGCTCCAGGTAATAGGCGCGGGGCC
>MED12_LsgRNA1357
GCAGTGGCTCCAGGTAATAGGCGCGGGGCC
>MED12_LsgRNA1358
AAGATGGCTGAATACTACCGGCCAGGGCCT
>MED12_LsgRNA1359
AAGATGGCTGAATACTACCGGCCAGGGCCT
>MED12_LsgRNA1360
GGGCTGGGACTGGGGCTGGGGTTGGGGAGG
>MED12_LsgRNA1361
GGGCTGGGACTGGGGCTGGGGTTGGGGAGG
>MED12_LsgRNA1362
GGGCTGGGCAAGATGGCGGCCTTCGGGATC
>MED12_LsgRNA1363
GGGCTGGGCAAGATGGCGGCCTTCGGGATC
>MED12_LsgRNA1364
GAGGTGGGCAGTTTAGCAATGAGGGGGGCC
>MED12_LsgRNA1365
GAGGTGGGCAGTTTAGCAATGAGGGGGGCC
>MED12_LsgRNA1366
CCACTGGGCCGCTGTTGCAGGTGGCGGGTA
>MED12_LsgRNA1367
CCACTGGGCCGCTGTTGCAGGTGGCGGGTA
>MED12_LsgRNA1368
TGTGTGGGGCACCATGATCCCGATAGGTAT
>MED12_LsgRNA1369
TGTGTGGGGCACCATGATCCCGATAGGTAT
>MED12_LsgRNA1370
ATCATGGGTGTCTGCTGCAGTGTCTGGTGT
>MED12_LsgRNA1371
ATCATGGGTGTCTGCTGCAGTGTCTGGTGT
>MED12_LsgRNA1372
GGATTGGTAGAAGGGTGGGTGCTCTGGTAA
>MED12_LsgRNA1373
GGATTGGTAGAAGGGTGGGTGCTCTGGTAA
>MED12_LsgRNA1374
TCGCTGGTGCTAACATGTCTGAAAGGGCAG
>MED12_LsgRNA1375
TCGCTGGTGCTAACATGTCTGAAAGGGCAG
>MED12_LsgRNA1376
GCTGTGGTGTCATTGCTATGTGAATGGGCT

>MED12_LsgRNA1377
GCTGTGGTGTCATTGCTATGTGAATGGGCT
>MED12_LsgRNA1378
GTCATGGTTGTGGGCAGCACTCCAGGGTAA
>MED12_LsgRNA1379
GTCATGGTTGTGGGCAGCACTCCAGGGTAA
>MED12_LsgRNA1380
CCTTTGTAACCGAATCTTTGGATTGGGACC
>MED12_LsgRNA1381
CCTTTGTAACCGAATCTTTGGATTGGGACC
>MED12_LsgRNA1382
ACGTTGTAATACCCTTCCTGACACTGGTCG
>MED12_LsgRNA1383
ACGTTGTAATACCCTTCCTGACACTGGTCG
>MED12_LsgRNA1384
GAGATGTCATCACGTGTGAGCCACAGGGCT
>MED12_LsgRNA1385
GAGATGTCATCACGTGTGAGCCACAGGGCT
>MED12_LsgRNA1386
TTGCTGTCCTCACACAGAGACTTAAGGCAA
>MED12_LsgRNA1387
TTGCTGTCCTCACACAGAGACTTAAGGCAA
>MED12_LsgRNA1388
TTCCTGTGCCTGCAGAAGGAGTTGGGGGAG
>MED12_LsgRNA1389
TTCCTGTGCCTGCAGAAGGAGTTGGGGGAG
>MED12_LsgRNA1390
AGGCTGTGTGGCGTCGTGAAGCATGGGATG
>MED12_LsgRNA1391
AGGCTGTGTGGCGTCGTGAAGCATGGGATG
>MED12_LsgRNA1392
AAGGTGTGTTATAGAACCAGGGTTTGGGTG
>MED12_LsgRNA1393
AAGGTGTGTTATAGAACCAGGGTTTGGGTG
>MED12_LsgRNA1394
GCACTGTTACCCTCTGGCATGGGCAGGTTG
>MED12_LsgRNA1395
GCACTGTTACCCTCTGGCATGGGCAGGTTG
>MED12_LsgRNA1396
GACATGTTAGCACCAGCGATAAGAAGGGCT
>MED12_LsgRNA1397
GACATGTTAGCACCAGCGATAAGAAGGGCT
>MED12_LsgRNA1398
ATCTTGTTGCCCTTGGTATCGATAAGGGAG

>MED12_LsgRNA1399
ATCTTGTTGCCCTTGGTATCGATAAGGGAG
>MED12_LsgRNA1400
AATATGTTGGTACTGGGCTGTGGCTGGGTA
>MED12_LsgRNA1401
AATATGTTGGTACTGGGCTGTGGCTGGGTA
>MED12_LsgRNA1402
CAGTTTAAGCAATTCATCCTCTCCAGGGCG
>MED12_LsgRNA1403
CAGTTTAAGCAATTCATCCTCTCCAGGGCG
>MED12_LsgRNA1404
GTAGTTAAGGTGTGTTATAGAACCAGGGTT
>MED12_LsgRNA1405
GTAGTTAAGGTGTGTTATAGAACCAGGGTT
>MED12_LsgRNA1406
CTGCTTACCTGCAACTTCTTCGCCAGGTTC
>MED12_LsgRNA1407
CTGCTTACCTGCAACTTCTTCGCCAGGTTC
>MED12_LsgRNA1408
TCACTTACTTCCATCAGACTGGCAAGGATT
>MED12_LsgRNA1409
TCACTTACTTCCATCAGACTGGCAAGGATT
>MED12_LsgRNA1410
CCCTTTAGCAGAGTCAGGGCATGTTGGGAC
>MED12_LsgRNA1411
TGTGTTATAGAACCAGGGTTTGGGTGGTGC
>MED12_LsgRNA1412
TGTGTTATAGAACCAGGGTTTGGGTGGTGC
>MED12_LsgRNA1413
GAAGTTATCCTTCTGGTTCACTTGGGGCTT
>MED12_LsgRNA1414
GAAGTTATCCTTCTGGTTCACTTGGGGCTT
>MED12_LsgRNA1415
GCCCTTATGGTGTGACAGTGCCTCCGGACC
>MED12_LsgRNA1416
GCCCTTATGGTGTGACAGTGCCTCCGGACC
>MED12_LsgRNA1417
TCCCTTCAATCTTCTCCTTGGGTGGGGGCT
>MED12_LsgRNA1418
TCCCTTCAATCTTCTCCTTGGGTGGGGGCT
>MED12_LsgRNA1419
GGGCTTCACCTCCTTCTCGACATCTGGCTT
>MED12_LsgRNA1420
GGGCTTCACCTCCTTCTCGACATCTGGCTT

>MED12_LsgRNA1421
CTATTTCCACCCAGTTCCAGCGCCAGGGGC
>MED12_LsgRNA1422
CTATTTCCACCCAGTTCCAGCGCCAGGGGC
>MED12_LsgRNA1423
GCCCTTCCCCTCACAGGGCATAGTAGGGGA
>MED12_LsgRNA1424
GCCCTTCCCCTCACAGGGCATAGTAGGGGA
>MED12_LsgRNA1425
CGGATTCCTACTGTAGGCTTGTCTGGGGAA
>MED12_LsgRNA1426
CGGATTCCTACTGTAGGCTTGTCTGGGGAA
>MED12_LsgRNA1427
GGTGTTCGTAGCTCAAGATCCCGAAGGCCG
>MED12_LsgRNA1428
GGTGTTCGTAGCTCAAGATCCCGAAGGCCG
>MED12_LsgRNA1429
TATGTTCTATGCCCTCAGGATCCAGGGCTC
>MED12_LsgRNA1430
TATGTTCTATGCCCTCAGGATCCAGGGCTC
>MED12_LsgRNA1431
CTTTTTCTCAGGCTCTAGCAGGGTAGGAGC
>MED12_LsgRNA1432
CTTTTTCTCAGGCTCTAGCAGGGTAGGAGC
>MED12_LsgRNA1433
TCTTTTCTCCCTTTAGCAGAGTCAGGGCAT
>MED12_LsgRNA1434
TCTTTTCTCCCTTTAGCAGAGTCAGGGCAT
>MED12_LsgRNA1435
CTCCTTCTCGACATCTGGCTTCTCAGGGGA
>MED12_LsgRNA1436
CTCCTTCTCGACATCTGGCTTCTCAGGGGA
>MED12_LsgRNA1437
CAGCTTCTGCATTGGTAAGCGCACAGGACG
>MED12_LsgRNA1438
CAGCTTCTGCATTGGTAAGCGCACAGGACG
>MED12_LsgRNA1439
CTTCTTCTTGCGTTCCTCAGTACTGGGTGG
>MED12_LsgRNA1440
CTTCTTCTTGCGTTCCTCAGTACTGGGTGG
>MED12_LsgRNA1441
TATCTTGAAGGTTCTGAACCGCAAAGGGAC
>MED12_LsgRNA1442
TATCTTGAAGGTTCTGAACCGCAAAGGGAC

>MED12_LsgRNA1443
ATCTTTGCCTGGAGCTGTTGGCGAAGGCGC
>MED12_LsgRNA1444
ATCTTTGCCTGGAGCTGTTGGCGAAGGCGC
>MED12_LsgRNA1445
AACGTTGCCTTAAGTCTCTGTGTGAGGACA
>MED12_LsgRNA1446
AACGTTGCCTTAAGTCTCTGTGTGAGGACA
>MED12_LsgRNA1447
CTTCTTGCGTTCCTCAGTACTGGGTGGAGC
>MED12_LsgRNA1448
CTTCTTGCGTTCCTCAGTACTGGGTGGAGC
>MED12_LsgRNA1449
TCATTTGCTATCCACATCGACTGCTGGACA
>MED12_LsgRNA1450
TCATTTGCTATCCACATCGACTGCTGGACA
>MED12_LsgRNA1451
CAGGTTGCTGCTGCCGGTACACAGAGGTCT
>MED12_LsgRNA1452
CAGGTTGCTGCTGCCGGTACACAGAGGTCT
>MED12_LsgRNA1453
TGGTTTGGAACAGTCCGAGTGGACCGGCGA
>MED12_LsgRNA1454
TGGTTTGGAACAGTCCGAGTGGACCGGCGA
>MED12_LsgRNA1455
AGAATTGGAGAAGGGTCAGCACCTGGGTTC
>MED12_LsgRNA1456
AGAATTGGAGAAGGGTCAGCACCTGGGTTC
>MED12_LsgRNA1457
GCTGTTGGCGAAGGCGCTGTCCTTGGGGCA
>MED12_LsgRNA1458
GCTGTTGGCGAAGGCGCTGTCCTTGGGGCA
>MED12_LsgRNA1459
CAGATTGGTAGTTCACCAGCATTAAGGAGT
>MED12_LsgRNA1460
CAGATTGGTAGTTCACCAGCATTAAGGAGT
>MED12_LsgRNA1461
GCGGTTGGTCGTACTGTTTGGGGTGGGAAA
>MED12_LsgRNA1462
GCGGTTGGTCGTACTGTTTGGGGTGGGAAA
>MED12_LsgRNA1463
CTGATTGTCAGCTTCCTCAGGAATGGGTAG
>MED12_LsgRNA1464
CTGATTGTCAGCTTCCTCAGGAATGGGTAG

>MED12_LsgRNA1465
CTCCTTGTGCTCTGGGTCATCGGCAGGATC
>MED12_LsgRNA1466
CTCCTTGTGCTCTGGGTCATCGGCAGGATC
>MED12_LsgRNA1467
GGCCTTGTGCTGCTCCTCTAACAATGGCAC
>MED12_LsgRNA1468
GGCCTTGTGCTGCTCCTCTAACAATGGCAC
>MED12_LsgRNA1469
CTTGTTGTGGCCCTGGCAGGTGGGGGGCAT
>MED12_LsgRNA1470
CTTGTTGTGGCCCTGGCAGGTGGGGGGCAT
>MED12_LsgRNA1471
CATGTTTCTATCCGACCTGAGCACAGGCTT
>MED12_LsgRNA1472
CATGTTTCTATCCGACCTGAGCACAGGCTT
>MED12_LsgRNA1473
CTCTTTTCTCCCTTTAGCAGAGTCAGGGCA
>MED12_LsgRNA1474
CTCTTTTCTCCCTTTAGCAGAGTCAGGGCA
>MED12_LsgRNA1475
AGGGTTTGGGTGGTGCAGGAGGTCCGGAGG
>MED12_LsgRNA1476
AGGGTTTGGGTGGTGCAGGAGGTCCGGAGG
>MED12_LsgRNA1477
CAAATTTGTTCTTTAAATGGCTACAGGAGG
>MED12_LsgRNA1478
CAAATTTGTTCTTTAAATGGCTACAGGAGG

(23) $\mathbb{S}_6^-$: 152 low on-target activity sgRNAs targeting TADA2B

>TADA2B_LsgRNA1
AACAAAAACCTAGCCGGCTCCAAACGGGGA
>TADA2B_LsgRNA2
ACAAAAACCTAGCCGGCTCCAAACGGGGAA
>TADA2B_LsgRNA3
CAAAAACCTAGCCGGCTCCAAACGGGGAAA
>TADA2B_LsgRNA4
CCAAAAGCCGCCTTCCTAGCTACCTGGACA
>TADA2B_LsgRNA5
GAGGAAGGAGAACAAAAACCTAGCCGGCTC
>TADA2B_LsgRNA6
CTACAATCTGGTGCCAGCCTTCCTGGGGAA
>TADA2B_LsgRNA7
TCTGACAGGAGCTCGAAGCCTGGAAGGTTC

>TADA2B_LsgRNA8
GAGTACGAGGCAGCGCGGCATAAACGGGAG
>TADA2B_LsgRNA9
TGTCACGCGGTTGGGGATGGTGTCGGGGAT
>TADA2B_LsgRNA10
GTGGACGGCGGGCGCTTCACGCTCTGGGGG
>TADA2B_LsgRNA11
TCAAACTCCTTGCATGACATGAACTGGTAC
>TADA2B_LsgRNA12
TCACAGAAAGCGGCTGGATCTCCAGGGACG
>TADA2B_LsgRNA13
ACAGAGATGTCCAGCGGGGGCAGCGGGGTG
>TADA2B_LsgRNA14
ATCGAGCAGTTCGGCTTCGGAAACTGGGTG
>TADA2B_LsgRNA15
ACCTAGCCGGCTCCAAACGGGGAAAGGAGG
>TADA2B_LsgRNA16
TGGTAGCCGTGGTAGCGGCGGTGGTGGCCG
>TADA2B_LsgRNA17
GTGAAGCGCCCGCCGTCCACCAGCTGGTAG
>TADA2B_LsgRNA18
CAGCAGCTGGGCTACATGCCGCTGCGGGAT
>TADA2B_LsgRNA19
CTTTAGGACTTTGTCCAGGTAGCTAGGAAG
>TADA2B_LsgRNA20
GAGAAGGAGCTGCGCCTGAAGCTGAGGCCG
>TADA2B_LsgRNA21
ATGCAGGCCTTCCCCAGGTTCCCGTGGATG
>TADA2B_LsgRNA22
TTGGAGGGGATTCCTTGCCGCTTCTGGAGG
>TADA2B_LsgRNA23
CTCGATCTCGTAATCATCCCGCAGCGGCAT
>TADA2B_LsgRNA24
TACAATCTGGTGCCAGCCTTCCTGGGGAAG
>TADA2B_LsgRNA25
GAGCATGTACATCCACGGGAACCTGGGGAA
>TADA2B_LsgRNA26
TTGAATTTCCTCACAGAAAGCGGCTGGATC
>TADA2B_LsgRNA27
CTGTCAACTATGATGACGACGACGTGGAGA
>TADA2B_LsgRNA28
AGCGCAAGATCACCAAGGAGGAGAAGGAGC
>TADA2B_LsgRNA29
ACTACAATCTGGTGCCAGCCTTCCTGGGGA

>TADA2B_LsgRNA30
GCCTCACCACCCCGCTGCCCCCGCTGGACA
>TADA2B_LsgRNA31
CTGTCACGCGGTTGGGGATGGTGTCGGGGA
>TADA2B_LsgRNA32
CTACCACGGCTACCAGCTGGTGGACGGCGG
>TADA2B_LsgRNA33
CTCACAGAAAGCGGCTGGATCTCCAGGGAC
>TADA2B_LsgRNA34
CCAGCAGCAGCTGCTCCTCGCGACTGGTCC
>TADA2B_LsgRNA35
GGCACAGCTCGATGTCCTGGCACTCGGTGC
>TADA2B_LsgRNA36
GCTCCATCACCTCTTGGGGAGTCCGGGAAG
>TADA2B_LsgRNA37
TGTACATCCACGGGAACCTGGGGAAGGCCT
>TADA2B_LsgRNA38
AGAACATCGCCCGTGACTACAATCTGGTGC
>TADA2B_LsgRNA39
TGAGCATGTACATCCACGGGAACCTGGGGA
>TADA2B_LsgRNA40
TCCACCAGCTGGTAGCCGTGGTAGCGGCGG
>TADA2B_LsgRNA41
TGCTCCATCACCTCTTGGGGAGTCCGGGAA
>TADA2B_LsgRNA42
ACCGCCGCTACCACGGCTACCAGCTGGTGG
>TADA2B_LsgRNA43
GGTACCGCTGCAGTTCTCGGATCTTGGCCC
>TADA2B_LsgRNA44
CTTCCCGGACTCCCCAAGAGGTGATGGAGC
>TADA2B_LsgRNA45
AGATCGAGCTGAAGCGCGCCCACGTGGACA
>TADA2B_LsgRNA46
AGTACGAGGCAGCGCGGCATAAACGGGAGA
>TADA2B_LsgRNA47
TCGGCGCCGGCCGAGAAGCACTCGGGGCAC
>TADA2B_LsgRNA48
GCAGCGCGGCATAAACGGGAGAAGAGGAAG
>TADA2B_LsgRNA49
GTCACGCGGTTGGGGATGGTGTCGGGGATG
>TADA2B_LsgRNA50
GAGTCGGCAGAGTACGAGGCAGCGCGGCAT
>TADA2B_LsgRNA51
TGGACGGCGGGCGCTTCACGCTCTGGGGGC

>TADA2B_LsgRNA52
TAGCCGGCTCCAAACGGGGAAAGGAGGACG
>TADA2B_LsgRNA53
GTGTCGGGGATGCAGGCCTTCCCCAGGTTC
>TADA2B_LsgRNA54
CACTCGGGGCACAGCTCGATGTCCTGGCAC
>TADA2B_LsgRNA55
CGAGCGGGGGAAGATGGCGGAGCTGGGGAA
>TADA2B_LsgRNA56
CACTCGGTGCAGCGGAAGCGCAGCGGGCTC
>TADA2B_LsgRNA57
CTCACGTAATGCTCCATCACCTCTTGGGGA
>TADA2B_LsgRNA58
CCGCCGTCCACCAGCTGGTAGCCGTGGTAG
>TADA2B_LsgRNA59
GCCGCTACCACGGCTACCAGCTGGTGGACG
>TADA2B_LsgRNA60
CGTCCTCCTTTCCCCGTTTGGAGCCGGCTA
>TADA2B_LsgRNA61
CGTACTCTGCCGACTCTTCCATCTTGGTGA
>TADA2B_LsgRNA62
CACGCTCTGGGGGCCCGAGGCCGAGGGCGG
>TADA2B_LsgRNA63
AGAACTGCAGCGGTACCGGCGAAACGGGAT
>TADA2B_LsgRNA64
ATGGCTGCCCACGTTGGTGCTTCCCGGACT
>TADA2B_LsgRNA65
AAGGCTGGCACCAGATTGTAGTCACGGGCG
>TADA2B_LsgRNA66
TGCGCTTCCGCTGCACCGAGTGCCAGGACA
>TADA2B_LsgRNA67
CAGCCTTCCTGGGGAAGGACAAGAAGGAGA
>TADA2B_LsgRNA68
TCTCCTTCTTGTCCTTCCCCAGGAAGGCTG
>TADA2B_LsgRNA69
AGGACTTTGTCCAGGTAGCTAGGAAGGCGG
>TADA2B_LsgRNA70
GTAGGAAGATATGGCTGCCCACGTTGGTGC
>TADA2B_LsgRNA71
GCTCGAAGCCTGGAAGGTTCTCAATGGCGG
>TADA2B_LsgRNA72
CGCTGAAGCGCAAGATCACCAAGGAGGAGA
>TADA2B_LsgRNA73
GGAAGAAGTACTGCGTGTACTGCCTGGCCG

>TADA2B_LsgRNA74
GACAGACCACACCTGTCCCAGCGGAGGCCC
>TADA2B_LsgRNA75
TAAAGACCACCTCCAGAAGCGGCAAGGAAT
>TADA2B_LsgRNA76
CACAGAGATGTCCAGCGGGGGCAGCGGGGT
>TADA2B_LsgRNA77
GTGAGAGGGGGCCTCCGCTGGGACAGGTGT
>TADA2B_LsgRNA78
TGGGGAGTCCGGGAAGCACCAACGTGGGCA
>TADA2B_LsgRNA79
ACGGGATCACCAAGATGGAAGAGTCGGCAG
>TADA2B_LsgRNA80
CAGAGATGTCCAGCGGGGGCAGCGGGGTGG
>TADA2B_LsgRNA81
ACATGCACAAAGAAAAAATGCTCCGGGCCA
>TADA2B_LsgRNA82
CGCGGCATAAACGGGAGAAGAGGAAGGAGA
>TADA2B_LsgRNA83
GGACGCCATCGAGCAGTTCGGCTTCGGAAA
>TADA2B_LsgRNA84
CGCTGCCCCCGCTGGACATCTCTGTGGCTG
>TADA2B_LsgRNA85
GTTCGCCGCCATTGAGAACCTTCCAGGCTT
>TADA2B_LsgRNA86
CTTTGCCGTCCTCCTTTCCCCGTTTGGAGC
>TADA2B_LsgRNA87
CGAAGCCTGGAAGGTTCTCAATGGCGGCGA
>TADA2B_LsgRNA88
ACCGGCGAAACGGGATCACCAAGATGGAAG
>TADA2B_LsgRNA89
CCTCGCGACTGGTCCAGCCGCCCTCGGCCT
>TADA2B_LsgRNA90
TCAGGCGCAGCTCCTTCTCCTCCTTGGTGA
>TADA2B_LsgRNA91
CTCGGCGCCGGCCGAGAAGCACTCGGGGCA
>TADA2B_LsgRNA92
GACGGCGGGCGCTTCACGCTCTGGGGGCCC
>TADA2B_LsgRNA93
GCGAGCGGGGGAAGATGGCGGAGCTGGGGA
>TADA2B_LsgRNA94
TCCAGCGGGGGCAGCGGGGTGGTGAGGCTG
>TADA2B_LsgRNA95
TCGAGCTCCTGTCAGATCGCGAGAAGGTGC

>TADA2B_LsgRNA96
TCACGCTCTGGGGGCCCGAGGCCGAGGGCG
>TADA2B_LsgRNA97
AGGCGCTGAAGCGCAAGATCACCAAGGAGG
>TADA2B_LsgRNA98
AGCAGCTGGGCTACATGCCGCTGCGGGATG
>TADA2B_LsgRNA99
ACCAGCTGGTAGCCGTGGTAGCGGCGGTGG
>TADA2B_LsgRNA100
TCGAGCTGTGCCCCGAGTGCTTCTCGGCCG
>TADA2B_LsgRNA101
AGATGGAAGAGTCGGCAGAGTACGAGGCAG
>TADA2B_LsgRNA102
GGAAGGACAAGAAGGAGAAGGAAAAGGCGC
>TADA2B_LsgRNA103
GAGGGGATTCCTTGCCGCTTCTGGAGGTGG
>TADA2B_LsgRNA104
GATCGGCCACCACCGCCGCTACCACGGCTA
>TADA2B_LsgRNA105
TGGGGGCCCGAGGCCGAGGGCGGCTGGACC
>TADA2B_LsgRNA106
AGGGGGCCTCCGCTGGGACAGGTGTGGTCT
>TADA2B_LsgRNA107
TCTCGGCGCCGGCCGAGAAGCACTCGGGGC
>TADA2B_LsgRNA108
GGACGGCGGGCGCTTCACGCTCTGGGGGCC
>TADA2B_LsgRNA109
CCACGGCTACCAGCTGGTGGACGGCGGGCG
>TADA2B_LsgRNA110
GCGGGGGCAGCGGGGTGGTGAGGCTGGGTG
>TADA2B_LsgRNA111
CCGAGGGCGGCTGGACCAGTCGCGAGGAGC
>TADA2B_LsgRNA112
GGTTGGGGATGGTGTCGGGGATGCAGGCCT
>TADA2B_LsgRNA113
GAGCGGGGGAAGATGGCGGAGCTGGGGAAG
>TADA2B_LsgRNA114
GGCTGGGTGAGAGGGGGCCTCCGCTGGGAC
>TADA2B_LsgRNA115
AGCGGGGTGGTGAGGCTGGGTGAGAGGGGG
>TADA2B_LsgRNA116
AACTGGTACAGCGGCCTCAGCTTCAGGCGC
>TADA2B_LsgRNA117
AGCTGGTAGCCGTGGTAGCGGCGGTGGTGG

>TADA2B_LsgRNA118
GACTGGTCCAGCCGCCCTCGGCCTCGGGCC
>TADA2B_LsgRNA119
GCTGGGTGAGAGGGGGCCTCCGCTGGGACA
>TADA2B_LsgRNA120
ATCTGGTGCCAGCCTTCCTGGGGAAGGACA
>TADA2B_LsgRNA121
GCGGGGTGGTGAGGCTGGGTGAGAGGGGGC
>TADA2B_LsgRNA122
GACAGGTGTGGTCTGTCACGCGGTTGGGGA
>TADA2B_LsgRNA123
TCACGTAATGCTCCATCACCTCTTGGGGAG
>TADA2B_LsgRNA124
CCAGGTAGCTAGGAAGGCGGCTTTTGGAGG
>TADA2B_LsgRNA125
ACTGGTCCAGCCGCCCTCGGCCTCGGGCCC
>TADA2B_LsgRNA126
TGTGGTCTGTCACGCGGTTGGGGATGGTGT
>TADA2B_LsgRNA127
CGGGGTGGTGAGGCTGGGTGAGAGGGGGCC
>TADA2B_LsgRNA128
GGCGGTGGTGGCCGATCTCGGCGCCGGCCG
>TADA2B_LsgRNA129
ACAGGTGTGGTCTGTCACGCGGTTGGGGAT
>TADA2B_LsgRNA130
ATAATAGTCTTCACAGTCACGTAGCGGGCT
>TADA2B_LsgRNA131
CTGCTCAGCCACAGAGATGTCCAGCGGGGG
>TADA2B_LsgRNA132
CGTCTCAGCTTCAAGACGCGTCCCTGGAGA
>TADA2B_LsgRNA133
CGGCTCCAAACGGGGAAAGGAGGACGGCAA
>TADA2B_LsgRNA134
AAGATCCGAGAACTGCAGCGGTACCGGCGA
>TADA2B_LsgRNA135
CCAGTCGCGAGGAGCAGCTGCTGCTGGACG
>TADA2B_LsgRNA136
GCGATCTGACAGGAGCTCGAAGCCTGGAAG
>TADA2B_LsgRNA137
TCCATCTTGGTGATCCCGTTTCGCCGGTAC
>TADA2B_LsgRNA138
AACATGCACAAAGAAAAAATGCTCCGGGCC
>TADA2B_LsgRNA139
GAACTGCAGCGGTACCGGCGAAACGGGATC

>TADA2B_LsgRNA140
GCTGTGCCCCGAGTGCTTCTCGGCCGGCGC
>TADA2B_LsgRNA141
TACCTGGACAAAGTCCTAAAGAAAAGGATT
>TADA2B_LsgRNA142
GCTCTGGGGGCCCGAGGCCGAGGGCGGCTG
>TADA2B_LsgRNA143
ACTTTGTCCAGGTAGCTAGGAAGGCGGCTT
>TADA2B_LsgRNA144
TCTCTGTGGCTGAGCAGCAGCAGCTGGGCT
>TADA2B_LsgRNA145
CAGGTGTGGTCTGTCACGCGGTTGGGGATG
>TADA2B_LsgRNA146
ATAATTAAAGACCACCTCCAGAAGCGGCAA
>TADA2B_LsgRNA147
ATGATTACGAGATCGAGTATGACCAGGATG
>TADA2B_LsgRNA148
TCCTTTCCCCGTTTGGAGCCGGCTAGGTTT
>TADA2B_LsgRNA149
GGGATTCCTTGCCGCTTCTGGAGGTGGTCT
>TADA2B_LsgRNA150
GTGCTTCTCGGCCGGCGCCGAGATCGGCCA
>TADA2B_LsgRNA151
GATTTTGAATTTCCTCACAGAAAGCGGCTG
>TADA2B_LsgRNA152
CTTCTTGTCCTTCCCCAGGAAGGCTGGCAC

(24) $\mathbb{S}_7^-$: 87 low on-target activity sgRNAs targeting TADA1

>TADA1_LsgRNA1
TTCAAAAAGATCGTACATGTTCACCGGAGG
>TADA1_LsgRNA2
AAGGAAAGCTTATCGGTTACGAGATGGTCA
>TADA1_LsgRNA3
ATTGAAAGGATCATCACGAAACTCTGGCAT
>TADA1_LsgRNA4
TTGTAAGCTACTACACTATTCTTCAGGTAT
>TADA1_LsgRNA5
CACAAATTGCTGGGCTCCTGAGAGAGGATT
>TADA1_LsgRNA6
CCACACAATGATGCTTCCCACTCGAGGCCA
>TADA1_LsgRNA7
AGCTACTACACTATTCTTCAGGTATGGCTG
>TADA1_LsgRNA8
TCATAGACTTCTCACACAGGATAATGGTAA

>TADA1_LsgRNA9
AAAAAGATCGTACATGTTCACCGGAGGCAA
>TADA1_LsgRNA10
GCAAAGATGCAGGTAGAGTGTCTCCGGAGC
>TADA1_LsgRNA11
CCGCAGCAAAACCTGGAAAACCCAAGGGAA
>TADA1_LsgRNA12
CAGGAGCCCAGCAATTTGTGGCAAAGGATC
>TADA1_LsgRNA13
CGCCAGCGCTTGGCAGCCAAGGAGGGGCTT
>TADA1_LsgRNA14
TTGAAGCTCATAGACTTCTCACACAGGATA
>TADA1_LsgRNA15
GAGAAGCTGGATTCTGACCAGCACAGGGAG
>TADA1_LsgRNA16
GCACAGGGAGCAGTAAAAGCTGGAGGGCTG
>TADA1_LsgRNA17
CTCGAGTGGGAAGCATCATTGTGTGGGAAC
>TADA1_LsgRNA18
GGGGATCCTTTGCCACAAATTGCTGGGCTC
>TADA1_LsgRNA19
CTAGATGGTGCTGGATCTTTGCCTTGGCCA
>TADA1_LsgRNA20
CACTATTCTTCAGGTATGGCTGCGGGGTCA
>TADA1_LsgRNA21
AAGACAAAGTTCACCGCCAGCGCTTGGCAG
>TADA1_LsgRNA22
ATTCCAGCCTCAAAATCCTCTCTCAGGAGC
>TADA1_LsgRNA23
CCGCCAGCGCTTGGCAGCCAAGGAGGGGCT
>TADA1_LsgRNA24
AGCACAGGGAGCAGTAAAAGCTGGAGGGCT
>TADA1_LsgRNA25
CTTCCCACTCGAGGCCAGCTTGAAGGGAGA
>TADA1_LsgRNA26
ACCGCCAGCGCTTGGCAGCCAAGGAGGGGC
>TADA1_LsgRNA27
GCTTCCCACTCGAGGCCAGCTTGAAGGGAG
>TADA1_LsgRNA28
CACCCCCTGATGATGCTGAGCAGCAGGCTG
>TADA1_LsgRNA29
TTCTCCCTTCAAGCTGGCCTCGAGTGGGAA
>TADA1_LsgRNA30
TTCACCGCCAGCGCTTGGCAGCCAAGGAGG

>TADA1_LsgRNA31
AGCCCCTCCTTGGCTGCCAAGCGCTGGCGG
>TADA1_LsgRNA32
GCAGCCTGCTGCTCAGCATCATCAGGGGGT
>TADA1_LsgRNA33
TCTCCCTTCAAGCTGGCCTCGAGTGGGAAG
>TADA1_LsgRNA34
CCCTCCTTGGCTGCCAAGCGCTGGCGGTGA
>TADA1_LsgRNA35
TGGCCGCCTCCAGCTCGCTCACAAAGGTCG
>TADA1_LsgRNA36
GCTGCGGGGTCACGTTACTGCCAAAGGCAT
>TADA1_LsgRNA37
GTCACTATCATTCTCCCTTCAAGCTGGCCT
>TADA1_LsgRNA38
TACACTATTCTTCAGGTATGGCTGCGGGGT
>TADA1_LsgRNA39
CTCTCTCAGGAGCCCAGCAATTTGTGGCAA
>TADA1_LsgRNA40
ACAACTGACGTCAGTATATCTTTAAGGTGA
>TADA1_LsgRNA41
CAGCCTGCTGCTCAGCATCATCAGGGGGTG
>TADA1_LsgRNA42
GGTGCTGGATCTTTGCCTTGGCCAGGGGGT
>TADA1_LsgRNA43
GTAGCTTACAACAACTTAATAGAAAGGTAA
>TADA1_LsgRNA44
CGACCTTTGTGAGCGAGCTGGAGGCGGCCA
>TADA1_LsgRNA45
ATCTGACAACGCGTGAGAATGGCCAGGAGG
>TADA1_LsgRNA46
TGGCGACCTTTGTGAGCGAGCTGGAGGCGG
>TADA1_LsgRNA47
TAGTGACTGCTTATGAGCATGGGCTGGACA
>TADA1_LsgRNA48
TTAAGAGCATAGACAGTATGTGTAGGGATG
>TADA1_LsgRNA49
TGGGGATCCTTTGCCACAAATTGCTGGGCT
>TADA1_LsgRNA50
CGCAGCAAAACCTGGAAAACCCAAGGGAAA
>TADA1_LsgRNA51
CAAGGCAAAGATCCAGCACCATCTAGGAGA
>TADA1_LsgRNA52
TTTAGCACAGCAAAAGCCCCTCCTTGGCTG

>TADA1_LsgRNA53
ACCAGCACAGGGAGCAGTAAAAGCTGGAGG
>TADA1_LsgRNA54
GGCTGCACTCCTGCTGGCATGCTCCGGAGA
>TADA1_LsgRNA55
CTGAGCAGCAGGCTGCACTCCTGCTGGCAT
>TADA1_LsgRNA56
TGCAGCCTGCTGCTCAGCATCATCAGGGGG
>TADA1_LsgRNA57
TGCTGCTCAGCATCATCAGGGGGTGGGTGA
>TADA1_LsgRNA58
TTTTGCTGCGGAACCCCCTGGCCAAGGCAA
>TADA1_LsgRNA59
ATGGGCTGGACAATGTCACCGAGGAGGCTG
>TADA1_LsgRNA60
TGGTGCTGGATCTTTGCCTTGGCCAGGGGG
>TADA1_LsgRNA61
AGAAGCTGGATTCTGACCAGCACAGGGAGC
>TADA1_LsgRNA62
GCCAGGAGGAAATCATTGTGAGAATGGACT
>TADA1_LsgRNA63
TGCTGGATCTTTGCCTTGGCCAGGGGGTTC
>TADA1_LsgRNA64
GTAGGGATGACTTCCCTGTGCACCTGGGAT
>TADA1_LsgRNA65
CCAGGGCCTCGCTTAAGTTCTTCTTGGCCG
>TADA1_LsgRNA66
GCCAGGGGGTTCCGCAGCAAAACCTGGAAA
>TADA1_LsgRNA67
TTCTGTTCGTCAGAAATTTGATGTAGGTTG
>TADA1_LsgRNA68
AGCTGTTGTCTATGCTGTGGAGGTTGGTTT
>TADA1_LsgRNA69
CAAAGTTTCAAGTCGTCATCATCTTGGGGA
>TADA1_LsgRNA70
TATTGTTTCTGCCTCTGCAGATACTGGGCT
>TADA1_LsgRNA71
ACACTATTCTTCAGGTATGGCTGCGGGGTC
>TADA1_LsgRNA72
ACACTCTACCTGCATCTTTGCCTCCGGTGA
>TADA1_LsgRNA73
ACTGTCTATGCTCTTAACATTGAAAGGATC
>TADA1_LsgRNA74
ATCTTCTGCTTGAACCACAGCTTTAGGTTA

>TADA1_LsgRNA75
ATACTGACGTCAGTTGTGTCAAGAAGGAAA
>TADA1_LsgRNA76
TGTGTGAGAAGTCTATGAGCTTCAAGGTCA
>TADA1_LsgRNA77
CTGCTGCTCAGCATCATCAGGGGGTGGGTG
>TADA1_LsgRNA78
GTCTTGCTGCAGCTCTTCATGATTTGGATG
>TADA1_LsgRNA79
AGCCTGCTGCTCAGCATCATCAGGGGGTGG
>TADA1_LsgRNA80
GTGCTGGATCTTTGCCTTGGCCAGGGGGTT
>TADA1_LsgRNA81
GTTGTGTCAAGAAGGAAAGCTTATCGGTTA
>TADA1_LsgRNA82
AGAGTGTCTCCGGAGCATGCCAGCAGGAGT
>TADA1_LsgRNA83
AAGTTTCAAGTCGTCATCATCTTGGGGATC
>TADA1_LsgRNA84
CATGTTCACCGGAGGCAAAGATGCAGGTAG
>TADA1_LsgRNA85
ATATTTCTGTCTCCTAGATGGTGCTGGATC
>TADA1_LsgRNA86
AAAGTTTCAAGTCGTCATCATCTTGGGGAT
>TADA1_LsgRNA87
ATTGTTTCTGCCTCTGCAGATACTGGGCTA

(25) $\mathbb{S}_8^-$: 51 low on-target activity sgRNAs targeting HPRT1

>HPRT1_LsgRNA1
GGTGAAAAGGACCCCACGAAGTGTTGGATA
>HPRT1_LsgRNA2
TGATAAAATCTACAGTCATAGGAATGGATC
>HPRT1_LsgRNA3
AAAAAAAGTAATTCACTTACAGTCTGGCTT
>HPRT1_LsgRNA4
TTCCAAATCCTCAGCATAATGATTAGGTAT
>HPRT1_LsgRNA5
TTTTAACTAGAATGACCAGTCAACAGGGGA
>HPRT1_LsgRNA6
GCAAAATAAATCAAGGTCATAACCTGGTTC
>HPRT1_LsgRNA7
AAACAATGCAGACTTTGCTTTCCTTGGTCA
>HPRT1_LsgRNA8
GTCAACAGGGGACATAAAAGTAATTGGTGG

>HPRT1_LsgRNA9
TTTAACTAGAATGACCAGTCAACAGGGGAC
>HPRT1_LsgRNA10
ATGCAGACTTTGCTTTCCTTGGTCAGGCAG
>HPRT1_LsgRNA11
CGCCAGGGCTGCGGGTCGCCATAACGGAGC
>HPRT1_LsgRNA12
TGAAATTCCAGACAAGTTTGTTGTAGGATA
>HPRT1_LsgRNA13
AATCCAAAGATGGTCAAGGTCGCAAGGTAT
>HPRT1_LsgRNA14
AGCACACAGAGGGCTACAATGTGATGGCCT
>HPRT1_LsgRNA15
TGCTCACCACGACGCCAGGGCTGCGGGTCG
>HPRT1_LsgRNA16
TTTTCAGATTAGTGATGATGAACCAGGTTA
>HPRT1_LsgRNA17
TTTGCATACCTAATCATTATGCTGAGGATT
>HPRT1_LsgRNA18
TGCTCGAGATGTGATGAAGGAGATGGGAGG
>HPRT1_LsgRNA19
ATTCCTCATGGACTAATTATGGACAGGTAA
>HPRT1_LsgRNA20
CAGTCTGATAAAATCTACAGTCATAGGAAT
>HPRT1_LsgRNA21
TTACCTGTCCATAATTAGTCCATGAGGAAT
>HPRT1_LsgRNA22
CTGGCTTATATCCAACACTTCGTGGGGTCC
>HPRT1_LsgRNA23
TTTTCTTCTAGAATGTCTTGATTGTGGAAG
>HPRT1_LsgRNA24
ATACCTTGCGACCTTGACCATCTTTGGATT
>HPRT1_LsgRNA25
CCCTGAAGTATTCATTATAGTCAAGGGCAT
>HPRT1_LsgRNA26
GGCCGAGCTGCTCACCACGACGCCAGGGCT
>HPRT1_LsgRNA27
TGGAGATGATCTCTCAACTTTAACTGGAAA
>HPRT1_LsgRNA28
TCGAGATGTGATGAAGGAGATGGGAGGCCA
>HPRT1_LsgRNA29
TCTGGCTTATATCCAACACTTCGTGGGGTC
>HPRT1_LsgRNA30
GTCTGGCTTATATCCAACACTTCGTGGGGT

>HPRT1_LsgRNA31
AACAGGGGACATAAAAGTAATTGGTGGAGA
>HPRT1_LsgRNA32
CATTGTAGCCCTCTGTGTGCTCAAGGGGGG
>HPRT1_LsgRNA33
TTCAGTGCTTTGATGTAATCCAGCAGGTCA
>HPRT1_LsgRNA34
GCATGTTTGTGTCATTAGTGAAACTGGAAA
>HPRT1_LsgRNA35
GCTATAAATTCTTTGCTGACCTGCTGGATT
>HPRT1_LsgRNA36
TACCTAATCATTATGCTGAGGATTTGGAAA
>HPRT1_LsgRNA37
ATTGTAGCCCTCTGTGTGCTCAAGGGGGGC
>HPRT1_LsgRNA38
TGATTAGGTATGCAAAATAAATCAAGGTCA
>HPRT1_LsgRNA39
GGCATATCCTACAACAAACTTGTCTGGAAT
>HPRT1_LsgRNA40
TGTTTATTCCTCATGGACTAATTATGGACA
>HPRT1_LsgRNA41
CTGCTCACCACGACGCCAGGGCTGCGGGTC
>HPRT1_LsgRNA42
ATGATCTCTCAACTTTAACTGGAAAGGTAT
>HPRT1_LsgRNA43
AACGTCTTGCTCGAGATGTGATGAAGGAGA
>HPRT1_LsgRNA44
TTTTTGAAAGGATATAATTGACACTGGCAA
>HPRT1_LsgRNA45
TCCCTGAAGTATTCATTATAGTCAAGGGCA
>HPRT1_LsgRNA46
CCCTTGACTATAATGAATACTTCAGGGATT
>HPRT1_LsgRNA47
TCTTTGGATTATACTGCCTGACCAAGGAAA
>HPRT1_LsgRNA48
ACATTGTAGCCCTCTGTGTGCTCAAGGGGG
>HPRT1_LsgRNA49
GTAATTAACAGCTTGCTGGTGAAAAGGACC
>HPRT1_LsgRNA50
ATCATTATGCTGAGGATTTGGAAAGGGTGT
>HPRT1_LsgRNA51
GCCCTTGACTATAATGAATACTTCAGGGAT

(26) $\mathbb{S}_9^-$: 123 low on-target activity sgRNAs targeting CUL3

>CUL3_LsgRNA1
GATGAAAAATATGTAAACAGCATTTGGGAC
>CUL3_LsgRNA2
CGTCAAAACTGGAAGGAATGTTTAGGGATA
>CUL3_LsgRNA3
ATGAAAAATATGTAAACAGCATTTGGGACC
>CUL3_LsgRNA4
AAAAAAACATGATATCTAAGTTAAAGGTAA
>CUL3_LsgRNA5
CTCAAAAGCATGTCTTGGTGCTGGTGGGAT
>CUL3_LsgRNA6
AGGTAAAGCTCTTGTTTCTGAAGAAGGAGA
>CUL3_LsgRNA7
CCGGAAAGGCCCGGATCCGCATCTTGGTGT
>CUL3_LsgRNA8
ACCCAAATCAAAGGAAATAGAAAATGGTCA
>CUL3_LsgRNA9
TAGAAACAATATTGGATAAAGCAATGGTCC
>CUL3_LsgRNA10
AATCAACGGAAGAACCAATTGTAAAGGTGG
>CUL3_LsgRNA11
TGATAAGCTGAAAAAGGGAGTCAAAGGGGT
>CUL3_LsgRNA12
TCTGAATATCTCAAAAGCATGTCTTGGTGC
>CUL3_LsgRNA13
TTTGAATCTTGACTCTGTGTAGTTTGGATG
>CUL3_LsgRNA14
AACCAATTGTAAAGGTGGTTGAAAGGGAAC
>CUL3_LsgRNA15
CAGAACAAGAAGTAGAAACAATATTGGATA
>CUL3_LsgRNA16
GAGCACCATGTCGAATCTGAGCAAAGGCAC
>CUL3_LsgRNA17
TCCGACCCAGAGAGGAAAGAAACAAGGCAG
>CUL3_LsgRNA18
TTGAACGTTATTATAAACAACACTTGGCAA
>CUL3_LsgRNA19
AAGGACTTATTGAGAGAGAATATTTGGCAC
>CUL3_LsgRNA20
GAGGAGAGACTCACCGGAAAGGCCCGGATC
>CUL3_LsgRNA21
TTAAAGAGCATTAATATGGTCATCTGGAAA
>CUL3_LsgRNA22
CATGAGATAGAAGCTGCTATAGTGCGGATA

>CUL3_LsgRNA23
CGGAAGGACACCAAGATGCGGATCCGGGCC
>CUL3_LsgRNA24
ATTCAGGCAACATCTACAGGCAACTGGTGT
>CUL3_LsgRNA25
TGTGAGTGTATGAGTTCCTATTTGAGGGAG
>CUL3_LsgRNA26
TATGAGTTCCTATTTGAGGGAGCAAGGTAA
>CUL3_LsgRNA27
ATCAATAAATAATGAGAGGTATTCAGGAGA
>CUL3_LsgRNA28
TTCAATACGTTTCTTAATAACAACTGGACT
>CUL3_LsgRNA29
GACTATAGTAGAAATGGAGAATTCTGGGCT
>CUL3_LsgRNA30
GAGAATATTTGGCACGAACACCTGAGGATC
>CUL3_LsgRNA31
AGAAATCCAGCGTAAGAATAACAGTGGTCT
>CUL3_LsgRNA32
GGATATGATTGCAAGAGAGCGGAAAGGAGA
>CUL3_LsgRNA33
GTGGATGTCAGTTCACGTCAAAACTGGAAG
>CUL3_LsgRNA34
CGTTATTATAAACAACACTTGGCAAGGAGA
>CUL3_LsgRNA35
CTCTATTATTAAAGAGCATTAATATGGTCA
>CUL3_LsgRNA36
AGGTATTCAGGAGACCTGGAGTTGAGGTTG
>CUL3_LsgRNA37
ATTTATTGATGATAAGCTGAAAAAGGGAGT
>CUL3_LsgRNA38
ACGTCAAAACTGGAAGGAATGTTTAGGGAT
>CUL3_LsgRNA39
TGAGCAAAGGCACGGGCAGCCGGAAGGACA
>CUL3_LsgRNA40
CCCGCAATAGTTTGTTTAAAGAGACGGTCA
>CUL3_LsgRNA41
ACTACACAGAGTCAAGATTCAAACAGGTAT
>CUL3_LsgRNA42
ATGTCAGTTCACGTCAAAACTGGAAGGAAT
>CUL3_LsgRNA43
AGCACATGAAGACTATAGTAGAAATGGAGA
>CUL3_LsgRNA44
TAAACATGGAGAAAAGCTCTACACTGGACT

>CUL3_LsgRNA45
CGGTCATTGTTGAATGATTCCAGGAGGAAG
>CUL3_LsgRNA46
GAACCCGCTGTGTTGGTTTACCACAGGCGA
>CUL3_LsgRNA47
CTCGCCTGTGGTAAACCAACACAGCGGGTT
>CUL3_LsgRNA48
TTTTCGAGATCAAGTTGTACGTTATGGGTG
>CUL3_LsgRNA49
TGGGCTAGTACATATGTTGAAAAATGGAAA
>CUL3_LsgRNA50
AGCTCTATAGAAATGCATATACAATGGTTT
>CUL3_LsgRNA51
ACAGCTCACACTCCAGCATCATATGGGTTC
>CUL3_LsgRNA52
CCGTCTCTTTAAACAAACTATTGCGGGTGA
>CUL3_LsgRNA53
AGATCTGCAGAACCCATATGATGCTGGAGT
>CUL3_LsgRNA54
TCGCCTGTGGTAAACCAACACAGCGGGTTC
>CUL3_LsgRNA55
AGCTCTTGTTTCTGAAGAAGGAGAAGGAAA
>CUL3_LsgRNA56
TTCCCTTTCAACCACCTTTACAATTGGTTC
>CUL3_LsgRNA57
GAAAGAATCCTGTTGACTATATCCAGGTAA
>CUL3_LsgRNA58
CTTGGAATGATCATCAAACAGCTATGGTGA
>CUL3_LsgRNA59
CTAAGACCACTGTTATTCTTACGCTGGATT
>CUL3_LsgRNA60
TCGAGACCTAAAATCATTAACATCTGGCAA
>CUL3_LsgRNA61
TTTCGAGATCAAGTTGTACGTTATGGGTGT
>CUL3_LsgRNA62
GTGTGAGCTGTCGACCACTGTGTTTGGCTA
>CUL3_LsgRNA63
CCAAGATGCGGATCCGGGCCTTTCCGGTGA
>CUL3_LsgRNA64
GGAAGATGGATCTGAAGTTGGTGTTGGAGG
>CUL3_LsgRNA65
TGCAGCACAATGTTCTAGTAGCGGAGGTGA
>CUL3_LsgRNA66
AGATGCAGCACAATGTTCTAGTAGCGGAGG

>CUL3_LsgRNA67
GGCAGCCGGAAGGACACCAAGATGCGGATC
>CUL3_LsgRNA68
TTCTGCCTTGTTTCTTTCCTCTCTGGGTCG
>CUL3_LsgRNA69
CCGTGCCTTTGCTCAGATTCGACATGGTGC
>CUL3_LsgRNA70
GACAGCTCACACTCCAGCATCATATGGGTT
>CUL3_LsgRNA71
TAGGGCTCTAACAAGCTCTCTTTCAGGGAT
>CUL3_LsgRNA72
ATAAGCTGAAAAAGGGAGTCAAAGGGGTAA
>CUL3_LsgRNA73
TGGTGCTGGTGGGATGTTGCACTTTGGTGT
>CUL3_LsgRNA74
AAGGGCTTATTGGATCTGAAGAGTAGGTTC
>CUL3_LsgRNA75
GAGCGGAAAGGAGAAGTCGTAGACAGGTAA
>CUL3_LsgRNA76
CAACGGAAGAACCAATTGTAAAGGTGGTTG
>CUL3_LsgRNA77
GGAAGGACACCAAGATGCGGATCCGGGCCT
>CUL3_LsgRNA78
AGATGGATCTGAAGTTGGTGTTGGAGGTGC
>CUL3_LsgRNA79
AGACGGTCATTGTTGAATGATTCCAGGAGG
>CUL3_LsgRNA80
GTGTGTATGTACAACAAAATAATGTGGAGA
>CUL3_LsgRNA81
CCATGTCGAATCTGAGCAAAGGCACGGGCA
>CUL3_LsgRNA82
TAATGTGGAGAACGTCTACAATTTGGGATT
>CUL3_LsgRNA83
TTAGGTGGTGTTGATCTTACAGTCCGGGTG
>CUL3_LsgRNA84
ATATGTGTATACTTTGCGATCCTCAGGTGT
>CUL3_LsgRNA85
GTGAGTGTATGAGTTCCTATTTGAGGGAGC
>CUL3_LsgRNA86
CGCTGTGTTGGTTTACCACAGGCGAGGGAC
>CUL3_LsgRNA87
AGTTGTTATTAAGAAACGTATTGAAGGACT
>CUL3_LsgRNA88
ATTGGTTCTTCCGTTGATTTGTCAAGGCAG

>CUL3_LsgRNA89
TGGTGTTGGAGGTGCACAAGTAACTGGCTC
>CUL3_LsgRNA90
GCATTAATATGGTCATCTGGAAAGTGGAAA
>CUL3_LsgRNA91
TTCTTACAAAAGAACCCAAATCAAAGGAAA
>CUL3_LsgRNA92
GGTTTACCACAGGCGAGGGACTGTAGGGCT
>CUL3_LsgRNA93
TTGTTACCGAACATCTCATAAATAAGGTAT
>CUL3_LsgRNA94
TTGATACCTTATTTATGAGATGTTCGGTAA
>CUL3_LsgRNA95
TTTCTACTATAGTCTTCATGTGCTTGGAAA
>CUL3_LsgRNA96
ATAATAGAGAAAAATACACATTTGAGGTAT
>CUL3_LsgRNA97
AGAGTAGGTTCGATCGCTTCCTCCTGGAAT
>CUL3_LsgRNA98
ACTATAGTAGAAATGGAGAATTCTGGGCTA
>CUL3_LsgRNA99
TATTTATTGATGATAAGCTGAAAAAGGGAG
>CUL3_LsgRNA100
TATCTCAAAAGCATGTCTTGGTGCTGGTGG
>CUL3_LsgRNA101
GGGATCATCTACGGCAAACTCTATTGGATA
>CUL3_LsgRNA102
CGGATCCGCATCTTGGTGTCCTTCCGGCTG
>CUL3_LsgRNA103
CATGTCGAATCTGAGCAAAGGCACGGGCAG
>CUL3_LsgRNA104
AAATTCTGCAGACATTTCCAAAAAAGGAGC
>CUL3_LsgRNA105
TGGATGAATTCAGGCAACATCTACAGGCAA
>CUL3_LsgRNA106
AATCTGAGCAAAGGCACGGGCAGCCGGAAG
>CUL3_LsgRNA107
TTTCTGCCTTGTTTCTTTCCTCTCTGGGTC
>CUL3_LsgRNA108
CTATTGGATATGATTGCAAGAGAGCGGAAA
>CUL3_LsgRNA109
CTGGTGGGATGTTGCACTTTGGTGTGGCTG
>CUL3_LsgRNA110
TCTCTGGGTCGGATTCACCTTGTTTGGCAG

>CUL3_LsgRNA111

TAGGTGGTGTTGATCTTACAGTCCGGGTGC

>CUL3_LsgRNA112

AAGTTGTACGTTATGGGTGTATTAGGGATC

>CUL3_LsgRNA113

ATAATGTGGAGAACGTCTACAATTTGGGAT

>CUL3_LsgRNA114

GCCTTGTTTCTTTCCTCTCTGGGTCGGATT

>CUL3_LsgRNA115

TTTTTTAAAAATGAAACAGGAAGATGGATC

>CUL3_LsgRNA116

CAAGTTATTTAGTCGTGTGCCAAATGGTTT

>CUL3_LsgRNA117

TTTCTTCAAACGCTAAATCAAGCTTGGAAT

>CUL3_LsgRNA118

ACGTTTCTTAATAACAACTGGACTTGGTAA

>CUL3_LsgRNA119

TATGTTGAAAAATGGAAAGACAGAAGGTAA

>CUL3_LsgRNA120

CAAGTTGTACGTTATGGGTGTATTAGGGAT

>CUL3_LsgRNA121

GAGCTTTACCTTGCTCCCTCAAATAGGAAC

>CUL3_LsgRNA122

TCTTTTTCTTGCATAAACCTAAAAAGGACC

>CUL3_LsgRNA123

TTCTTTTGTAAGAACCCGCTGTGTTGGTTT

(27) $\mathbb{S}_{10}^{-}$: 588 low on-target activity sgRNAs targeting NF1

>NF1_LsgRNA1

AATAAAAAATAGGATTCCCAGCTTTGGAAG

>NF1_LsgRNA2

TTCCAAAAATTCTAACGTGAGGTGTGGCTC

>NF1_LsgRNA3

TTAGAAAACATGTTCCAGAGCAGTTGGTAG

>NF1_LsgRNA4

TCCTAAAAGGCAAGAAATGGAATCAGGGAT

>NF1_LsgRNA5

GTGCAAAATTAAAACGACTCCTGAAGGGTA

>NF1_LsgRNA6

AAGAAAACAGGGGCCCGAAACCCAAGGCAG

>NF1_LsgRNA7

CAGAAAAGAGTGATGGCACTGCTGAGGCGC

>NF1_LsgRNA8

ACGAAAAGCTCTTGCTGGCCATGGAGGAAG

>NF1_LsgRNA9
ATCAAAAGGAGATACTTACACAACAGGAAA
>NF1_LsgRNA10
CCTAAAAGGCAAGAAATGGAATCAGGGATC
>NF1_LsgRNA11
GATGAAAGTGCGCAAACAGGTGGCAGGAAA
>NF1_LsgRNA12
GTGGAAATACCAGTCAAATGTCCATGGATC
>NF1_LsgRNA13
GAGTAAATCCACTTACCTATAGGAAGGGTC
>NF1_LsgRNA14
CAGGAAATCCATGAGCCTGGACATGGGGCA
>NF1_LsgRNA15
TTCTAAATGACATTTATTATGCTTCGGAAA
>NF1_LsgRNA16
TCATAAATTCCTCAAACTTTGAACTGGTAA
>NF1_LsgRNA17
AGACAACAAGAGCTCTTGGTTGCAGGGATG
>NF1_LsgRNA18
TGGAAACAGTCACAGAAGCTTTGTTGGAGA
>NF1_LsgRNA19
CTGTAACAGTGGACGAACTCGCCACGGATC
>NF1_LsgRNA20
TTATAACCAAAGAAAACTTGTATTTGGAAA
>NF1_LsgRNA21
TCAAAACCAGTGCAACAGGTGGCTTGGGAT
>NF1_LsgRNA22
CATAAACCTGATGTCTCTAGTAACTGGCCC
>NF1_LsgRNA23
GCTGAACTTCGGAATTCTGCCTCTGGGGTT
>NF1_LsgRNA24
CTCTAACTTTAACTTTGCATTGGTTGGACA
>NF1_LsgRNA25
AGGGAAGATGAGCTGCCACATCAAGGGAAT
>NF1_LsgRNA26
AGGTAAGATGTTTGGTATTGTGGTGGGGAT
>NF1_LsgRNA27
TGTAAAGCAAGTACTTACATCAATTGGGAA
>NF1_LsgRNA28
AGAAAAGCTATTTGACTTGGTGGATGGTTT
>NF1_LsgRNA29
TACCAAGCTGGGACTTCCAAAGCTGGGAAT
>NF1_LsgRNA30
GGGTAAGGAGATGTGGGAGTCAGGAGGGAT

>NF1_LsgRNA31
ACTGAAGGCAGCTCTGAACATCTAGGGCAA
>NF1_LsgRNA32
CTGCAAGGTATCCTTCAGAACCTTTGGGAG
>NF1_LsgRNA33
GTAAAATAATGACATTCTGTTTCAAGGTTT
>NF1_LsgRNA34
CAAAAATATGGGGAAGCCTTGGGCAGGTAT
>NF1_LsgRNA35
AGGAAATCCATGAGCCTGGACATGGGGCAA
>NF1_LsgRNA36
TTTTAATGGCTTGTGGCGGTTTGCAGGACC
>NF1_LsgRNA37
CCAAAATGTTTCTACAGGAGCATCAGGATT
>NF1_LsgRNA38
AATTAATTACAGGGCTCGTCCAACTGGTCC
>NF1_LsgRNA39
TTTGAATTCTGTAGAAGTTATTTCTGGACA
>NF1_LsgRNA40
TCCAAATTTGTTAAATCCAATCCATGGAAT
>NF1_LsgRNA41
CTTAACAATAAGCTCAGCATAGTCTGGAAT
>NF1_LsgRNA42
TCTGACACAGACTCCCTACAGGAATGGATC
>NF1_LsgRNA43
AGGCACACTCCCCCAAGGGCACAAAGGAAG
>NF1_LsgRNA44
GGATACACTGGAAAAAATGTCTTGCTGGGGT
>NF1_LsgRNA45
TGAAACACTTCATAAAGCAGTGCAAGGTTG
>NF1_LsgRNA46
ACTGACACTTCATCCACCCCACACCGGATA
>NF1_LsgRNA47
AAGTACAGAAGAAGCTGACCATAGAGGAGT
>NF1_LsgRNA48
ACTAACCAAGCAACTTCTTAGTGTTGGCCT
>NF1_LsgRNA49
CCCTACCACTGGCCACTGTAACAGTGGACG
>NF1_LsgRNA50
GGCAACCAGAACAGCTTCAGTGTCAGGGTT
>NF1_LsgRNA51
GGAAACCAGCATGCAGCTGAACTTCGGAAT
>NF1_LsgRNA52
CAAAACCAGTGCAACAGGTGGCTTGGGATC

>NF1_LsgRNA53
CTCCACCATTCTATAGGAATAAGATGGTAG
>NF1_LsgRNA54
CTAGACCCACCAGATCCTTAACATTGGTCC
>NF1_LsgRNA55
TCTTACCGGTGCCATTCGTATTGCTGGGTG
>NF1_LsgRNA56
GCATACCTCAGTGTTTCCTGCAGTGGGATG
>NF1_LsgRNA57
AATGACCTGTCCCGGTAACTGGAACGGAAG
>NF1_LsgRNA58
GTTCACCTTAACCATTGCAAACCAGGGCAC
>NF1_LsgRNA59
TTGTACCTTTAATTTAAAAATCGAGGGCCA
>NF1_LsgRNA60
AAATACGGACCAATGTTAAGGATCTGGTGG
>NF1_LsgRNA61
GACCACGGCCTGGACCCATTCCACCGGCCT
>NF1_LsgRNA62
GGAAACGTGGCATGTCTCGGAGGCTGGCAT
>NF1_LsgRNA63
CCTTACGTTCACTGACTGGACCCATGGGTG
>NF1_LsgRNA64
TTCAACGTTCTCCTTGTCGATTCCTGGAGA
>NF1_LsgRNA65
GGAGACGTTGTCGTAAGCAAAGCCAGGAAA
>NF1_LsgRNA66
TCTTACTAATAGAGACAATAAAGAGGGTGT
>NF1_LsgRNA67
GAGAACTCCCTATAGCGATGGCTCTGGCCA
>NF1_LsgRNA68
AGACACTGAAACTTTACGTAAATGTGGGTG
>NF1_LsgRNA69
TCAGACTGAGTCTCAAAACTTGCTTGGTCT
>NF1_LsgRNA70
AGATACTGCTGTAGCTTTGGCTTCTGGAAA
>NF1_LsgRNA71
CATGACTGGCTTCCTTTGTGCCCTTGGGGG
>NF1_LsgRNA72
TCTGACTGTTCTTGCAACAATAGCAGGTGA
>NF1_LsgRNA73
AAGTACTTACTGATCCGAAGATCCAGGCGC
>NF1_LsgRNA74
TGGAACTTACTTTAATAGAAACTTTGGTGT

>NF1_LsgRNA75
CAGAACTTGACTGTTGTAAGTGTCAGGTCC
>NF1_LsgRNA76
TCAAACTTTGAACTGGTAAGGTTAAGGCTG
>NF1_LsgRNA77
GTGCAGAAAAGCTATTTGACTTGGTGGATG
>NF1_LsgRNA78
CATGAGAAAGTGGGACTTCAAATACGGACC
>NF1_LsgRNA79
GCACAGAAATTCTCAAGTGGTTGCGGGAAA
>NF1_LsgRNA80
TAAGAGAACACTTTACCTGTCCTTGGGAGT
>NF1_LsgRNA81
AGTAAGAAGCAGCGCCTGGATCTTCGGATC
>NF1_LsgRNA82
TCACAGAAGCTTTGTTGGAGATCATGGAGG
>NF1_LsgRNA83
AACAAGAGCTCTTGGTTGCAGGGATGGATT
>NF1_LsgRNA84
GGTAAGATGTTTGGTATTGTGGTGGGGATT
>NF1_LsgRNA85
CAGAAGATTATAGGCAGCTGACCTAGGAGA
>NF1_LsgRNA86
TCAGAGATTTGGACCAGGCAAGCATGGAAG
>NF1_LsgRNA87
TCAAAGCAAAAGTCTCTCTCTCATAGGAGC
>NF1_LsgRNA88
GTAAAGCAAGTACTTACATCAATTGGGAAG
>NF1_LsgRNA89
GTGGAGCACACCCAGCAATACGAATGGCAC
>NF1_LsgRNA90
GAGTAGCAGAAACTGATTATGAAATGGGTG
>NF1_LsgRNA91
AGGAAGCAGATATCCGGTGTGGGGTGGATG
>NF1_LsgRNA92
GAATAGCAGTAACTCTTTGTCGTTTGGCAT
>NF1_LsgRNA93
TGTAAGCATACCTGGTATAAACAGTGGCAC
>NF1_LsgRNA94
GCACAGCCACAGCTACCCAAAAGAGGGCTT
>NF1_LsgRNA95
CCCGAGCCAGGAAATCCATGAGCCTGGACA
>NF1_LsgRNA96
GACAAGCCCAGACCAAACTAGAAGTGGCCC

>NF1_LsgRNA97
CTATAGCGATGGCTCTGGCCAATGTGGTTC
>NF1_LsgRNA98
TTAAAGCGATTGCTAGGCCCGGTATGGGTA
>NF1_LsgRNA99
ATAAAGCTACAGTAAAAGAAAAAAAGGAAA
>NF1_LsgRNA100
ACTAAGCTGGCTCTGCAGTGCAGGAGGGTA
>NF1_LsgRNA101
ACAAAGCTTCTGTGACTGTTTCCAAGGATG
>NF1_LsgRNA102
CAGAAGCTTTGTTGGAGATCATGGAGGTAT
>NF1_LsgRNA103
CCAGAGGAAGTATTTATGGCAATCCGGAAT
>NF1_LsgRNA104
ATCAAGGAGAACTCCCTATAGCGATGGCTC
>NF1_LsgRNA105
AAGAAGGAGATGGTGTGGAATTGATGGAAG
>NF1_LsgRNA106
GGTAAGGAGATGTGGGAGTCAGGAGGGATT
>NF1_LsgRNA107
TTCCAGGCAGGTACGTGTCAATCAAGGCAT
>NF1_LsgRNA108
CAAGAGGCAGTCAGCCTGCAGATGTGGATC
>NF1_LsgRNA109
TAAGAGGCGAATGTCCCATGTGAGTGGAGG
>NF1_LsgRNA110
TTGCAGGTAAGATGTTTGGTATTGTGGTGG
>NF1_LsgRNA111
TGCAAGGTATCCTTCAGAACCTTTGGGAGA
>NF1_LsgRNA112
GGTAAGGTCCACTACAATTTCATATGGCTT
>NF1_LsgRNA113
ACAAAGGTGTTTCAATTCAATACCTGGAAA
>NF1_LsgRNA114
AGGGAGTACACCAAGTATCATGAGCGGCTG
>NF1_LsgRNA115
AGGCAGTACAGCAGAATTAATTACAGGGCT
>NF1_LsgRNA116
TGGGAGTCAGGAGGGATTCTTCACTGGTTT
>NF1_LsgRNA117
TCATAGTCTTTCCTTCATAAGTGACGGCAA
>NF1_LsgRNA118
AGACAGTGGTCTCATGCACTCCATAGGTGA

>NF1_LsgRNA119
GAGCAGTGTCCCAGGGACATCTTTTGGCCG
>NF1_LsgRNA120
AAGAAGTGTTGCCATCTTATCAAAAGGTCG
>NF1_LsgRNA121
CATCAGTTAGATAGCATTGATTTGTGGAAT
>NF1_LsgRNA122
TAGCAGTTATAAATAGCCTGGAAAAGGTAA
>NF1_LsgRNA123
GACAATAAAGAGGGTGTTGTTGGCAGGGAT
>NF1_LsgRNA124
ATCTATAACTGTAACTCCTGGGTCAGGGAG
>NF1_LsgRNA125
CCACATAAGATGTTGTTCTAAAGTAGGAGT
>NF1_LsgRNA126
CTATATAGGTATGTTCGTGTGCTTGGGAAT
>NF1_LsgRNA127
GTCTATATCTATAACTGTAACTCCTGGGTC
>NF1_LsgRNA128
TTTCATCAAAACCAGTGCAACAGGTGGCTT
>NF1_LsgRNA129
TGGGATCAATAAAAGCTGAGGTGATGGCAG
>NF1_LsgRNA130
ATTCATCATGGTGACCCTTCCTATAGGTAA
>NF1_LsgRNA131
GTCAATCATTAGATCCACATCTGCAGGCTG
>NF1_LsgRNA132
ACCCATCTATTCAAGCAAAAATATGGGGAA
>NF1_LsgRNA133
CCTAATCTCCCAAAATGTTTCTACAGGAGC
>NF1_LsgRNA134
CCCTATCTTGCTGCAGAAACTCAGAGGATT
>NF1_LsgRNA135
TTGGATCTTGGCACAATGATAACAGGGTGT
>NF1_LsgRNA136
CTTCATGATCCATGGACATTTGACTGGTAT
>NF1_LsgRNA137
GATGATGATGTAAAATGTCTTACAAGGTAA
>NF1_LsgRNA138
CCTGATGCTCCTGTAGAAACATTTTGGGAG
>NF1_LsgRNA139
GGGAATGCTGGGAAGTTGCAAGTGAGGTCA
>NF1_LsgRNA140
CTGCATGCTGGTTTCCTTCACGACAGGTGT

>NF1_LsgRNA141
GCGAATGTCCCATGTGAGTGGAGGAGGATC
>NF1_LsgRNA142
CTCTATGTGCTCAGCCAGTTTCCCAGGACA
>NF1_LsgRNA143
GTAAATGTGGGTGCTGTTGTGATGAGGAAA
>NF1_LsgRNA144
GCCAATGTGGTTCCTTGTTCTCAGTGGGTA
>NF1_LsgRNA145
ATGAATGTGTTATAGTTGGGCAAGAGGTTA
>NF1_LsgRNA146
CCTTATTAAGAAGTGGCTGTAATTTGGTTA
>NF1_LsgRNA147
CCAAATTACAGCCACTTCTTAATAAGGTAA
>NF1_LsgRNA148
GTGTATTAGCAAACGAGTGTCTCATGGGCA
>NF1_LsgRNA149
CCGGATTGCCATAAATACTTCCTCTGGACT
>NF1_LsgRNA150
TGCCATTGTCTCACCGTATGAAGCAGGGAT
>NF1_LsgRNA151
TGGTATTGTGGTGGGGATTCTTCATGGTAC
>NF1_LsgRNA152
CGGCATTTACTCTACCAACTGCTCTGGAAC
>NF1_LsgRNA153
TATGATTTCAGTGATGTCTTCAGAGGGAAA
>NF1_LsgRNA154
TAAAATTTGATTTGTTGCAGGTTTTGGTTT
>NF1_LsgRNA155
CAAGCAAAAATATGGGGAAGCCTTGGGCAG
>NF1_LsgRNA156
TACCCAAAAGAGGGCTTTGTGCAGAGGCGA
>NF1_LsgRNA157
TGCGCAAACAGGTGGCAGGAAACGTGGCAT
>NF1_LsgRNA158
GTGTCAAATTCTGTGCCTTGTTGAAGGATT
>NF1_LsgRNA159
AAGACAACAAGAGCTCTTGGTTGCAGGGAT
>NF1_LsgRNA160
CAACCAAGAGCTCTTGTTGTCTTTGGGTGT
>NF1_LsgRNA161
CTAGCAAGTTCTTCATTATAGCTATGGTTT
>NF1_LsgRNA162
ATGGCAATCCGGAATCCTCTGGAGTGGCAC

>NF1_LsgRNA163
GAAACAATGATGTTAAATCTGGTCAGGTAA
>NF1_LsgRNA164
ATCACAATTCGTAATAAAGGATCCAGGAGT
>NF1_LsgRNA165
GTGGCACACACTTCGAAGTTGAGGGGGGAA
>NF1_LsgRNA166
TTGACACACTTGCAGAAACAGTATTGGCTG
>NF1_LsgRNA167
ATATCACATCCTACCCCGTAAAAAAGGAGA
>NF1_LsgRNA168
CAAGCACATTGCCGTCACTTATGAAGGAAA
>NF1_LsgRNA169
AGTTCACCTTAACCATTGCAAACCAGGGCA
>NF1_LsgRNA170
CCTTCACGACAGGTGTGAAGAAAATGGCAG
>NF1_LsgRNA171
AGGACACTAAAGGAGACTCAGCCATGGTCC
>NF1_LsgRNA172
GATACACTGGAAAAATGTCTTGCTGGGGTA
>NF1_LsgRNA173
CTTGCAGAAACAGTATTGGCTGATCGGTTT
>NF1_LsgRNA174
AGCACAGAAATTCTCAAGTGGTTGCGGGAA
>NF1_LsgRNA175
CCCTCAGAACAGCATCGGTGCAGTAGGAAG
>NF1_LsgRNA176
AGGCCAGAATTGCTTCTCTGCTGGAGGCAC
>NF1_LsgRNA177
ATATCAGACACAAAGGCTCCTAAAAGGCAA
>NF1_LsgRNA178
TCAGCAGAGCGAACAAAAGTCCTAGGGCAA
>NF1_LsgRNA179
TACACAGAGCGTGGCCTACTTAGCAGGTAA
>NF1_LsgRNA180
CAGTCAGCAGCCGCTCATGATACTTGGTGT
>NF1_LsgRNA181
AGCACAGCCACAGCTACCCAAAAGAGGGCT
>NF1_LsgRNA182
GACTCAGCCATGGTCCTCTCCCAAAGGTTC
>NF1_LsgRNA183
TTCCCAGCTTTGGAAGTCCCAGCTTGGTAG
>NF1_LsgRNA184
GAGCCAGGAGAGAATGACCTGTCCCGGTAA

>NF1_LsgRNA185
GGAACAGGTACCTTGCTAAGAATACGGATT
>NF1_LsgRNA186
CCTTCAGGTCCTCTTCTAAAGCCAAGGTGG
>NF1_LsgRNA187
CCGACAGTTGGATAGGTGGCTGCAAGGTAT
>NF1_LsgRNA188
ACTTCATAAAGCAGTGCAAGGTTGTGGAGC
>NF1_LsgRNA189
TTTTCATAGACTGTCCTGGGAAACTGGCTG
>NF1_LsgRNA190
TACCCATCTATTCAAGCAAAAATATGGGGA
>NF1_LsgRNA191
AGTGCATGAGACCACTGTCTACGTTGGCAT
>NF1_LsgRNA192
AGGACATGGCCGCGCACAGGCCGGTGGAAT
>NF1_LsgRNA193
CTATCATTCATATCCGGACCCGCTGGGAAC
>NF1_LsgRNA194
TTAACATTCTTTAAAATAGTAGTGAGGCCG
>NF1_LsgRNA195
CTATCCAAAAGCCAAAATGGAAGATGGCCA
>NF1_LsgRNA196
AATGCCAAACAGCAAGTAAAATTTGGGTAA
>NF1_LsgRNA197
AGCACCAAACGTAAAGCAGCAGTTTGGCCA
>NF1_LsgRNA198
GTGGCCAAACTGCTGCTTTACGTTTGGTGC
>NF1_LsgRNA199
GCAACCAAGAGCTCTTGTTGTCTTTGGGTG
>NF1_LsgRNA200
TAATCCAAGTAAGCCATTCTCAAGAGGCAG
>NF1_LsgRNA201
TACACCACACTCTGCACAATTCCATGGATT
>NF1_LsgRNA202
GCAACCAGAACAGCTTCAGTGTCAGGGTTC
>NF1_LsgRNA203
ATCTCCAGACAAGAGCTACATTTATGGAAG
>NF1_LsgRNA204
TGTACCAGATCCCACAGACTGATATGGCTG
>NF1_LsgRNA205
TAATCCAGGATATATCCAAAGACGTGGTTG
>NF1_LsgRNA206
ACTTCCATAAATGTAGCTCTTGTCTGGAGA

>NF1_LsgRNA207
CCAGCCATATCAGTCTGTGGGATCTGGTAC
>NF1_LsgRNA208
GGACCCATTCCACCGGCCTGTGCGCGGCCA
>NF1_LsgRNA209
CACACCCAGCAATACGAATGGCACCGGTAA
>NF1_LsgRNA210
CAAGCCCCTTTCGATTCTAGGTGGTGGCTT
>NF1_LsgRNA211
GGAACCCTGACACTGAAGCTGTTCTGGTTG
>NF1_LsgRNA212
TTTTCCCTTCCGGAGAGAGGCTCCAGGAGT
>NF1_LsgRNA213
ATGGCCGCGCACAGGCCGGTGGAATGGGTC
>NF1_LsgRNA214
CTTACCGGTGCCATTCGTATTGCTGGGTGT
>NF1_LsgRNA215
AATTCCTCAAACTTTGAACTGGTAAGGTTA
>NF1_LsgRNA216
GGAGCCTCTCTCCGGAAGGGAAAAGGGAAC
>NF1_LsgRNA217
ACTGCCTCTTGAGAATGGCTTACTTGGATT
>NF1_LsgRNA218
AAATCCTGCTTCTTTACAGGTTATTGGAAG
>NF1_LsgRNA219
TACTCCTGGAGCCTCTCTCCGGAAGGGAAA
>NF1_LsgRNA220
TTAACCTTACCAGTTCAAAGTTTGAGGAAT
>NF1_LsgRNA221
TCTACGAAAAGCTCTTGCTGGCCATGGAGG
>NF1_LsgRNA222
AAAACGAACTAGATTTGACAGCCATGGAGT
>NF1_LsgRNA223
TCGTCGAAGCGGCTGACCACGGCCTGGACC
>NF1_LsgRNA224
GAGGCGAATGTCCCATGTGAGTGGAGGAGG
>NF1_LsgRNA225
AATGCGATATTGAGCAGTGTCCCAGGGACA
>NF1_LsgRNA226
CAGCCGATCCATAAATTTGCTGACAGGTGT
>NF1_LsgRNA227
GAGGCGCATTGAGCATCCCACTGCAGGAAA
>NF1_LsgRNA228
CCAGCGCTTCTTTGCTTCTGCACTTGGCTT

>NF1_LsgRNA229
TGAGCGGCTGCTGACTGGCCTCAAAGGTAG
>NF1_LsgRNA230
TTACCGGGACAGGTCATTCTCTCCTGGCTC
>NF1_LsgRNA231
GGGCCGGTTACCTGCTCGTCGAAGCGGCTG
>NF1_LsgRNA232
CCTCCGTGCAACATAATAAAAAATAGGATT
>NF1_LsgRNA233
CCAACGTGCAAGTGGCTGGACCAGTGGACA
>NF1_LsgRNA234
TATTCGTGCATTTCTGTAGGTATATGGTGC
>NF1_LsgRNA235
CTTACGTTCACTGACTGGACCCATGGGTGG
>NF1_LsgRNA236
CCAGCGTTTCCCTCAGAACAGCATCGGTGC
>NF1_LsgRNA237
ACTGCTAACTGCGCAACCTTCTTTAGGGCT
>NF1_LsgRNA238
GATACTAAGCTGGCTCTGCAGTGCAGGAGG
>NF1_LsgRNA239
GAAACTACTGCTTCCATGCTTGCCTGGTCC
>NF1_LsgRNA240
ACTTCTAGTTTGGTCTGGGCTTGTCGGCAA
>NF1_LsgRNA241
CTTACTCAATGCCAACGTAGACAGTGGTCT
>NF1_LsgRNA242
CTTCCTCACAGAGGTGGCGGAAACAGGACA
>NF1_LsgRNA243
AGAACTCACCTAAATTTCATCTCTTGGCAA
>NF1_LsgRNA244
CAGGCTCATGGATTTCCTGGCTCGGGGACT
>NF1_LsgRNA245
CTTTCTCATGGTTACACACCATTAAGGACA
>NF1_LsgRNA246
GTGCCTCCAGCAGAGAAGCAATTCTGGCCT
>NF1_LsgRNA247
CAAACTCCATGAATGTGTTATAGTTGGGCA
>NF1_LsgRNA248
TGGTCTCCCTCTGCAGCCTGAAGAAGGAGA
>NF1_LsgRNA249
CCATCTCCTTCTTCAGGCTGCAGAGGGAGA
>NF1_LsgRNA250
ATGTCTCGGAGGCTGGCATCACTGAGGCAC

>NF1_LsgRNA251
TCAACTCTAACTTTAACTTTGCATTGGTTG
>NF1_LsgRNA252
CACACTCTGCACAATTCCATGGATTGGATT
>NF1_LsgRNA253
CTGGCTCTGCAGTGCAGGAGGGTAAGGAGA
>NF1_LsgRNA254
GTAGCTCTTGTCTGGAGATCCTTGTGGTAA
>NF1_LsgRNA255
GACACTGAAACTTTACGTAAATGTGGGTGC
>NF1_LsgRNA256
CCCACTGAGAACAAGGAACCACATTGGCCA
>NF1_LsgRNA257
CCTACTGCACCGATGCTGTTCTGAGGGAAA
>NF1_LsgRNA258
CCCTCTGCAGCCTGAAGAAGGAGATGGTGT
>NF1_LsgRNA259
ATATCTGCTTCCTCACAGAGGTGGCGGAAA
>NF1_LsgRNA260
CTGACTGGCCTCAAAGGTAGCAAAAGGCTT
>NF1_LsgRNA261
ATGACTGGCTTCCTTTGTGCCCTTGGGGGA
>NF1_LsgRNA262
TGGTCTGGGCTTGTCGGCAAATCGGGGGGG
>NF1_LsgRNA263
TTCACTGGTTTCTTCATCAATTCCAGGCAG
>NF1_LsgRNA264
ACACCTGTCAGCAAATTTATGGATCGGCTG
>NF1_LsgRNA265
TCCACTGTTACAGTGGCCAGTGGTAGGGGA
>NF1_LsgRNA266
TTTACTTAAGAAATAACTGTGATTTGGCTT
>NF1_LsgRNA267
AATACTTACACAAAGCAAGAGCTTTGGATC
>NF1_LsgRNA268
TGTCCTTCAACAATTCCCTTGATGTGGCAG
>NF1_LsgRNA269
TCAACTTCACTGCAGTCATTCAAAAGGTTC
>NF1_LsgRNA270
CCTGCTTCTTTACAGGTTATTGGAAGGATG
>NF1_LsgRNA271
TGTTCTTGCAACAATAGCAGGTGAAGGATG
>NF1_LsgRNA272
TTTCCTTGCAGAATCCAAGAAAACAGGGGC

>NF1_LsgRNA273
GTGGCTTGGGATCAATAAAAGCTGAGGTGA
>NF1_LsgRNA274
GATACTTGGTGTACTCCCTGACCCAGGAGT
>NF1_LsgRNA275
CCTACTTTAGAACAACATCTTATGTGGGAT
>NF1_LsgRNA276
AGGGCTTTGTGCAGAGGCGAGTCCTGGCAA
>NF1_LsgRNA277
ATGTGAAAAGATGACAAACCTGGTAGGATC
>NF1_LsgRNA278
CCAGGAAATCCATGAGCCTGGACATGGGGC
>NF1_LsgRNA279
ACTAGAACAGTAAGAAGCAGCGCCTGGATC
>NF1_LsgRNA280
CATAGAACCCTTACGTTCACTGACTGGACC
>NF1_LsgRNA281
AGCTGAACTTCGGAATTCTGCCTCTGGGGT
>NF1_LsgRNA282
TCATGAAGAATTACTACGTACTCCTGGAGC
>NF1_LsgRNA283
AGTTGAAGATGAAAGTGCGCAAACAGGTGG
>NF1_LsgRNA284
TACTGAAGGCAGCTCTGAACATCTAGGGCA
>NF1_LsgRNA285
ATAGGAAGGGTCACCATGATGAATGGGATA
>NF1_LsgRNA286
GAGAGAATGACCTGTCCCGGTAACTGGAAC
>NF1_LsgRNA287
TAGAGACAATAAAGAGGGTGTTGTTGGCAG
>NF1_LsgRNA288
TACGGACCAATGTTAAGGATCTGGTGGGTC
>NF1_LsgRNA289
GCTGGACCAGTGTGTATCTGCCACAGGTTT
>NF1_LsgRNA290
CCTTGACTCTCAGGATAGTGCAGCAGGATG
>NF1_LsgRNA291
GAAAGACTTTGGGAAACACAACACTGGCCT
>NF1_LsgRNA292
ATAAGAGAACACTTTACCTGTCCTTGGGAG
>NF1_LsgRNA293
GCCTGAGAAGGTTGCCCCATGTCCAGGCTC
>NF1_LsgRNA294
AGCTGAGAGAAAATAAAACCCCAGAGGCAG

>NF1_LsgRNA295
ATGAGAGATATTCCAACGTGCAAGTGGCTG
>NF1_LsgRNA296
TTGAGAGCATTGTGGAATACCTTCAGGTCC
>NF1_LsgRNA297
CTGTGAGGAAGCAGATATCCGGTGTGGGGT
>NF1_LsgRNA298
TGATGAGGTCAACTTGTATTCAGCAGGTAC
>NF1_LsgRNA299
AGGAGAGTAAATCCACTTACCTATAGGAAG
>NF1_LsgRNA300
AATAGAGTCCAGAGGAAGTATTTATGGCAA
>NF1_LsgRNA301
TGGCGAGTTCGTCCACTGTTACAGTGGCCA
>NF1_LsgRNA302
AGCAGATAATCCGTATTCTTAGCAAGGTAC
>NF1_LsgRNA303
TATGGATACATATCCCATTCATCATGGTGA
>NF1_LsgRNA304
TCCAGATACATTTATTTACTTTGCAGGTAA
>NF1_LsgRNA305
TTTGGATATATCCTGGATTATTTCTGGACA
>NF1_LsgRNA306
TTTGGATCTTGGCACAATGATAACAGGGTG
>NF1_LsgRNA307
TGAAGATGAAAGTGCGCAAACAGGTGGCAG
>NF1_LsgRNA308
ATTGGATTTAACAAATTTGGATCTTGGCAC
>NF1_LsgRNA309
CTATGATTTCAGTGATGTCTTCAGAGGGAA
>NF1_LsgRNA310
TCAAGCAAAAATATGGGGAAGCCTTGGGCA
>NF1_LsgRNA311
TTGAGCAAACTCAATACCTGCCCAAGGCTT
>NF1_LsgRNA312
GATGGCAACACTTCTTGCATACCTGGGTCC
>NF1_LsgRNA313
ATTGGCAACATGTTAGCTTTGAAGTGGATC
>NF1_LsgRNA314
CCTGGCAACCTATAGCCCACCCATGGGTCC
>NF1_LsgRNA315
ACTTGCAACTTCCCAGCATTCCCCAGGTCA
>NF1_LsgRNA316
AAAAGCAACTTTGATGCAGCACGCAGGTAA

>NF1_LsgRNA317
AGTGGCACACACTTCGAAGTTGAGGGGGGA
>NF1_LsgRNA318
AAAGGCACTTGAGAGTTGCTTAAAAGGACC
>NF1_LsgRNA319
TTCTGCACTTGGCTTGCGGATCCGTGGCGA
>NF1_LsgRNA320
AGTAGCAGAAACTGATTATGAAATGGGTGA
>NF1_LsgRNA321
TCCAGCAGAGAAGCAATTCTGGCCTGGCAA
>NF1_LsgRNA322
TTCAGCAGAGCGAACAAAAGTCCTAGGGCA
>NF1_LsgRNA323
GGTGGCAGGAAACGTGGCATGTCTCGGAGG
>NF1_LsgRNA324
CAGTGCAGGAGGGTAAGGAGATGTGGGAGT
>NF1_LsgRNA325
GGAAGCAGTAGTTTCACTTCTAGCTGGTCT
>NF1_LsgRNA326
TAATGCCAAACAGCAAGTAAAATTTGGGTA
>NF1_LsgRNA327
TCAGGCCAACACTAAGAAGTTGCTTGGTTA
>NF1_LsgRNA328
ATCTGCCACAGGTTTGTGCTCTGGAGGACC
>NF1_LsgRNA329
AAAAGCCACCACCTAGAATCGAAAGGGGCT
>NF1_LsgRNA330
GTCGGCCAGACCAGTCCCCGAGCCAGGAAA
>NF1_LsgRNA331
TCTTGCCCAACTATAACACATTCATGGAGT
>NF1_LsgRNA332
GCACGCCGCTCACCTTCATGCACCAGGAGT
>NF1_LsgRNA333
TGTTGCCTCGGAAGAGAGTCTGCATGGAGT
>NF1_LsgRNA334
TGGAGCCTCTCTCCGGAAGGGAAAAGGGAA
>NF1_LsgRNA335
TGCAGCCTGAAGAAGGAGATGGTGTGGAAT
>NF1_LsgRNA336
TAATGCGATATTGAGCAGTGTCCCAGGGAC
>NF1_LsgRNA337
TAAAGCGATTGCTAGGCCCGGTATGGGTAA
>NF1_LsgRNA338
CAAAGCTAACATGTTGCCAATCAGAGGATG

>NF1_LsgRNA339
CCAGGCTCATGGATTTCCTGGCTCGGGGAC
>NF1_LsgRNA340
CTCTGCTGGAGGCACACTCCCCCAAGGGCA
>NF1_LsgRNA341
CTAAGCTGGCTCTGCAGTGCAGGAGGGTAA
>NF1_LsgRNA342
TTCTGCTGTACTGCCTTGGGTTTCGGGCCC
>NF1_LsgRNA343
AATGGCTTACTTGGATTAAAAAGCAGGTTC
>NF1_LsgRNA344
GTTAGCTTTGAAGTGGATCCTACCAGGTTT
>NF1_LsgRNA345
GGCAGGAAACGTGGCATGTCTCGGAGGCTG
>NF1_LsgRNA346
CTCTGGAACAATCAGGAGAAAATTGGGCAG
>NF1_LsgRNA347
CTTGGGAAGATACACATGCAAAATGGGAAC
>NF1_LsgRNA348
TATAGGAAGGGTCACCATGATGAATGGGAT
>NF1_LsgRNA349
GCTGGGAAGTTGCAAGTGAGGTCATGGAAT
>NF1_LsgRNA350
TCATGGAATTAGAAAGGTTAAGGTTGGCAG
>NF1_LsgRNA351
ACTTGGACAGCAGTAGAACCAACCTGGAAA
>NF1_LsgRNA352
GGGAGGACATGGCCGCGCACAGGCCGGTGG
>NF1_LsgRNA353
GCCTGGACATGGGGCAACCTTCTCAGGCCA
>NF1_LsgRNA354
TCGGGGACTGGTCTGGCCGACAGTTGGATA
>NF1_LsgRNA355
ATACGGAGACTATCTAAAGTATGCAGGTTT
>NF1_LsgRNA356
CTTGGGAGTCAAAAAACTTGCTGATGGTAT
>NF1_LsgRNA357
CTCTGGAGTGGCACTGCAAGCAAATGGATC
>NF1_LsgRNA358
CACCGGATATCTGCTTCCTCACAGAGGTGG
>NF1_LsgRNA359
CTATGGATCCTCCTCCACTCACATGGGACA
>NF1_LsgRNA360
TTATGGATCGGCTGTTGTCCTTAATGGTGT

>NF1_LsgRNA361
CTCAGGATGAACTAGCTCGAGTTCTGGTTA
>NF1_LsgRNA362
GGTAGGATGTGATATTCCTTCTAGTGGAAA
>NF1_LsgRNA363
TCATGGATTTCCTGGCTCGGGGACTGGTCT
>NF1_LsgRNA364
AGATGGCAACACTTCTTGCATACCTGGGTC
>NF1_LsgRNA365
GCCTGGCAACCTATAGCCCACCCATGGGTC
>NF1_LsgRNA366
CAGTGGCACACACTTCGAAGTTGAGGGGGG
>NF1_LsgRNA367
TGATGGCAGATACTGCTGTAGCTTTGGCTT
>NF1_LsgRNA368
ATTGGGCAGTATCTTTCCAGCAACAGGTAA
>NF1_LsgRNA369
GGCTGGCATCACTGAGGCACTGTACGGTCC
>NF1_LsgRNA370
ACAGGGCCACTTCTAGTTTGGTCTGGGCTT
>NF1_LsgRNA371
GCCAGGCCAGAATTGCTTCTCTGCTGGAGG
>NF1_LsgRNA372
CGAGGGCCAGTTACTAGAGACATCAGGTTT
>NF1_LsgRNA373
TTTTGGCCGAATCTTGGTGTGTTGGGGGAT
>NF1_LsgRNA374
TCCAGGCTCATGGATTTCCTGGCTCGGGGA
>NF1_LsgRNA375
CAAAGGCTCCTAAAAGGCAAGAAATGGAAT
>NF1_LsgRNA376
TGCAGGCTGACTGCCTCTTGAGAATGGCTT
>NF1_LsgRNA377
TATTGGCTGATCGGTTTGAGAGATTGGTGG
>NF1_LsgRNA378
CTGTGGCTGTGCTGCAGCTTGATGAGGTCA
>NF1_LsgRNA379
GACTGGCTTCCTTTGTGCCCTTGGGGGAGT
>NF1_LsgRNA380
CTTTGGCTTCTGGAAATGTGAAATTGGTTT
>NF1_LsgRNA381
TCTGGGCTTGTCGGCAAATCGGGGGGGTTC
>NF1_LsgRNA382
CCTTGGCTTTAGAAGAGGACCTGAAGGTAT

>NF1_LsgRNA383
GGAAGGGAAAAGGGAACTCCTCTATGGTCA
>NF1_LsgRNA384
GCTTGGGAAGATACACATGCAAAATGGGAA
>NF1_LsgRNA385
CGCGGGGAGGACATGGCCGCGCACAGGCCG
>NF1_LsgRNA386
GTCTGGGCTTGTCGGCAAATCGGGGGGGTT
>NF1_LsgRNA387
CCATGGGTCCAGTCAGTGAACGTAAGGGTT
>NF1_LsgRNA388
GGAGGGTAAGGAGATGTGGGAGTCAGGAGG
>NF1_LsgRNA389
CCGTGGTCAGCCGCTTCGACGAGCAGGTAA
>NF1_LsgRNA390
CATGGGTCCAGTCAGTGAACGTAAGGGTTC
>NF1_LsgRNA391
GACTGGTCTGGCCGACAGTTGGATAGGTGG
>NF1_LsgRNA392
GGCCGGTGGAATGGGTCCAGGCCGTGGTCA
>NF1_LsgRNA393
TAATGGTGTGTAACCATGAGAAAGTGGGAC
>NF1_LsgRNA394
TCTTGGTGTGTTGGGGGATAGAGTCGGGCT
>NF1_LsgRNA395
TTAAGGTTGGCAGTGATACTAAGCTGGCTC
>NF1_LsgRNA396
CCCCGTAAAAAAGGAGAAAGTGACAGGAAC
>NF1_LsgRNA397
TACAGTAATTACCTTATTAAGAAGTGGCTG
>NF1_LsgRNA398
ACATGTACAGGGCCACTTCTAGTTTGGTCT
>NF1_LsgRNA399
CTACGTACTCCTGGAGCCTCTCTCCGGAAG
>NF1_LsgRNA400
CTTAGTAGCACAGAAATTCTCAAGTGGTTG
>NF1_LsgRNA401
AATTGTAGTGGACCTTACCCATACCGGGCC
>NF1_LsgRNA402
ACTGGTCACAATGATGGGTGATCAAGGAGA
>NF1_LsgRNA403
CTCTGTCAGCAATATGATGTCAACAGGTAA
>NF1_LsgRNA404
CCATGTCCAGGCTCATGGATTTCCTGGCTC

>NF1_LsgRNA405
TTCAGTCCATGGTGGTTGATCTTAAGGTAA
>NF1_LsgRNA406
ACCAGTCCATGTGTGGAAGCTCTAAGGGAG
>NF1_LsgRNA407
ACCTGTCCCGGTAACTGGAACGGAAGGCAA
>NF1_LsgRNA408
TCAGGTCCTCTTCTAAAGCCAAGGTGGCAG
>NF1_LsgRNA409
AAAAGTCTCTCTCTCATAGGAGCCAGGAGA
>NF1_LsgRNA410
CAGTGTCTGAATCAAATGTTCTCTTGGATG
>NF1_LsgRNA411
ATTTGTCTGACACAGACTCCCTACAGGAAT
>NF1_LsgRNA412
TTTGGTCTGGGCTTGTCGGCAAATCGGGGG
>NF1_LsgRNA413
GGGAGTCTGTGTCAGACAAATCTATGGATC
>NF1_LsgRNA414
GCAAGTGAGGTCATGGAATTAGAAAGGTTA
>NF1_LsgRNA415
GGATGTGATCACAATTCGTAATAAAGGATC
>NF1_LsgRNA416
CCAAGTGCAGAAGCAAAGAAGCGCTGGCAG
>NF1_LsgRNA417
ATGTGTGGAAGCTCTAAGGGAGAGCGGACC
>NF1_LsgRNA418
CACTGTTACAGTGGCCAGTGGTAGGGGAGA
>NF1_LsgRNA419
CGTTGTTACTTTCTTAGTAGCCACAGGTCC
>NF1_LsgRNA420
CGCAGTTAGCAGTTATAAATAGCCTGGAAA
>NF1_LsgRNA421
GAACGTTGAACTCTCCCCTACCACTGGCCA
>NF1_LsgRNA422
CTCGGTTGAACTTCGAAATATGTTTGGTGA
>NF1_LsgRNA423
CTCAGTTGATTATATTGGATACACTGGAAA
>NF1_LsgRNA424
CTTGGTTGCAGGGATGGATTATATTGGAAT
>NF1_LsgRNA425
ATCGGTTTGAGAGATTGGTGGAACTGGTCA
>NF1_LsgRNA426
ACAGGTTTGTGCTCTGGAGGACCCAGGTAT

>NF1_LsgRNA427
ATTTTAAAAAACCTACCGTAAACTCGGGTC
>NF1_LsgRNA428
ACAATAAAGAGGGTGTTGTTGGCAGGGATA
>NF1_LsgRNA429
ACCTTAAAGTGTTGGTTGTTGTGAGGGCTT
>NF1_LsgRNA430
TTTTTAAATTAAAGGTACAAGTTAAGGCAC
>NF1_LsgRNA431
CATTTAAATTTAAAGCCCTAAAGAAGGTTG
>NF1_LsgRNA432
GGAATAAATTTCTTCTTAAAAATAAGGTAA
>NF1_LsgRNA433
ATTCTAACGTGAGGTGTGGCTCATTGGCTG
>NF1_LsgRNA434
TCCTTAACTATCCAAAAGCCAAAATGGAAG
>NF1_LsgRNA435
CTGCTAACTGCGCAACCTTCTTTAGGGCTT
>NF1_LsgRNA436
CAGGTAAGATGTTTGGTATTGTGGTGGGGA
>NF1_LsgRNA437
AAGTTAAGGCACACAGAAGATTATAGGCAG
>NF1_LsgRNA438
GCTATAAGTATCTTCTCTTGTCCATGGTGA
>NF1_LsgRNA439
TAATTAATTCTGCTGTACTGCCTTGGGTTT
>NF1_LsgRNA440
TACTTACACAACAGGAAAGACTTTGGGAAA
>NF1_LsgRNA441
CAGATACACCTGTCAGCAAATTTATGGATC
>NF1_LsgRNA442
ATTATACATTTAAACTTACCCTTCAGGAGT
>NF1_LsgRNA443
TCCTTACCAGCCATATCAGTCTGTGGGATC
>NF1_LsgRNA444
GGCATACCTCAGTGTTTCCTGCAGTGGGAT
>NF1_LsgRNA445
AGAATACCTGACAGACTGGGTTATGGGAAC
>NF1_LsgRNA446
GACTTACCTGGCCATCTTCCATTTTGGCTT
>NF1_LsgRNA447
CTTGTACCTTTAATTTAAAAATCGAGGGCC
>NF1_LsgRNA448
ATTTTACTGGCCAAGCTGTTGCCTCGGAAG

>NF1_LsgRNA449
CTTTTACTGTAGCTTTATTCAGTAGGGAGT
>NF1_LsgRNA450
TATTTACTTTGCAGGTAAGATGTTTGGTAT
>NF1_LsgRNA451
AATGTAGAAGGTGAATTCTGAGCCAGGCAG
>NF1_LsgRNA452
ACTGTAGCTTTATTCAGTAGGGAGTGGCAA
>NF1_LsgRNA453
CAATTAGTTGAAGTAATGATGGCAAGGAGA
>NF1_LsgRNA454
TCTATATAGGTATGTTCGTGTGCTTGGGAA
>NF1_LsgRNA455
CAAGTATCATGAGCGGCTGCTGACTGGCCT
>NF1_LsgRNA456
CGGATATCTGCTTCCTCACAGAGGTGGCGG
>NF1_LsgRNA457
TATTTATGGCAATCCGGAATCCTCTGGAGT
>NF1_LsgRNA458
GAGATATTCCAACGTGCAAGTGGCTGGACC
>NF1_LsgRNA459
GACTTCAAATACGGACCAATGTTAAGGATC
>NF1_LsgRNA460
CTCTTCACAAAAGAAGAACATATGCGGCCT
>NF1_LsgRNA461
GCCCTCACAACAACCAACACTTTAAGGTGA
>NF1_LsgRNA462
GGGATCACAACACCCCCCAAAATGAGGAGA
>NF1_LsgRNA463
ACGTTCACTGACTGGACCCATGGGTGGGCT
>NF1_LsgRNA464
CTAATCACTTACCCACTGAGAACAAGGAAC
>NF1_LsgRNA465
TTGATCACTTGATATCAGACACAAAGGCTC
>NF1_LsgRNA466
TCTGTCAGCTGCCTACTTCCTCCATGGCCA
>NF1_LsgRNA467
AATTTCATATGGCTTTGCATAATATGGCTT
>NF1_LsgRNA468
AATTTCATCTCTTGGCAAAATGAGAGGTCA
>NF1_LsgRNA469
TCAGTCATCTGAAGGAGGTTCCGCTGGTTT
>NF1_LsgRNA470
GAGGTCATGGAATTAGAAAGGTTAAGGTTG

>NF1_LsgRNA471
CCAGTCATGTTGATCCATTCCTGTAGGGAG
>NF1_LsgRNA472
CAATTCCACACCATCTCCTTCTTCAGGCTG
>NF1_LsgRNA473
TTCGTCCACTGTTACAGTGGCCAGTGGTAG
>NF1_LsgRNA474
ATTGTCCAGTCTATCATTCATATCCGGACC
>NF1_LsgRNA475
AAACTCCATGAATGTGTTATAGTTGGGCAA
>NF1_LsgRNA476
CCAGTCCATGTGTGGAAGCTCTAAGGGAGA
>NF1_LsgRNA477
TTGATCCCAAGCCACCTGTTGCACTGGTTT
>NF1_LsgRNA478
AGCATCCCACTGCAGGAAACACTGAGGTAT
>NF1_LsgRNA479
TCTATCCCCCAACACACCAAGATTCGGCCA
>NF1_LsgRNA480
GCTCTCCCTTAGAGCTTCCACACATGGACT
>NF1_LsgRNA481
GCCTTCCGTTCCAGTTACCGGGACAGGTCA
>NF1_LsgRNA482
TGGGTCCTCCAGAGCACAAACCTGTGGCAG
>NF1_LsgRNA483
ATGGTCCTCTCCCAAAGGTTCTGAAGGATA
>NF1_LsgRNA484
GTACTCCTGGAGCCTCTCTCCGGAAGGGAA
>NF1_LsgRNA485
GATTTCCTGGCTCGGGGACTGGTCTGGCCG
>NF1_LsgRNA486
ACACTCCTGGTGCATGAAGGTGAGCGGCGT
>NF1_LsgRNA487
GGTATCCTTCAGAACCTTTGGGAGAGGACC
>NF1_LsgRNA488
TACATCGTCTACTCTGGAACAATCAGGAGA
>NF1_LsgRNA489
TTTATCTAAAATCCCTGCTTCATACGGTGA
>NF1_LsgRNA490
AAGCTCTAAGGGAGAGCGGACCTGTGGCTA
>NF1_LsgRNA491
TTCATCTAATCTCATTGTGTCCTTTGGTTG
>NF1_LsgRNA492
TGTATCTAGGGATCATAAAGCTGTTGGAAG

>NF1_LsgRNA493
TTTCTCTAGTCCGCATTGGATTGGTGGCCT
>NF1_LsgRNA494
GCAATCTCTGGCATGTGTGACTGAGGGACC
>NF1_LsgRNA495
TGTATCTGCCACAGGTTTGTGCTCTGGAGG
>NF1_LsgRNA496
TTGGTCTGGGCTTGTCGGCAAATCGGGGGG
>NF1_LsgRNA497
CACCTCTGTGAGGAAGCAGATATCCGGTGT
>NF1_LsgRNA498
CGCCTCTTAACAATGGTCTTGTGAAGGCTT
>NF1_LsgRNA499
CACTTCTTCTTACTGATATTTCAATGGAAA
>NF1_LsgRNA500
GCAGTCTTTAGTCGCATTTCTACCAGGTTA
>NF1_LsgRNA501
GAATTCTTTATGAATACTTAGCAGAGGCCA
>NF1_LsgRNA502
GCATTGAAACAATGATGTTAAATCTGGTCA
>NF1_LsgRNA503
ACTTTGAACTGGTAAGGTTAAGGCTGGACC
>NF1_LsgRNA504
GGTGTGAAGAAAATGGCAGATTTCTGGCAG
>NF1_LsgRNA505
AATTTGAAGTGAATACACAGAGCGTGGCCT
>NF1_LsgRNA506
ATGATGAATGGGATATGTATCCATAGGAAC
>NF1_LsgRNA507
GTATTGAATTGAAACACCTTTGTTTGGAAT
>NF1_LsgRNA508
CATTTGACTGGTATTTCCACTAGAAGGAAT
>NF1_LsgRNA509
GCATTGAGTAAGTTTGACATTGCAAGGACC
>NF1_LsgRNA510
TGGTTGATGAAAACAACATGAATAAGGTAA
>NF1_LsgRNA511
AGATTGATGCTGTGTATTGTCACTCGGTTG
>NF1_LsgRNA512
ACTATGATTTACTGCATCACTTGTAGGACA
>NF1_LsgRNA513
TCCTTGCAGAATCCAAGAAAACAGGGGCCC
>NF1_LsgRNA514
GCAGTGCAGGAGGGTAAGGAGATGTGGGAG

>NF1_LsgRNA515
GATCTGCATGAATTAGTTTCACCATGGACA
>NF1_LsgRNA516
CTGCTGCCACCTTGGCTTTAGAAGAGGACC
>NF1_LsgRNA517
TCATTGCCTTCCGTTCCAGTTACCGGGACA
>NF1_LsgRNA518
TGGTTGCGGGAAATATTGATCTGCAGGAAT
>NF1_LsgRNA519
ATTCTGCTGTACTGCCTTGGGTTTCGGGCC
>NF1_LsgRNA520
CCGATGCTGTTCTGAGGGAAACGCTGGCTA
>NF1_LsgRNA521
TCCCTGCTTCATACGGTGAGACAATGGCAG
>NF1_LsgRNA522
CATTTGCTTGCAGTGCCACTCCAGAGGATT
>NF1_LsgRNA523
TACTTGCTTTACACAGTTTGACACAGGCAA
>NF1_LsgRNA524
ACTCTGGAACAATCAGGAGAAAATTGGGCA
>NF1_LsgRNA525
TGACTGGACCCATGGGTGGGCTATAGGTTG
>NF1_LsgRNA526
TCTATGGATCCTCCTCCACTCACATGGGAC
>NF1_LsgRNA527
TCCATGGATTGGATTTAACAAATTTGGATC
>NF1_LsgRNA528
ACAGTGGCACACACTTCGAAGTTGAGGGGG
>NF1_LsgRNA529
ACATTGGCCAGAGCCATCGCTATAGGGAGT
>NF1_LsgRNA530
CTTTTGGCCGAATCTTGGTGTGTTGGGGGA
>NF1_LsgRNA531
TGACTGGCTTCCTTTGTGCCCTTGGGGGAG
>NF1_LsgRNA532
TGACTGGGAAATCTTACCTGTTGCTGGAAA
>NF1_LsgRNA533
GGTCTGGGCTTGTCGGCAAATCGGGGGGGT
>NF1_LsgRNA534
CCCATGGGTGGGCTATAGGTTGCCAGGCCA
>NF1_LsgRNA535
CCACTGGTCCAGCCACTTGCACGTTGGAAT
>NF1_LsgRNA536
GTTCTGGTTACTCTGTTTGATTCTCGGCAT

>NF1_LsgRNA537
TTATTGTCTCTATTAGTAAGACACTGGCAG
>NF1_LsgRNA538
GAAATGTGAAATTGGTTTCAAGCAAGGTAA
>NF1_LsgRNA539
CCACTGTTACAGTGGCCAGTGGTAGGGGAG
>NF1_LsgRNA540
GGTATGTTCGTGTGCTTGGGAATATGGTCC
>NF1_LsgRNA541
AAGATGTTGTTCTAAAGTAGGAGTTGGAGA
>NF1_LsgRNA542
CATCTGTTTGTCCACATTAGGCTTAGGTTA
>NF1_LsgRNA543
TTTTTTAAAAAATTCAGGCTCTGCTGGTTC
>NF1_LsgRNA544
CACCTTAAAGTGTTGGTTGTTGTGAGGGCT
>NF1_LsgRNA545
GGCTTTAAATTTAAATGCTGTTTCTGGAAA
>NF1_LsgRNA546
GTAATTAATTCTGCTGTACTGCCTTGGGTT
>NF1_LsgRNA547
ATACTTACACAACAGGAAAGACTTTGGGAA
>NF1_LsgRNA548
CATTTTACATCATCATCTGCTGCTTGGTTT
>NF1_LsgRNA549
TTGCTTACCTTGTCATTGAATATACGGAGA
>NF1_LsgRNA550
ACATTTACTGACCTGGGGAATGCTGGGAAG
>NF1_LsgRNA551
TCTTTTACTGTAGCTTTATTCAGTAGGGAG
>NF1_LsgRNA552
GGGCTTATACGAAAGCAAGAAACAAGGCAG
>NF1_LsgRNA553
ATGATTATCTTTAATAGAGTCCAGAGGAAG
>NF1_LsgRNA554
TAGGTTCAAAACTGGTCAAATCAATGGTGA
>NF1_LsgRNA555
TAACTTCAAGCCCCTTTCGATTCTAGGTGG
>NF1_LsgRNA556
ATATTTCAATGGAAAATGTTCCTATGGATA
>NF1_LsgRNA557
ATTCTTCAATTTGTTAAATAGCATTGGATA
>NF1_LsgRNA558
AGCCTTCACAAGACCATTGTTAAGAGGCGA

>NF1_LsgRNA559
CAGTTTCATCAAAACCAGTGCAACAGGTGG
>NF1_LsgRNA560
TGTTTTCATCTTTCAGGACACTAAAGGAGA
>NF1_LsgRNA561
GATGTTCCCATAACCCAGTCTGTCAGGTAT
>NF1_LsgRNA562
AAGATTCGGCCAAAAGATGTCCCTGGGACA
>NF1_LsgRNA563
GTTTTTCTCTAGTCCGCATTGGATTGGTGG
>NF1_LsgRNA564
GGAATTCTGAGGAGGAACTGATGATGGCAT
>NF1_LsgRNA565
CAGTTTCTGCTACTCTCCTCATTTTGGGGG
>NF1_LsgRNA566
CAACTTCTTAGTGTTGGCCTGAGAAGGTTG
>NF1_LsgRNA567
GTGGTTCTTTATTTATAGGCATTTTGGAAC
>NF1_LsgRNA568
TGCCTTGATTGACACGTACCTGCCTGGAAT
>NF1_LsgRNA569
TTCCTTGCAGAATCCAAGAAAACAGGGGCC
>NF1_LsgRNA570
AAGGTTGCCCCATGTCCAGGCTCATGGATT
>NF1_LsgRNA571
GAACTTGCTAGATAATCATACTGAAGGCAG
>NF1_LsgRNA572
GCTCTTGCTGGCCATGGAGGAAGTAGGCAG
>NF1_LsgRNA573
TTCTTTGCTTCTGCACTTGGCTTGCGGATC
>NF1_LsgRNA574
GTGCTTGCTTTACATCGTCTACTCTGGAAC
>NF1_LsgRNA575
CACATTGGCCAGAGCCATCGCTATAGGGAG
>NF1_LsgRNA576
GCCATTGTCTCACCGTATGAAGCAGGGATT
>NF1_LsgRNA577
CGAATTGTGATCACATCCTCTGATTGGCAA
>NF1_LsgRNA578
CTATTTTAAAGAATGTTAACAATATGGTGA
>NF1_LsgRNA579
GAATTTTACATACACTACTAACTCTGGTTA
>NF1_LsgRNA580
CACATTTACTGACCTGGGGAATGCTGGGAA

>NF1_LsgRNA581
CTACTTTAGAACAACATCTTATGTGGGATG
>NF1_LsgRNA582
TTTTTTTCAGCTTCCAATAAAAACAGGACA
>NF1_LsgRNA583
TCATTTTCCTACTTGTTCAGTCCATGGTGG
>NF1_LsgRNA584
CCATTTTCTTCACACCTGTCGTGAAGGAAA
>NF1_LsgRNA585
CTGGTTTCTTCATCAATTCCAGGCAGGTAC
>NF1_LsgRNA586
CGTATTTGAAGTCCCACTTTCTCATGGTTA
>NF1_LsgRNA587
TACCTTTGAGCTAGTTCTGTCCACTGGTCC
>NF1_LsgRNA588
TCATTTTGCCAAGAGATGAAATTTAGGTGA

(28) $\mathbb{S}_{11}^{-}$: 178 low on-target activity sgRNAs targeting NF2

>NF2_LsgRNA1
TCCGAAACATCTCGTACAGTGACAAGGAGG
>NF2_LsgRNA2
CTTCAAAGAAGGCCACTCGGGACTTGGCGC
>NF2_LsgRNA3
CCTCAAAGCTTCGTGTTAATAAGCTGGTAA
>NF2_LsgRNA4
CTGAAAAGGCCCAGATCACCGAGGAGGAGG
>NF2_LsgRNA5
CCAAAAATCCCCGCTTGTGAACACTGGGGT
>NF2_LsgRNA6
TAATAAATCTGTATCAGATGACTCCGGAAA
>NF2_LsgRNA7
GATAAAATTTGGCCAAGAAGTGAAAGGTGA
>NF2_LsgRNA8
TCGAAAGACAGGCTGTCACCAATGAGGTTG
>NF2_LsgRNA9
AGCGAAGAGCCAAGCAGAAGCTCCTGGAGA
>NF2_LsgRNA10
GCCCAAGAGGAATTGCTTCCAAAAAGGGTA
>NF2_LsgRNA11
CAAAAATCCCCGCTTGTGAACACTGGGGTC
>NF2_LsgRNA12
TGGCAATCTCCAGGAGCTTCTGCTTGGCTC
>NF2_LsgRNA13
GCACAATGAGAACTCCGACAGGGGTGGCAG

>NF2_LsgRNA14
TCACACAACATTTATTCTTCTTACAGGTAC
>NF2_LsgRNA15
AAGAACCAGTCACCTTTCACTTCTTGGCCA
>NF2_LsgRNA16
AAGGACCTCTTTGATTTGGTGTGCCGGACT
>NF2_LsgRNA17
CCTCAGAAATCACCAGTGCTTCGTTGGCCA
>NF2_LsgRNA18
CCCAAGAGGAATTGCTTCCAAAAAGGGTAA
>NF2_LsgRNA19
CCAAAGAGGCAGATCAGCTGAAGCAGGACC
>NF2_LsgRNA20
CTGAAGATGGCTGAGGAGTCAGAGAGGAGG
>NF2_LsgRNA21
CTTCAGCATTCTCAGGATAAAATTTGGCCA
>NF2_LsgRNA22
TGAAAGCCCAGGCCAGGGAGGAGAAGGCTA
>NF2_LsgRNA23
AACCAGCTCCTCTTCAGCATTCTCAGGATA
>NF2_LsgRNA24
AGACAGCTGACCTGTTGGCTGAAAAGGCCC
>NF2_LsgRNA25
AGCCAGGAGCACAGAAGCCTCAGGAGGGCA
>NF2_LsgRNA26
ATCGAGGCCTTGAAACTGAAAGAGAGGGAG
>NF2_LsgRNA27
GGAAAGGGAAGGACCTCTTTGATTTGGTGT
>NF2_LsgRNA28
AATGAGGTTGAAGCTTGGTATGTCAGGAGG
>NF2_LsgRNA29
AAGTAGTTCACACCGTACATCTCCAGGTCC
>NF2_LsgRNA30
TGGAAGTTCAGCAGATGAAAGCCCAGGCCA
>NF2_LsgRNA31
TGACATACCAAGCTTCAACCTCATTGGTGA
>NF2_LsgRNA32
CTGTATCAGATGACTCCGGAAATGTGGGAG
>NF2_LsgRNA33
AACCATGATCTATTTATGAGGAGAAGGAAA
>NF2_LsgRNA34
TGGTATGTCAGGAGGCAACGGTGCTGGAAT
>NF2_LsgRNA35
TTTCATTCCACGGGAAGGAGATCTTGGGGG

>NF2_LsgRNA36
AGTAATTCTCTCCTCCCACATTTCCGGAGT
>NF2_LsgRNA37
TCTTATTGGATCCACAGAATAAAAAGGGCA
>NF2_LsgRNA38
GCAGCAAGCACAATACCATTAAAAAGGTAC
>NF2_LsgRNA39
GCATCAAGGCCACAGCGATTCGCACGGAGG
>NF2_LsgRNA40
TACACAATCAAGGACACAGTGGCCTGGCTC
>NF2_LsgRNA41
TCTGCACAATGAGAACTCCGACAGGGGTGG
>NF2_LsgRNA42
AGGGCACAGAGCTGCTGCTTGGAGTGGATG
>NF2_LsgRNA43
AGGACACAGTGGCCTGGCTCAAAATGGACA
>NF2_LsgRNA44
TACGCAGAGCACCGAGGCCGAGCCAGGTGA
>NF2_LsgRNA45
GCCACAGATTCTCCAGCTATGTATCGGGAA
>NF2_LsgRNA46
CAGCCATCTTCAGTGCCAGCACCTCGGCTT
>NF2_LsgRNA47
AGCTCATGCGGGAAGCGATGGCCCCGGCCA
>NF2_LsgRNA48
AGATCATGGTTCCCGATACATAGCTGGAGA
>NF2_LsgRNA49
GCTGCATTTCCTGCTCAGCCTCTGCGGCCT
>NF2_LsgRNA50
CTCCCCACAGGGATGAAGCTGAAATGGAAT
>NF2_LsgRNA51
GCTTCCAGCACCTTCTGCTCCATCAGGCGC
>NF2_LsgRNA52
TTATCCAGTGGTTTAATAGTAAACTGGAAG
>NF2_LsgRNA53
TCTTCCAGTTTACTATTAAACCACTGGATA
>NF2_LsgRNA54
GGCCCCCAGGCTCACCGGGTACGTGGGCTT
>NF2_LsgRNA55
TGGCCCCCAGGCTCACCGGGTACGTGGGCT
>NF2_LsgRNA56
CTGACCCCCAAGATCTCCTTCCCGTGGAAT
>NF2_LsgRNA57
CGCTCCGCCTCGCGTGCTTCCTGCAGGTCC

>NF2_LsgRNA58
CGGGCCTGAGCCCCGCGCCATGGCCGGGGC
>NF2_LsgRNA59
AGCGCCTGATGGAGCAGAAGGTGCTGGAAG
>NF2_LsgRNA60
TTGGCCTGGACGGCGTAAGAAGCCAGGAGC
>NF2_LsgRNA61
TGCTCCTGGCTTCTTACGCCGTCCAGGCCA
>NF2_LsgRNA62
ACTACGACCCCAGTGTTCACAAGCGGGGAT
>NF2_LsgRNA63
TCACCGAGGAGGAGGCAAAACTTCTGGCCC
>NF2_LsgRNA64
CGCACGAGGGATGAGTTGGAGAGGAGGCTG
>NF2_LsgRNA65
AAGCCGAGGTGCTGGCACTGAAGATGGCTG
>NF2_LsgRNA66
GCCTCGCTCGAGAGAAGCAGATGAGGGAGG
>NF2_LsgRNA67
GCAACGGTGCTGGAATTGGGTTCATGGGCT
>NF2_LsgRNA68
GGATCGTCACCATGGACGCCGAGATGGAGT
>NF2_LsgRNA69
CTGGCTCAAAATGGACAAGAAGGTTGGGCT
>NF2_LsgRNA70
CCTGCTCAGCCTCTGCGGCCTTCTGGGCCA
>NF2_LsgRNA71
CTGTCTCCCTCTCTTTCAGTTTCAAGGCCT
>NF2_LsgRNA72
GGGGCTCCGAGAAACCTGGTTCTTTGGACT
>NF2_LsgRNA73
TCTCCTCCTCCGTGCGAATCGCTGTGGCCT
>NF2_LsgRNA74
TTACCTCGCAATTGAACTCCATCTCGGCGT
>NF2_LsgRNA75
TTTGCTCTGCAATTCTGCAGGTACTGGATC
>NF2_LsgRNA76
CGGACTCTGGGGCTCCGAGAAACCTGGTTC
>NF2_LsgRNA77
AGAGCTCTTCAAAGAAGGCCACTCGGGACT
>NF2_LsgRNA78
GGGCCTGAGCCCCGCGCCATGGCCGGGGCC
>NF2_LsgRNA79
TCACCTGCTAGAGCTCTTCAAAGAAGGCCA

>NF2_LsgRNA80
TCATCTGCTGAACTTCCAAAGAATCGGCTT
>NF2_LsgRNA81
GCTGCTGCTTGGAGTGGATGCCCTGGGGCT
>NF2_LsgRNA82
TCAGCTGTCTCCTCAGACCGCATCTGGAGG
>NF2_LsgRNA83
CCAGCTTATTAACACGAAGCTTTGAGGAGT
>NF2_LsgRNA84
CCTGCTTCAGCTGATCTGCCTCTTTGGCCC
>NF2_LsgRNA85
TGGCCTTCTTTGAAGAGCTCTAGCAGGTGA
>NF2_LsgRNA86
TGTGCTTGCTGCTGCCACCCCTGTCGGAGT
>NF2_LsgRNA87
GAAGCTTGGTATGTCAGGAGGCAACGGTGC
>NF2_LsgRNA88
CATCCTTTCCTTGCAGGGCCAAAGAGGCAG
>NF2_LsgRNA89
CCTGCTTTCTAGCCTTCTCCTCCCTGGCCT
>NF2_LsgRNA90
AACTGAAAGAGAGGGAGACAGCTCTGGATA
>NF2_LsgRNA91
AATTGAACTCCATCTCGGCGTCCATGGTGA
>NF2_LsgRNA92
AGCTGAAGCTCATGCGGGAAGCGATGGCCC
>NF2_LsgRNA93
CCCAGAAGGCCGCAGAGGCTGAGCAGGAAA
>NF2_LsgRNA94
CTACGACCCCAGTGTTCACAAGCGGGGATT
>NF2_LsgRNA95
TGAGGAGAAGGAAAGCCGATTCTTTGGAAG
>NF2_LsgRNA96
TCTTGAGAGAGCTGAAGCTCATGCGGGAAG
>NF2_LsgRNA97
TCAGGAGGCAACGGTGCTGGAATTGGGTTC
>NF2_LsgRNA98
TGCAGATGAAAGAAGAAGCAACAATGGCCA
>NF2_LsgRNA99
AGCAGATGAAAGCCCAGGCCAGGGAGGAGA
>NF2_LsgRNA100
ATCAGATGACTCCGGAAATGTGGGAGGAGA
>NF2_LsgRNA101
TTCTGCACAATGAGAACTCCGACAGGGGTG

>NF2_LsgRNA102
GAACGCACGAGGGATGAGTTGGAGAGGAGG
>NF2_LsgRNA103
TGGAGCAGAAGGTGCTGGAAGCCGAGGTGC
>NF2_LsgRNA104
CCTTGCAGAGCGCCAAGTCCCGAGTGGCCT
>NF2_LsgRNA105
TTCAGCAGATGAAAGCCCAGGCCAGGGAGG
>NF2_LsgRNA106
TATTGCAGATGAAGTGGAAAGGGAAGGACC
>NF2_LsgRNA107
CTGAGCAGGAAATGCAGCGCATCAAGGCCA
>NF2_LsgRNA108
TTTGGCCAAGAAGTGAAAGGTGACTGGTTC
>NF2_LsgRNA109
CCAGGCTCACCGGGTACGTGGGCTTGGTGG
>NF2_LsgRNA110
TCCTGCTCAGCCTCTGCGGCCTTCTGGGCC
>NF2_LsgRNA111
GATAGCTCAGGACCTGGAGATGTACGGTGT
>NF2_LsgRNA112
TAGAGCTCTTCAAAGAAGGCCACTCGGGAC
>NF2_LsgRNA113
AGCTGCTGCTTGGAGTGGATGCCCTGGGGC
>NF2_LsgRNA114
AGGTGCTGGCACTGAAGATGGCTGAGGAGT
>NF2_LsgRNA115
TACTGCTTGGTACGCAGAGCACCGAGGCCG
>NF2_LsgRNA116
ACATGGAAAAGAGCAAGCATCTGCAGGAGC
>NF2_LsgRNA117
TGCGGGAAGCGATGGCCCCGGCCATGGCGC
>NF2_LsgRNA118
AGCAGGACCTGCAGGAAGCACGCGAGGCGG
>NF2_LsgRNA119
CCAGGGAGGAGAAGGCTAGAAAGCAGGTGA
>NF2_LsgRNA120
GCACGGAGGAGGAGAAGCGCCTGATGGAGC
>NF2_LsgRNA121
GTCAGGAGGCAACGGTGCTGGAATTGGGTT
>NF2_LsgRNA122
AGGAGGCAAAACTTCTGGCCCAGAAGGCCG
>NF2_LsgRNA123
TCAAGGCCACAGCGATTCGCACGGAGGAGG

>NF2_LsgRNA124
AAAAGGCCCAGATCACCGAGGAGGAGGCAA
>NF2_LsgRNA125
AATGGGCCTCACCTGGCTCGGCCTCGGTGC
>NF2_LsgRNA126
TCGAGGCCTTGAAACTGAAAGAGAGGGAGA
>NF2_LsgRNA127
ATGTGGGAGGAGAGAATTACTGCTTGGTAC
>NF2_LsgRNA128
ATGAGGGAGGAGGCTGAACGCACGAGGGAT
>NF2_LsgRNA129
AGAAGGTGCTGGAAGCCGAGGTGCTGGCAC
>NF2_LsgRNA130
CAACGGTGCTGGAATTGGGTTCATGGGCTG
>NF2_LsgRNA131
TTGTGTACTGCAGTCCAAAGAACCAGGTTT
>NF2_LsgRNA132
CAGGGTCATAAATGTGAAGCCCCAGGGCAT
>NF2_LsgRNA133
TGCAGTCCAAAGAACCAGGTTTCTCGGAGC
>NF2_LsgRNA134
TACGGTGTGAACTACTTTGCAATCCGGGTG
>NF2_LsgRNA135
ATTGGTTTGTTATTGCAGATGAAGTGGAAA
>NF2_LsgRNA136
TTTCTAGCCTTCTCCTCCCTGGCCTGGGCT
>NF2_LsgRNA137
TCAGTATCTTTGAAGTCGAAAGACAGGCTG
>NF2_LsgRNA138
TTGTTATTGCAGATGAAGTGGAAAGGGAAG
>NF2_LsgRNA139
GACTTCAAAGATACTGACATGAAGCGGCTT
>NF2_LsgRNA140
CAGATCAGCTGAAGCAGGACCTGCAGGAAG
>NF2_LsgRNA141
TCCCTCATCTGCTTCTCTCGAGCGAGGCGC
>NF2_LsgRNA142
GCCCTCCTGAGGCTTCTGTGCTCCTGGCTT
>NF2_LsgRNA143
TCGCTCGAGAGAAGCAGATGAGGGAGGAGG
>NF2_LsgRNA144
CGCCTCGCTCGAGAGAAGCAGATGAGGGAG
>NF2_LsgRNA145
TGTTTCGGATTTCATTCCACGGGAAGGAGA

>NF2_LsgRNA146
CCACTCGGGACTTGGCGCTCTGCAAGGTGA
>NF2_LsgRNA147
CATCTCGTACAGTGACAAGGAGGTAGGACA
>NF2_LsgRNA148
AACTTCTGGCCCAGAAGGCCGCAGAGGCTG
>NF2_LsgRNA149
TGGCTGAAAAGGCCCAGATCACCGAGGAGG
>NF2_LsgRNA150
AGGCTGAACGCACGAGGGATGAGTTGGAGA
>NF2_LsgRNA151
TCAATGAACTCAAGACAGAAATCGAGGCCT
>NF2_LsgRNA152
ACAATGAATGGGCCTCACCTGGCTCGGCCT
>NF2_LsgRNA153
ATACTGACATGAAGCGGCTTTCCATGGAGA
>NF2_LsgRNA154
ATCCTGAGAATGCTGAAGAGGAGCTGGTTC
>NF2_LsgRNA155
CTCTTGAGAGAGCTGAAGCTCATGCGGGAA
>NF2_LsgRNA156
GGCCTGAGCCCCGCGCCATGGCCGGGGCCA
>NF2_LsgRNA157
CGCATGAGCTTCAGCTCTCTCAAGAGGAAG
>NF2_LsgRNA158
GGTCTGAGGAGACAGCTGACCTGTTGGCTG
>NF2_LsgRNA159
TCTTTGATTTGGTGTGCCGGACTCTGGGGC
>NF2_LsgRNA160
ATTCTGCACAATGAGAACTCCGACAGGGGT
>NF2_LsgRNA161
AGATTGCCACCAAGCCCACGTACCCGGTGA
>NF2_LsgRNA162
ACTGTGCCCTCCAGATGCGGTCTGAGGAGA
>NF2_LsgRNA163
CTCTTGCCGGCAGAGTGGAATACATGGAAA
>NF2_LsgRNA164
AGAATGCTGAAGAGGAGCTGGTTCAGGAGA
>NF2_LsgRNA165
CTGCTGCTTGGAGTGGATGCCCTGGGGCTT
>NF2_LsgRNA166
TACGTGGGCTTGGTGGCAATCTCCAGGAGC
>NF2_LsgRNA167
ACACTGGGGTCGTAGTCACCATACTGGAAA

>NF2_LsgRNA168
TCCTTGTCACTGTACGAGATGTTTCGGATT
>NF2_LsgRNA169
ACGGTGTGAACTACTTTGCAATCCGGGTGT
>NF2_LsgRNA170
TTTGTTATTGCAGATGAAGTGGAAAGGGAA
>NF2_LsgRNA171
TTTCTTCACCCCTCGCAGATGGAGCGGCAG
>NF2_LsgRNA172
TTCATTCCACGGGAAGGAGATCTTGGGGGT
>NF2_LsgRNA173
TTCCTTCTCCTCATAAATAGATCATGGTTC
>NF2_LsgRNA174
TGGCTTCTTACGCCGTCCAGGCCAAGGTAG
>NF2_LsgRNA175
GAGGTTGAAGCTTGGTATGTCAGGAGGCAA
>NF2_LsgRNA176
AGTTTTGCCTCCTCCTCGGTGATCTGGGCC
>NF2_LsgRNA177
CTTATTGGATCCACAGAATAAAAAGGGCAC
>NF2_LsgRNA178
GATCTTGGGGGTCAGTCTGTTCTCAGGGTC

(29) $\mathbb{S}_{12}^{-}$: 191 low on-target activity sgRNAs targeting CD5

>CD5_LsgRNA1
CAGAAAAAAAAACACTGCAACAAGAGGGTA
>CD5_LsgRNA2
TCAGAAAAAGCAGCGTCAGTGGATTGGCCC
>CD5_LsgRNA3
CCAGAAAACAACGGCCCAGGAGGGCGGCCA
>CD5_LsgRNA4
TGGAAAACAGTGTGCAGTTCCAGTTGGAGG
>CD5_LsgRNA5
TGGTAACACTGAGACAGCTTCTCCTGGGCA
>CD5_LsgRNA6
CCCAAACCCAGCGGGCCTGGCCCCAGGCAC
>CD5_LsgRNA7
AAACAACGGCCCAGGAGGGCGGCCAGGCGC
>CD5_LsgRNA8
GGCCAAGGACAGGCCCCTGGGCCTGGGGAA
>CD5_LsgRNA9
CTACAAGGCCAAGGACAGGCCCCTGGGCCT
>CD5_LsgRNA10
GCCCAAGGTTCAGAGCCGCCTGGTCGGGGG

>CD5_LsgRNA11
GCTGAAGTGCGCCAGAGATCACAGTGGGAG
>CD5_LsgRNA12
TCACACACACTGCTGCCCCCGACCAGGCGG
>CD5_LsgRNA13
GGTAACACTGAGACAGCTTCTCCTGGGCAC
>CD5_LsgRNA14
TGAGACAGCTTCTCCTGGGCACAGAGGAAC
>CD5_LsgRNA15
TGTGACAGTTCTGCAGCCAGGGGCCGGGGA
>CD5_LsgRNA16
TGCCACATACCTGCTGGGAACGCTGGGTGA
>CD5_LsgRNA17
CCACACATGGCCAGCAGCACCACCAGGAGT
>CD5_LsgRNA18
ACCCACCACCGTGCCGGAGCCCACAGGTAA
>CD5_LsgRNA19
GGACACCAGCTCCTGCAGAGCTGAGGGACC
>CD5_LsgRNA20
CCCGACCAGGCGGCTCTGAACCTTGGGCTG
>CD5_LsgRNA21
GAGCACCCTCTTACCTGTGGGCTCCGGCAC
>CD5_LsgRNA22
TCTTACCTGTGGGCTCCGGCACGGTGGTGG
>CD5_LsgRNA23
GGGGACGGTGGGAAGAGCTATGTCGGGAGC
>CD5_LsgRNA24
AGAGACTCACCCAGCGTTCCCAGCAGGTAT
>CD5_LsgRNA25
ACTTACTGTTCTGGTTCACTCCTGTGGGGC
>CD5_LsgRNA26
TACAAGAAGCTGGTGAAGAAATGTAGGTAC
>CD5_LsgRNA27
GCCAAGACCCAAACCCAGCGGGCCTGGCCC
>CD5_LsgRNA28
TTACAGATGAGGTTCCCCAGGCCCAGGGGC
>CD5_LsgRNA29
CCAGAGCAGATGACGGTGAGCGCCTGGCCG
>CD5_LsgRNA30
CTGCAGCCAGGGGCCGGGGACGGTGGGAAG
>CD5_LsgRNA31
CTCCAGCTCCTCCCAGATTGCAGCTGGTGC
>CD5_LsgRNA32
CACCAGCTGCAATCTGGGAGGAGCTGGAGA

>CD5_LsgRNA33
GCCAAGGACAGGCCCCTGGGCCTGGGGAAC
>CD5_LsgRNA34
ACGAAGGCCTGAGGTGCACAGGTGTGGTGG
>CD5_LsgRNA35
ATGAAGGGAAAGGACCAAGGGCCAAGGGGT
>CD5_LsgRNA36
CCCAAGGTTCAGAGCCGCCTGGTCGGGGGC
>CD5_LsgRNA37
CTGAAGTGCGCCAGAGATCACAGTGGGAGG
>CD5_LsgRNA38
TGACAGTTCTGCAGCCAGGGGCCGGGGACG
>CD5_LsgRNA39
CGACATAGCTCTTCCCACCGTCCCCGGCCC
>CD5_LsgRNA40
CATTATCACCCACCTAGGCAGATCAGGCTC
>CD5_LsgRNA41
TCCCATCGAATTGGCAAGGGCCTGGGGTCC
>CD5_LsgRNA42
CCTCATCTGTAAGTCTCTGCAGTGTGGCTC
>CD5_LsgRNA43
CAGGATGATGCTTGCCACAGTGCCTGGGGC
>CD5_LsgRNA44
GTGGATGCTGACAAAACCTCCCCCGGGTTC
>CD5_LsgRNA45
CTTCATTGAACAGACCCCAGAACCAGGTCT
>CD5_LsgRNA46
AGGCCAAGGACAGGCCCCTGGGCCTGGGGA
>CD5_LsgRNA47
TCTACAAGGCCAAGGACAGGCCCCTGGGCC
>CD5_LsgRNA48
CTGCCACATACCTGCTGGGAACGCTGGGTG
>CD5_LsgRNA49
GGGACACCAGCTCCTGCAGAGCTGAGGGAC
>CD5_LsgRNA50
GTGGCACCATCCTCTACAAGGCCAAGGACA
>CD5_LsgRNA51
CAACCACCCCACCCACCACCGTGCCGGAGC
>CD5_LsgRNA52
TGTGCACCTCAGGCCTTCGTGTCCTGGCAC
>CD5_LsgRNA53
AGGACACGAAGGCCTGAGGTGCACAGGTGT
>CD5_LsgRNA54
CTTCCAGAAAACAACGGCCCAGGAGGGCGG

>CD5_LsgRNA55
ACCCCAGAACCAGGTCTTCTGCCAAGGATC
>CD5_LsgRNA56
CCAGCAGCACTTCGTGGGAGTCCATGGATA
>CD5_LsgRNA57
TCTGCAGCCAGGGGCCGGGGACGGTGGGAA
>CD5_LsgRNA58
ATCTCAGCTGTTTGCACACTGCAGAGGCCT
>CD5_LsgRNA59
AGTCCAGCTTACCAGAGCAGATGACGGTGA
>CD5_LsgRNA60
TCCCCAGGCCCAGGGGCCTGTCCTTGGCCT
>CD5_LsgRNA61
ACCCCAGGCCCTTGCCAATTCGATGGGAGG
>CD5_LsgRNA62
CGGACAGTCTGGAAGGGGTGGCCTAGGTAA
>CD5_LsgRNA63
GTGACAGTTCTGCAGCCAGGGGCCGGGGAC
>CD5_LsgRNA64
CGCACAGTTGCTGTGTGGCTTCGATGGAAA
>CD5_LsgRNA65
GCATCATCCTGACCCTTGTACTCCTGGTGG
>CD5_LsgRNA66
CTCCCATCGAATTGGCAAGGGCCTGGGGTC
>CD5_LsgRNA67
AATTCCACCACACCTGTGCACCTCAGGCCT
>CD5_LsgRNA68
AGCACCACCAGGAGTACAAGGGTCAGGATG
>CD5_LsgRNA69
GCATCCACCGTGTGGAAGGAGATGAGGTCG
>CD5_LsgRNA70
GCTTCCAGAAAACAACGGCCCAGGAGGGCG
>CD5_LsgRNA71
GACCCCAGGCCCTTGCCAATTCGATGGGAG
>CD5_LsgRNA72
CCTCCCATCGAATTGGCAAGGGCCTGGGGT
>CD5_LsgRNA73
AGGACCATTCGAAAAATGCCCAGCAGGCCT
>CD5_LsgRNA74
TCCTCCCAGATTGCAGCTGGTGCCAGGACA
>CD5_LsgRNA75
CCTCCCCCGGGTTCCTCTGTGCCCAGGAGA
>CD5_LsgRNA76
AGGCCCGAGCACCCTCTTACCTGTGGGCTC

>CD5_LsgRNA77
GCGACCTCATCTCCTTCCACACGGTGGATG
>CD5_LsgRNA78
AAGGCCTGAGGTGCACAGGTGTGGTGGAAT
>CD5_LsgRNA79
GTGTCCTGGCACCAGCTGCAATCTGGGAGG
>CD5_LsgRNA80
CGCTCCTGGGAACACTTACTGTTCTGGTTC
>CD5_LsgRNA81
TTCTCCTGGGCACAGAGGAACCCGGGGGAG
>CD5_LsgRNA82
GCTCCGGCACGGTGGTGGGTGGGGTGGTTG
>CD5_LsgRNA83
TGGTCGGGGGCAGCAGTGTGTGTGAGGGCA
>CD5_LsgRNA84
GCAGCGTCAGTGGATTGGCCCCACAGGAGT
>CD5_LsgRNA85
AGAGCTATGTCGGGAGCAGCAGTGTGGCGA
>CD5_LsgRNA86
GGATCTCCACTTGACCCTGACACTTGGAAT
>CD5_LsgRNA87
TGGGCTCCGGCACGGTGGTGGGTGGGGTGG
>CD5_LsgRNA88
GCTTCTCCTGGGCACAGAGGAACCCGGGGG
>CD5_LsgRNA89
CTGCCTCGGACAGTCTGGAAGGGGTGGCCT
>CD5_LsgRNA90
GCTCCTGCAGAGCTGAGGGACCCCAGGCCC
>CD5_LsgRNA91
AGTTCTGCAGCCAGGGGCCGGGGACGGTGG
>CD5_LsgRNA92
CTTTCTGCCTCGGACAGTCTGGAAGGGGTG
>CD5_LsgRNA93
GGGCCTGGGGTCCCTCAGCTCTGCAGGAGC
>CD5_LsgRNA94
ACATCTGTCCGGGACAGAGGCAGCAGGGAC
>CD5_LsgRNA95
CTTACTGTTCTGGTTCACTCCTGTGGGGCC
>CD5_LsgRNA96
CCCTCTTACCTGTGGGCTCCGGCACGGTGG
>CD5_LsgRNA97
AGTGCTTCCAGAAAACAACGGCCCAGGAGG
>CD5_LsgRNA98
GATCCTTGGCAGAAGACCTGGTTCTGGGGT

>CD5_LsgRNA99
GGCTCTTTCTTGACACATCTGTCCGGGACA
>CD5_LsgRNA100
CATCGAAGCCACACAGCAACTGTGCGGTCC
>CD5_LsgRNA101
GGTGGAATTCTACAATGGCAGCTGGGGTGG
>CD5_LsgRNA102
TCTTGACACATCTGTCCGGGACAGAGGCAG
>CD5_LsgRNA103
CCCCGACCAGGCGGCTCTGAACCTTGGGCT
>CD5_LsgRNA104
CGGGGACGGTGGGAAGAGCTATGTCGGGAG
>CD5_LsgRNA105
CGGTGAGCGCCTGGCCGCCCTCCTGGGCCG
>CD5_LsgRNA106
TACAGATGAGGTTCCCCAGGCCCAGGGGCC
>CD5_LsgRNA107
GGTGGATGCTGACAAAACCTCCCCCGGGTT
>CD5_LsgRNA108
GGATGATGCTTGCCACAGTGCCTGGGGCCA
>CD5_LsgRNA109
GCCAGCAGCACCACCAGGAGTACAAGGGTC
>CD5_LsgRNA110
CCAGGCCCTTGCCAATTCGATGGGAGGCCC
>CD5_LsgRNA111
CGGGGCCTCCCATCGAATTGGCAAGGGCCT
>CD5_LsgRNA112
AGGGGCCTGTCCTTGGCCTTGTAGAGGATG
>CD5_LsgRNA113
AAGTGCGCCAGAGATCACAGTGGGAGGCCC
>CD5_LsgRNA114
CCAGGCGCTCACCGTCATCTGCTCTGGTAA
>CD5_LsgRNA115
GTGGGCTCCGGCACGGTGGTGGGTGGGGTG
>CD5_LsgRNA116
TGCTGCTGGCCATGTGTGGTCCTCTGGTCT
>CD5_LsgRNA117
GCCCGCTGGGTTTGGGTCTTGGCCTGGATA
>CD5_LsgRNA118
AGCGGCTTTCTGCCTCGGACAGTCTGGAAG
>CD5_LsgRNA119
TGGTGGAATTCTACAATGGCAGCTGGGGTG
>CD5_LsgRNA120
CCATGGACTCCCACGAAGTGCTGCTGGCTG

>CD5_LsgRNA121
CCTGGGCACAGAGGAACCCGGGGGAGGTTT
>CD5_LsgRNA122
ATGTGGCAGCCAGCAGCACTTCGTGGGAGT
>CD5_LsgRNA123
TCCAGGCCAAGACCCAAACCCAGCGGGCCT
>CD5_LsgRNA124
GCCAGGCCCGCTGGGTTTGGGTCTTGGCCT
>CD5_LsgRNA125
TCGGGGCCTCCCATCGAATTGGCAAGGGCC
>CD5_LsgRNA126
ACCAGGCGGCTCTGAACCTTGGGCTGGAAA
>CD5_LsgRNA127
TGTGGGCTCCGGCACGGTGGTGGGTGGGGT
>CD5_LsgRNA128
CCCTGGCTGCAGAACTGTCACACAGGGCCT
>CD5_LsgRNA129
ACTTGGGACCGCACAGTTGCTGTGTGGCTT
>CD5_LsgRNA130
CCTGGGGCCAGGCCCGCTGGGTTTGGGTCT
>CD5_LsgRNA131
CACAGGGCCTCCCACTGTGATCTCTGGCGC
>CD5_LsgRNA132
GCCTGGGGCCAGGCCCGCTGGGTTTGGGTC
>CD5_LsgRNA133
GGTCGGGGGCAGCAGTGTGTGTGAGGGCAT
>CD5_LsgRNA134
TTGTGGGTGGAGGTGTCGTTCTCTGGGGCT
>CD5_LsgRNA135
GCTGGGGTGGCACCATCCTCTACAAGGCCA
>CD5_LsgRNA136
TGTGGGTGGAGGTGTCGTTCTCTGGGGCTC
>CD5_LsgRNA137
GCACGGTGGTGGGTGGGGTGGTTGTGGGTG
>CD5_LsgRNA138
CCAAGGTTCAGAGCCGCCTGGTCGGGGGCA
>CD5_LsgRNA139
GTTCGTCAGAAAAAGCAGCGTCAGTGGATT
>CD5_LsgRNA140
TTTTGTCAGCATCCACCGTGTGGAAGGAGA
>CD5_LsgRNA141
AATGGTCCTGGCTCAGCCTCCAACTGGAAC
>CD5_LsgRNA142
TGTAGTGAGACACAGCTCCCGTTCGGGGCC

>CD5_LsgRNA143
CACAGTGCCTGGGGCCAGGCCCGCTGGGTT
>CD5_LsgRNA144
ACCTGTGGGCTCCGGCACGGTGGTGGGTGG
>CD5_LsgRNA145
GGTGGTGGGTGGGGTGGTTGTGGGTGGAGG
>CD5_LsgRNA146
CCTGGTGGTGCTGCTGGCCATGTGTGGTCC
>CD5_LsgRNA147
CACGGTGGTGGGTGGGGTGGTTGTGGGTGG
>CD5_LsgRNA148
CCCTGTGTGACAGTTCTGCAGCCAGGGGCC
>CD5_LsgRNA149
CAAGGTTCAGAGCCGCCTGGTCGGGGGCAG
>CD5_LsgRNA150
CTGTTCAATGAAGGGAAAGGACCAAGGGCC
>CD5_LsgRNA151
CTTTTCCACAGCGGCTTTCTGCCTCGGACA
>CD5_LsgRNA152
GGGGTCCCTCAGCTCTGCAGGAGCTGGTGT
>CD5_LsgRNA153
ACCATCCTCTACAAGGCCAAGGACAGGCCC
>CD5_LsgRNA154
GTGGTCCTCTGGTCTACAAGAAGCTGGTGA
>CD5_LsgRNA155
CGTGTCCTGGCACCAGCTGCAATCTGGGAG
>CD5_LsgRNA156
CTTCTCCTGGGCACAGAGGAACCCGGGGGA
>CD5_LsgRNA157
GCTTTCTGCCTCGGACAGTCTGGAAGGGGT
>CD5_LsgRNA158
TGGCTCTTTCTTGACACATCTGTCCGGGAC
>CD5_LsgRNA159
CTTGTGAACTTGTGTTGTTGCAGTTGGATA
>CD5_LsgRNA160
GTAGTGAGACACAGCTCCCGTTCGGGGCCT
>CD5_LsgRNA161
ACGGTGAGCGCCTGGCCGCCCTCCTGGGCC
>CD5_LsgRNA162
AGGATGATGCTTGCCACAGTGCCTGGGGCC
>CD5_LsgRNA163
TGTTTGCACACTGCAGAGGCCTGCTGGGCA
>CD5_LsgRNA164
CTGGTGCCAGGACACGAAGGCCTGAGGTGC

>CD5_LsgRNA165
TTTCTGCCTCGGACAGTCTGGAAGGGGTGG
>CD5_LsgRNA166
ACAGTGCCTGGGGCCAGGCCCGCTGGGTTT
>CD5_LsgRNA167
GTGGTGGAATTCTACAATGGCAGCTGGGGT
>CD5_LsgRNA168
GAATTGGAGCCACTTAGCATCACCTGGATA
>CD5_LsgRNA169
TCCTTGGCAGAAGACCTGGTTCTGGGGTCT
>CD5_LsgRNA170
TAAGTGGCTCCAATTCCAAGTGTCAGGGTC
>CD5_LsgRNA171
CCCCTGGCTGCAGAACTGTCACACAGGGCC
>CD5_LsgRNA172
GTTGTGGGTGGAGGTGTCGTTCTCTGGGGC
>CD5_LsgRNA173
CCCTTGTACTCCTGGTGGTGCTGCTGGCCA
>CD5_LsgRNA174
CTGGTGTCCCTGCTGCCTCTGTCCCGGACA
>CD5_LsgRNA175
CATCTGTCCGGGACAGAGGCAGCAGGGACA
>CD5_LsgRNA176
CCTGTGTGACAGTTCTGCAGCCAGGGGCCG
>CD5_LsgRNA177
TACCTGTGGGCTCCGGCACGGTGGTGGGTG
>CD5_LsgRNA178
GAGATGTGGTGACCCCTTGGCCCTTGGTCC
>CD5_LsgRNA179
GCCCTGTGTGACAGTTCTGCAGCCAGGGGC
>CD5_LsgRNA180
TTACTGTTCTGGTTCACTCCTGTGGGGCCA
>CD5_LsgRNA181
CCAATTCCAAGTGTCAGGGTCAAGTGGAGA
>CD5_LsgRNA182
GCAGTTCCAGTTGGAGGCTGAGCCAGGACC
>CD5_LsgRNA183
GCTCTTCCCACCGTCCCCGGCCCCTGGCTG
>CD5_LsgRNA184
CCAATTCGATGGGAGGCCCCGAACGGGAGC
>CD5_LsgRNA185
CCCGTTCGGGGCCTCCCATCGAATTGGCAA
>CD5_LsgRNA186
GGAATTCTACAATGGCAGCTGGGGTGGCAC

>CD5_LsgRNA187
TCCTTTCTGCAGATTTCCAGCCCAAGGTTC
>CD5_LsgRNA188
CTGGTTCTGGGGTCTGTTCAATGAAGGGAA
>CD5_LsgRNA189
CCACTTGACCCTGACACTTGGAATTGGAGC
>CD5_LsgRNA190
ATGCTTGCCACAGTGCCTGGGGCCAGGCCC
>CD5_LsgRNA191
ATCCTTGGCAGAAGACCTGGTTCTGGGGTC

(30) $\mathbb{S}_{13}^{-}$: 59 low on-target activity sgRNAs targeting CD28

>CD28_LsgRNA1
AACGAAACAGTGACGTTCCGTCTCTGGAAT
>CD28_LsgRNA2
TGGTAAAGCAGTCGCCCCTGCTTGTGGTAG
>CD28_LsgRNA3
CTGCAAAGTCTCTGGCAGGGGCGTAGGGCT
>CD28_LsgRNA4
CATGAACATGACTCCCCGGAGGCCTGGGCT
>CD28_LsgRNA5
TGCAAAGTCTCTGGCAGGGGCGTAGGGCTG
>CD28_LsgRNA6
CTCGAATGCCGAGTTCAACTGCGACGGGGA
>CD28_LsgRNA7
ATGAACATGACTCCCCGGAGGCCTGGGCTC
>CD28_LsgRNA8
TACAACCTTCTCGCAAAGGAATTCCGGGCA
>CD28_LsgRNA9
AGCAACGAGGTCAGCCTCAGCTGCAGGTAT
>CD28_LsgRNA10
CGGTACGCTGCAAAGTCTCTGGCAGGGGCG
>CD28_LsgRNA11
AGTGACTACATGAACATGACTCCCCGGAGG
>CD28_LsgRNA12
TTGAACTCGGCATTCGAGCGAAACTGGGGC
>CD28_LsgRNA13
GAACAGCGACGTGGAAGTCTGTGTCGGGAA
>CD28_LsgRNA14
ACTCAGTCATCTCCTAAGCTGTTTTGGGCA
>CD28_LsgRNA15
TGACAGTGGCTCTTTGTGTTATCTGGGTAA
>CD28_LsgRNA16
CTGGATAGGGGTCCCTGTCAGGGGCGGTAC

>CD28_LsgRNA17
CGAAATCCCCGTCGCAGTTGAACTCGGCAT
>CD28_LsgRNA18
TCGAATGCCGAGTTCAACTGCGACGGGGAT
>CD28_LsgRNA19
AGGAATTCCGGGCATCCCTGTACAAGGGCG
>CD28_LsgRNA20
TGTACAAGGGCGTGAACAGCGACGTGGAAG
>CD28_LsgRNA21
GTGACAGTGGCTCTTTGTGTTATCTGGGTA
>CD28_LsgRNA22
GTTCCATTGCTCCTCTCGTTGTCTAGGTAA
>CD28_LsgRNA23
TTCCCCCCCTAGACAAATAGTAGAAGGAAC
>CD28_LsgRNA24
GATGCCCGGAATTCCTTTGCGAGAAGGTTG
>CD28_LsgRNA25
TTTTCCCTTCAGAAAACAAGATTTTGGTAA
>CD28_LsgRNA26
ACAACCTTCTCGCAAAGGAATTCCGGGCAT
>CD28_LsgRNA27
CATTCGAGCGAAACTGGGGCTGATAGGTAA
>CD28_LsgRNA28
CTTTCGAGTGAGCCCAGGCCTCCGGGGAGT
>CD28_LsgRNA29
TTCACGCCCTTGTACAGGGATGCCCGGAAT
>CD28_LsgRNA30
CCTCCGCCTTACCTAGACAACGAGAGGAGC
>CD28_LsgRNA31
GGTACGCTGCAAAGTCTCTGGCAGGGGCGT
>CD28_LsgRNA32
ACGTCGCTGTTCACGCCCTTGTACAGGGAT
>CD28_LsgRNA33
ACCTCGTTGCTATCTACCACAAGCAGGGGC
>CD28_LsgRNA34
GTCACTAGCAAGCCATAACAAAACAGGACT
>CD28_LsgRNA35
ATTGCTCCTCTCGTTGTCTAGGTAAGGCGG
>CD28_LsgRNA36
TGAACTCGGCATTCGAGCGAAACTGGGGCT
>CD28_LsgRNA37
AAGTCTCTGGCAGGGGCGTAGGGCTGGTAA
>CD28_LsgRNA38
CTTTGCAGCGTACCGCCCCTGACAGGGACC

>CD28_LsgRNA39
TCTGGCAGGGGCGTAGGGCTGGTAAGGCTT
>CD28_LsgRNA40
AACAGCGACGTGGAAGTCTGTGTCGGGAAT
>CD28_LsgRNA41
AGGGGCGGTACGCTGCAAAGTCTCTGGCAG
>CD28_LsgRNA42
CGTCGCTGTTCACGCCCTTGTACAGGGATG
>CD28_LsgRNA43
CAATGGAACTATTATTCACATAAAAGGTAA
>CD28_LsgRNA44
CGACGTGGAAGTCTGTGTCGGGAATGGGAA
>CD28_LsgRNA45
GTCTGTTCCTTCTACTATTTGTCTAGGGGG
>CD28_LsgRNA46
CTGGTAAGGCTTTCGAGTGAGCCCAGGCCT
>CD28_LsgRNA47
GCGGTACGCTGCAAAGTCTCTGGCAGGGGC
>CD28_LsgRNA48
GCTTTCGAGTGAGCCCAGGCCTCCGGGGAG
>CD28_LsgRNA49
CCTCTCGTTGTCTAGGTAAGGCGGAGGGTA
>CD28_LsgRNA50
ACTTTGCAGCGTACCGCCCCTGACAGGGAC
>CD28_LsgRNA51
CGAATGCCGAGTTCAACTGCGACGGGGATT
>CD28_LsgRNA52
GACGTGGAAGTCTGTGTCGGGAATGGGAAT
>CD28_LsgRNA53
CTTCTGGATAGGGGTCCCTGTCAGGGGCGG
>CD28_LsgRNA54
GTTTTGGGCACTGGTCGTGGTTGCTGGAGT
>CD28_LsgRNA55
GTCATGTTCATGTAGTCACTTTGAAGGAGT
>CD28_LsgRNA56
TTTGTTATGGCTTGCTAGTGACAGTGGCTC
>CD28_LsgRNA57
GGTATTCCTACAACCTTCTCGCAAAGGAAT
>CD28_LsgRNA58
GGAATTCCTTTGCGAGAAGGTTGTAGGAAT
>CD28_LsgRNA59
GGCTTTCGAGTGAGCCCAGGCCTCCGGGGA

(31) $\mathbb{S}_{14}^{-}$: 135 low on-target activity sgRNAs targeting H2-K

>H2-K_LsgRNA1
CACCAAACACAAGTGGGAGCAGGCTGGTGA
>H2-K_LsgRNA2
CCAGAACAGCAACGGTCGCCATGTTGGAGA
>H2-K_LsgRNA3
CGCCAACAGCAGGAGCAGCGTGCACGGTAC
>H2-K_LsgRNA4
CGGGAACGCGACGCTGCTGCGCACAGGTGC
>H2-K_LsgRNA5
TGAAAACGTGGACGGCGGCGGACATGGCGG
>H2-K_LsgRNA6
GATGAAGATGAGAAGGAGAAACACAGGTAG
>H2-K_LsgRNA7
CTCCAAGGACAACCAGAACAGCAACGGTCG
>H2-K_LsgRNA8
CTGCAATAGTCACTGGAGCTGTGGTGGCTT
>H2-K_LsgRNA9
GGAGACAGTGGATGGAGGAGGCTCTGGGAA
>H2-K_LsgRNA10
TTACACATGCCATGTGTACCATCAGGGGCT
>H2-K_LsgRNA11
CAGGACATGGAGCTTGTGGAGACCAGGCCT
>H2-K_LsgRNA12
CATCACCCTGACCTGGCAGTTGAATGGGGA
>H2-K_LsgRNA13
AGTCACCCTGAGGTGCTGGGCCCTGGGCTT
>H2-K_LsgRNA14
AAATACCTCAGCGAGTGTGGGCCTGGGGGC
>H2-K_LsgRNA15
GGTGACGAAATACCTCAGCGAGTGTGGGCC
>H2-K_LsgRNA16
AGCCACTCCACGCACGTGCCCTCCAGGTAG
>H2-K_LsgRNA17
ACGAAGACCTGAAAACGTGGACGGCGGCGG
>H2-K_LsgRNA18
AGAGAGACTCAGGGCCTACCTGGAGGGCAC
>H2-K_LsgRNA19
GAGCAGAGTTTCCGAGTGGACCTGAGGACC
>H2-K_LsgRNA20
ATGGAGCAGGAGGGGCCCGAGTATTGGGAG
>H2-K_LsgRNA21
TAGAAGCCCAGGGCCCAGCACCTCAGGGTG
>H2-K_LsgRNA22
TCGCAGCCGTCGTAGGCGTACTGCTGGTAC

>H2-K_LsgRNA23
TGCCAGGTCAGGGTGATGTCAGCAGGGTAG
>H2-K_LsgRNA24
TTGTAGTAGCCGAGCAGGGTCCTCAGGTCC
>H2-K_LsgRNA25
TGGAAGTCGGCTACGTGGACGACACGGAGT
>H2-K_LsgRNA26
GAAGATAAAGTCACCCTGAGGTGCTGGGCC
>H2-K_LsgRNA27
CTTTATCTTCAGGTCTGCTGTGATGGGTCA
>H2-K_LsgRNA28
TGTGATGGGTCACATGGGCCTTTGGGGAAT
>H2-K_LsgRNA29
CGCCATGTTGGAGACAGTGGATGGAGGAGG
>H2-K_LsgRNA30
AGGTATTTCGTCACCGCCGTGTCCCGGCCC
>H2-K_LsgRNA31
CTCTCACACTATTCAGGTGATCTCTGGCTG
>H2-K_LsgRNA32
ATTACACATGCCATGTGTACCATCAGGGGC
>H2-K_LsgRNA33
AAGTCACCCTGAGGTGCTGGGCCCTGGGCT
>H2-K_LsgRNA34
ACTCCACGCACGTGCCCTCCAGGTAGGCCC
>H2-K_LsgRNA35
CGTGCACGCTGCTCCTGCTGTTGGCGGCCG
>H2-K_LsgRNA36
CCCACACTCTCCTTACCCCATCTCAGGGTG
>H2-K_LsgRNA37
CTGCCAGGTCAGGGTGATGTCAGCAGGGTA
>H2-K_LsgRNA38
GCTCCAGTGACTATTGCAGCTCCAAGGACA
>H2-K_LsgRNA39
GAGACAGTGGATGGAGGAGGCTCTGGGAAG
>H2-K_LsgRNA40
ACCCCATCTCAGGGTGAGGGGCTCAGGCAG
>H2-K_LsgRNA41
TGGGCATCTGTGGTGGTGCCTCTTGGGAAG
>H2-K_LsgRNA42
TACACATGCCATGTGTACCATCAGGGGCTG
>H2-K_LsgRNA43
CCAACATGGCGACCGTTGCTGTTCTGGTTG
>H2-K_LsgRNA44
GGCACCACCACAGATGCCCACTTCTGGAAG

>H2-K_LsgRNA45
CCTTCCAGAAGTGGGCATCTGTGGTGGTGC
>H2-K_LsgRNA46
GGAGCCAGGGCGGCCGCCAACAGCAGGAGC
>H2-K_LsgRNA47
CCTCCCCATTCAACTGCCAGGTCAGGGTGA
>H2-K_LsgRNA48
CCGCCCCCAGGCCCACACTCGCTGAGGTAT
>H2-K_LsgRNA49
TCCTCCCCATTCAACTGCCAGGTCAGGGTG
>H2-K_LsgRNA50
GCTCCCCGAGGCCGGGCCGGGACACGGCGG
>H2-K_LsgRNA51
GGTACCCGCGGAGGAGTCGCCCGTCGGACC
>H2-K_LsgRNA52
ATCACCCTGACCTGGCAGTTGAATGGGGAG
>H2-K_LsgRNA53
GGGTCCGACGGGCGACTCCTCCGCGGGTAC
>H2-K_LsgRNA54
ACCGCCGTGTCCCGGCCCGGCCTCGGGGAG
>H2-K_LsgRNA55
CCGGCCTCGGGGAGCCCCGGTACATGGAAG
>H2-K_LsgRNA56
AAGACCTGAAAACGTGGACGGCGGCGGACA
>H2-K_LsgRNA57
TCACCCTGACCTGGCAGTTGAATGGGGAGG
>H2-K_LsgRNA58
TGCTCCTGCTGTTGGCGGCCGCCCTGGCTC
>H2-K_LsgRNA59
CTCTCCTTACCCCATCTCAGGGTGAGGGGC
>H2-K_LsgRNA60
AATCCGAGATATGAGCCGCGGGCGCGGTGG
>H2-K_LsgRNA61
GTCCCGCAGGCTCTCACACTATTCAGGTGA
>H2-K_LsgRNA62
CCACCGCGCCCGCGGCTCATATCTCGGATT
>H2-K_LsgRNA63
CCCGCGCGGGTCTGAGTCGGAGCCAGGGCG
>H2-K_LsgRNA64
CGGGCGCGGTGGATGGAGCAGGAGGGGCCC
>H2-K_LsgRNA65
TGCTCGGCTACTACAACCAGAGCAAGGGCG
>H2-K_LsgRNA66
GGAGCGGGAGACACAGAAAGCCAAGGGCAA

>H2-K_LsgRNA67
AGTTCGTGCGCTTCGACAGCGACGCGGAGA
>H2-K_LsgRNA68
CCGCCGTGTCCCGGCCCGGCCTCGGGGAGC
>H2-K_LsgRNA69
GGGCCTACCTGGAGGGCACGTGCGTGGAGT
>H2-K_LsgRNA70
GCACCTCAGGGTGACTTTATCTTCAGGTCT
>H2-K_LsgRNA71
GTGGCTCCGCAGATACCTGAAGAACGGGAA
>H2-K_LsgRNA72
TCAGCTCCTCCCCATTCAACTGCCAGGTCA
>H2-K_LsgRNA73
CTGCCTGAGCCCCTCACCCTGAGATGGGGT
>H2-K_LsgRNA74
CAGGCTGGTGAAGCAGAGAGACTCAGGGCC
>H2-K_LsgRNA75
TCTCCTTACCCCATCTCAGGGTGAGGGGCT
>H2-K_LsgRNA76
GAACCTTCCAGAAGTGGGCATCTGTGGTGG
>H2-K_LsgRNA77
TGTCCTTGGAGCTGCAATAGTCACTGGAGC
>H2-K_LsgRNA78
GGAGCTTGTGGAGACCAGGCCTGCAGGGGA
>H2-K_LsgRNA79
CGGAGAATCCGAGATATGAGCCGCGGGCGC
>H2-K_LsgRNA80
AGTTGAATGGGGAGGAGCTGATCCAGGACA
>H2-K_LsgRNA81
TGTGGAGACCAGGCCTGCAGGGGATGGAAC
>H2-K_LsgRNA82
CGGGGAGCCCCGGTACATGGAAGTCGGCTA
>H2-K_LsgRNA83
GCCTGAGCCCCTCACCCTGAGATGGGGTAA
>H2-K_LsgRNA84
AGCTGATCCAGGACATGGAGCTTGTGGAGA
>H2-K_LsgRNA85
CTGTGATGGGTCACATGGGCCTTTGGGGAA
>H2-K_LsgRNA86
GGGCGATGTAATCGCAGCCGTCGTAGGCGT
>H2-K_LsgRNA87
TCAGGCAGCCCCTGATGGTACACATGGCAT
>H2-K_LsgRNA88
TGGAGCAGGAGGGGCCCGAGTATTGGGAGC

>H2-K_LsgRNA89
GTGGGCATCTGTGGTGGTGCCTCTTGGGAA
>H2-K_LsgRNA90
GGTCGCCATGTTGGAGACAGTGGATGGAGG
>H2-K_LsgRNA91
AGAAGCCCAGGGCCCAGCACCTCAGGGTGA
>H2-K_LsgRNA92
CACCGCCGTGTCCCGGCCCGGCCTCGGGGA
>H2-K_LsgRNA93
AGCAGCGTCGCGTTCCCGTTCTTCAGGTAT
>H2-K_LsgRNA94
CCTGGCTCCGACTCAGACCCGCGCGGGTGA
>H2-K_LsgRNA95
TCCCGGCCCGGTACTCACCCGCGCGGGTCT
>H2-K_LsgRNA96
GCTCGGCTACTACAACCAGAGCAAGGGCGG
>H2-K_LsgRNA97
CTCTGGCTGTGAAGTGGGGTCCGACGGGCG
>H2-K_LsgRNA98
ACCGGGGCTCCCCGAGGCCGGGCCGGGACA
>H2-K_LsgRNA99
GTGAGGGGCTCAGGCAGCCCCTGATGGTAC
>H2-K_LsgRNA100
CAACGGTCGCCATGTTGGAGACAGTGGATG
>H2-K_LsgRNA101
TTCAGGTGATCTCTGGCTGTGAAGTGGGGT
>H2-K_LsgRNA102
GGAAGGTTCCATCCCCTGCAGGCCTGGTCT
>H2-K_LsgRNA103
CCATGTACCGGGGCTCCCCGAGGCCGGGCC
>H2-K_LsgRNA104
TTTCGTCACCGCCGTGTCCCGGCCCGGCCT
>H2-K_LsgRNA105
TGATGTCAGCAGGGTAGAAGCCCAGGGCCC
>H2-K_LsgRNA106
TCAGGTCTGCTGTGATGGGTCACATGGGCC
>H2-K_LsgRNA107
TCAGGTGATCTCTGGCTGTGAAGTGGGGTC
>H2-K_LsgRNA108
TACCGTGCACGCTGCTCCTGCTGTTGGCGG
>H2-K_LsgRNA109
CCGAGTGGACCTGAGGACCCTGCTCGGCTA
>H2-K_LsgRNA110
AAACGTGGACGGCGGCGGACATGGCGGCGC

>H2-K_LsgRNA111
GACCGTTGCTGTTCTGGTTGTCCTTGGAGC
>H2-K_LsgRNA112
AAGATAAAGTCACCCTGAGGTGCTGGGCCC
>H2-K_LsgRNA113
CATGTACCGGGGCTCCCCGAGGCCGGGCCG
>H2-K_LsgRNA114
GAAATACCTCAGCGAGTGTGGGCCTGGGGG
>H2-K_LsgRNA115
ACTTTATCTTCAGGTCTGCTGTGATGGGTC
>H2-K_LsgRNA116
GTACTCACCCGCGCGGGTCTGAGTCGGAGC
>H2-K_LsgRNA117
CTCCTCCATCCACTGTCTCCAACATGGCGA
>H2-K_LsgRNA118
GCGTTCCCGTTCTTCAGGTATCTGCGGAGC
>H2-K_LsgRNA119
GGGGTCCGACGGGCGACTCCTCCGCGGGTA
>H2-K_LsgRNA120
TGGCTCCGCAGATACCTGAAGAACGGGAAC
>H2-K_LsgRNA121
CTGGTCTCCACAAGCTCCATGTCCTGGATC
>H2-K_LsgRNA122
TTGCTCTGGTTGTAGTAGCCGAGCAGGGTC
>H2-K_LsgRNA123
GCCCTGAACGAAGACCTGAAAACGTGGACG
>H2-K_LsgRNA124
TGCCTGAGCCCCTCACCCTGAGATGGGGTA
>H2-K_LsgRNA125
GATATGAGCCGCGGGCGCGGTGGATGGAGC
>H2-K_LsgRNA126
CAGGTGATCTCTGGCTGTGAAGTGGGGTCC
>H2-K_LsgRNA127
GCTGTGATGGGTCACATGGGCCTTTGGGGA
>H2-K_LsgRNA128
GAGCTGCAATAGTCACTGGAGCTGTGGTGG
>H2-K_LsgRNA129
CTCCTGCTCCATCCACCGCGCCCGCGGCTC
>H2-K_LsgRNA130
CTTCTGGAAGGTTCCATCCCCTGCAGGCCT
>H2-K_LsgRNA131
TACCTGGAGGGCACGTGCGTGGAGTGGCTC
>H2-K_LsgRNA132
CATCTGTGGTGGTGCCTCTTGGGAAGGAGC

>H2-K_LsgRNA133
CTCCTTACCCCATCTCAGGGTGAGGGGCTC
>H2-K_LsgRNA134
CATGTTGGAGACAGTGGATGGAGGAGGCTC
>H2-K_LsgRNA135
GAGCTTGTGGAGACCAGGCCTGCAGGGGAT

(32) $\mathbb{S}_{15}^{-}$: 210 low on-target activity sgRNAs targeting CD45

>CD45_LsgRNA1
ATACAAAAGGAAGATTGCTGATGAGGGCAG
>CD45_LsgRNA2
CCAGAAACGCCTAAGCCTAGTTGTGGGGAT
>CD45_LsgRNA3
AAGGAAAGCAGACTTATGGAGACATGGAAG
>CD45_LsgRNA4
AGCAAAAGGCCACAGTTATTGTCATGGTCA
>CD45_LsgRNA5
TCCAAAATGCTAAGTGTGGAAATGAGGATT
>CD45_LsgRNA6
TTCCAACAAAATGTCAGAATGGATTGGCTC
>CD45_LsgRNA7
GATGAACAACAGGAACTCGTTGAAAGGGGT
>CD45_LsgRNA8
CAGGAACCCCATGGTCTGGCCAGCTGGTGA
>CD45_LsgRNA9
CAAGAAGAAAATAAGAAGAAGAACAGGAAT
>CD45_LsgRNA10
CTAAAAGAAACGATCGGTGACTTTTGGCAG
>CD45_LsgRNA11
GGCCAAGCATGGAGGAAGGCACTCGGGCTT
>CD45_LsgRNA12
TGGAAAGTGCAGAAACAGAAGATGTGGTTG
>CD45_LsgRNA13
CCTGAATCATAGACACCAGGTCTTTGGGTT
>CD45_LsgRNA14
TGTCAATGGGAAGATTCAAAGAAATGGGAC
>CD45_LsgRNA15
ATGAACAACAGGAACTCGTTGAAAGGGGTG
>CD45_LsgRNA16
AGGCACAGAACAACCCTGTCTGCTGGGATC
>CD45_LsgRNA17
AGGCACAGTATATCCTGATTCATCAGGCTT
>CD45_LsgRNA18
AGCTACCACAACGAAGCAAACATGTGGTAA

>CD45_LsgRNA19
ACTTACCACATGTTTGCTTCGTTGTGGTAG
>CD45_LsgRNA20
AGACACCAGGTCTTTGGGTTCTGCAGGCAG
>CD45_LsgRNA21
GTGTACCAGTACCAGTGTACCACATGGAAA
>CD45_LsgRNA22
CAGTACCAGTGTACCACATGGAAAGGGGAA
>CD45_LsgRNA23
ATCCACCCAGTGACCCCTCCCCTCTGGAGG
>CD45_LsgRNA24
CCTCACCTGCTCCTCAAACTTCGACGGAGA
>CD45_LsgRNA25
TGCTACCTGGTATTCAGCCTCCAGAGGGGA
>CD45_LsgRNA26
CTCTACGCAAAGCACGGCCTGGGGTGGTGT
>CD45_LsgRNA27
TTATACTATTGTCTGTCGGCCGGGAGGTTT
>CD45_LsgRNA28
GCAGACTGTTCCTGGCTGAATTTCAGGTAT
>CD45_LsgRNA29
AACCAGAAATGATGATTGCTGCTCAGGGGC
>CD45_LsgRNA30
AGAGAGAAATTGACATTCACCTGGTGGTAC
>CD45_LsgRNA31
CTGTAGAACAAGTGCGCAGAATACTGGCCA
>CD45_LsgRNA32
CCAAAGACCTGGTGTCTATGATTCAGGACC
>CD45_LsgRNA33
TGACAGAGATGGATCCCAGCAGACAGGGTT
>CD45_LsgRNA34
TCATAGAGGAACTGGTATTGCTCCTGGTGA
>CD45_LsgRNA35
CTCCAGAGGGGAGGGGTCACTGGGTGGATC
>CD45_LsgRNA36
TGACAGAGTTAGTGAATGGAGACCAGGTTT
>CD45_LsgRNA37
TTACAGATGATGAAAAGCAGCTGATGGATG
>CD45_LsgRNA38
GTTCAGCTTCTGAATGATGTAATCAGGACA
>CD45_LsgRNA39
ACCCAGGAAATACATTGCTGCACAAGGTAA
>CD45_LsgRNA40
ATCTAGGAAGTCTGTGCTCAGTACTGGGGC

>CD45_LsgRNA41
TTTGAGGAGCAGGTGAGGGTCTTCAGGAAC
>CD45_LsgRNA42
TCACAGGGAAGAATGTCAACATAACGGTTT
>CD45_LsgRNA43
CAGAAGTCATCAACTGTCTCATCCCGGGGC
>CD45_LsgRNA44
TAAAAGTCTGATTACTAGATTCATAGGTGT
>CD45_LsgRNA45
ACAGAGTGCCACTTAAGCATGAACTGGAGA
>CD45_LsgRNA46
CAAAAGTTCGGAGAGTGTAGGCTGAGGCTC
>CD45_LsgRNA47
CAGGAGTTGGAGGACACAGCACATTGGAAA
>CD45_LsgRNA48
TGTTATAAATGTGCAGACAGATTTGGGGAG
>CD45_LsgRNA49
GCTAATACTTCAATTTGTTTGGAGTGGAAA
>CD45_LsgRNA50
CCCCATCAGCTTCCTAACCTGCAGTGGACG
>CD45_LsgRNA51
CTGAATCATAGACACCAGGTCTTTGGGTTC
>CD45_LsgRNA52
CTTCATCCCTTCTGGGGAAGCCTTGGGAAG
>CD45_LsgRNA53
GCTCATCTCCAGTTCATGCTTAAGTGGCAC
>CD45_LsgRNA54
TATGATCTGCGCAAGAAAAGATCCAGGTAA
>CD45_LsgRNA55
GTTGATGACTTCTGGAGGATGATCTGGGAG
>CD45_LsgRNA56
CGGGATGAGACAGTTGATGACTTCTGGAGG
>CD45_LsgRNA57
GTCAATGGGAAGATTCAAAGAAATGGGACT
>CD45_LsgRNA58
TGTCATGGTCACACGATGTGAAGAAGGAAA
>CD45_LsgRNA59
GTCTATGGTTATGTTGTCAAGCTAAGGCGA
>CD45_LsgRNA60
AGTAATGTTCCCAAACATGGCAGCTGGAAA
>CD45_LsgRNA61
TGTGATGTTGACAGAGTTAGTGAATGGAGA
>CD45_LsgRNA62
ATACATTACTTACATCAATGTAGCTGGCAT

>CD45_LsgRNA63
TGGTATTCAGCCTCCAGAGGGGAGGGGTCA
>CD45_LsgRNA64
TTTTATTCTGATTGTGGGGCTTTCGGGCAT
>CD45_LsgRNA65
CATACAAAAGGAAGATTGCTGATGAGGGCA
>CD45_LsgRNA66
GTGACAAAGACTTCTGTGTCCAGAAGGGCA
>CD45_LsgRNA67
TGAACAACAGGAACTCGTTGAAAGGGGTGA
>CD45_LsgRNA68
CCCACAACTAGGCTTAGGCGTTTCTGGAAC
>CD45_LsgRNA69
GCTGCAAGAAAAACGTTAGTCTCTTGGCCT
>CD45_LsgRNA70
TGGCCAAGCATGGAGGAAGGCACTCGGGCT
>CD45_LsgRNA71
GTTTCAAGCTTTCCACCTCAAAACTGGTCA
>CD45_LsgRNA72
AAGGCACAGAACAACCCTGTCTGCTGGGAT
>CD45_LsgRNA73
AATTCACAGTAATGTTCCCAAACATGGCAG
>CD45_LsgRNA74
AATTCACCAGCTGGCCAGACCATGGGGTTC
>CD45_LsgRNA75
GTCACACGATGTGAAGAAGGAAACAGGGTA
>CD45_LsgRNA76
TCTCCAGATATGACCATGGGTTTGTGGCTC
>CD45_LsgRNA77
TTCACAGCAATTTAGATGAACAACAGGAAC
>CD45_LsgRNA78
CACCCAGTGACCCCTCCCCTCTGGAGGCTG
>CD45_LsgRNA79
CATTCATACCTGAAAGATGTCAGTTGGACA
>CD45_LsgRNA80
CATGCATCCATCCTCGTCCACTGCAGGTTA
>CD45_LsgRNA81
ACTTCATCCCTTCTGGGGAAGCCTTGGGAA
>CD45_LsgRNA82
CCTACATTGGAATTGATGCCATGCTGGAAG
>CD45_LsgRNA83
TCCTCATTTCCACACTTAGCATTTTGGACA
>CD45_LsgRNA84
TATTCCACTAAAGCCTGATGAATCAGGATA

>CD45_LsgRNA85
ACATCCACTTTGCCCTCTGCTTCCAGGCCT
>CD45_LsgRNA86
TCTTCCCATTGACATAGGCAAGTAGGGACA
>CD45_LsgRNA87
TCTTCCCCTTTCCATGTGGTACACTGGTAC
>CD45_LsgRNA88
GTGTCCCTACTTGCCTATGTCAATGGGAAG
>CD45_LsgRNA89
CCTCCCCTCTGGAGGCTGAATACCAGGTAG
>CD45_LsgRNA90
AGGACCTCAAACAGAAGCTTCCCAAGGCTT
>CD45_LsgRNA91
ATATCCTGATTCATCAGGCTTTAGTGGAAT
>CD45_LsgRNA92
GAAGCCTTGGGAAGCTTCTGTTTGAGGTCC
>CD45_LsgRNA93
CCGTCGAAGTTTGAGGAGCAGGTGAGGGTC
>CD45_LsgRNA94
AGCCCGAGTGCCTTCCTCCATGCTTGGCCA
>CD45_LsgRNA95
CTGGCGATGATGTCATAGAGGAACTGGTAT
>CD45_LsgRNA96
AGTGCGCAGAATACTGGCCAAGCATGGAGG
>CD45_LsgRNA97
TCTGCTACACATGTGTAATTTGTTTGGGCA
>CD45_LsgRNA98
TCAGCTCAAAAGTTCGGAGAGTGTAGGCTG
>CD45_LsgRNA99
GTGACTCATATCCAATTCACCAGCTGGCCA
>CD45_LsgRNA100
CAGCCTCCAGAGGGGAGGGGTCACTGGGTG
>CD45_LsgRNA101
AAGTCTCTACGCAAAGCACGGCCTGGGGTG
>CD45_LsgRNA102
GGATCTCTCTTCTTCATGTTGTGTAGGCAT
>CD45_LsgRNA103
CATGCTGGAAGGCCTGGAAGCAGAGGGCAA
>CD45_LsgRNA104
TACACTGGTACTGGTACACAGTTCTGGGCT
>CD45_LsgRNA105
CTACCTGGTATTCAGCCTCCAGAGGGGAGG
>CD45_LsgRNA106
TCAACTGTCTCATCCCGGGGCCCTAGGAGT

>CD45_LsgRNA107
TGTTCTGTGCCTTGTTCAATCTCTTGGAAA
>CD45_LsgRNA108
TTTTCTTAGAGACTTCCTTCATACAGGAGT
>CD45_LsgRNA109
GAAGCTTCCCAAGGCTTCCCCAGAAGGGAT
>CD45_LsgRNA110
GCAACTTCTTCAGTGGTCCCATTGTGGTGC
>CD45_LsgRNA111
TCCAGAAACGCCTAAGCCTAGTTGTGGGGA
>CD45_LsgRNA112
ACCAGAAATGATGATTGCTGCTCAGGGGCC
>CD45_LsgRNA113
CTAGGAAGTCTGTGCTCAGTACTGGGGCGA
>CD45_LsgRNA114
CGTCGAAGTTTGAGGAGCAGGTGAGGGTCT
>CD45_LsgRNA115
TCTGGACACAGAAGTCTTTGTCACAGGTAA
>CD45_LsgRNA116
TAGGGACACTTCATAGTATTTATAAGGTTT
>CD45_LsgRNA117
AGCAGACTTATGGAGACATGGAAGTGGAGA
>CD45_LsgRNA118
TAGAGACTTCCTTCATACAGGAGTTGGAGG
>CD45_LsgRNA119
TTTTGAGCTGAGACATTCCAAGGTAGGTAA
>CD45_LsgRNA120
TCTGGAGGATGATCTGGGAGCAAAAGGCCA
>CD45_LsgRNA121
AGCAGAGGGCAAAGTGGATGTCTATGGTTA
>CD45_LsgRNA122
CAAAGATGTCCAAAATGCTAAGTGTGGAAA
>CD45_LsgRNA123
AGATGCAGACTCAGGTTTAGATACAGGCTC
>CD45_LsgRNA124
AGCTGCCTGCAGAACCCAAAGACCTGGTGT
>CD45_LsgRNA125
CCATGCTGGAAGGCCTGGAAGCAGAGGGCA
>CD45_LsgRNA126
TCTAGGAAGTCTGTGCTCAGTACTGGGGCG
>CD45_LsgRNA127
CATTGGAATTGATGCCATGCTGGAAGGCCT
>CD45_LsgRNA128
CAAAGGATGCATTAATGTATTTGCTGGTTT

>CD45_LsgRNA129
TTCTGGCCTTTGGATTTGCCCTTCTGGACA
>CD45_LsgRNA130
CTGGGGCGAAGGAAAGCAGACTTATGGAGA
>CD45_LsgRNA131
AAAAGGCTAATACTTCAATTTGTTTGGAGT
>CD45_LsgRNA132
GTGGGGCTTTCGGGCATCTTTGATGGGAAA
>CD45_LsgRNA133
TGTTGGGCGTACAGGTACCTACATTGGAAT
>CD45_LsgRNA134
TGTGGGGCTTTCGGGCATCTTTGATGGGAA
>CD45_LsgRNA135
CCATGGGTTTGTGGCTCAAACTTCTGGCCT
>CD45_LsgRNA136
ATGTGGTCCTCCTTATGAAACTAATGGCCC
>CD45_LsgRNA137
TTGAGGTCCTGAATCATAGACACCAGGTCT
>CD45_LsgRNA138
CCATGGTCTGGCCAGCTGGTGAATTGGATA
>CD45_LsgRNA139
CAATGTAGCTGGCATTTATGTAGGTGGACC
>CD45_LsgRNA140
CCTGGTATTCAGCCTCCAGAGGGGAGGGGT
>CD45_LsgRNA141
AGAAGTCATCAACTGTCTCATCCCGGGGCC
>CD45_LsgRNA142
CTGTGTCCAGAAGGGCAAATCCAAAGGCCA
>CD45_LsgRNA143
AGTGGTCCCATTGTGGTGCACTGCAGGTAA
>CD45_LsgRNA144
CTGTGTCCTCCAACTCCTGTATGAAGGAAG
>CD45_LsgRNA145
GCTTGTGATACTTCATCCCTTCTGGGGAAG
>CD45_LsgRNA146
CCGTGTGGAACTCTCTGAAATAAATGGAGA
>CD45_LsgRNA147
GAGTGTGGGTACCTACCATCACAAAGGATG
>CD45_LsgRNA148
GTTTGTTCCCTTAGTGCTGGTGTTGGGCGT
>CD45_LsgRNA149
ATGCTAAAGCACTGATTATATTCCTGGTGT
>CD45_LsgRNA150
GTGGTAAAGTCTCTACGCAAAGCACGGCCT

>CD45_LsgRNA151
GCATTAACTCTCCGTCGAAGTTTGAGGAGC
>CD45_LsgRNA152
CTGCTACACATGTGTAATTTGTTTGGGCAC
>CD45_LsgRNA153
CCAGTACCAGTGTACCACATGGAAAGGGGA
>CD45_LsgRNA154
TCTTTACCTGCAGTGCACCACAATGGGACC
>CD45_LsgRNA155
AGAATACTGGCCAAGCATGGAGGAAGGCAC
>CD45_LsgRNA156
TGAGTAGAAAAAAGAAAAAGCAACTGGAAG
>CD45_LsgRNA157
ATGTTATAAATGTGCAGACAGATTTGGGGA
>CD45_LsgRNA158
CATTTATACTATTGTCTGTCGGCCGGGAGG
>CD45_LsgRNA159
TTCATATGTACTCCACTGTGAGCCAGGTAC
>CD45_LsgRNA160
CTGGTATTCAGCCTCCAGAGGGGAGGGGTC
>CD45_LsgRNA161
TTTTTATTCTGATTGTGGGGCTTTCGGGCA
>CD45_LsgRNA162
CACCTCAAAACTGGTCACATTATTAGGCAA
>CD45_LsgRNA163
AAGGTCAATGGAATGAAAACCTCCCGGCCG
>CD45_LsgRNA164
GATGTCACAATAATCAGAAACACCAGGAAT
>CD45_LsgRNA165
CAATTCACCAGCTGGCCAGACCATGGGGTT
>CD45_LsgRNA166
CACTTCACCTCGGATTGCAGAGGAAGGAGC
>CD45_LsgRNA167
AGACTCAGGTTTAGATACAGGCTCAGGCCA
>CD45_LsgRNA168
AGCCTCCAGAGGGGAGGGGTCACTGGGTGG
>CD45_LsgRNA169
ATCTTCCCATTGACATAGGCAAGTAGGGAC
>CD45_LsgRNA170
AGTGTCCCTACTTGCCTATGTCAATGGGAA
>CD45_LsgRNA171
ACTCTCCGTCGAAGTTTGAGGAGCAGGTGA
>CD45_LsgRNA172
AGTCTCTACGCAAAGCACGGCCTGGGGTGG

>CD45_LsgRNA173
AAAGTCTCTACGCAAAGCACGGCCTGGGGT
>CD45_LsgRNA174
ACTCTCTGAAATAAATGGAGATGCAGGGTC
>CD45_LsgRNA175
ATCATCTGAAGACTCATCTGATTCAGGCTC
>CD45_LsgRNA176
CACTTCTGACTACCAAAATGTAAAAGGTTT
>CD45_LsgRNA177
AGGGTCTTCAGGAACCCCATGGTCTGGCCA
>CD45_LsgRNA178
ATGATGAAAAGCAGCTGATGGATGTGGAGC
>CD45_LsgRNA179
TACATGACTGCACACCAAAAGAAAAGGCTA
>CD45_LsgRNA180
TTGATGACTTCTGGAGGATGATCTGGGAGC
>CD45_LsgRNA181
CCCCTGAGCAGCAATCATCATTTCTGGTTT
>CD45_LsgRNA182
TTGCTGATGAGGGCAGACTGTTCCTGGCTG
>CD45_LsgRNA183
GAATTGATGCCATGCTGGAAGGCCTGGAAG
>CD45_LsgRNA184
TAGATGCTGGCGATGATGTCATAGAGGAAC
>CD45_LsgRNA185
CCTCTGCTTCCAGGCCTTCCAGCATGGCAT
>CD45_LsgRNA186
TTTGTGGCTCAAACTTCTGGCCTTTGGATT
>CD45_LsgRNA187
TCCATGGGGTTTAGATGCAGACTCAGGTTT
>CD45_LsgRNA188
ACACTGGTACTGGTACACAGTTCTGGGCTC
>CD45_LsgRNA189
ATGATGTAATCAGGACATCGTTTGTGGTCA
>CD45_LsgRNA190
CATGTGTAATTTGTTTGGGCACGAAGGTTG
>CD45_LsgRNA191
TGCTTGTGATACTTCATCCCTTCTGGGGAA
>CD45_LsgRNA192
ACCTTGTGCAGCAATGTATTTCCTGGGTTC
>CD45_LsgRNA193
AGTCTGTGCTCAGTACTGGGGCGAAGGAAA
>CD45_LsgRNA194
TGTTTGTTCCCTTAGTGCTGGTGTTGGGCG

>CD45_LsgRNA195
GGTTTTAGGGCCATTAGTTTCATAAGGAGG
>CD45_LsgRNA196
GGCTTTAGTGGAATACAATCAGTTTGGAGA
>CD45_LsgRNA197
ACATTTATACTATTGTCTGTCGGCCGGGAG
>CD45_LsgRNA198
TGTTTTATGCTATAAGAACAATTCAGGTAA
>CD45_LsgRNA199
ACTATTCAACTGACTATGAGTTTCTGGTAA
>CD45_LsgRNA200
GGTTTTCATTCCATTGACCTTGTCCGGACC
>CD45_LsgRNA201
AAGCTTCCCAAGGCTTCCCCAGAAGGGATG
>CD45_LsgRNA202
CAGCTTCCTAACCTGCAGTGGACGAGGATG
>CD45_LsgRNA203
AGACTTCCTTCATACAGGAGTTGGAGGACA
>CD45_LsgRNA204
TTCTTTGAATCTTCCCATTGACATAGGCAA
>CD45_LsgRNA205
AAGGTTGTCCAACTGACATCTTTCAGGTAT
>CD45_LsgRNA206
ATGCTTGTGATACTTCATCCCTTCTGGGGA
>CD45_LsgRNA207
TACCTTGTGCAGCAATGTATTTCCTGGGTT
>CD45_LsgRNA208
AGATTTTATACAAAACAACAAGCAAGGCTA
>CD45_LsgRNA209
CTCTTTTCACAATGGAGTGTACGAGGGAGA
>CD45_LsgRNA210
TATGTTTCCAACAAAATGTCAGAATGGATT

(33) $\mathbb{S}_{16}^{-}$: 49 low on-target activity sgRNAs targeting THY1

>THY1_LsgRNA1
CAATAAAAGTATCAGTGTGTATAGAGGTGA
>THY1_LsgRNA2
CACAAAAGTAGTCGCCCTCATCCTTGGTGG
>THY1_LsgRNA3
AGAGAAGAGGAAGCACGTGCTCTCAGGCAC
>THY1_LsgRNA4
ATCCACAGACAAGCTGGTCAAGTGTGGCGG
>THY1_LsgRNA5
AAGCACGTGCTCTCAGGCACCCTTGGGATA

>THY1_LsgRNA6
CGGTACGTGTGCTCGGGTATCCCAAGGGTG
>THY1_LsgRNA7
CATCAGCGTCGCTCTCCTGCTCTCAGGTAC
>THY1_LsgRNA8
GAGCAGGAGAGCGACGCTGATGGCTGGGTT
>THY1_LsgRNA9
ATCCAGGATGTGTTCTGAACCAGCAGGCTT
>THY1_LsgRNA10
GGCTAGGGTAAGGACCTTGATATAGGGCTG
>THY1_LsgRNA11
ACTCATGCTGGATGGAGTTATCCTTGGTGT
>THY1_LsgRNA12
TAGCCAACTTCACCACCAAGGATGAGGGCG
>THY1_LsgRNA13
GGTTCACCAGGCAGGCTGTCAGGCTGGTCA
>THY1_LsgRNA14
GAAGCACGTGCTCTCAGGCACCCTTGGGAT
>THY1_LsgRNA15
AGAGCACGTGCTTCCTCTTCTCTCGGGTCA
>THY1_LsgRNA16
AAGGCACTGCTGTGCCAGTCTTGCAGGTGT
>THY1_LsgRNA17
GGGTCAGGCTGAACTCATGCTGGATGGAGT
>THY1_LsgRNA18
ACTGCCGCCATGAGAATAACACCAAGGATA
>THY1_LsgRNA19
CTGCCCTCGGGACACCTGCAAGACTGGCAC
>THY1_LsgRNA20
TCATCCTTGGTGGTGAAGTTGGCTAGGGTA
>THY1_LsgRNA21
GACGCGGGAGCGGTACGTGTGCTCGGGTAT
>THY1_LsgRNA22
CGCCCTCATCCTTGGTGGTGAAGTTGGCTA
>THY1_LsgRNA23
CCCTCTCCAACCAGCCCTATATCAAGGTCC
>THY1_LsgRNA24
GACCCTTGCCCAGTACCTGAGAGCAGGAGA
>THY1_LsgRNA25
AGGTGACCAGCCTGACAGCCTGCCTGGTGA
>THY1_LsgRNA26
TAAGGACCTTGATATAGGGCTGGTTGGAGA
>THY1_LsgRNA27
GAGCGACGCTGATGGCTGGGTTCATGGTGC

>THY1_LsgRNA28
CTGAGAGCAGGAGAGCGACGCTGATGGCTG
>THY1_LsgRNA29
GAGAGCACGTGCTTCCTCTTCTCTCGGGTC
>THY1_LsgRNA30
TCTTGCAGGTGTCCCGAGGGCAGAAGGTGA
>THY1_LsgRNA31
TGACGCGGGAGCGGTACGTGTGCTCGGGTA
>THY1_LsgRNA32
TCAGGCTGGTCACCTTCTGCCCTCGGGACA
>THY1_LsgRNA33
TAGGGCTGGTTGGAGAGGGTGACGCGGGAG
>THY1_LsgRNA34
ACGTGCTTCCTCTTCTCTCGGGTCAGGCTG
>THY1_LsgRNA35
AGCAGGAGAGCGACGCTGATGGCTGGGTTC
>THY1_LsgRNA36
TGGCGGCAGTCCAGGCGAAGGTTTTGGTTC
>THY1_LsgRNA37
GTCAGGCTGGTCACCTTCTGCCCTCGGGAC
>THY1_LsgRNA38
GCCTGGTGAACCAAAACCTTCGCCTGGACT
>THY1_LsgRNA39
TTTTGGTTCACCAGGCAGGCTGTCAGGCTG
>THY1_LsgRNA40
AAAAGTAGTCGCCCTCATCCTTGGTGGTGA
>THY1_LsgRNA41
TCAAGTGTGGCGGCATAAGCCTGCTGGTTC
>THY1_LsgRNA42
AGGGTAAGGACCTTGATATAGGGCTGGTTG
>THY1_LsgRNA43
TGGCTAGGGTAAGGACCTTGATATAGGGCT
>THY1_LsgRNA44
GAGTTATCCTTGGTGTTATTCTCATGGCGG
>THY1_LsgRNA45
GTGTTATTCTCATGGCGGCAGTCCAGGCGA
>THY1_LsgRNA46
GAGTTCAGCCTGACCCGAGAGAAGAGGAAG
>THY1_LsgRNA47
ACCTTGATATAGGGCTGGTTGGAGAGGGTG
>THY1_LsgRNA48
TGGTTGGAGAGGGTGACGCGGGAGCGGTAC
>THY1_LsgRNA49
CCCCTTCTCTATCCACAGACAAGCTGGTCA

(34) $\mathbb{S}_{17}^{-}$: 110 low on-target activity sgRNAs targeting CD43

>CD43_LsgRNA1
ACAGAAACTGATGGGCTGGCATTCTGGGCT
>CD43_LsgRNA2
CCCCAAAGAGGAGGAGAAGGTGCAAGGCCA
>CD43_LsgRNA3
TGGAAACTACTGAATTGTCTTCTTTGGAGA
>CD43_LsgRNA4
CAGAAACTGATGGGCTGGCATTCTGGGCTT
>CD43_LsgRNA5
CTGGAAGCAGTGCTGATGTCTTGCTGGAAA
>CD43_LsgRNA6
CTCGAAGGAGACCATCAGCCCCTGGGGGCA
>CD43_LsgRNA7
GACAACAAGCTCTAACGAGACCAGTGGACC
>CD43_LsgRNA8
TGTCACAGGATTGGCTGCAGTGACAGGAGG
>CD43_LsgRNA9
TACAACAGTAAGCTCCAAGACCAGTGGTCC
>CD43_LsgRNA10
TGTCACCACAGCTACTGGGTCTCTGGGGCC
>CD43_LsgRNA11
AACCACCACCAAGGCAATAAGCATGGGCAC
>CD43_LsgRNA12
AGAGACCCAGTAGCTGTGGTGACAGGGGGA
>CD43_LsgRNA13
CTGTACCTGAGCCTACTGCCTCTCAGGAAG
>CD43_LsgRNA14
GGTGACCTGGTGGTTATGGGATCTTGGGTA
>CD43_LsgRNA15
CCACACTGGAACTCTCCACAGAACTGGTTG
>CD43_LsgRNA16
AGGTACTTGGAGCTGTGATATGTGGGGTAG
>CD43_LsgRNA17
GCCAAGAATCAAGTGGCATGTTACTGGTGC
>CD43_LsgRNA18
CGTTAGAGCTTGTTGTCACAGTGGTGGGGG
>CD43_LsgRNA19
CGCCAGAGGCAAAAGCGGAGGACTGGGGCC
>CD43_LsgRNA20
TTAGAGCTTGTTGTCACAGTGGTGGGGGGT
>CD43_LsgRNA21
TCGAAGGAGACCATCAGCCCCTGGGGGCAG

>CD43_LsgRNA22
TGAGAGGCAGTAGGCTCAGGTACAGGGGTG
>CD43_LsgRNA23
GCTCAGGTACAGGGGTGCTCATGCTGGCAC
>CD43_LsgRNA24
CTGCAGGTCCGTCTGTCACAGGATTGGCTG
>CD43_LsgRNA25
AGGGAGTCCATGCATCTCACTCGAGGGCCC
>CD43_LsgRNA26
TAACATGCCACTTGATTCTTGGCTTGGTGA
>CD43_LsgRNA27
CAGCATGCCCCAAAGAGGAGGAGAAGGTGC
>CD43_LsgRNA28
GCCACAACAGCAGTAGCGCCACGAGGGCCA
>CD43_LsgRNA29
TTGTCACAGTGGTGGGGGGTGCACTGGTTC
>CD43_LsgRNA30
CTGTCACCACAGCTACTGGGTCTCTGGGGC
>CD43_LsgRNA31
AAACCACCACCAAGGCAATAAGCATGGGCA
>CD43_LsgRNA32
GCGCCAGAGGCAAAAGCGGAGGACTGGGGC
>CD43_LsgRNA33
AGCCCATCAGTTTCTGTGGGGTCAGGGACA
>CD43_LsgRNA34
TGCCCATGCTTATTGCCTTGGTGGTGGTTT
>CD43_LsgRNA35
GTTTCCAAGGGGGTCAAAGAAACTGGGATT
>CD43_LsgRNA36
AGACCCAGTAGCTGTGGTGACAGGGGGACC
>CD43_LsgRNA37
CAGCCCATCAGTTTCTGTGGGGTCAGGGAC
>CD43_LsgRNA38
GAGACCCAGTAGCTGTGGTGACAGGGGGAC
>CD43_LsgRNA39
CAATCCCAGTTTCTTTGACCCCCTTGGAAA
>CD43_LsgRNA40
CTGACCCCACAGAAACTGATGGGCTGGCAT
>CD43_LsgRNA41
AGGGCCCCAGAGACCCAGTAGCTGTGGTGA
>CD43_LsgRNA42
TGGTCCCCCTGTCACCACAGCTACTGGGTC
>CD43_LsgRNA43
GGTCCCCCTGTCACCACAGCTACTGGGTCT

>CD43_LsgRNA44
TTCTCCTCCTCTTTGGGGCATGCTGGGTCC
>CD43_LsgRNA45
TGTCCCTGACCCCACAGAAACTGATGGGCT
>CD43_LsgRNA46
GTGACCTGGTGGTTATGGGATCTTGGGTAG
>CD43_LsgRNA47
GACTCGAAGGAGACCATCAGCCCCTGGGGG
>CD43_LsgRNA48
CTAACGAGACCAGTGGACCCTCTGTGGCTA
>CD43_LsgRNA49
GTGGCGAGCCCAGACAGTCTGCAGAGGACG
>CD43_LsgRNA50
AACTCTCCACAGAACTGGTTGCTGTGGTAG
>CD43_LsgRNA51
GTCACTGGCTACATTTGATGGTTCTGGAAG
>CD43_LsgRNA52
TTGGCTTGGTGACCTGGTGGTTATGGGATC
>CD43_LsgRNA53
AGAGCTTGTTGTCACAGTGGTGGGGGGTGC
>CD43_LsgRNA54
TCCTCTTTGGGGCATGCTGGGTCCAGGTGG
>CD43_LsgRNA55
CACAGAACTGGTTGCTGTGGTAGCAGGGAG
>CD43_LsgRNA56
ACTCGAAGGAGACCATCAGCCCCTGGGGGC
>CD43_LsgRNA57
TGGTGACAGGGGGACCACTGGTCTTGGAGC
>CD43_LsgRNA58
CAGAGACCCAGTAGCTGTGGTGACAGGGGG
>CD43_LsgRNA59
TGCAGACTGTCTGGGCTCGCCACCTGGACC
>CD43_LsgRNA60
TGTGGAGAGTTCCAGTGTGGCCCGTGGCAC
>CD43_LsgRNA61
GTTAGAGCTTGTTGTCACAGTGGTGGGGGG
>CD43_LsgRNA62
CTGAGAGGCAGTAGGCTCAGGTACAGGGGT
>CD43_LsgRNA63
CCACGAGGGCCAAAACCACCACCAAGGCAA
>CD43_LsgRNA64
CAGGGAGTCCATGCATCTCACTCGAGGGCC
>CD43_LsgRNA65
TGCAGCATCTACATCTATCTCTAAAGGAAC

>CD43_LsgRNA66
GAATGCCAGCCCATCAGTTTCTGTGGGGTC
>CD43_LsgRNA67
TGGTGCCCATGCTTATTGCCTTGGTGGTGG
>CD43_LsgRNA68
TTCTGCTGGAAACTGAGGTGCCACGGGCCA
>CD43_LsgRNA69
TGGAGCTTACTGTTGTAGCCACAGAGGGTC
>CD43_LsgRNA70
CTTGGCTTGGTGACCTGGTGGTTATGGGAT
>CD43_LsgRNA71
TAGAGCTTGTTGTCACAGTGGTGGGGGGTG
>CD43_LsgRNA72
CACAGGATTGGCTGCAGTGACAGGAGGGTC
>CD43_LsgRNA73
ACTGGGATTGTGGTCTGCCCCCAGGGGCTG
>CD43_LsgRNA74
GAGAGGCAGTAGGCTCAGGTACAGGGGTGC
>CD43_LsgRNA75
TTGTGGCGCCAGAGGCAAAAGCGGAGGACT
>CD43_LsgRNA76
TTATGGGATCTTGGGTAGACGTCGTGGATG
>CD43_LsgRNA77
AACTGGGATTGTGGTCTGCCCCCAGGGGCT
>CD43_LsgRNA78
AGGAGGGTCACTGGCTACATTTGATGGTTC
>CD43_LsgRNA79
AGGGGGTCAAAGAAACTGGGATTGTGGTCT
>CD43_LsgRNA80
TACTGGTGCCCATGCTTATTGCCTTGGTGG
>CD43_LsgRNA81
ACCAGTAACATGCCACTTGATTCTTGGCTT
>CD43_LsgRNA82
TGGGGTCAGGGACAGTGGACTCGAAGGAGA
>CD43_LsgRNA83
CATCGTCGTCCTCTGCAGACTGTCTGGGCT
>CD43_LsgRNA84
TCTCGTTAGAGCTTGTTGTCACAGTGGTGG
>CD43_LsgRNA85
CTGCTACCACAGCAACCAGTTCTGTGGAGA
>CD43_LsgRNA86
GCGCTACTGCTGTTGTGGCGCCAGAGGCAA
>CD43_LsgRNA87
GAGGTACTTGGAGCTGTGATATGTGGGGTA

>CD43_LsgRNA88
TGCTTATTGCCTTGGTGGTGGTTTTGGCCC
>CD43_LsgRNA89
CAGGTCACCAAGCCAAGAATCAAGTGGCAT
>CD43_LsgRNA90
AGTTTCCAAGGGGGTCAAAGAAACTGGGAT
>CD43_LsgRNA91
CTTCTCCTCCTCTTTGGGGCATGCTGGGTC
>CD43_LsgRNA92
AACTTCCTGAGAGGCAGTAGGCTCAGGTAC
>CD43_LsgRNA93
ATCGTCGTCCTCTGCAGACTGTCTGGGCTC
>CD43_LsgRNA94
GCCCTCGTGGCGCTACTGCTGTTGTGGCGC
>CD43_LsgRNA95
TCCGTCTGTCACAGGATTGGCTGCAGGGAC
>CD43_LsgRNA96
ATTGTCTTCTTTGGAGACTTCTGCTGGTGC
>CD43_LsgRNA97
AAACTGAGGTGCCACGGGCCACACTGGAAC
>CD43_LsgRNA98
CACTTGATTCTTGGCTTGGTGACCTGGTGG
>CD43_LsgRNA99
GCCTTGCACCTTCTCCTCCTCTTTGGGGCA
>CD43_LsgRNA100
TGGCTGCAGTGACAGGAGGGTCACTGGCTA
>CD43_LsgRNA101
AGAATGCCAGCCCATCAGTTTCTGTGGGGT
>CD43_LsgRNA102
TTTCTGCTGGAAACTGAGGTGCCACGGGCC
>CD43_LsgRNA103
AAACTGGGATTGTGGTCTGCCCCCAGGGGC
>CD43_LsgRNA104
CTGTTGTAGCCACAGAGGGTCCACTGGTCT
>CD43_LsgRNA105
CTGTTGTGGCGCCAGAGGCAAAAGCGGAGG
>CD43_LsgRNA106
TAGCTGTGGTGACAGGGGGACCACTGGTCT
>CD43_LsgRNA107
GGCATTCTGGGCTTCAGAGGTACTTGGAGC
>CD43_LsgRNA108
CCAGTTCTGTGGAGAGTTCCAGTGTGGCCC
>CD43_LsgRNA109
CAGTTTCTGTGGGGTCAGGGACAGTGGACT

>CD43_LsgRNA110
GGCCTTGCACCTTCTCCTCCTCTTTGGGGC