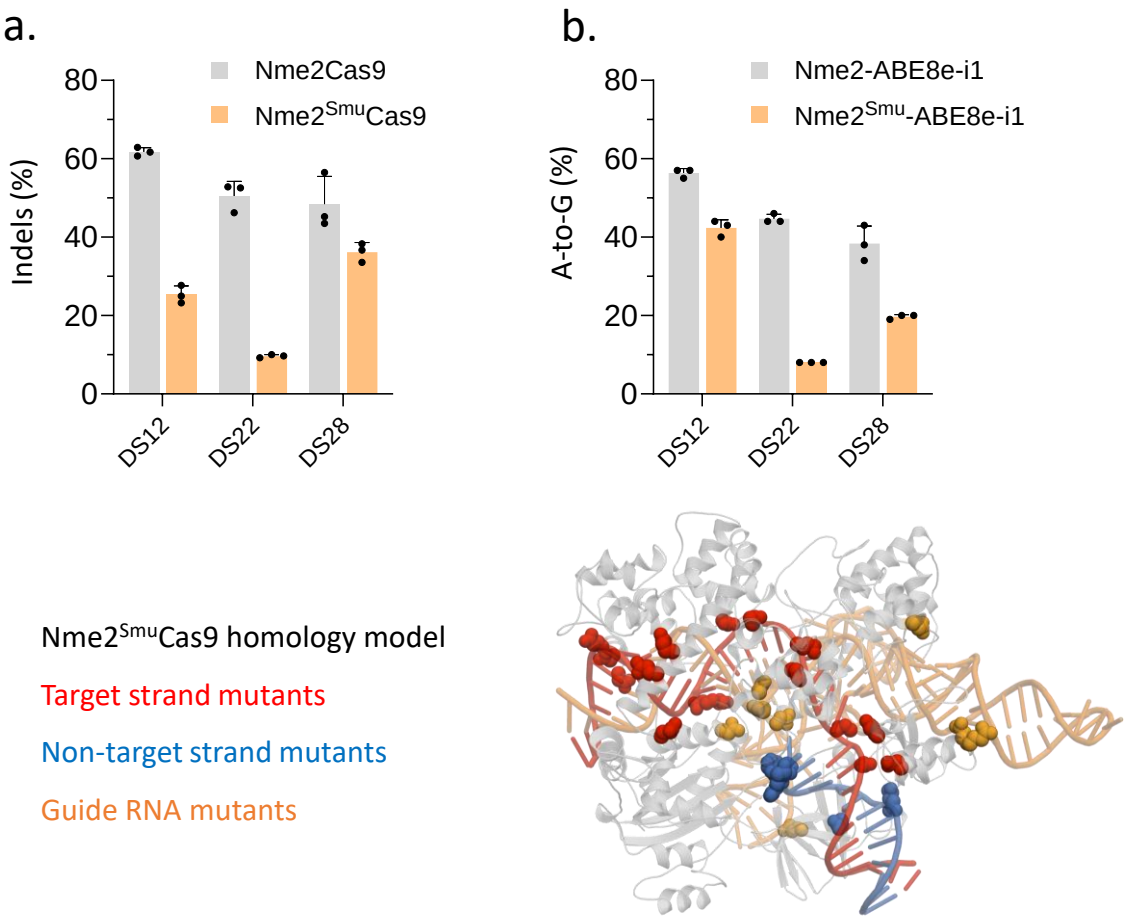
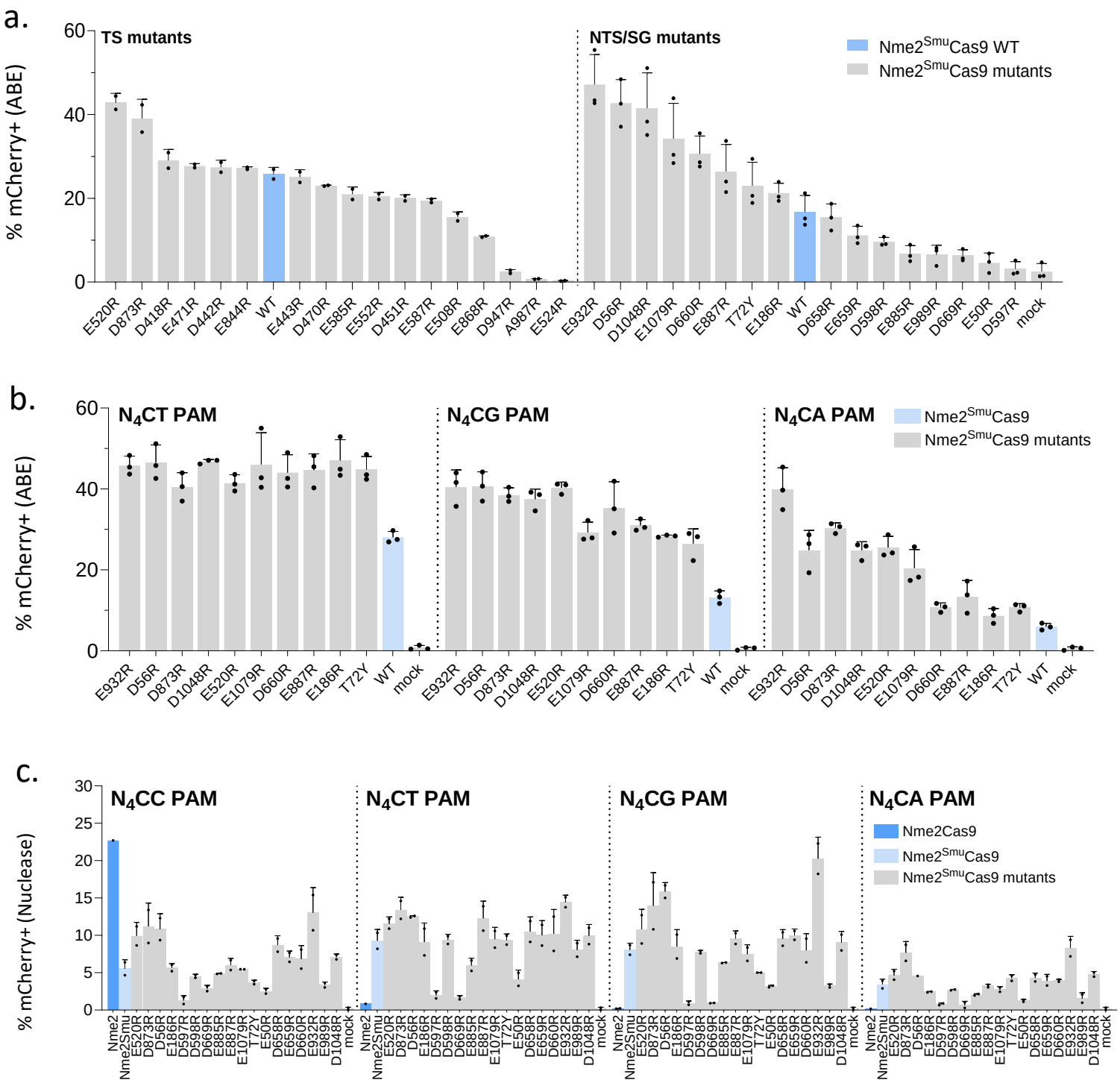
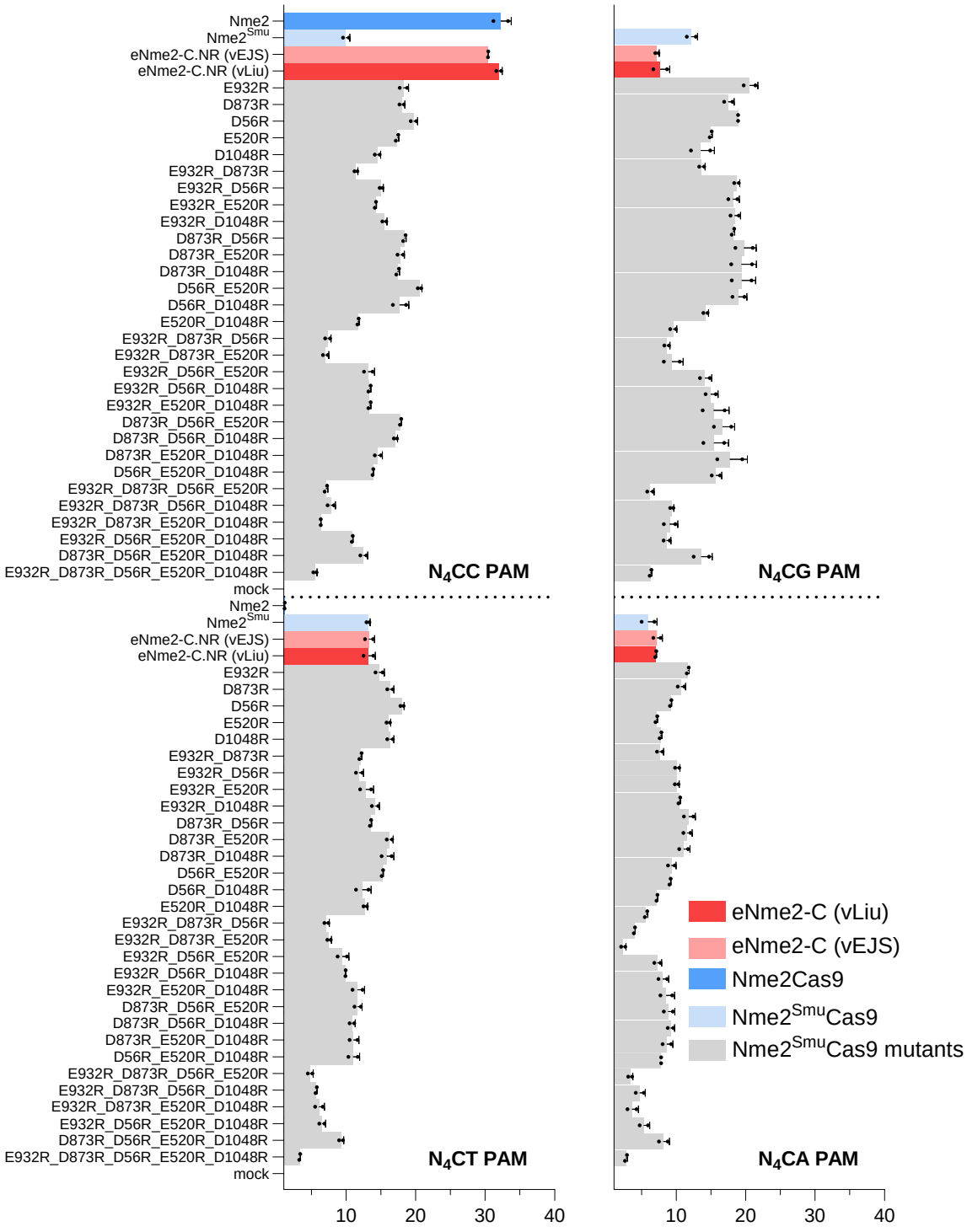


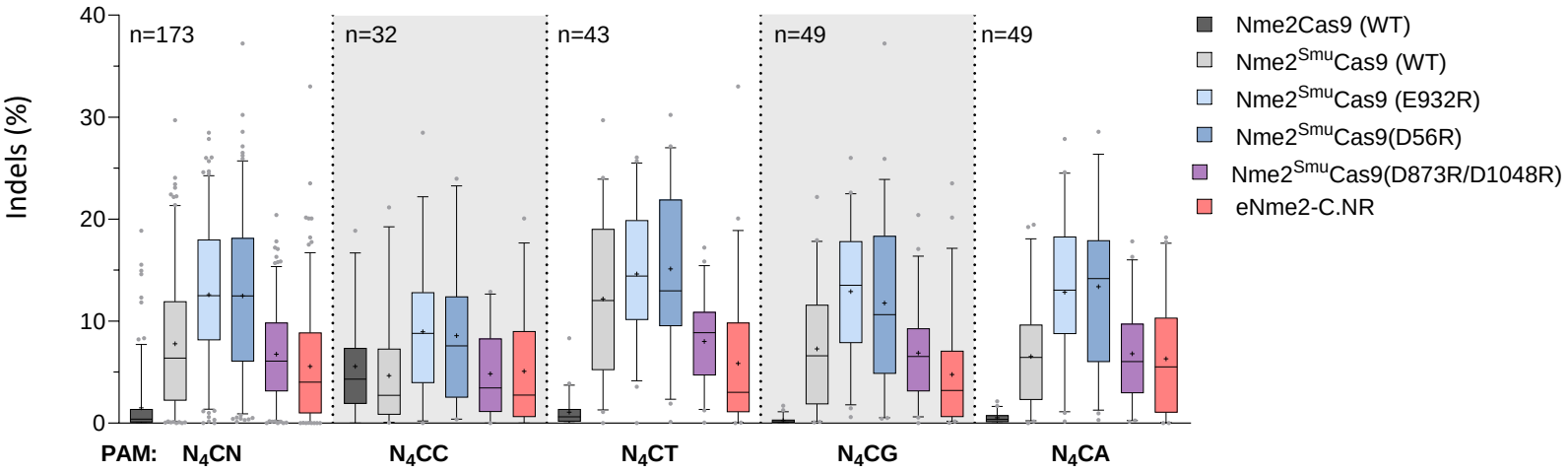
Supplementary Figure 1. PID-chimeric Nme2^{Smu}Cas9 nucleases and ABEs perform poorly at N_4CC targets compared to WT PID Nme2Cas9 effectors. (**a**) Nuclease editing, following transfection of Nme2- or Nme2^{Smu}Cas9 and associated sgRNA plasmids, at endogenous N_4CC PAM genomic loci in HEK293T cells. Editing efficiencies were measured by amplicon deep sequencing (n = 3 biological replicates; data represent mean ± SD). (**b**) Editing with Nme2- or Nme2^{Smu}-ABE8e-i1 plasmids at N_4CC PAM target loci in HEK293T cells. The editing efficiency at the maximally edited adenine for each target was plotted. Editing efficiencies were measured by amplicon deep sequencing (n = 3 biological replicates; data represent mean ± SD).



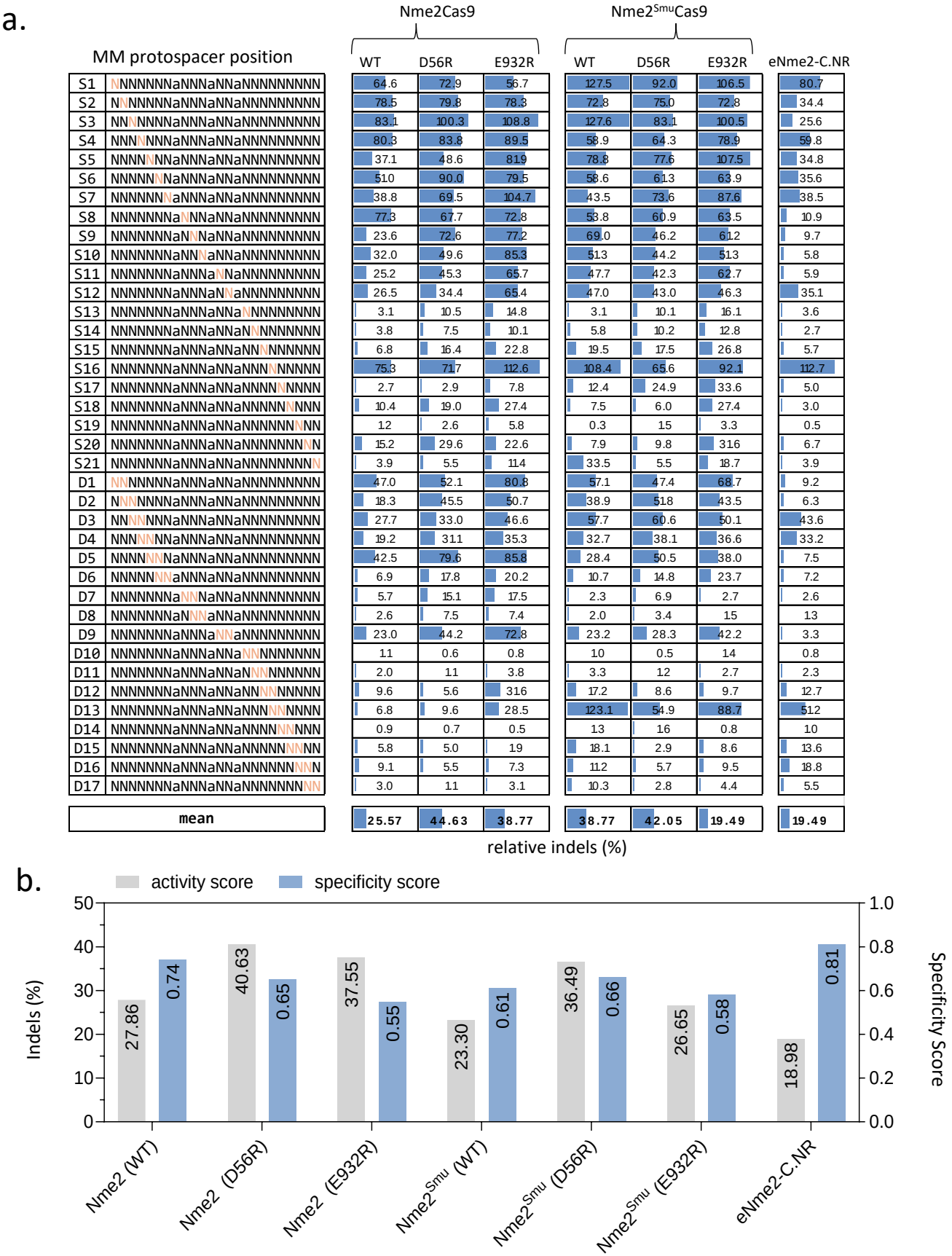
Supplementary Figure 2. Arginine mutagenesis improves Nme2^{Smu}Cas9 effector activity. (**a**) Activities of Nme2^{Smu}-ABE8e-i1 (denoted as WT, blue bar) and nucleic acid-interacting arginine mutants [target DNA strand (TS), single guide RNA (SG), and non-target DNA strand (NTS)] denoted by amino acid substitution (grey bars) in the mCherry ABE reporter cell line (activated upon A-to-G editing). After plasmid transfection with an N_4CC PAM-targeting sgRNA plasmid and an effector-expressing plasmid, editing activities were measured by flow cytometry (n = 2 or 3 biological replicates; data represent mean ± SD). (**b**) Activities of Nme2^{Smu}-ABE8e-i1 and the top 10 performing arginine mutants in the mCherry ABE reporter cell line (activated upon A-to-G editing) at N_4CD (D = not C) PAM targets. After plasmid transfection with the associated sgRNA plasmid and the effector-expressing plasmid, activities were measured by flow cytometry (n = 3 biological replicates; data represent mean ± SD). (**c**) Activities of Nme2Cas9 nuclease variants within the HEK293T TLR-MCV1 reporter at N_4CC, N_4CT, N_4CG and N_4CA PAM targets, comparing Nme2Cas9 (dark blue), Nme2^{Smu}Cas9 (light blue), and Nme2^{Smu}Cas9 arginine mutants (grey). After parallel plasmid transfection with the sgRNA and nuclease effector plasmids, activities were measured by flow cytometry (n = 2 biological replicates; data represent mean ± SD).



Supplementary Figure 3. Arginine mutagenesis improves Nme2^{Smu}Cas9 nuclease activity. Activities of Nme2Cas9 nuclease variants with the HEK293T TLR-MCV1 reporter at N_4CC, N_4CT, N_4CG and N_4CA PAM targets, comparing Nme2Cas9, eNme2-C.NR (vLiu), eNme2-C.NR (vEJS), Nme2^{Smu}Cas9, and Nme2^{Smu}Cas9 single and multiple arginine mutants. For eNme2-C.NR, vLiu is the original plasmid obtained from Addgene (#185672), whereas vEJS is the same effector re-cloned into the expression plasmid backbone used for all other effectors in this experiment. Activities were measured after parallel plasmid transfection with sgRNA and nuclease editor plasmids, followed by flow cytometry (n = 2 biological replicates; data represent mean ± SD).

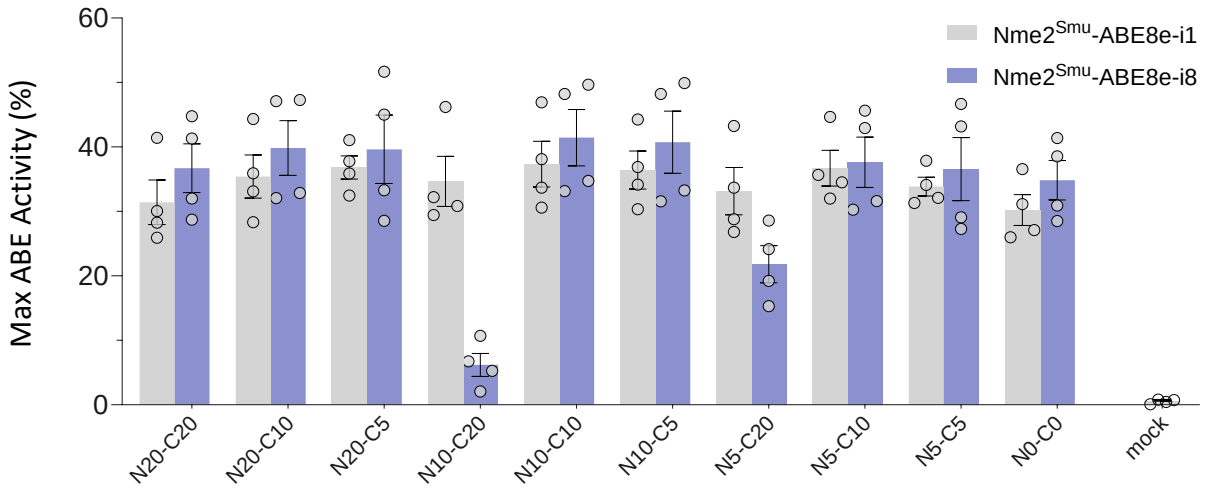


Supplementary Figure 4. Activities of Nme2^{Smu}Cas9 nuclease variants. Nuclease-induced indels in experimental panel 1 of the guide-target activity library following plasmid transfection of Nme2Cas9 (WT), Nme2^{Smu}Cas9 (WT and E932R, D56R, and E520R/D873R variants) or eNme2-C.NR into HEK293T cells. The editing efficiencies for 173 target sites were plotted. Editing activities were measured by amplicon sequencing (n = 3 biological replicates; boxplots represent median and interquartile range; whiskers indicate 5th and 95th percentiles and the cross represents the mean).



Supplementary Figure 5. Specificities of Nme2- and Nme2^{Smu}Cas9 nucleases at N$_4$CC PAM targets. (a) Indel editing frequencies of Nme2Cas9, Nme2^{Smu}Cas9 variants, and eNme2-C.NR across single- (S) or di-nucleotide (D) mismatched target sites within the guide-target mismatch library. Activities for each mismatched target were normalized to the mean efficiency of their respective perfectly-matched target site. Orange nucleotides represent protospacer positions of the transversion mutation(s) present within the mismatched target site. (**b**) indel activity vs. specificity score for nuclease variants from (**a**) across the mismatched guide-target library. Nuclease activity was compiled from editing data for three perfectly matched N$_4$CC target sites (0 MM) (**Supplementary data file**). The specificity score was calculated as one minus the tiled mismatched editing mean from (**a**), normalized to a scale of one to 100. Editing activities were measured by amplicon sequencing (n = 3 biological replicates).

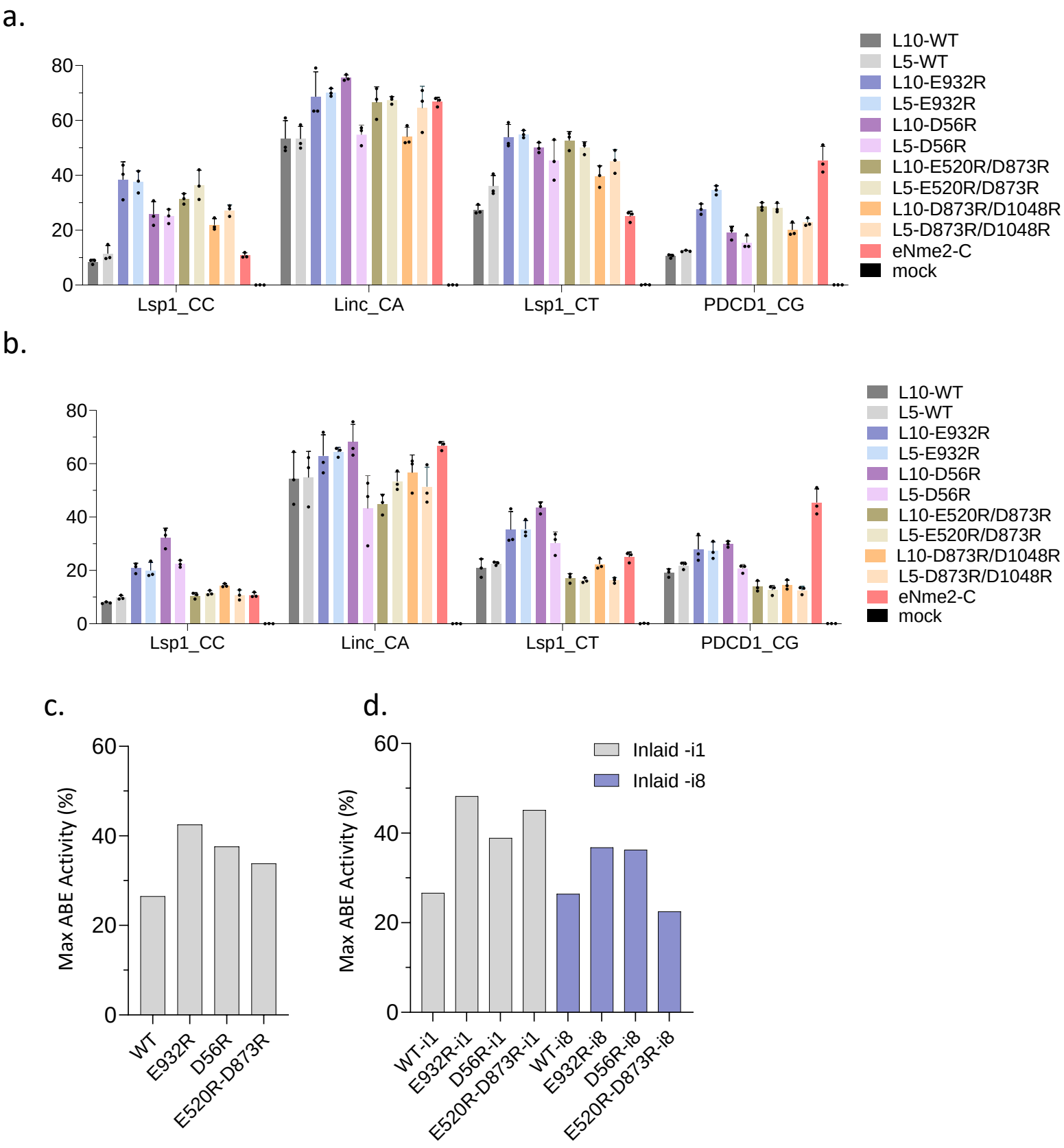
a.



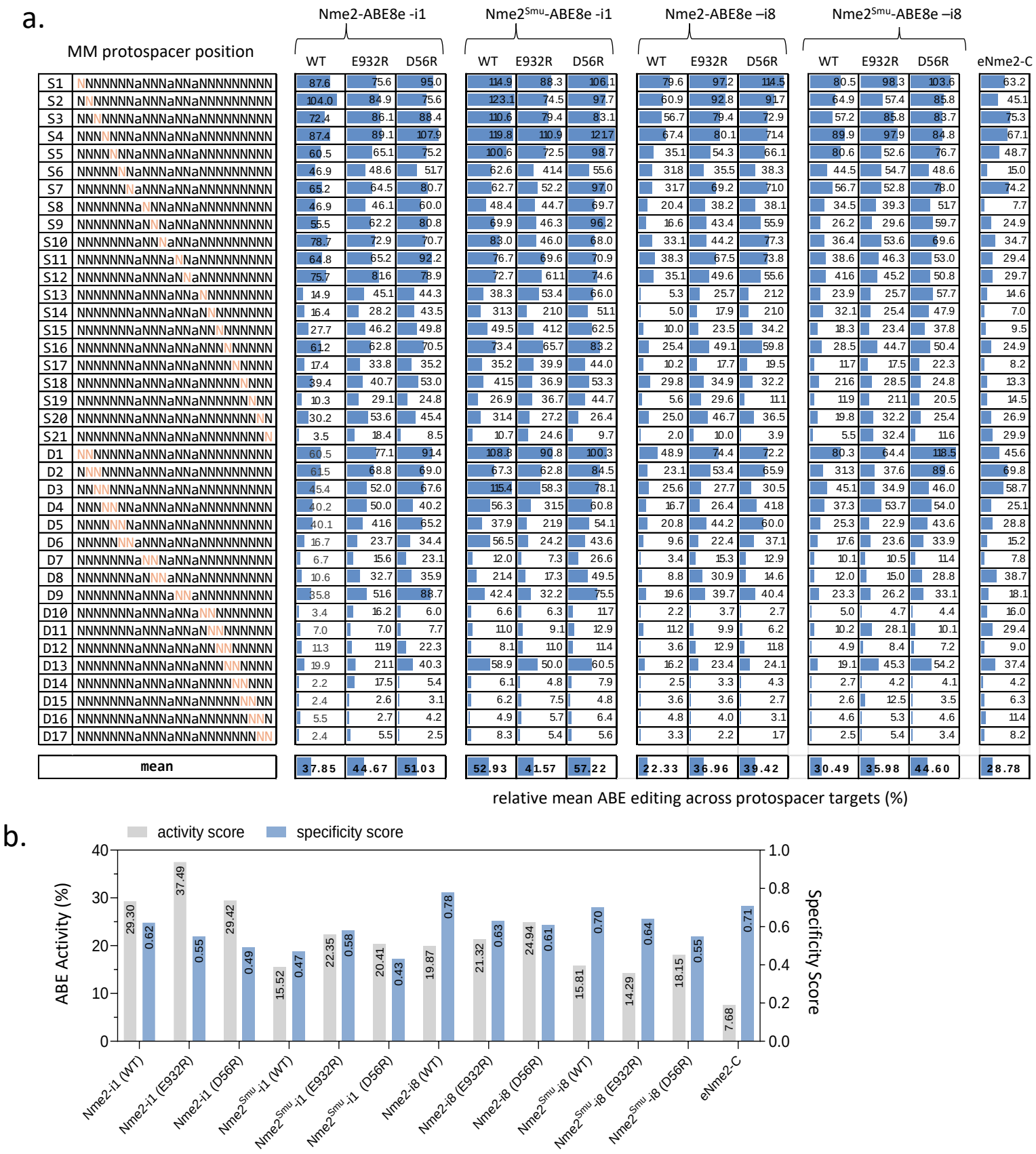
b.

Effector	N-Linker Length	C-Linker Length
Nme2^{Smu}-ABE8e-i1	20	20
Nme2^{Smu}-ABE8e-i1	20	10
Nme2^{Smu}-ABE8e-i1	20	5
Nme2^{Smu}-ABE8e-i1	10	20
Nme2^{Smu}-ABE8e-i1	10	10
Nme2^{Smu}-ABE8e-i1	10	5
Nme2^{Smu}-ABE8e-i1	5	20
Nme2^{Smu}-ABE8e-i1	5	10
Nme2^{Smu}-ABE8e-i1	5	5
Nme2^{Smu}-ABE8e-i1	0	0
Nme2^{Smu}-ABE8e-i8	20	20
Nme2^{Smu}-ABE8e-i8	20	10
Nme2^{Smu}-ABE8e-i8	20	5
Nme2^{Smu}-ABE8e-i8	10	20
Nme2^{Smu}-ABE8e-i8	10	10
Nme2^{Smu}-ABE8e-i8	10	5
Nme2^{Smu}-ABE8e-i8	5	20
Nme2^{Smu}-ABE8e-i8	5	10
Nme2^{Smu}-ABE8e-i8	5	5
Nme2^{Smu}-ABE8e-i8	0	0

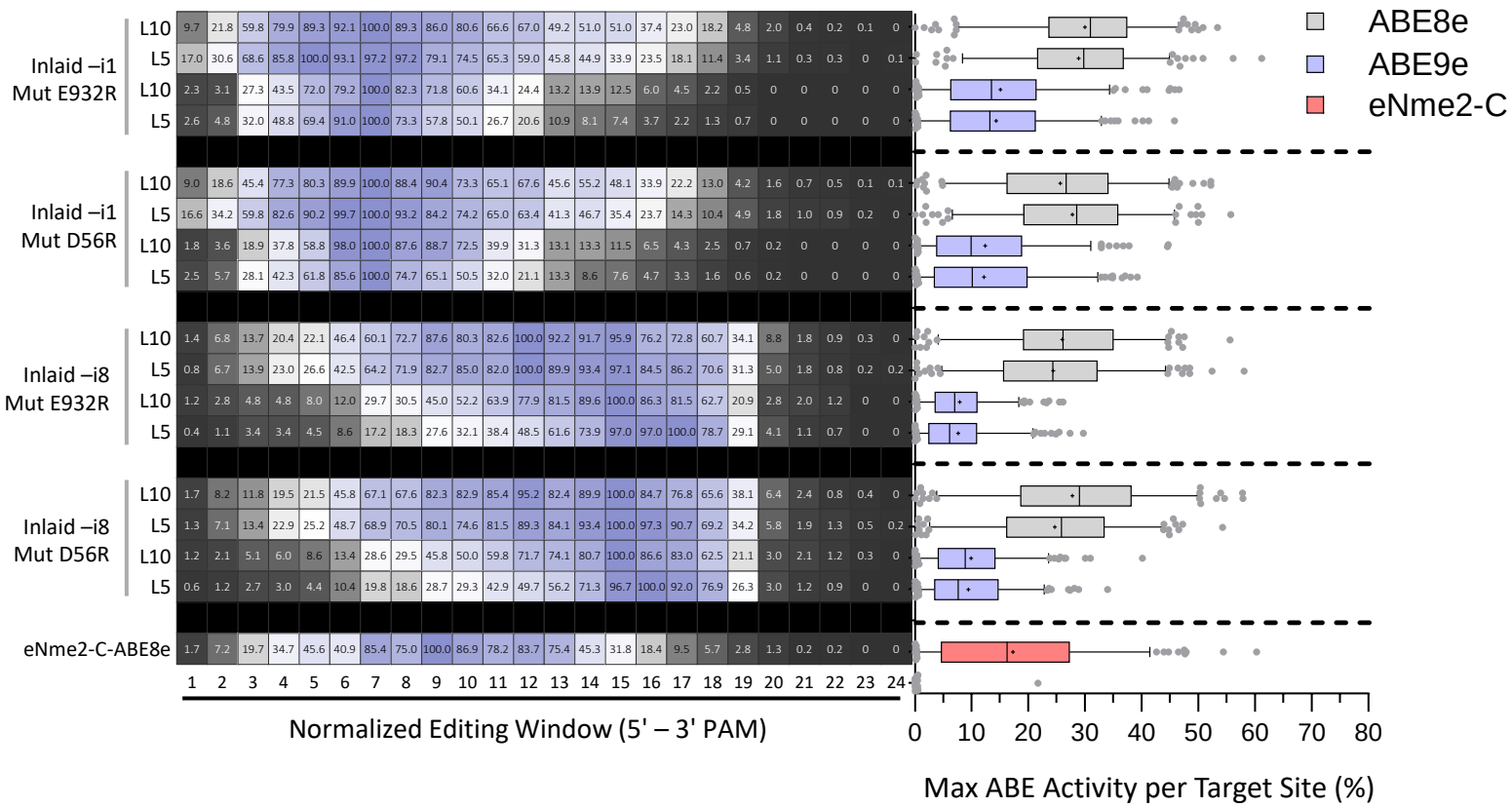
Supplementary Figure 6. Domain-inlaid Nme2^{Smu}-ABE8e linker length optimization. (**a**) A-to-G editing at four endogenous HEK293T genomic loci with Nme2^{Smu}-ABE8e-i1 (grey bars) or Nme2^{Smu}-ABE8e-i8 (blue bars) carrying N- or C-terminal (Nx-Cx) linker variants following plasmid transfection. The editing efficiencies at the maximally edited adenine for each target was plotted and aggregated. Data for individual target sites are in the **Supplementary data file**. Editing efficiencies were measured by amplicon deep sequencing (n = 3 biological replicates; data represent mean ± SD).



Supplementary Figure 7. Domain-inlaid Nme2^{Smu}-ABE8e linker length and activity optimization (continued). (**a-b**) A-to-G editing at four endogenous HEK293T genomic loci with Nme2^{Smu}-ABE8e-i1 (**a**) or Nme2^{Smu}-ABE8e-i8 (**b**) arginine mutants (WT and E932R, D56R, E520R/D873R, D873R/D1048R) and linker (L10, L5) variants by plasmid transfection. The editing efficiency at the maximally edited adenine for each target was plotted. Editing efficiencies were measured by amplicon deep sequencing (n = 3 biological replicates; data represent mean ± SD). Data for individual target sites are in the **Supplementary data file**. (**c-d**) Summary data from endogenous maximum activity aggregated from (**a**) and (**b**). (**c**) Nme2^{Smu}-ABE8e and arginine mutant activity independent of domain insertion site and linker length, or (**d**) separated by position of domain insertion (-i1 vs. –i8).

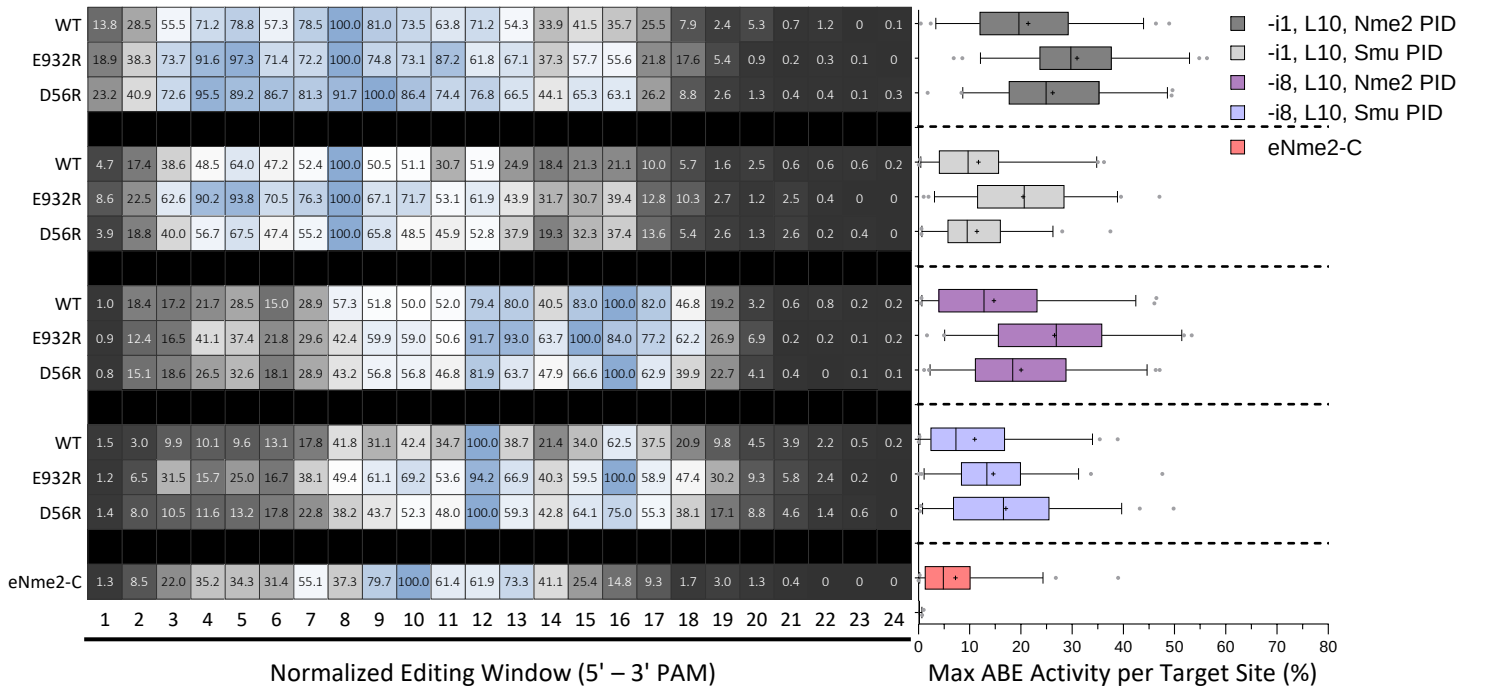


Supplementary Figure 8. Specificities of domain-inlaid Nme2- and Nme2^{Smu}-ABE8e variants at N$_4$CC PAM targets. (**a**) Mean A-to-G editing frequencies of domain-inlaid Nme2^{Smu}-ABE8e variants or eNme2-C across single- (S) or di-nucleotide (D) mismatched target sites within the guide-target mismatch library. Activities for each mismatched target were normalized to the mean efficiency of their respective perfectly matched target site. Orange nucleotides represent protospacer position of the transversion mutation(s) present within the mismatched target site. (**b**) ABE activity vs. specificity score for base editing variants in (**a**) across the mismatched guide-target library. ABE activity was compiled from editing data for three perfectly matched N$_4$CC target sites (0 MM) (**Supplementary data file**). The specificity scores were calculated as one minus the tiled mismatched editing mean in (**a**) normalized to a scale of one to 100. Editing activities were measured by amplicon sequencing (n = 3 biological replicates).

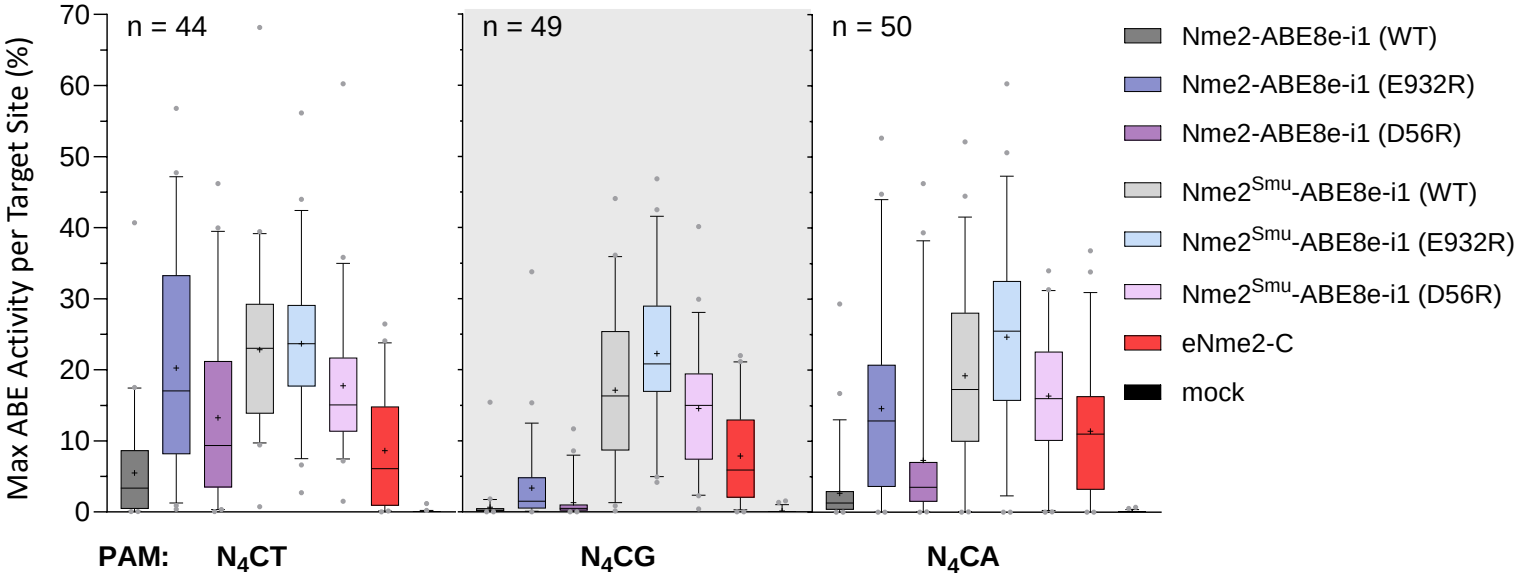


Supplementary Figure 9. Editing windows of domain-inlaid Nme2^{Smu}-ABEs with narrow-window adenine deaminases. Assessment of editing windows and activities from experimental panel 3 of the guide-target activity library (193 sites) for broad- or narrow-window deaminases (ABE8e or ABE9e, respectively). Test subjects include Nme2^{Smu}-ABE –i1 or –i8 with E932R or D56R arginine mutants, in combination with deaminase linker lengths (L10 and L5). The eNme2-C variant was also included (bottom). Editing was assessed following plasmid transfection of the ABE variants into HEK293T cells with the integrated guide-target library. Left: average editing windows across the target sites, normalized on a scale of 0 – 100 (%) against adenine positions with the highest observed edited efficiencies within the window. Right: activity at the maximally edited adenine for each target was plotted. Editing activities were measured by amplicon sequencing (n = 3 biological replicates; boxplots represent median and interquartile ranges; whiskers indicate 5th and 95th percentiles; the cross represents the mean).

a.

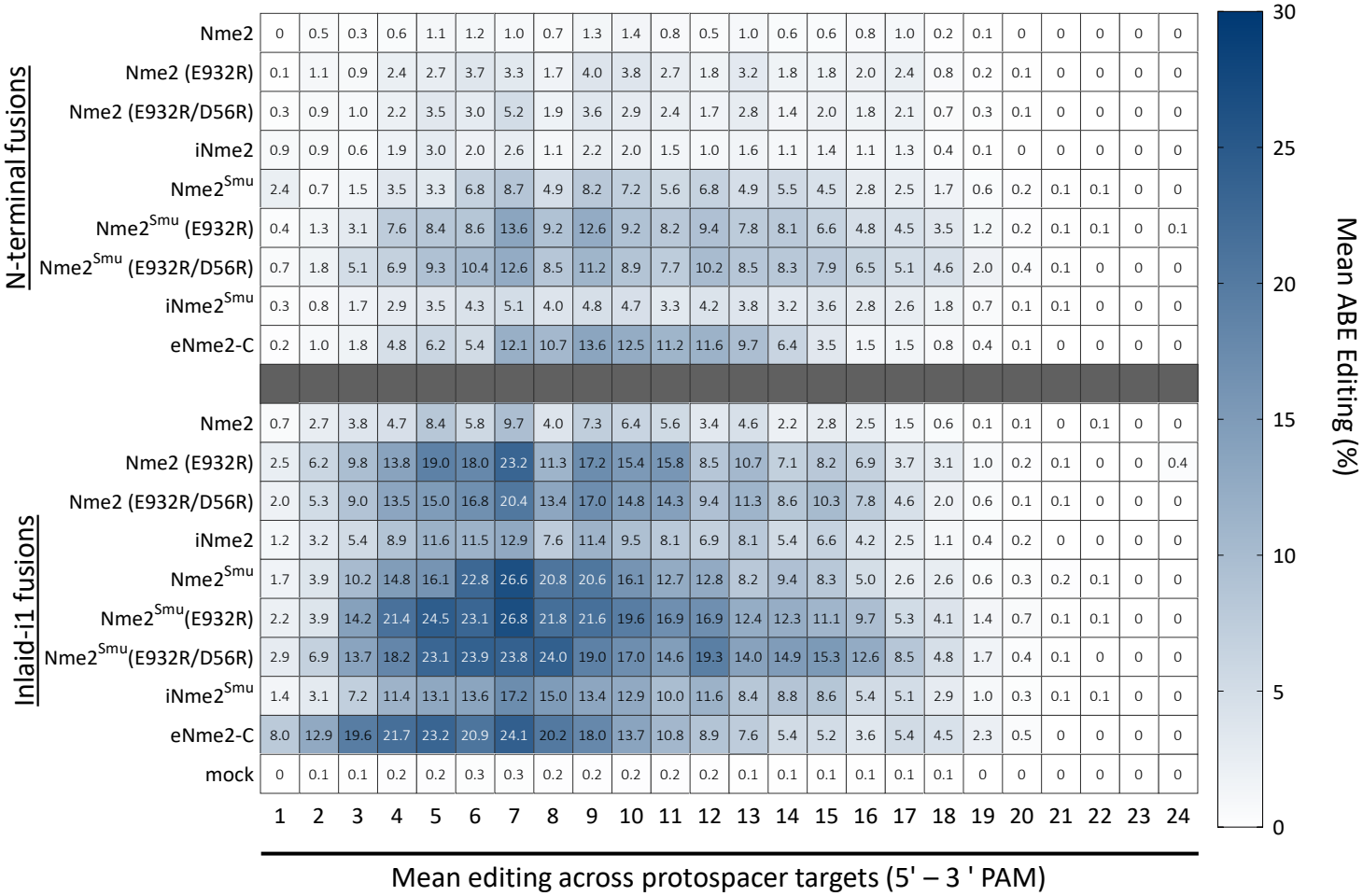


b.



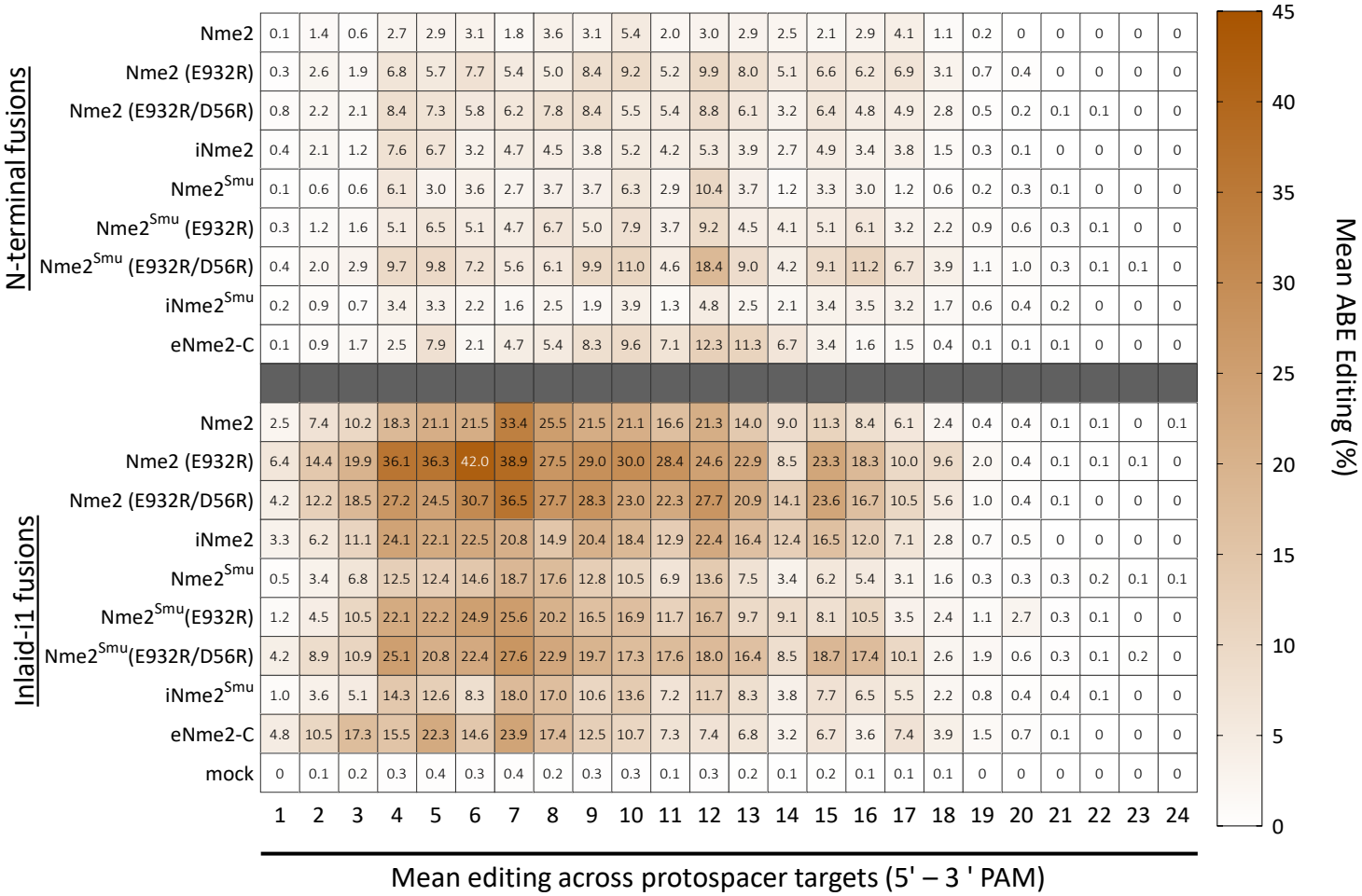
Supplementary Figure 10. Activities and editing windows of domain-inlaid Nme2- and Nme2^{Smu}-ABE8e variants at N$_4$CC or N$_4$CN PAM targets. Assessment of editing windows and activities from experimental panel 2 of the guide-target activity library (192 sites) for Nme2- and Nme2^{Smu}-ABE8e –i1 or –i8, with and without the E932R or D56R arginine mutations, in combination with the L10 deaminase linker. The eNme2-C variant was also included (bottom). (**a**) Editing data for N$_4$CC PAM targets only (49 sites). Following plasmid transfection of the ABE variants into HEK293T cells with the integrated guide-target library, editing activities were measured by amplicon sequencing. Left: average editing windows across target sites, normalized on a scale of 0 – 100 (%) against adenine positions with the highest observed edited efficiencies within the window. Right: editing efficiency at the maximally edited adenine for each target. (**b**) Nme2- or Nme2^{Smu}-ABE8e-i1 editing data at N$_4$CD PAM target sites. The maximally edited adenine for each target was plotted. *n* , the number of target sites with each PAM (n = 3 biological replicates; boxplots represent median and interquartile ranges; whiskers indicate 5th and 95th percentiles; the cross represents the mean).

a.



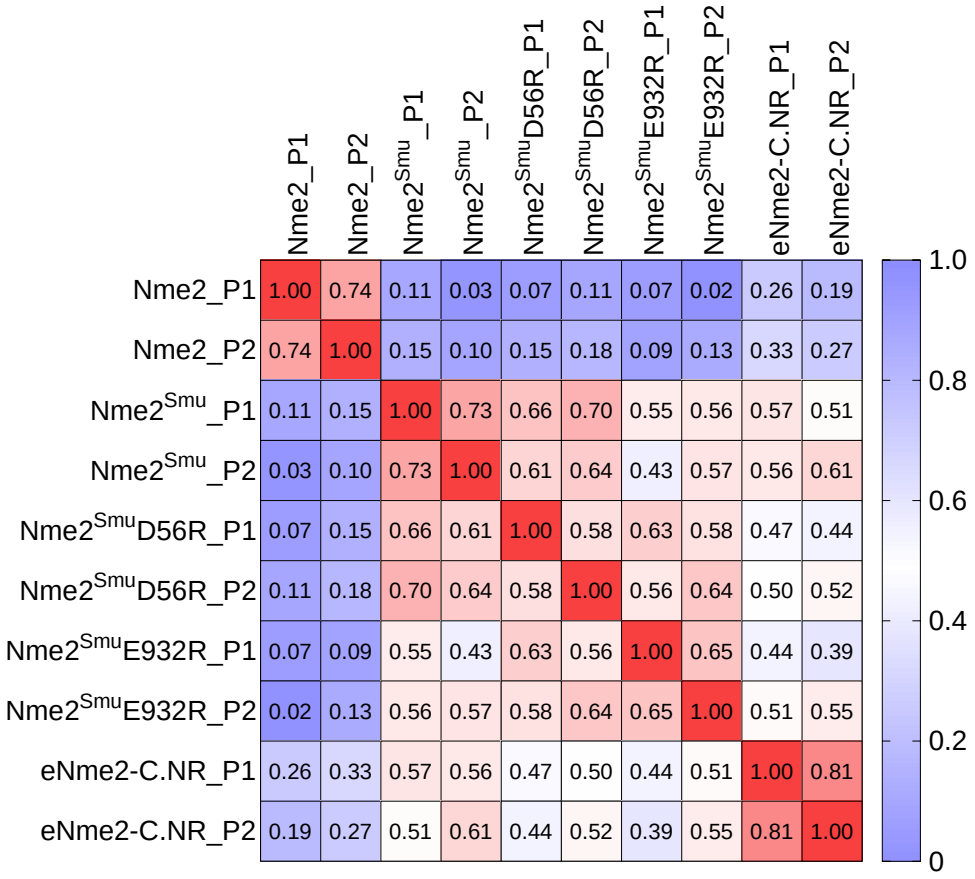
Supplementary Figure 11. Activities and editing windows of engineered Nme2Cas9 ABE8e variants at N_4CN PAM targets. Assessment of editing windows and activities from experimental panel 4 of the guide-target activity library (181 N_4CN PAM sites) for Nme2-, Nme2^{Smu}-, iNme2-, iNme2^{Smu}- and eNme2-C variants in either the N-terminal or inlaid-i1 (linker 10) formats. Mean A-to-G editing activities and editing windows across protospacer positions in the activity guide-target library are shown for the engineered Nme2Cas9 ABE8e variants. Editing activities were measured by amplicon sequencing (n = 3 biological replicates).

a.



Supplementary Figure 12. Activities and editing windows of engineered Nme2Cas9 ABE8e variants at N_4CC PAM targets. Assessment of editing windows and activities from experimental panel 4 of the guide-target activity library (38 N_4CC PAM sites) for Nme2-, Nme2^{Smu}-, iNme2-, iNme2^{Smu}- and eNme2-C variants in either the N-terminal or inlaid-i1 (linker 10) formats. Mean A-to-G editing activities and editing windows across protospacer positions in the activity guide-target library are shown for the engineered Nme2Cas9 ABE8e variants. Editing activities were measured by amplicon sequencing (n = 3 biological replicates).

a.

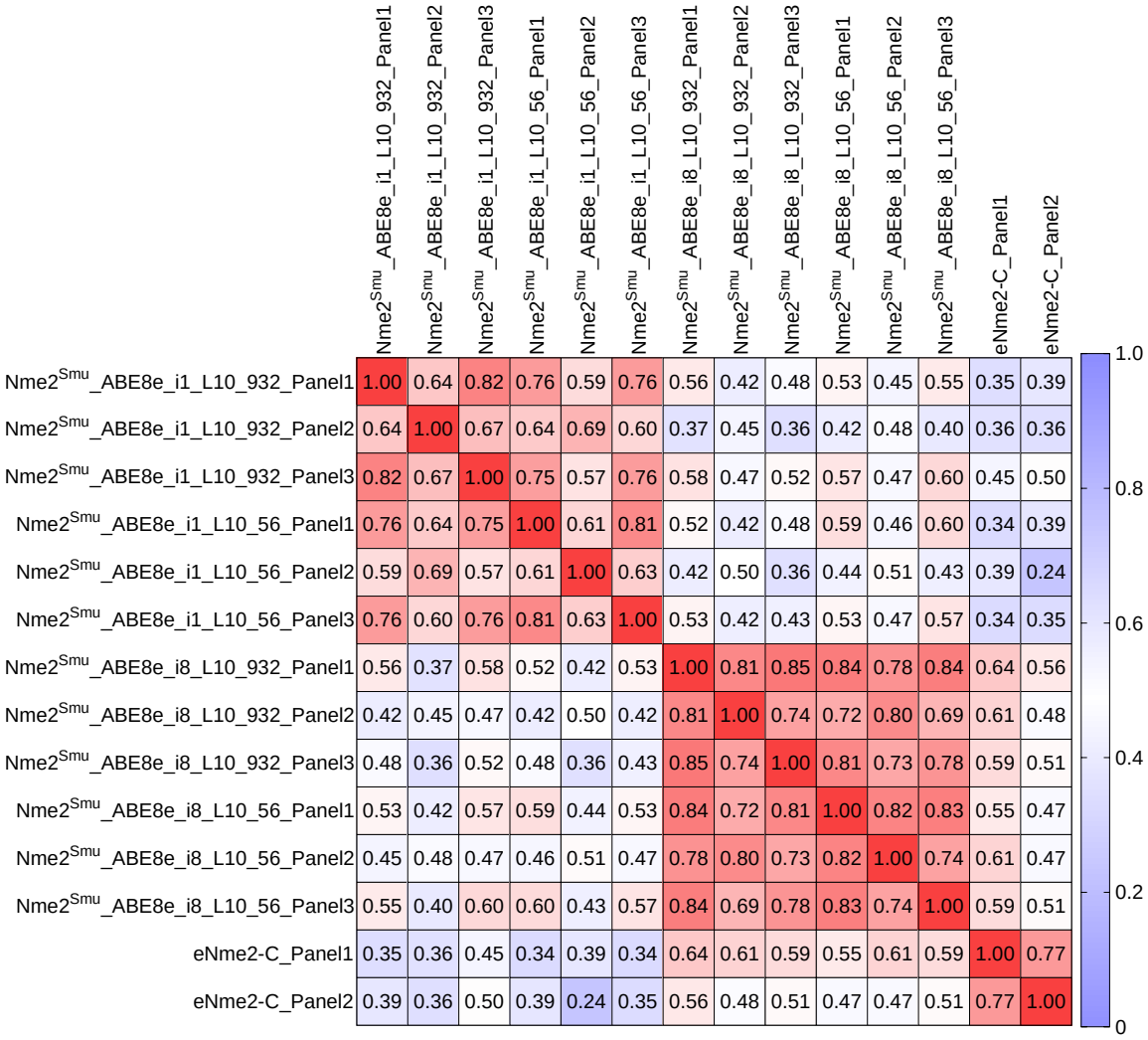


b.

Sample	Pearson r	p value	CI	*n*
Nme2Cas9	0.737	1.656E-33	0.6642 to 0.7964	188
Nme2^{Smu}Cas9	0.735	3.332E-33	0.6614 to 0.7945	188
Nme2^{Smu}Cas9 D56R	0.582	2.005E-18	0.4786 to 0.6693	188
Nme2^{Smu}Cas9 E932R	0.654	2.486E-24	0.5638 to 0.7290	188
eNme2-C.NR	0.811	3.826E-45	0.7554 to 0.8548	188

Supplementary Figure 13. Guide-target library quality control for nuclease editing panels. (**a**) Pearson correlation between experimental panels of nuclease guide-target library experiments, comparing the mean editing efficiencies of library member target sites. Each experimental panel consisted of 3 biological replicates (Rep1, 2 or 3), compiled from **Supplementary Figure 4** [panel 1, (P1)] and **Figure 2a** [panel 2, (P2)]. (**b**) Summary statistics from (**a**); CI indicates confidence interval, and *n* indicates number of comparisons used.

a.



b.

ABE panels 1 vs. 2 vs. 3	Pearson *r*			p value		
Sample	**Panel1 vs 2**	**Panel1 vs 3**	**Panel2 vs 3**	**Panel 1 vs 2**	**Panel 1 vs 3**	**Panel 2 vs 3**
Nme2^{Smu}_ABE8e_i1_L10 (E932R)	0.645	0.824	0.670	7.217E-23	1.696E-46	3.378E-25
Nme2^{Smu}_ABE8e_i1_L10 (D56R)	0.607	0.808	0.627	8.391E-20	1.745E-43	2.215E-21
Nme2_ABE8e_i8_L10 (E932R)	0.809	0.851	0.744	1.276E-43	1.840E-52	1.399E-33
Nme2_ABE8e_i8_L10 (D56R)	0.822	0.833	0.742	4.906E-46	2.162E-48	3.106E-33
eNme2.C_ABE8e	0.766	n/a	n/a	1.518E-36	n/a	n/a

	CI			*n*		
Sample	**Panel 1 vs 2**	**Panel 1 vs 3**	**Panel 2 vs 3**	**Panel 1 vs 2**	**Panel 1 vs 3**	**Panel 2 vs 3**
Nme2^{Smu}_ABE8e_i1_L10 (E932R)	0.5510 to 0.7221	0.7709 to 0.8655	0.5814 to 0.7428	183	183	183
Nme2^{Smu}_ABE8e_i1_L10 (D56R)	0.5065 to 0.6912	0.7512 to 0.8532	0.5301 to 0.7077	183	183	183
Nme2_ABE8e_i8_L10 (E932R)	0.7521 to 0.8538	0.8051 to 0.8865	0.6720 to 0.8028	183	183	183
Nme2_ABE8e_i8_L10 (D56R)	0.7680 to 0.8637	0.7824 to 0.8726	0.6687 to 0.8007	183	183	183
eNme2.C_ABE8e	0.6983 to 0.8198	n/a	n/a	183	n/a	n/a

Supplementary Figure 14. Guide-target quality control for ABE editing panels. (**a**) Pearson correlation between experimental panels of Nme2^{Smu}-ABE8e and eNme2-C effectors for the guide-target library experiments, comparing the mean editing rates across the adenines of a library member target site. Each experimental panel consisted of 3 biological replicates (Rep1, 2 or 3) compiled from **Figure 3c** (panel 1)**, Supplementary Figure 10** (panel 2), and **Supplementary Figure 9** (panel 3). (**b**) Summary statistics for data in (**a**); CI indicates confidence interval, and *n* indicates number of comparisons.

AA Mutation Location and Identity in nuclease	Codon Usage	Nucleic Acid Proximity in Homology Model	Domain	Note
D56R	CGT	**sgRNA**	Nme2 - Bridge Helix	
E186R	CGT	**sgRNA**	Nme2 - REC1	
D597R	CGT	**sgRNA**	Nme2 -HNH	
D598R	CGT	**sgRNA**	Nme2 -HNH	
D669R	CGT	**sgRNA**	Nme2 - RuvC III	
E885R	CGT	**sgRNA**	Nme2 - WEDGE	
E887R	CGT	**sgRNA**	Nme2 - WEDGE	
E1079R	CGT	**sgRNA**	$Nme2^{Smu}$- PID	Specific to $Nme2^{Smu}$ Effectors
T72Y	TAT	**sgRNA**	Nme2 - Bridge Helix	
E50R	CGT	**non-target DNA**	Nme2 - RuvC I	
D658R	CGT	**non-target DNA**	Nme2 -Linker II	
E659R	CGT	**non-target DNA**	Nme2 -Linker II	
D660R	CGT	**non-target DNA**	Nme2 -Linker II	
E932R	CGT	**non-target DNA**	Nme2 - WEDGE	
E989R	CGT	**target & non-target DNA**	$Nme2^{Smu}$- WEDGE	
D1048R	CGT	**target & non-target DNA**	$Nme2^{Smu}$- PID	Specific to $Nme2^{Smu}$ Effectors
D418R	CGT	**Target DNA**	Nme2 - REC1	
D442R	CGT	**Target DNA**	Nme2 - REC1	
E443R	CGT	**Target DNA**	Nme2 - REC1	
D451R	CGT	**Target DNA**	Nme2 - REC1	
D470R	CGT	**Target DNA**	Nme2 - RuvC II	
E471R	CGT	**Target DNA**	Nme2 - RuvC II	
E508R	CGT	**Target DNA**	Nme2 - RuvC II	
E520R	CGT	**Target DNA**	Nme2 -Linker I	
E524R	CGT	**Target DNA**	Nme2 -Linker I	
E552R	CGT	**Target DNA**	Nme2 -HNH	
E585R	CGT	**Target DNA**	Nme2 -HNH	
E587R	CGT	**Target DNA**	Nme2 -HNH	
E844R	CGT	**Target DNA**	Nme2 - WEDGE	
E868R	CGT	**Target DNA**	Nme2 - WEDGE	
E873R	CGT	**Target DNA**	Nme2 - WEDGE	
D947R	CGT	**Target DNA**	$Nme2^{Smu}$- PID	Specific to $Nme2^{Smu}$ Effectors
A987R	CGT	**Target DNA**	$Nme2^{Smu}$- PID	Equivalent to D987 in Nme2

Supplementary Table 1. Amino acid substitutions of Nme2Cas9 and $Nme2^{Smu}$Cas9 arginine mutants

eNme2-C	eNme2-C_NR	iNme2
P6S		D844G
E33G		E868K
K104T	K104T	K870R
D152A	D152A	D873A
F260L	F260L	D911G
A263T	A263T	K929R
A303S	A303S	E932K
D451V	D451V	
E520A		
R646S		
F696V		
G711R		
I758V		
H767Y		
E932K	E932K	
N1031S	N1031S	
R1033G	R1033G	
K1044R	K1044R	
Q1047R	Q1047R	
V1056A	V1056A	

Supplementary Table 2. Amino acid substitutions present within previously published PAM-relaxed Nme2Cas9 variants. Black-highlighted amino acid mutations are unique to specific Nme2Cas9 variants, while red-highlighted mutations indicate overlapping positions between previously characterized mutations and/or the Nme2Cas9 arginine variants described in this study.

Supplementary Note 1. Nucleotide sequence of key nuclease and base editing constructs described in this manuscript

Nme2Cas9 (WT): BPSV40-NLS, Nme2Cas9, Linkers

MKRTADGSEFESPKKKRKVEDMAAFKPNPINYILGLDIGIASVGWAMVEIDEEENPIRLIDLGVRVFERAEVPKTGDSLAMARRLARSVRR
LTRRRAHRLLRARRLLKREGVLQAADFDENGLIKSLPNTPWQLRAAALDRKLTPLEWSAVLLHLIKHRGYLSQRKNEGETADKELGALLKG
VANNAHALQTGDFRTPAELALNKFEKESGHIRNQRGDYSHTFSRKDLQAELILLFEKQKEFGNPHVSGGLKEGIETLLMTQRPALSGDAV
QKMLGHCTFEPAEPKAAKNTYTAERFIWLTKLNNLRILEQGSERPLTDTERATLMDEPYRKSKLTYAQARKLLGLEDTAFFKGLRYGKDNA
EASTLMEMKAYHAISRALEKEGLKDKKSPLNLSSELQDEIGTAFSLFKTDEDITGRLKDRVQPEILEALLKHISFDKFVQISLKALRRIVPLMEQ
GKRYDEACAEIYGDHYGKKNTEEKIYLPPIPADEIRNPVVLRALSQARKVINGVVRRYGSPARIHIETAREVGKSFKDRKEIEKRQEENRKDR
EKAAAKFREYFPNFVGEPKSKDILKLRLYEQQHGKCLYSGKEINLVRLNEKGYVEIDHALPFSRTWDDSFNNKVLVLGSENQNKGNQTPYE
YFNGKDNSREWQEFKARVETSRFPRSKKQRILLQKFDEDGFKECNLNDTRYVNRFLCQFVADHILLTGKGKRRVFASNGQITNLLRGFWG
LRKVRAENDRHHALDAVVVACSTVAMQQKITRFVRYKEMNAFDGKTIDKETGKVLHQKTHFPQPWEFFAQEVMIRVFGKPDGKPEFEE
ADTPEKLRTLLAEKLSSRPEAVHEYVTPLFVSRAPNRKMSGAHKDTLRSAKRFVKHNEKISVKRVWLTEIKLADLENMVNYKNGREIELYEA
LKARLEAYGGNAKQAFDPKDNPFYKKGGQLVKAVRVEKTQESGVLLNKKNAYTIADNGDMVRVDVFCKVDKKGKNQYFIVPIYAWQVA
ENILPDIDCKGYRIDDSYTFCFSLHKYDLIAFQKDEKSKVEFAYYINCDSSNGRFYLAWHDKGSKEQQFRISTQNLVLIQKYQVNELGKEIRPC
RLKKRPPVREDKRTADGSEFEPKKKRKV

Atgaaacggacagccgacggaagcgagttcgagtcaccaaagaagaagcggaaagtcgaagatatggccgccttcaagcctaacccaatcaattacatcctgggactgga
catcggaatcgcatccgtgggatgggctatggtggagatcgacgaggaggagaatcctatccggctgatcgatctgggcgtgagagtgtttgagagggccgaggtgccaaag
accggcgattctctggctatggcccggagactggcacggagcgtgaggcgcctgacacggagaagggcacacaggctgctgagggcacgccggctgctgaagagagaggg
cgtgctgcaggcagcagacttcgatgagaatggcctgatcaagagcctgccaaacacccccctggcagctgagagcagccgcccctggacaggaagctgacaccactggagtg
gtctgccgtgctgctgcacctgatcaagcaccgcggctacctgagccagcggaagaacgagggagagacagcagacaaggagctgggcgccctgctgaagggagtggcca
acaatgcccacgccctgcagaccggcgatttcaggacacctgccgagctggccctgaataagtttgagaaggagtccggccacatcagaaaccagaggggcgactatagcc
acaccttctcccgcaaggatctgcaggccgagctgatcctgctgttcgagaagcagaaggagtttggcaatccacacgtgagcggaggcctgaaggagggaatcgagaccct
gctgatgacacagaggcctgccctgtccggcgacgcagtgcagaagatgctgggacactgcaccttcgagcctgcagagccaaaggccgccaagaacacctacacagccga
gcggtttatctggctgacaaagctgaacaatctgagaatcctggagcagggatccgagaggccactgaccgacacagagagggccaccctgatggatgagccttaccggaa
gtctaagctgacatatgcccaggccagaaagctgctgggcctggaggacaccgccttctttaagggcctgagatacggcaaggataatgccgaggcctccacactgatggag
atgaaggcctatcacgccatctctcgcgccctggagaaggagggcctgaaggacaagaagtccccccctgaacctgagctccgagctgcaggatgagatcggcaccgccttct
ctctgtttaagaccgacgaggatatcacaggccgcctgaaggacagggtgcagcctgagatcctggaggccctgctgaagcacatctctttcgataagtttgtgcagatcagc
ctgaaggccctgagaaggatcgtgccactgatggagcagggcaagcggtacgacgaggcctgcgccgagatctacggcgatcactatggcaagaagaacacagaggaga
agatctatctgccccctatccctgccgacgagatcagaaatcctgtggtgctgagggccctgtcccaggcaagaaaagtgatcaacggagtggtgcgccggtacggatctcca
gcccggatccacatcgagaccgccagagaagtgggcaagagcttcaaggaccggaaggagatcgagaagagacaggaggagaatcgcaaggatcgggagaaggccgcc
gccaagtttagggagtacttccctaactttgtgggcgagccaaagtctaaggacatcctgaagctgcgcctgtacgagcagcagcacggcaagtgtctgtatagcggcaagg
agatcaatctggtgcggctgaacgagaagggctatgtggagatcgatcacgccctgcctttctccagaacctgggacgattcttttaacaataaggtgctggtgctgggcagcg
agaaccagaataagggcaatcagacaccatacgagtatttcaatggcaaggacaactccagggagtggcaggagttcaaggcccgcgtggagacctctagatttcccagga
gcaagaagcagcggatcctgctgcagaagttcgacgaggatggctttaaggagtgcaacctgaatgacaccagatacgtgaaccggttcctgtgccagtttgtggccgatca
catcctgctgaccggcaagggcaagagaagagggtgttcgcctctaatggccagatcacaaacctgctgaggggattttggggactgaggaaggtgcgggcagagaatgacag
acaccacgcactggatgcagtggtggtggcatgcagcaccgtggcaatgcagcagaagatcacaagattcgtgaggtataaggagatgaacgcctttgacggcaagaccat
cgataaggagacaggcaaggtgctgcaccagaagacccacttcccccagccttgggagttctttgcccaggaagtgatgatccgggtgttcggcaagccagacggcaagcct
gagtttgaggaggccgataccccagagaagctgaggacactgctggcagagaagctgtctagcaggccagaggcagtgcacgagtacgtgaccccactgttcgtgtccagg
gcacccaatcggaagatgtctggcgcccacaaggacacactgagaagcgccaagaggtttgtgaagcacaacgagaagatctccgtgaagagagtgtggctgaccgagat
caagctggccgatctggagaacatggtgaattacaagaacggcagggagatcgagctgtatgaggccctgaaggcaaggctggaggcctacggaggaaatgccaagcagg
ccttcgacccaaaggataaccccttttataagaagggaggacagctggtgaaggccgtgcgggtggagaagacccaggagagcggcgtgctgctgaataagaagaacgcc
tacacaatcgccgacaatggcgatatggtgagagtggacgtgttctgtaaggtggataagaagggcaagaatcagtactttatcgtgcctatctatgcctggcaggtggccga
gaacatcctgccagacatcgattgcaagggctacagaatcgacgatagctatacattctgtttttccctgcacaagtatgacctgatcgccttccagaaggatgagaagtccaa
ggtggagtttgcctactatatcaattgcgactcctctaacggcaggttctacctggcctggcacgataagggcagcaaggagcagcagtttcgcatctccacccagaatctggt
gctgatccagaagtatcaggtgaacgagctgggcaaggagatcaggccatgtcggctgaagaagcgcccacccgtgcggaggatgaaaagaaccgccgacggcagcgaa
ttcgagcccaagaagaagaggaaagtc

Nme2Cas9 (E932R): BPSV40-NLS, Nme2Cas9, Linkers

MKRTADGSEFESPKKKRKVEDMAAFKPNPINYILGLDIGIASVGWAMVEIDEEENPIRLIDLGVRVFERAEVPKTGDSLAMARRLARSVRR
LTRRRAHRLLRARRLLKREGVLQAADFDENGLIKSLPNTPWQLRAAALDRKLTPLEWSAVLLHLIKHRGYLSQRKNEGETADKELGALLKG
VANNAHALQTGDFRTPAELALNKFEKESGHIRNQRGDYSHTFSRKDLQAELILLFEKQKEFGNPHVSGGLKEGIETLLMTQRPALSGDAV
QKMLGHCTFEPAEPKAAKNTYTAERFIWLTKLNNLRILEQGSERPLTDTERATLMDEPYRKSKLTYAQARKLLGLEDTAFFKGLRYGKDNA
EASTLMEMKAYHAISRALEKEGLKDKKSPLNLSSELQDEIGTAFSLFKTDEDITGRLKDRVQPEILEALLKHISFDKFVQISLKALRRIVPLMEQ
GKRYDEACAEIYGDHYGKKNTEEKIYLPPIPADEIRNPVVLRALSQARKVINGVVRRYGSPARIHIETAREVGKSFKDRKEIEKRQEENRKDR
EKAAAKFREYFPNFVGEPKSKDILKLRLYEQQHGKCLYSGKEINLVRLNEKGYVEIDHALPFSRTWDDSFNNKVLVLGSENQNKGNQTPYE
YFNGKDNSREWQEFKARVETSRFPRSKKQRILLQKFDEDGFKECNLNDTRYVNRFLCQFVADHILLTGKGKRRVFASNGQITNLLRGFWG
LRKVRAENDRHHALDAVVVACSTVAMQQKITRFVRYKEMNAFDGKTIDKETGKVLHQKTHFPQPWEFFAQEVMIRVFGKPDGKPEFEE
ADTPEKLRTLLAEKLSSRPEAVHEYVTPLFVSRAPNRKMSGAHKDTLRSAKRFVKHNEKISVKRVWLTEIKLADLENMVNYKNGREIELYEA
LKARLEAYGGNAKQAFDPKDNPFYKKGGQLVKAVRVEKTQRSGVLLNKKNAYTIADNGDMVRVDVFCKVDKKGKNQYFIVPIYAWQVA
ENILPDIDCKGYRIDDSYTFCFSLHKYDLIAFQKDEKSKVEFAYYINCDSSNGRFYLAWHDKGSKEQQFRISTQNLVLIQKYQVNELGKEIRPC
RLKKRPPVREDKRTADGSEFEPKKKRKV

Atgaaacggacagccgacggaagcgagttcgagtcaccaaagaagaagcggaaagtcgaagatatggccgccttcaagcctaacccaatcaattacatcctgggactgga
catcggaatcgcatccgtgggatgggctatggtggagatcgacgaggaggagaatcctatccggctgatcgatctgggcgtgagagtgtttgagagggccgaggtgccaaag
accggcgattctctggctatggcccggagactggcacggagcgtgaggcgcctgacacggagaagggcacacaggctgctgagggcacgccggctgctgaagagagaggg
cgtgctgcaggcagcagacttcgatgagaatggcctgatcaagagcctgccaaacacccctggcagctgagagcagccgccctggacaggaagctgacaccactggagtg
gtctgccgtgctgctgcacctgatcaagcaccgcggctacctgagccagcggaagaacgagggagagacagcagacaaggagctgggcgccctgctgaagggagtggcca
acaatgcccacgccctgcagaccggcgatttcaggacacctgccgagctggccctgaataagtttgagaaggagtccggccacatcagaaaccagaggggcgactatagcc
acaccttctcccgcaaggatctgcaggccgagctgatcctgctgttcgagaagcagaaggagtttggcaatccacacgtgagcggaggcctgaaggagggaatcgagaccct
gctgatgacacagaggcctgccctgtccggcgacgcagtgcagaagatgctgggacactgcaccttcgagcctgcagagccaaaggccgccaagaacacctacacagccga
gcggtttatctggctgacaaagctgaacaatctgagaatcctggagcagggatccgagaggccactgaccgacacagagagggccaccctgatggatgagccttaccggaa
gtctaagctgacatatgcccaggccagaaagctgctgggcctggaggacaccgccttctttaagggcctgagatacggcaaggataatgccgaggcctccacactgatggag
atgaaggcctatcacgccatctctcgcgccctggagaaggagggcctgaaggacaagaagtccccctgaacctgagctccgagctgcaggatgagatcggcaccgccttct
ctctgtttaagaccgacgaggatatcacaggccgcctgaaggacagggtgcagcctgagatcctggaggccctgctgaagcacatctctttcgataagtttgtgcagatcagc
ctgaaggccctgagaaggatcgtgccactgatggagcagggcaagcggtacgacgaggcctgcgccgagatctacggcgatcactatggcaagaagaacacagaggaga
agatctatctgccccctatccctgccgacgagatcagaaatcctgtggtgctgagggccctgtcccaggcaagaaaagtgatcaacggagtggtgcgccggtacggatctcca
gcccggatccacatcgagaccgccagagaagtgggcaagagcttcaaggaccggaaggagatcgagaagagacaggaggagaatcgcaaggatcgggagaaggccgcc
gccaagtttagggagtacttccctaactttgtgggcgagccaaagtctaaggacatcctgaagctgcgcctgtacgagcagcagcacggcaagtgtctgtatagcggcaagg
agatcaatctggtgcggctgaacgagaagggctatgtggagatcgatcacgccctgcctttctccagaacctgggacgattcttttaacaataaggtgctggtgctgggcagcg
agaaccagaataagggcaatcagacaccatacgagtatttcaatggcaaggacaactccagggagtggcaggagttcaaggcccgcgtggagacctctagatttcccagga
gcaagaagcagcggatcctgctgcagaagttcgacgaggatggctttaaggagtgcaacctgaatgacaccagatacgtgaaccggttcctgtgccagtttgtggccgatca
catcctgctgaccggcaagggcaagagaagggtgttcgcctctaatggccagatcacaaacctgctgaggggattttggggactgaggaaggtgcgggcagagaatgacag
acaccacgcactggatgcagtggtggtggcatgcagcaccgtggcaatgcagcagaagatcacaagattcgtgaggtataaggagatgaacgcctttgacggcaagaccat
cgataaggagacaggcaaggtgctgcaccagaagacccacttccccagccttgggagttctttgcccaggaagtgatgatccgggtgttcggcaagccagacggcaagcct
gagtttgaggaggccgataccccagagaagctgaggacactgctggcagagaagctgtctagcaggccagaggcagtgcacgagtacgtgaccccactgttcgtgtccagg
gcacccaatcggaagatgtctggcgcccacaaggacacactgagaagcgccaagaggtttgtgaagcacaacgagaagatctccgtgaagagagtgtggctgaccgagat
caagctggccgatctggagaacatggtgaattacaagaacggcagggagatcgagctgtatgaggccctgaaggcaaggctggaggcctacggaggaaatgccaagcagg
ccttcgacccaaaggataaccccttttataagaagggaggacagctggtgaaggccgtgcgggtggagaagacccagCGTagcggcgtgctgctgaataagaagaacgcc
tacacaatcgccgacaatggcgatatggtgagagtggacgtgttctgtaaggtggataagaagggcaagaatcagtactttatcgtgcctatctatgcctggcaggtggccga
gaacatcctgccagacatcgattgcaagggctacagaatcgacgatagctatacattctgtttttccctgcacaagtatgacctgatcgccttccagaaggatgagaagtccaa
ggtggagtttgcctactatatcaattgcgactcctctaacggcaggttctacctggcctggcacgataagggcagcaaggagcagcagtttcgcatctccacccagaatctggt
gctgatccagaagtatcaggtgaacgagctgggcaaggagatcaggccatgtcggctgaagaagcgcccacccgtgcggaggatcaaaagaaccgccgacggcagcgaa
ttcgagcccaagaagaagaggaaagtc

Nme2Cas9 (D56R): BPSV40-NLS, Nme2Cas9, Linkers

MKRTADGSEFESPKKKRKVEDMAAFKPNPINYILGLDIGIASVGWAMVEIDEEENPIRLIDLGVRVFERAEVPKTGRSLAMARRLARSVRR
LTRRRAHRLLRARRLLKREGVLQAADFDENGLIKSLPNTPWQLRAAALDRKLTPLEWSAVLLHLIKHRGYLSQRKNEGETADKELGALLKG
VANNAHALQTGDFRTPAELALNKFEKESGHIRNQRGDYSHTFSRKDLQAELILLFEKQKEFGNPHVSGGLKEGIETLLMTQRPALSGDAV
QKMLGHCTFEPAEPKAAKNTYTAERFIWLTKLNNLRILEQGSERPLTDTERATLMDEPYRKSKLTYAQARKLLGLEDTAFFKGLRYGKDNA
EASTLMEMKAYHAISRALEKEGLKDKKSPLNLSSELQDEIGTAFSLFKTDEDITGRLKDRVQPEILEALLKHISFDKFVQISLKALRRIVPLMEQ
GKRYDEACAEIYGDHYGKKNTEEKIYLPPIPADEIRNPVVLRALSQARKVINGVVRRYGSPARIHIETAREVGKSFKDRKEIEKRQEENRKDR
EKAAAKFREYFPNFVGEPKSKDILKLRLYEQQHGKCLYSGKEINLVRLNEKGYVEIDHALPFSRTWDDSFNNKVLVLGSENQNKGNQTPYE
YFNGKDNSREWQEFKARVETSRFPRSKKQRILLQKFDEDGFKECNLNDTRYVNRFLCQFVADHILLTGKGKRRVFASNGQITNLLRGFWG
LRKVRAENDRHHALDAVVVACSTVAMQQKITRFVRYKEMNAFDGKTIDKETGKVLHQKTHFPQPWEFFAQEVMIRVFGKPDGKPEFEE
ADTPEKLRTLLAEKLSSRPEAVHEYVTPLFVSRAPNRKMSGAHKDTLRSAKRFVKHNEKISVKRVWLTEIKLADLENMVNYKNGREIELYEA
LKARLEAYGGNAKQAFDPKDNPFYKKGGQLVKAVRVEKTQESGVLLNKKNAYTIADNGDMVRVDVFCKVDKKGKNQYFIVPIYAWQVA
ENILPDIDCKGYRIDDSYTFCFSLHKYDLIAFQKDEKSKVEFAYYINCDSSNGRFYLAWHDKGSKEQQFRISTQNLVLIQKYQVNELGKEIRPC
RLKKRPPVREDKRTADGSEFEPKKKRKV

Atgaaacggacagccgacggaagcgagttcgagtcaccaaagaagaagcggaaagtcgaagatatggccgccttcaagcctaacccaatcaattacatcctgggactgga
catcggaatcgcatccgtgggatgggctatggtggagatcgacgaggaggagaatcctatccggctgatcgatctgggcgtgagagtgtttgagagggccgaggtgccaaag
accggcCGTtctctggctatggcccggagactggcacggagcgtgaggcgcctgacacggagaagggcacacaggctgctgagggcacgccggctgctgaagagagagg
gcgtgctgcaggcagcagacttcgatgagaatggcctgatcaagagcctgccaaacacccccctggcagctgagagcagccgccctggacaggaagctgacaccactggagt
ggtctgccgtgctgctgcacctgatcaagcaccgcggctacctgagccagcggaagaacgagggagagacagcagacaaggagctgggcgccctgctgaagggagtggcc
aacaatgcccacgccctgcagaccggcgatttcaggacacctgccgagctggccctgaataagtttgagaaggagtccggccacatcagaaaccagaggggcgactatagc
cacaccttctcccgcaaggatctgcaggccgagctgatcctgctgttcgagaagcagaaggagtttggcaatccacacgtgagcggaggcctgaaggagggaatcgagacc
ctgctgatgacacagaggcctgccctgtccggcgacgcagtgcagaagatgctgggacactgcaccttcgagcctgcagagccaaaggccgccaagaacacctacacagcc
gagcggtttatctggctgacaaagctgaacaatctgagaatcctggagcagggatccgagaggccactgaccgacacagagagggccaccctgatggatgagccttaccgg
aagtctaagctgacatatgcccaggccagaaagctgctgggcctggaggacaccgccttctttaagggcctgagatacggcaaggataatgccgaggcctccacactgatgg
agatgaaggcctatcacgccatctctcgcgccctggagaaggagggcctgaaggacaagaagtccccccctgaacctgagctccgagctgcaggatgagatcggcaccgcctt
ctctctgtttaagaccgacgaggatatcacaggccgcctgaaggacagggtgcagcctgagatcctggaggccctgctgaagcacatctctttcgataagtttgtgcagatcag
cctgaaggccctgagaaggatcgtgccactgatggagcagggcaagcggtacgacgaggcctgcgccgagatctacggcgatcactatggcaagaagaacacagaggag
aagatctatctgccccctatccctgccgacgagatcagaaatcctgtggtgctgagggccctgtcccaggcaagaaaagtgatcaacggagtggtgcgccggtacggatctcc
agcccggatccacatcgagaccgccagagaagtgggcaagagcttcaaggaccggaaggagatcgagaagagacaggaggagaatcgcaaggatcgggagaaggccgc
cgccaagtttagggagtacttccctaactttgtgggcgagccaaagtctaaggacatcctgaagctgcgcctgtacgagcagcagcacggcaagtgtctgtatagcggcaagg
agatcaatctggtgcggctgaacgagaagggctatgtggagatcgatcacgccctgcctttctccagaacctgggacgattcttttaacaataaggtgctggtgctgggcagcg
agaaccagaataagggcaatcagacaccatacgagtatttcaatggcaaggacaactccagggagtggcaggagttcaaggcccgcgtggagacctctagatttcccagga
gcaagaagcagcggatcctgctgcagaagttcgacgaggatggctttaaggagtgcaacctgaatgacaccagatacgtgaaccggttcctgtgccagtttgtggccgatca
catcctgctgaccggcaagggcaagagaagggtgttcgcctctaatggccagatcacaaacctgctgaggggattttggggactgaggaaggtgcgggcagagaatgacag
acaccacgcactggatgcagtggtggtggcatgcagcaccgtggcaatgcagcagaagatcacaagattcgtgaggtataaggagatgaacgcctttgacggcaagaccat
cgataaggagacaggcaaggtgctgcaccagaagacccacttcccccagccttgggagttctttgcccaggaagtgatgatccgggtgttcggcaagccagacggcaagcct
gagtttgaggaggccgataccccagagaagctgaggacactgctggcagagaagctgtctagcaggccagaggcagtgcacgagtacgtgaccccactgttcgtgtccagg
gcacccaatcggaagatgtctggcgcccacaaggacacactgagaagcgccaagaggtttgtgaagcacaacgagaagatctccgtgaagagagtgtggctgaccgagat
caagctggccgatctggagaacatggtgaattacaagaacggcagggagatcgagctgtatgaggccctgaaggcaaggctggaggcctacggaggaaatgccaagcagg
ccttcgacccaaaggataaccccttttataagaagggaggacagctggtgaaggccgtgcgggtggagaagacccaggagagcggcgtgctgctgaataagaagaacgcc
tacacaatcgccgacaatggcgatatggtgagagtggacgtgttctgtaaggtggataagaagggcaagaatcagtactttatcgtgcctatctatgcctggcaggtggccga
gaacatcctgccagacatcgattgcaagggctacagaatcgacgatagctatacattctgtttttccctgcacaagtatgacctgatcgccttccagaaggatgagaagtccaa
ggtggagtttgcctactatatcaattgcgactcctctaacggcaggttctacctggcctggcacgataagggcagcaaggagcagcagtttcgcatctccacccagaatctggt
gctgatccagaagtatcaggtgaacgagctgggcaaggagatcaggccatgtcggctgaagaagcgcccacccgtgcggaggatataaagaaccgccgacggcagcgaa
ttcgagcccaagaagaagaggaaagtc

Nme2^{Smu}Cas9 (WT): BPSV40-NLS, Nme2Cas9 – delta PID, SmuCas9 PID, Linkers

MKRTADGSEFESPKKKRKVEDMAAFKPNPINYILGLDIGIASVGWAMVEIDEEENPIRLIDLGVRVFERAEVPKTGDSLAMARRLARSVRR
LTRRRAHRLLRARRLLKREGVLQAADFDENGLIKSLPNTPWQLRAAALDRKLTPLEWSAVLLHLIKHRGYLSQRKNEGETADKELGALLKG
VANNAHALQTGDFRTPAELALNKFEKESGHIRNQRGDYSHTFSRKDLQAELILLFEKQKEFGNPHVSGGLKEGIETLLMTQRPALSGDAV
QKMLGHCTFEPAEPKAAKNTYTAERFIWLTKLNNLRILEQGSERPLTDTERATLMDEPYRKSKLTYAQARKLLGLEDTAFFKGLRYGKDNA
EASTLMEMKAYHAISRALEKEGLKDKKSPLNLSSELQDEIGTAFSLFKTDEDITGRLKDRVQPEILEALLKHISFDKFVQISLKALRRIVPLMEQ
GKRYDEACAEIYGDHYGKKNTEEKIYLPPIPADEIRNPVVLRALSQARKVINGVVRRYGSPARIHIETAREVGKSFKDRKEIEKRQEENRKDR
EKAAAKFREYFPNFVGEPKSKDILKLRLYEQQHGKCLYSGKEINLVRLNEKGYVEIDHALPFSRTWDDSFNNKVLVLGSENQNKGNQTPYE
YFNGKDNSREWQEFKARVETSRFPRSKKQRILLQKFDEDGFKECNLNDTRYVNRFLCQFVADHILLTGKGKRRVFASNGQITNLLRGFWG
LRKVRAENDRHHALDAVVVACSTVAMQQKITRFVRYKEMNAFDGKTIDKETGKVLHQKTHFPQPWEFFAQEVMIRVFGKPDGKPEFEE
ADTPEKLRTLLAEKLSSRPEAVHEYVTPLFVSRAPNRKMSGAHKDTLRSAKRFVKHNEKISVKRVWLTEIKLADLENMVNYKNGREIELYEA
LKARLEAYGGNAKQAFDPKDNPFYKKGGQLVKAVRVEKTQESGVLLNKKNAYTIADNATMVRVDVYTKAGKNYLVPVYVWQVAQGILP
NRAVTSGKSEADWDLIDESFEFKFSLSRGDLVEMISNKGRIFGYYNGLDRANGSIGIREHDLEKSKGKDGVHRVGVKTATAFNKYHVDPLG
KEIHRCSSEPRPTLKIKSKKEDKRTADGSEFEPKKKRKV

atgaaacggacagccgacggaagcgagttcgagtcaccaaagaagaagcggaaagtcgaagatatggccgccttcaagcctaacccaatcaattacatcctgggactgga
catcggaatcgcatccgtgggatgggctatggtggagatcgacgaggaggagaatcctatccggctgatcgatctgggcgtgagagtgtttgagagggccgaggtgccaaag
accggcgattctctggctatggcccggagactggcacggagcgtgaggcgcctgacacggagaagggcacacaggctgctgagggcacgccggctgctgaagagagaggg
cgtgctgcaggcagcagacttcgatgagaatggcctgatcaagagcctgccaaacacccctggcagctgagagcagccgccctggacaggaagctgacaccactggagtg
gtctgccgtgctgctgcacctgatcaagcaccgcggctacctgagccagcggaagaacgagggagagacagcagacaaggagctgggcgccctgctgaagggagtggcca
acaatgcccacgccctgcagaccggcgatttcaggacacctgccgagctggccctgaataagtttgagaaggagtccggccacatcagaaaccagaggggcgactatagcc
acaccttctcccgcaaggatctgcaggccgagctgatcctgctgttcgagaagcagaaggagtttggcaatccacacgtgagcggaggcctgaaggagggaatcgagaccct
gctgatgacacagaggcctgccctgtccggcgacgcagtgcagaagatgctgggacactgcaccttcgagcctgcagagccaaaggccgccaagaacacctacacagccga
gcggtttatctggctgacaaagctgaacaatctgagaatcctggagcagggatccgagaggccactgaccgacacagagagggccaccctgatggatgagccttaccggaa
gtctaagctgacatatgcccaggccagaaagctgctgggcctggaggacaccgccttctttaagggcctgagatacggcaaggataatgccgaggcctccacactgatggag
atgaaggcctatcacgccatctctcgcgccctggagaaggagggcctgaaggacaagaagtccccccctgaacctgagctccgagctgcaggatgagatcggcaccgccttct
ctctgtttaagaccgacgaggatatcacaggccgcctgaaggacagggtgcagcctgagatcctggaggccctgctgaagcacatctctttcgataagtttgtgcagatcagc
ctgaaggccctgagaaggatcgtgccactgatggagcagggcaagcggtacgacgaggcctgcgccgagatctacggcgatcactatggcaagaagaacacagaggaga
agatctatctgccccctatccctgccgacgagatcagaaatcctgtggtgctgagggccctgtcccaggcaagaaaagtgatcaacggagtggtgcgccggtacggatctcca
gcccggatccacatcgagaccgccagagaagtgggcaagagcttcaaggaccggaaggagatcgagaagagacaggaggagaatcgcaaggatcgggagaaggccgcc
gccaagtttagggagtacttccctaactttgtgggcgagccaaagtctaaggacatcctgaagctgcgcctgtacgagcagcagcacggcaagtgtctgtatagcggcaagg
agatcaatctggtgcggctgaacgagaagggctatgtggagatcgatcacgccctgcctttctccagaacctgggacgattcttttaacaataaggtgctggtgctgggcagcg
agaaccagaataagggcaatcagacaccatacgagtatttcaatggcaaggacaactccagggagtggcaggagttcaaggcccgcgtggagacctctagatttcccagga
gcaagaagcagcggatcctgctgcagaagttcgacgaggatggctttaaggagtgcaacctgaatgacaccagatacgtgaaccggttcctgtgccagtttgtggccgatca
catcctgctgaccggcaagggcaagagaagggtgttcgcctctaatggccagatcacaaacctgctgaggggattttggggactgaggaaggtgcgggcagagaatgacag
acaccacgcactggatgcagtggtggtggcatgcagcaccgtggcaatgcagcagaagatcacaagattcgtgaggtataaggagatgaacgcctttgacggcaagaccat
cgataaggagacaggcaaggtgctgcaccagaagacccacttcccccagccttgggagttctttgcccaggaagtgatgatccgggtgttcggcaagccagacggcaagcct
gagtttgaggaggccgataccccagagaagctgaggacactgctggcagagaagctgtctagcaggccagaggcagtgcacgagtacgtgaccccactgttcgtgtccagg
gcacccaatcggaagatgtctggcgcccacaaggacacactgagaagcgccaagaggtttgtgaagcacaacgagaagatctccgtgaagagagtgtggctgaccgagat
caagctggccgatctggagaacatggtgaattacaagaacggcagggagatcgagctgtatgaggccctgaaggcaaggctggaggcctacggaggaaatgccaagcagg
ccttcgacccaaaggataaccccttttataagaagggaggacagctggtgaaggccgtgcgggtggagaagacccaggagagcggcgtgctgctgaataagaagaacgcc
tacacaatcgccgacaacgccaccatggtgcgggtggacgtgtacaccaaggccggcaagaactacctggttcctgtgtacgtgtggcaggtggcccagggcatcttaccca
accgcgccgtgaccagcggcaagtccgaggctgactgggacctgatcgatgagagcttcgagttcaagttctctctgtcccggggagatctcgtggaaatgatctccaacaag
ggcagaatcttcggctactacaacggcctggacagagccaacggctctattggaattagagagcacgacctagagaagagcaagggcaaagacggcgtgcatagagtggg
agtgaaaacagctacagcatttaacaagtaccacgtggatcccctgggcaaagagatccacagatgcagcagcgaacccagacctacactgaaaatcaagtctaagaagg
aggataaaagaaccgccgacggcagcgaattcgagcccaagaagaagaggaaagtc

Nme2^{Smu}Cas9 (E932R): BPSV40-NLS, Nme2Cas9 – delta PID, SmuCas9 PID, Linkers

MKRTADGSEFESPKKKRKVEDMAAFKPNPINYILGLDIGIASVGWAMVEIDEEENPIRLIDLGVRVFERAEVPKTGDSLAMARRLARSVRR
LTRRRAHRLLRARRLLKREGVLQAADFDENGLIKSLPNTPWQLRAAALDRKLTPLEWSAVLLHLIKHRGYLSQRKNEGETADKELGALLKG
VANNAHALQTGDFRTPAELALNKFEKESGHIRNQRGDYSHTFSRKDLQAELILLFEKQKEFGNPHVSGGLKEGIETLLMTQRPALSGDAV
QKMLGHCTFEPAEPKAAKNTYTAERFIWLTKLNNLRILEQGSERPLTDTERATLMDEPYRKSKLTYAQARKLLGLEDTAFFKGLRYGKDNA
EASTLMEMKAYHAISRALEKEGLKDKKSPLNLSSELQDEIGTAFSLFKTDEDITGRLKDRVQPEILEALLKHISFDKFVQISLKALRRIVPLMEQ
GKRYDEACAEIYGDHYGKKNTEEKIYLPPIPADEIRNPVVLRALSQARKVINGVVRRYGSPARIHIETAREVGKSFKDRKEIEKRQEENRKDR
EKAAAKFREYFPNFVGEPKSKDILKLRLYEQQHGKCLYSGKEINLVRLNEKGYVEIDHALPFSRTWDDSFNNKVLVLGSENQNKGNQTPYE
YFNGKDNSREWQEFKARVETSRFPRSKKQRILLQKFDEDGFKECNLNDTRYVNRFLCQFVADHILLTGKGKRRVFASNGQITNLLRGFWG
LRKVRAENDRHHALDAVVVACSTVAMQQKITRFVRYKEMNAFDGKTIDKETGKVLHQKTHFPQPWEFFAQEVMIRVFGKPDGKPEFEE
ADTPEKLRTLLAEKLSSRPEAVHEYVTPLFVSRAPNRKMSGAHKDTLRSAKRFVKHNEKISVKRVWLTEIKLADLENMVNYKNGREIELYEA
LKARLEAYGGNAKQAFDPKDNPFYKKGGQLVKAVRVEKTQRSGVLLNKKNAYTIADNATMVRVDVYTKAGKNYLVPVYVWQVAQGILP
NRAVTSGKSEADWDLIDESFEFKFSLSRGDLVEMISNKGRIFGYYNGLDRANGSIGIREHDLEKSKGKDGVHRVGVKTATAFNKYHVDPLG
KEIHRCSSEPRPTLKIKSKKEDKRTADGSEFEPKKKRKV

atgaaacggacagccgacggaagcgagttcgagtcaccaaagaagaagcggaaagtcgaagatatggccgccttcaagcctaacccaatcaattacatcctgggactgga
catcggaatcgcatccgtgggatgggctatggtggagatcgacgaggaggagaatcctatccggctgatcgatctgggcgtgagagtgtttgagagggccgaggtgccaaag
accggcgattctctggctatggcccggagactggcacggagcgtgaggcgcctgacacggagaagggcacacaggctgctgagggcacgccggctgctgaagagagaggg
cgtgctgcaggcagcagacttcgatgagaatggcctgatcaagagcctgccaaacacccctggcagctgagagcagccgccctggacaggaagctgacaccactggagtg
gtctgccgtgctgctgcacctgatcaagcaccgcggctacctgagccagcggaagaacgagggagagacagcagacaaggagctgggcgccctgctgaagggagtggcca
acaatgcccacgccctgcagaccggcgatttcaggacacctgccgagctggccctgaataagtttgagaaggagtccggccacatcagaaaccagaggggcgactatagcc
acaccttctcccgcaaggatctgcaggccgagctgatcctgctgttcgagaagcagaaggagtttggcaatccacacgtgagcggaggcctgaaggagggaatcgagaccct
gctgatgacacagaggcctgccctgtccggcgacgcagtgcagaagatgctgggacactgcaccttcgagcctgcagagccaaaggccgccaagaacacctacacagccga
gcggtttatctggctgacaaagctgaacaatctgagaatcctggagcagggatccgagaggccactgaccgacacagagagggccaccctgatggatgagccttaccggaa
gtctaagctgacatatgcccaggccagaaagctgctgggcctggaggacaccgccttctttaagggcctgagatacggcaaggataatgccgaggcctccacactgatggag
atgaaggcctatcacgccatctctcgcgccctggagaaggagggcctgaaggacaagaagtccccctgaacctgagctccgagctgcaggatgagatcggcaccgccttct
ctctgtttaagaccgacgaggatatcacaggccgcctgaaggacagggtgcagcctgagatcctggaggccctgctgaagcacatctctttcgataagtttgtgcagatcagc
ctgaaggccctgagaaggatcgtgccactgatggagcagggcaagcggtacgacgaggcctgcgccgagatctacggcgatcactatggcaagaagaacacagaggaga
agatctatctgccccctatccctgccgacgagatcagaaatcctgtggtgctgagggccctgtcccaggcaagaaaagtgatcaacggagtggtgcgccggtacggatctcca
gcccggatccacatcgagaccgccagagaagtgggcaagagcttcaaggaccggaaggagatcgagaagagacaggaggagaatcgcaaggatcgggagaaggccgcc
gccaagtttagggagtacttccctaactttgtgggcgagccaaagtctaaggacatcctgaagctgcgcctgtacgagcagcagcacggcaagtgtctgtatagcggcaagg
agatcaatctggtgcggctgaacgagaagggctatgtggagatcgatcacgccctgcctttctccagaacctgggacgattcttttaacaataaggtgctggtgctgggcagcg
agaaccagaataagggcaatcagacaccatacgagtatttcaatggcaaggacaactccagggagtggcaggagttcaaggcccgcgtggagacctctagatttcccagga
gcaagaagcagcggatcctgctgcagaagttcgacgaggatggctttaaggagtgcaacctgaatgacaccagatacgtgaaccggttcctgtgccagtttgtggccgatca
catcctgctgaccggcaagggcaagagaagggtgttcgcctctaatggccagatcacaaacctgctgaggggattttggggactgaggaaggtgcgggcagagaatgacag
acaccacgcactggatgcagtggtggtggcatgcagcaccgtggcaatgcagcagaagatcacaagattcgtgaggtataaggagatgaacgcctttgacggcaagaccat
cgataaggagacaggcaaggtgctgcaccagaagacccacttccccagccttgggagttctttgcccaggaagtgatgatccgggtgttcggcaagccagacggcaagcct
gagtttgaggaggccgataccccagagaagctgaggacactgctggcagagaagctgtctagcaggccagaggcagtgcacgagtacgtgaccccactgttcgtgtccagg
gcacccaatcggaagatgtctggcgcccacaaggacacactgagaagcgccaagaggtttgtgaagcacaacgagaagatctccgtgaagagagtgtggctgaccgagat
caagctggccgatctggagaacatggtgaattacaagaacggcagggagatcgagctgtatgaggccctgaaggcaaggctggaggcctacggaggaaatgccaagcagg
ccttcgacccaaaggataaccccttttataagaagggaggacagctggtgaaggccgtgcgggtggagaagacccagCGTagcggcgtgctgctgaataagaagaacgcc
tacacaatcgccgacaacgccaccatggtgcgggtggacgtgtacaccaaggccggcaagaactacctggttcctgtgtacgtgtggcaggtggcccagggcatcttaccca
accgcgccgtgaccagcggcaagtccgaggctgactgggacctgatcgatgagagcttcgagttcaagttctctctgtcccggggagatctcgtggaaatgatctccaacaag
ggcagaatcttcggctactacaacggcctggacagagccaacggctctattggaattagagagcacgacctagagaagagcaagggcaaagacggcgtgcatagagtggg
agtgaaaacagctacagcatttaacaagtaccacgtggatcccctgggcaaagagatccacagatgcagcagcgaacccagacctacactgaaaatcaagtctaagaagg
aggataaaagaaccgccgacggcagcgaattcgagcccaagaagaagaggaaagtc

Nme2^{Smu}Cas9 (D56R): BPSV40-NLS, Nme2Cas9 – delta PID, SmuCas9 PID, Linkers

MKRTADGSEFESPKKKRKVEDMAAFKPNPINYILGLDIGIASVGWAMVEIDEEENPIRLIDLGVRVFERAEVPKTGRSLAMARRLARSVRR
LTRRRAHRLLRARRLLKREGVLQAADFDENGLIKSLPNTPWQLRAAALDRKLTPLEWSAVLLHLIKHRGYLSQRKNEGETADKELGALLKG
VANNAHALQTGDFRTPAELALNKFEKESGHIRNQRGDYSHTFSRKDLQAELILLFEKQKEFGNPHVSGGLKEGIETLLMTQRPALSGDAV
QKMLGHCTFEPAEPKAAKNTYTAERFIWLTKLNNLRILEQGSERPLTDTERATLMDEPYRKSKLTYAQARKLLGLEDTAFFKGLRYGKDNA
EASTLMEMKAYHAISRALEKEGLKDKKSPLNLSSELQDEIGTAFSLFKTDEDITGRLKDRVQPEILEALLKHISFDKFVQISLKALRRIVPLMEQ
GKRYDEACAEIYGDHYGKKNTEEKIYLPPIPADEIRNPVVLRALSQARKVINGVVRRYGSPARIHIETAREVGKSFKDRKEIEKRQEENRKDR
EKAAAKFREYFPNFVGEPKSKDILKLRLYEQQHGKCLYSGKEINLVRLNEKGYVEIDHALPFSRTWDDSFNNKVLVLGSENQNKGNQTPYE
YFNGKDNSREWQEFKARVETSRFPRSKKQRILLQKFDEDGFKECNLNDTRYVNRFLCQFVADHILLTGKGKRRVFASNGQITNLLRGFWG
LRKVRAENDRHHALDAVVVACSTVAMQQKITRFVRYKEMNAFDGKTIDKETGKVLHQKTHFPQPWEFFAQEVMIRVFGKPDGKPEFEE
ADTPEKLRTLLAEKLSSRPEAVHEYVTPLFVSRAPNRKMSGAHKDTLRSAKRFVKHNEKISVKRVWLTEIKLADLENMVNYKNGREIELYEA
LKARLEAYGGNAKQAFDPKDNPFYKKGGQLVKAVRVEKTQESGVLLNKKNAYTIADNATMVRVDVYTKAGKNYLVPVYVWQVAQGILP
NRAVTSGKSEADWDLIDESFEFKFSLSRGDLVEMISNKGRIFGYYNGLDRANGSIGIREHDLEKSKGKDGVHRVGVKTATAFNKYHVDPLG
KEIHRCSSEPRPTLKIKSKKEDKRTADGSEFEPKKKRKV

atgaaacggacagccgacggaagcgagttcgagtcaccaaagaagaagcggaaagtcgaagatatggccgccttcaagcctaacccaatcaattacatcctgggactgga
catcggaatcgcatccgtgggatgggctatggtggagatcgacgaggaggagaatcctatccggctgatcgatctgggcgtgagagtgtttgagagggccgaggtgccaaag
accggcCGTtctctggctatggcccggagactggcacggagcgtgaggcgcctgacacggagaagggcacacaggctgctgagggcacgccggctgctgaagagagagg
gcgtgctgcaggcagcagacttcgatgagaatggcctgatcaagagcctgccaaacacccccctggcagctgagagcagccgccctggacaggaagctgacaccactggagt
ggtctgccgtgctgctgcacctgatcaagcaccgcggctacctgagccagcggaagaacgagggagagacagcagacaaggagctgggcgccctgctgaagggagtggcc
aacaatgcccacgccctgcagaccggcgatttcaggacacctgccgagctggccctgaataagtttgagaaggagtccggccacatcagaaaccagaggggcgactatagc
cacaccttctcccgcaaggatctgcaggccgagctgatcctgctgttcgagaagcagaaggagtttggcaatccacacgtgagcggaggcctgaaggagggaatcgagacc
ctgctgatgacacagaggcctgccctgtccggcgacgcagtgcagaagatgctgggacactgcaccttcgagcctgcagagccaaaggccgccaagaacacctacacagcc
gagcggtttatctggctgacaaagctgaacaatctgagaatcctggagcagggatccgagaggccactgaccgacacagagagggccaccctgatggatgagccttaccgg
aagtctaagctgacatatgcccaggccagaaagctgctgggcctggaggacaccgccttctttaagggcctgagatacggcaaggataatgccgaggcctccacactgatgg
agatgaaggcctatcacgccatctctcgcgccctggagaaggagggcctgaaggacaagaagtccccccctgaacctgagctccgagctgcaggatgagatcggcaccgcctt
ctctctgtttaagaccgacgaggatatcacaggccgcctgaaggacagggtgcagcctgagatcctggaggccctgctgaagcacatctctttcgataagtttgtgcagatcag
cctgaaggccctgagaaggatcgtgccactgatggagcagggcaagcggtacgacgaggcctgcgccgagatctacggcgatcactatggcaagaagaacacagaggag
aagatctatctgccccctatccctgccgacgagatcagaaatcctgtggtgctgagggccctgtcccaggcaagaaaagtgatcaacggagtggtgcgccggtacggatctcc
agcccggatccacatcgagaccgccagagaagtgggcaagagcttcaaggaccggaaggagatcgagaagagacaggaggagaatcgcaaggatcgggagaaggccgc
cgccaagtttagggagtacttccctaactttgtgggcgagccaaagtctaaggacatcctgaagctgcgcctgtacgagcagcagcacggcaagtgtctgtatagcggcaagg
agatcaatctggtgcggctgaacgagaagggctatgtggagatcgatcacgccctgcctttctccagaacctgggacgattcttttaacaataaggtgctggtgctgggcagcg
agaaccagaataagggcaatcagacaccatacgagtatttcaatggcaaggacaactccagggagtggcaggagttcaaggcccgcgtggagacctctagatttcccagga
gcaagaagcagcggatcctgctgcagaagttcgacgaggatggctttaaggagtgcaacctgaatgacaccagatacgtgaaccggttcctgtgccagtttgtggccgatca
catcctgctgaccggcaagggcaagagaagggtgttcgcctctaatggccagatcacaaacctgctgaggggattttggggactgaggaaggtgcgggcagagaatgacag
acaccacgcactggatgcagtggtggtggcatgcagcaccgtggcaatgcagcagaagatcacaagattcgtgaggtataaggagatgaacgcctttgacggcaagaccat
cgataaggagacaggcaaggtgctgcaccagaagacccacttcccccagccttgggagttctttgcccaggaagtgatgatccgggtgttcggcaagccagacggcaagcct
gagtttgaggaggccgataccccagagaagctgaggacactgctggcagagaagctgtctagcaggccagaggcagtgcacgagtacgtgaccccactgttcgtgtccagg
gcacccaatcggaagatgtctggcgcccacaaggacacactgagaagcgccaagaggtttgtgaagcacaacgagaagatctccgtgaagagagtgtggctgaccgagat
caagctggccgatctggagaacatggtgaattacaagaacggcagggagatcgagctgtatgaggccctgaaggcaaggctggaggcctacggaggaaatgccaagcagg
ccttcgacccaaaggataaccccttttataagaagggaggacagctggtgaaggccgtgcgggtggagaagacccaggagagcggcgtgctgctgaataagaagaacgcc
tacacaatcgccgacaacgccaccatggtgcgggtggacgtgtacaccaaggccggcaagaactacctggttcctgtgtacgtgtggcaggtggcccagggcatcttaccca
accgcgccgtgaccagcggcaagtccgaggctgactgggacctgatcgatgagagcttcgagttcaagttctctctgtcccggggagatctcgtggaaatgatctccaacaag
ggcagaatcttcggctactacaacggcctggacagagccaacggctctattggaattagagagcacgacctagagaagagcaagggcaaagacggcgtgcatagagtggg
agtgaaaacagctacagcatttaacaagtaccacgtggatcccctgggcaaagagatccacagatgcagcagcgaacccagacctacactgaaaatcaagtctaagaagg
aggataaaagaaccgccgacggcagcgaattcgagcccaagaagaagaggaaagtc

eNme2-C.NR (vLiu): BPSV40-NLS, eNme2-C.NR , Linkers

David Liu Lab evolved Nme2Cas9 nuclease for N4CN PAM targeting without alterations

MKRTADGSEFESPKKKRKVAAFKPNPINYILGLDIGIASVGWAMVEIDEEENPIRLIDLGVRVFERAEVPKTGDSLAMARRLARSVRRLTRR
RAHRLLRARRLLKREGVLQAADFDENGLITSLPNTPWQLRAAALDRKLTPLEWSAVLLHLIKHRGYLSQRKNEGETAAKELGALLKGVAN
NAHALQTGDFRTPAELALNKFEKESGHIRNQRGDYSHTFSRKDLQAELILLFEKQKEFGNPHVSGGLKEGIETLLMTQRPALSGDAVQKM
LGHCTLEPTEPKAAKNTYTAERFIWLTKLNNLRILEQGSERPLTDTERSTLMDEPYRKSKLTYAQARKLLGLEDTAFFKGLRYGKDNAEASTL
MEMKAYHAISRALEKEGLKDKKSPLNLSSELQDEIGTAFSLFKTDEDITGRLKDRVQPEILEALLKHISFDKFVQISLKALRRIVPLMEQGKRY
DEACAEIYGVHYGKKNTEEKIYLPPIPADEIRNPVVLRALSQARKVINGVVRRYGSPARIHIETAREVGKSFKDRKEIEKRQEENRKDREKAA
AKFREYFPNFVGEPKSKDILKLRLYEQQHGKCLYSGKEINLVRLNEKGYVEIDHALPFSRTWDDSFNNKVLVLGSENQNKGNQTPYEYFNG
KDNSREWQEFKARVETSRFPRSKKQRILLQKFDEDGFKECNLNDTRYVNRFLCQFVADHILLTGKGKRRVFASNGQITNLLRGFWGLRKV
RAENDRHHALDAVVVACSTVAMQQKITRFVRYKEMNAFDGKTIDKETGKVLHQKTHFPQPWEFFAQEVMIRVFGKPDGKPEFEEADTP
EKLRTLLAEKLSSRPEAVHEYVTPLFVSRAPNRKMSGAHKDTLRSAKRFVKHNEKISVKRVWLTEIKLADLENMVNYKNGREIELYEALKAR
LEAYGGNAKQAFDPKDNPFYKKGGQLVKAVRVEKTQKSGVLLNKKNAYTIADNGDMVRVDVFCKVDKKGKNQYFIVPIYAWQVAENIL
PDIDCKGYRIDDSYTFCFSLHKYDLIAFQKDEKSKVEFAYYINCDSSSGGFYLAWHDKGSREQRFRISTQNLALIQKYQVNELGKEIRPCRLKK
RPPVRSGGSKRTADGSEFEPKKKRKV

atgaaacggacagccgacggaagcgagttcgagtcaccaaagaagaagcggaaagtcacagcattcaagcctaacccaatcaattacatcctgggactggatatcggaat
cgcatccgtgggatgggctatggtggagatcgacgaggaggagaatcctatccggctgatcgatctgggcgtgagagtgtttgagagggccgaggtgccaaagaccggcgat
tctctggctatggcccggagactggcacggagcgtgaggcgcctgacacggagaagggcacacaggctgctgagggcacgccggctgctgaagagagagggcgtgctgca
ggcagcagacttcgatgagaatggcctgatcacgagcttgccaaacacccccctggcagctgagagcagccgccctggacaggaagctgacaccactggagtggtctgccgt
gctgctgcacctgatcaagcaccgcggctacctgagccagcggaagaacgagggagagacagcagccaaggagctgggcgccctgctgaagggagtggccaacaatgccc
acgccctgcagaccggcgatttcaggacacctgccgagctggccctgaataagtttgagaaggagtccggccacatcagaaaccagaggggcgactatagccacaccttctc
ccgcaaggatctgcaggccgagctgatcctgctgttcgagaagcagaaggagtttggcaatccacacgtgagcggaggcctgaaggagggaatcgagaccctgctgatgac
acagaggcctgccctgtccggcgacgcagtgcagaagatgctggggcactgcaccctcgagcctacagagccaaaggccgccaagaacacctacacagccgagcggtttat
ctggctgacaaagctgaacaatctgagaatcctggagcagggatccgagaggccactgaccgacacagagaggtccaccctgatggatgagccttaccggaagtctaaact
gacatatgcccaggccagaaagctgctgggcctggaggacaccgccttctttaagggcctgagatacggcaaggataatgccgaggcctccacactgatggagatgaaggc
ctatcacgccatctctcgcgccctggagaaggagggcctgaaggacaagaagtccccccctgaacctgagctccgagctgcaggatgagatcggcaccgccttctctctgttta
agaccgacgaggatatcacaggccgcctgaaggacagggtgcagcctgagatcctggaggccctgctgaagcacatctctttcgataagtttgtgcagatcagcctgaaggc
cctgagaaggatcgtgccactgatggagcagggcaagcggtacgacgaggcctgcgccgagatctacggcgttcactatggcaagaagaacacagaggagaagatctatct
gcccctatccctgccgacgagatcagaaatcctgtggtgctgagggccctgtcccaggcaagaaaagtgatcaacggagtggtgcgccggtacggatctccagcccggatc
cacatcgagaccgccagagaagtgggcaagagcttcaaggaccggaaggagatcgagaagagacaggaggagaatcgcaaggatcgggagaaggccgccgccaagttt
agggagtacttccctaactttgtgggcgagccaaagtctaaggacatcctgaagctgcgcctgtacgagcagcagcacggcaagtgtctgtatagcggcaaggagatcaatc
tggtgcggctgaacgagaagggctatgtggagatcgatcacgccctgcctttctccagaacctgggacgattcttttaacaataaggtgctggtgctgggcagcgagaaccag
aataagggcaatcagacaccatacgagtatttcaatggcaaggacaactccagggagtggcaggagttcaaggcccgcgtggagacctctagatttcccaggagcaagaag
cagcggatcctgctgcagaagttcgacgaggatggctttaaggagtgcaacctgaatgacaccagatacgtgaaccggttcctgtgccagtttgtggccgatcacatcctgctg
accggcaagggcaagagaagggtgttcgcctctaatggccagatcacaaacctgctgaggggattttggggactgaggaaggtgcgggcagagaatgacagacaccacgc
actggatgcagtggtggtggcatgcagcaccgtggcaatgcagcagaagatcacaagattcgtgaggtataaggagatgaacgcctttgacggcaagaccatcgataagga
gacaggcaaggtgctgcaccagaagacccacttcccccagccttgggagttctttgcccaggaagtgatgatccgggtgttcggcaagccagacggcaagcctgagtttgag
gaggccgataccccagagaagctgaggacactgctggcagagaagctgtctagcaggccagaggcagtgcacgagtacgtgaccccactgttcgtgtccagggcacccaat
cggaagatgtctggcgcccacaaggacacactgagaagcgccaagaggtttgtgaagcacaacgagaagatctccgtgaagagagtgtggctgaccgagatcaagctggc
cgatctggagaacatggtgaattacaagaacggcagggagatcgagctgtatgaggccctgaaggcaaggctggaggcctacggaggaaatgccaagcaggccttcgacc
caaaggataacccctttataagaagggaggacagctggtgaaggccgtgcgggtggagaagacccagaagagcggcgtgctgctgaataagaagaacgcctacacaatc
gccgacaatggtgatatggtgagagtggacgtgttctgtaaggtggataagaagggcaagaatcagtactttatcgtgcctatctatgcctggcaggtggccgagaacatcct
gccagacatcgattgcaagggctacagaatcgacgatagctatacattctgtttttccctgcacaagtatgacctgatcgccttccagaaggatgagaagtccaaggtggagtt
tgcctactatatcaattgcgactcctctagcggcgggttctacctggcctggcacgataagggcagcagggagcagcggtttcgcatctccacccagaatctggcgctgatcca
gaagtatcaggtgaacgagctgggcaaggagatcaggccatgtcggctgaagaagcgcccacccgtgcggtctggcggctcaaaaagaaccgccgacggcagcgaattcg
agcccaagaagaagaggaaagtc

eNme2-C.NR (vEJS): BPSV40-NLS, eNme2-C.NR , Linkers

David Liu Lab evolved Nme2Cas9 nuclease for N4CN PAM targeting with linker and nuclear localization signals in the same framework as Nme2- and Nme2^{Smu}Cas9 nucleases described in this work.

MKRTADGSEFESPKKKRKVEDAAFKPNPINYILGLDIGIASVGWAMVEIDEEENPIRLIDLGVRVFERAEVPKTGDSLAMARRLARSVRRLT
RRRAHRLLRARRLLKREGVLQAADFDENGLITSLPNTPWQLRAAALDRKLTPLEWSAVLLHLIKHRGYLSQRKNEGETAAKELGALLKGVA
NNAHALQTGDFRTPAELALNKFEKESGHIRNQRGDYSHTFSRKDLQAELILLFEKQKEFGNPHVSGGLKEGIETLLMTQRPALSGDAVQK
MLGHCTLEPTEPKAAKNTYTAERFIWLTKLNNLRILEQGSERPLTDTERSTLMDEPYRKSKLTYAQARKLLGLEDTAFFKGLRYGKDNAEAS
TLMEMKAYHAISRALEKEGLKDKKSPLNLSSELQDEIGTAFSLFKTDEDITGRLKDRVQPEILEALLKHISFDKFVQISLKALRRIVPLMEQGKR
YDEACAEIYGVHYGKKNTEEKIYLPPIPADEIRNPVVLRALSQARKVINGVVRRYGSPARIHIETAREVGKSFKDRKEIEKRQEENRKDREKA
AAKFREYFPNFVGEPKSKDILKLRLYEQQHGKCLYSGKEINLVRLNEKGYVEIDHALPFSRTWDDSFNNKVLVLGSENQNKGNQTPYEYFN
GKDNSREWQEFKARVETSRFPRSKKQRILLQKFDEDGFKECNLNDTRYVNRFLCQFVADHILLTGKGKRRVFASNGQITNLLRGFWGLRK
VRAENDRHHALDAVVVACSTVAMQQKITRFVRYKEMNAFDGKTIDKETGKVLHQKTHFPQPWEFFAQEVMIRVFGKPDGKPEFEEAD
TPEKLRTLLAEKLSSRPEAVHEYVTPLFVSRAPNRKMSGAHKDTLRSAKRFVKHNEKISVKRVWLTEIKLADLENMVNYKNGREIELYEALK
ARLEAYGGNAKQAFDPKDNPFYKKGGQLVKAVRVEKTQKSGVLLNKKNAYTIADNGDMVRVDVFCKVDKKGKNQYFIVPIYAWQVAE
NILPDIDCKGYRIDDSYTFCFSLHKYDLIAFQKDEKSKVEFAYYINCDSSSGGFYLAWHDKGSREQRFRISTQNLALIQKYQVNELGKEIRPCR
LKKRPPVREDKRTADGSEFEPKKKRKV

atgaaacggacagccgacggaagcgagttcgagtcaccaaagaagaagcggaaagtcgaagatacagcattcaagcctaacccaatcaattacatcctgggactggatat
cggaatcgcatccgtgggatgggctatggtggagatcgacgaggaggagaatcctatccggctgatcgatctgggcgtgagagtgtttgagagggccgaggtgccaaagac
cggcgattctctggctatggcccggagactggcacggagcgtgaggcgcctgacacggagaagggcacacaggctgctgagggcacgccggctgctgaagagagagggcg
tgctgcaggcagcagacttcgatgagaatggcctgatcacgagcttgccaaacacccccctggcagctgagagcagccgccctggacaggaagctgacaccactggagtggt
ctgccgtgctgctgcacctgatcaagcaccgcggctacctgagccagcggaagaacgagggagagacagcagccaaggagctgggcgccctgctgaagggagtggccaac
aatgcccacgccctgcagaccggcgatttcaggacacctgccgagctggccctgaataagtttgagaaggagtccggccacatcagaaaccagaggggcgactatagccac
accttctcccgcaaggatctgcaggccgagctgatcctgctgttcgagaagcagaaggagtttggcaatccacacgtgagcggaggcctgaaggagggaatcgagaccctgc
tgatgacacagaggcctgccctgtccggcgacgcagtgcagaagatgctggggcactgcaccctcgagcctacagagccaaaggccgccaagaacacctacacagccgag
cggtttatctggctgacaaagctgaacaatctgagaatcctggagcagggatccgagaggccactgaccgacacagagaggtccaccctgatggatgagccttaccggaagt
ctaaactgacatatgcccaggccagaaagctgctgggcctggaggacaccgccttctttaagggcctgagatacggcaaggataatgccgaggcctccacactgatggagat
gaaggcctatcacgccatctctcgcgccctggagaaggagggcctgaaggacaagaagtccccccctgaacctgagctccgagctgcaggatgagatcggcaccgccttctct
ctgtttaagaccgacgaggatatcacaggccgcctgaaggacagggtgcagcctgagatcctggaggccctgctgaagcacatctctttcgataagtttgtgcagatcagcct
gaaggccctgagaaggatcgtgccactgatggagcagggcaagcggtacgacgaggcctgcgccgagatctacggcgttcactatggcaagaagaacacagaggagaag
atctatctgccccctatccctgccgacgagatcagaaatcctgtggtgctgagggccctgtcccaggcaagaaaagtgatcaacggagtggtgcgccggtacggatctccagc
ccggatccacatcgagaccgccagagaagtgggcaagagcttcaaggaccggaaggagatcgagaagagacaggaggagaatcgcaaggatcgggagaaggccgccgc
caagtttagggagtacttccctaactttgtgggcgagccaaagtctaaggacatcctgaagctgcgcctgtacgagcagcagcacggcaagtgtctgtatagcggcaaggag
atcaatctggtgcggctgaacgagaagggctatgtggagatcgatcacgccctgcctttctccagaacctgggacgattcttttaacaataaggtgctggtgctgggcagcgag
aaccagaataagggcaatcagacaccatacgagtatttcaatggcaaggacaactccagggagtggcaggagttcaaggcccgcgtggagacctctagatttcccaggagc
aagaagcagcggatcctgctgcagaagttcgacgaggatggctttaaggagtgcaacctgaatgacaccagatacgtgaaccggttcctgtgccagtttgtggccgatcacat
cctgctgaccggcaagggcaagagaagggtgttcgcctctaatggccagatcacaaacctgctgaggggattttggggactgaggaaggtgcgggcagagaatgacagaca
ccacgcactggatgcagtggtggtggcatgcagcaccgtggcaatgcagcagaagatcacaagattcgtgaggtataaggagatgaacgcctttgacggcaagaccatcga
taaggagacaggcaaggtgctgcaccagaagacccacttcccccagccttgggagttctttgcccaggaagtgatgatccgggtgttcggcaagccagacggcaagcctgag
tttgaggaggccgataccccagagaagctgaggacactgctggcagagaagctgtctagcaggccagaggcagtgcacgagtacgtgaccccactgttcgtgtccagggca
cccaatcggaagatgtctggcgcccacaaggacacactgagaagcgccaagaggtttgtgaagcacaacgagaagatctccgtgaagagagtgtggctgaccgagatcaa
gctggccgatctggagaacatggtgaattacaagaacggcagggagatcgagctgtatgaggccctgaaggcaaggctggaggcctacggaggaaatgccaagcaggcct
tcgacccaaaggataaccccttttataagaagggaggacagctggtgaaggccgtgcgggtggagaagacccagaagagcggcgtgctgctgaataagaagaacgcctac
acaatcgccgacaatggtgatatggtgagagtggacgtgttctgtaaggtggataagaagggcaagaatcagtactttatcgtgcctatctatgcctggcaggtggccgagaa
catcctgccagacatcgattgcaagggctacagaatcgacgatagctatacattctgtttttccctgcacaagtatgacctgatcgccttccagaaggatgagaagtccaaggt
ggagtttgcctactatatcaattgcgactcctctagcggcgggttctacctggcctggcacgataagggcagcagggagcagcggtttcgcatctccacccagaatctggcgct
gatccagaagtatcaggtgaacgagctgggcaaggagatcaggccatgtcggctgaagaagcgcccacccgtgcgggaggataaaagaaccgccgacggcagcgaattc
gagcccaagaagaagaggaaagtc

Nme2-ABE8e-i1_linker10 (WT): BPSV40-NLS, nNme2Cas9, TadA8e, Linkers

MKRTADGSEFESPKKKRKVEDMAAFKPNPINYILGLAIGIASVGWAMVEIDEEENPIRLIDLGVRVFERAEVPKTGDSLAMARRLARSVRRLTRR
RAHRLLRARRLLKREGVLQAADFDENGLIKSLPNTPWQLRAAALDRKLTPLEWSAVLLHLIKHRGYLSQRKNEGETADKELGALLKGVANNAHAL
QTGDFRTPAELALNKFEKESGHIRNQRGDYSHTFSRKDLQAELILLFEKQKEFGNPHVSGGLKEGIETLLMTQRPALSGDAVQKMLGHCTFEPAE
PKAAKNTYTAERFIWLTKLNNLRILEQSGGSGGSGGSSEVEFSHEYWMRHALTLAKRARDEREVPVGAVLVLNNRVIGEGWNRAIGLHDPTAH
AEIMALRQGGLVMQNYRLIDATLYVTFEPCVMCAGAMIHSRIGRVVFGVRNSKRGAAGSLMNVLNYPGMNHRVEITEGILADECAALLCDFYR
MPRQVFNAQKKAQSSINETPGTSESATGSERPLTDTERATLMDEPYRKSKLTYAQARKLLGLEDTAFFKGLRYGKDNAEASTLMEMKAYHAISR
ALEKEGLKDKKSPLNLSSELQDEIGTAFSLFKTDEDITGRLKDRVQPEILEALLKHISFDKFVQISLKALRRIVPLMEQGKRYDEACAEIYGDHYGKKN
TEEKIYLPPIPADEIRNPVVLRALSQARKVINGVVRRYGSPARIHIETAREVGKSFKDRKEIEKRQEENRKDREKAAAKFREYFPNFVGEPKSKDILKL
RLYEQQHGKCLYSGKEINLVRLNEKGYVEIDHALPFSRTWDDSFNNKVLVLGSENQNKGNQTPYEYFNGKDNSREWQEFKARVETSRFPRSKK
QRILLQKFDEDGFKECNLNDTRYVNRFLCQFVADHILLTGKGKRRVFASNGQITNLLRGFWGLRKVRAENDRHHALDAVVVACSTVAMQQKIT
RFVRYKEMNAFDGKTIDKETGKVLHQKTHFPQPWEFFAQEVMIRVFGKPDGKPEFEEADTPEKLRTLLAEKLSSRPEAVHEYVTPLFVSRAPNRK
MSGAHKDTLRSAKRFVKHNEKISVKRVWLTEIKLADLENMVNYKNGREIELYEALKARLEAYGGNAKQAFDPKDNPFYKKGGQLVKAVRVEKT
QESGVLLNKKNAYTIADNGDMVRVDVFCKVDKKGKNQYFIVPIYAWQVAENILPDIDCKGYRIDDSYTFCFSLHKYDLIAFQKDEKSKVEFAYYIN
CDSSNGRFYLAWHDKGSKEQQFRISTQNLVLIQKYQVNELGKEIRPCRLKKRPPVREDKRTADGSEFEPKKKRKV

atgaaacggacagccgacggaagcgagttcgagtcaccaaagaagaagcggaaagtcgaagatatggccgccttcaagcctaacccaatcaattacatcctgggactggccatcg
gaatcgcatccgtgggatgggctatggtggagatcgacgaggaggagaatcctatccggctgatcgatctgggcgtgagagtgtttgagagggccgaggtgccaaagaccggcga
ttctctggctatggcccggagactggcacggagcgtgaggcgcctgacacggagaagggcacacaggctgctgagggcacgccggctgctgaagagagagggcgtgctgcaggc
agcagacttcgatgagaatggcctgatcaagagcctgccaaacacccctggcagctgagagcagccgccctggacaggaagctgacaccactggagtggtctgccgtgctgctg
cacctgatcaagcaccgcggctacctgagccagcggaagaacgagggagagacagcagacaaggagctgggcgccctgctgaagggagtggccaacaatgcccacgccctgca
gaccggcgatttcaggacacctgccgagctggccctgaataagtttgagaaggagtccggccacatcagaaaccagaggggcgactatagccacaccttctcccgcaaggatctgc
aggccgagctgatcctgctgttcgagaagcagaaggagtttggcaatccacacgtgagcggaggcctgaaggagggaatcgagaccctgctgatgacacagaggcctgccctgtc
cggcgacgcagtgcagaagatgctgggacactgcaccttcgagcctgcagagccaaaggccgccaagaacacctacacagccgagcggtttatctggctgacaaagctgaacaat
ctgagaatcctggagcagtctggcggttcaggtggatcaggcggtagctctgaggtggagttttcccacgagtactggatgagacatgccctgaccctggccaagagggcacgcga
tgagagggaggtgcctgtgggagccgtgctggtgctgaacaatagagtgatcggcgagggctggaacagagccatcggcctgcacgacccaacagcccatgccgaaattatggcc
ctgagacagggcggcctggtcatgcagaactacagactgattgacgccaccctgtacgtgacattcgagccttgcgtgatgtgcgccggcgccatgatccactctaggatcggccgc
gtggtgtttggcgtgaggaacagcaaacggggcgccgcaggctccctgatgaacgtgctgaactaccccggcatgaatcaccgcgtcgaaattaccgagggaatcctggcagatg
aatgtgccgccctgctgtgcgacttctaccggatgcctagacaggtgttcaatgctcagaagaaggcccagagctccatcaacgagacacctggcacaagcgagagcgcaacagg
atccgagaggccactgaccgacacagagagggccaccctgatggatgagccttaccggaagtctaagctgacatatgcccaggccagaaagctgctgggcctggaggacaccgc
cttctttaagggcctgagatacggcaaggataatgccgaggcctccacactgatggagatgaaggcctatcacgccatctctcgcgccctggagaaggagggcctgaaggacaag
aagtccccccctgaacctgagctccgagctgcaggatgagatcggcaccgccttctctctgtttaagaccgacgaggatatcacaggccgcctgaaggacagggtgcagcctgagat
cctggaggccctgctgaagcacatctctttcgataagtttgtgcagatcagcctgaaggccctgagaaggatcgtgccactgatggagcagggcaagcggtacgacgaggcctgcg
ccgagatctacggcgatcactatggcaagaagaacacagaggagaagatctatctgccccctatccctgccgacgagatcagaaatcctgtggtgctgagggccctgtcccaggca
agaaaagtgatcaacggagtggtgcgccggtacggatctccagcccggatccacatcgagaccgccagagaagtgggcaagagcttcaaggaccggaaggagatcgagaagag
acaggaggagaatcgcaaggatcgggagaaggccgccgccaagtttagggagtacttccctaactttgtgggcgagccaaagtctaaggacatcctgaagctgcgcctgtacgag
cagcagcacggcaagtgtctgtatagcggcaaggagatcaatctggtgcggctgaacgagaagggctatgtggagatcgatcacgccctgcctttctccagaacctgggacgattct
tttaacaataaggtgctggtgctgggcagcgagaaccagaataagggcaatcagacaccatacgagtatttcaatggcaaggacaactccagggagtggcaggagttcaaggccc
gcgtggagacctctagatttcccaggagcaagaagcagcggatcctgctgcagaagttcgacgaggatggctttaaggagtgcaacctgaatgacaccagatacgtgaaccggttc
ctgtgccagtttgtggccgatcacatcctgctgaccggcaagggcaagagaaagggtgttcgcctctaatggccagatcacaaacctgctgaggggattttggggactgaggaaggtg
cgggcagagaatgacagacaccacgcactggatgcagtggtggtggcatgcagcaccgtggcaatgcagcagaagatcacaagattcgtgaggtataaggagatgaacgcctttg
acggcaagaccatcgataaggagacaggcaaggtgctgcaccagaagacccacttcccccagccttgggagttctttgcccaggaagtgatgatccgggtgttcggcaagccaga
cggcaagcctgagtttgaggaggccgataccccagagaagctgaggacactgctggcagagaagctgtctagcaggccagaggcagtgcacgagtacgtgaccccactgttcgtg
tccagggcacccaatcggaagatgtctggcgcccacaaggacacactgagaagcgccaagaggtttgtgaagcacaacgagaagatctccgtgaagagagtgtggctgaccgag
atcaagctggccgatctggagaacatggtgaattacaagaacggcagggagatcgagctgtatgaggccctgaaggcaaggctggaggcctacggaggaaatgccaagcaggcc
ttcgacccaaaggataacccctttataagaagggaggacagctggtgaaggccgtgcgggtggagaagacccaggagagcggcgtgctgctgaataagaagaacgcctacaca
atcgccgacaatggcgatatggtgagagtggacgtgttctgtaaggtggataagaagggcaagaatcagtactttatcgtgcctatctatgcctggcaggtggccgagaacatcctg
ccagacatcgattgcaagggctacagaatcgacgatagctatacattctgtttttccctgcacaagtatgacctgatcgccttccagaaggatgagaagtccaaggtggagtttgcct
actatatcaattgcgactcctctaacggcaggttctacctggcctggcacgataagggcagcaaggagcagcagtttcgcatctccacccagaatctggtgctgatccagaagtatca
ggtgaacgagctgggcaaggagatcaggccatgtcggctgaagaagcgcccacccgtgcggaggatagaaagaaccgccgacggcagcgaattcgagcccaagaagaagaggg
aaagtc

Nme2-ABE8e-i1_linker10 (E932R): BPSV40-NLS, nNme2Cas9, TadA8e, Linkers

MKRTADGSEFESPKKKRKVEDMAAFKPNPINYILGLAIGIASVGWAMVEIDEEENPIRLIDLGVRVFERAEVPKTGDSLAMARRLARSVRRLTRR
RAHRLLRARRLLKREGVLQAADFDENGLIKSLPNTPWQLRAAALDRKLTPLEWSAVLLHLIKHRGYLSQRKNEGETADKELGALLKGVANNAHAL
QTGDFRTPAELALNKFEKESGHIRNQRGDYSHTFSRKDLQAELILLFEKQKEFGNPHVSGGLKEGIETLLMTQRPALSGDAVQKMLGHCTFEPAE
PKAAKNTYTAERFIWLTKLNNLRILEQSGGSGGSGGSSEVEFSHEYWMRHALTLAKRARDEREVPVGAVLVLNNRVIGEGWNRAIGLHDPTAH
AEIMALRQGGLVMQNYRLIDATLYVTFEPCVMCAGAMIHSRIGRVVFGVRNSKRGAAGSLMNVLNYPGMNHRVEITEGILADECAALLCDFYR
MPRQVFNAQKKAQSSINETPGTSESATGSERPLTDTERATLMDEPYRKSKLTYAQARKLLGLEDTAFFKGLRYGKDNAEASTLMEMKAYHAISR
ALEKEGLKDKKSPLNLSSELQDEIGTAFSLFKTDEDITGRLKDRVQPEILEALLKHISFDKFVQISLKALRRIVPLMEQGKRYDEACAEIYGDHYGKKN
TEEKIYLPPIPADEIRNPVVLRALSQARKVINGVVRRYGSPARIHIETAREVGKSFKDRKEIEKRQEENRKDREKAAAKFREYFPNFVGEPKSKDILKL
RLYEQQHGKCLYSGKEINLVRLNEKGYVEIDHALPFSRTWDDSFNNKVLVLGSENQNKGNQTPYEYFNGKDNSREWQEFKARVETSRFPRSKK
QRILLQKFDEDGFKECNLNDTRYVNRFLCQFVADHILLTGKGKRRVFASNGQITNLLRGFWGLRKVRAENDRHHALDAVVVACSTVAMQQKIT
RFVRYKEMNAFDGKTIDKETGKVLHQKTHFPQPWEFFAQEVMIRVFGKPDGKPEFEEADTPEKLRTLLAEKLSSRPEAVHEYVTPLFVSRAPNRK
MSGAHKDTLRSAKRFVKHNEKISVKRVWLTEIKLADLENMVNYKNGREIELYEALKARLEAYGGNAKQAFDPKDNPFYKKGGQLVKAVRVEKT
QRSGVLLNKKNAYTIADNGDMVRVDVFCKVDKKGKNQYFIVPIYAWQVAENILPDIDCKGYRIDDSYTFCFSLHKYDLIAFQKDEKSKVEFAYYIN
CDSSNGRFYLAWHDKGSKEQQFRISTQNLVLIQKYQVNELGKEIRPCRLKKRPPVREDKRTADGSEFEPKKKRKV

atgaaacggacagccgacggaagcgagttcgagtcaccaaagaagaagcggaaagtcgaagatatggccgccttcaagcctaacccaatcaattacatcctgggactggccatcg
gaatcgcatccgtgggatgggctatggtggagatcgacgaggaggagaatcctatccggctgatcgatctgggcgtgagagtgtttgagagggccgaggtgccaaagaccggcga
ttctctggctatggcccggagactggcacggagcgtgaggcgcctgacacggagaagggcacacaggctgctgagggcacgccggctgctgaagagagagggcgtgctgcaggc
agcagacttcgatgagaatggcctgatcaagagcctgccaaacacccctggcagctgagagcagccgccctggacaggaagctgacaccactggagtggtctgccgtgctgctg
cacctgatcaagcaccgcggctacctgagccagcggaagaacgagggagagacagcagacaaggagctgggcgccctgctgaagggagtggccaacaatgcccacgccctgca
gaccggcgatttcaggacacctgccgagctggccctgaataagtttgagaaggagtccggccacatcagaaaccagaggggcgactatagccacaccttctcccgcaaggatctgc
aggccgagctgatcctgctgttcgagaagcagaaggagtttggcaatccacacgtgagcggaggcctgaaggagggaatcgagaccctgctgatgacacagaggcctgccctgtc
cggcgacgcagtgcagaagatgctgggacactgcaccttcgagcctgcagagccaaaggccgccaagaacacctacacagccgagcggtttatctggctgacaaagctgaacaat
ctgagaatcctggagcagtctggcggttcaggtggatcaggcggtagctctgaggtggagttttcccacgagtactggatgagacatgccctgaccctggccaagagggcacgcga
tgagagggaggtgcctgtgggagccgtgctggtgctgaacaatagagtgatcggcgagggctggaacagagccatcggcctgcacgacccaacagcccatgccgaaattatggcc
ctgagacagggcggcctggtcatgcagaactacagactgattgacgccaccctgtacgtgacattcgagccttgcgtgatgtgcgccggcgccatgatccactctaggatcggccgc
gtggtgtttggcgtgaggaacagcaaacggggcgccgcaggctccctgatgaacgtgctgaactaccccggcatgaatcaccgcgtcgaaattaccgagggaatcctggcagatg
aatgtgccgccctgctgtgcgacttctaccggatgcctagacaggtgttcaatgctcagaagaaggcccagagctccatcaacgagacacctggcacaagcgagagcgcaacagg
atccgagaggccactgaccgacacagagagggccaccctgatggatgagccttaccggaagtctaagctgacatatgcccaggccagaaagctgctgggcctggaggacaccgc
cttctttaagggcctgagatacggcaaggataatgccgaggcctccacactgatggagatgaaggcctatcacgccatctctcgcgccctggagaaggagggcctgaaggacaag
aagtccccccctgaacctgagctccgagctgcaggatgagatcggcaccgccttctctctgtttaagaccgacgaggatatcacaggccgcctgaaggacagggtgcagcctgagat
cctggaggccctgctgaagcacatctctttcgataagtttgtgcagatcagcctgaaggccctgagaaggatcgtgccactgatggagcagggcaagcggtacgacgaggcctgcg
ccgagatctacggcgatcactatggcaagaagaacacagaggagaagatctatctgccccctatccctgccgacgagatcagaaatcctgtggtgctgagggccctgtcccaggca
agaaaagtgatcaacggagtggtgcgccggtacggatctccagcccggatccacatcgagaccgccagagaagtgggcaagagcttcaaggaccggaaggagatcgagaagag
acaggaggagaatcgcaaggatcgggagaaggccgccgccaagtttagggagtacttccctaactttgtgggcgagccaaagtctaaggacatcctgaagctgcgcctgtacgag
cagcagcacggcaagtgtctgtatagcggcaaggagatcaatctggtgcggctgaacgagaagggctatgtggagatcgatcacgccctgcctttctccagaacctgggacgattct
tttaacaataaggtgctggtgctgggcagcgagaaccagaataagggcaatcagacaccatacgagtatttcaatggcaaggacaactccagggagtggcaggagttcaaggccc
gcgtggagacctctagatttcccaggagcaagaagcagcggatcctgctgcagaagttcgacgaggatggctttaaggagtgcaacctgaatgacaccagatacgtgaaccggttc
ctgtgccagtttgtggccgatcacatcctgctgaccggcaagggcaagagaaagggtgttcgcctctaatggccagatcacaaacctgctgaggggattttggggactgaggaaggtg
cgggcagagaatgacagacaccacgcactggatgcagtggtggtggcatgcagcaccgtggcaatgcagcagaagatcacaagattcgtgaggtataaggagatgaacgcctttg
acggcaagaccatcgataaggagacaggcaaggtgctgcaccagaagacccacttcccccagccttgggagttctttgcccaggaagtgatgatccgggtgttcggcaagccaga
cggcaagcctgagtttgaggaggccgataccccagagaagctgaggacactgctggcagagaagctgtctagcaggccagaggcagtgcacgagtacgtgaccccactgttcgtg
tccagggcacccaatcggaagatgtctggcgcccacaaggacacactgagaagcgccaagaggtttgtgaagcacaacgagaagatctccgtgaagagagtgtggctgaccgag
atcaagctggccgatctggagaacatggtgaattacaagaacggcagggagatcgagctgtatgaggccctgaaggcaaggctggaggcctacggaggaaatgccaagcaggcc
ttcgacccaaaggataaccccttttataagaagggaggacagctggtgaaggccgtgcgggtggagaagacccagCGTagcggcgtgctgctgaataagaagaacgcctacaca
atcgccgacaatggcgatatggtgagagtggacgtgttctgtaaggtggataagaagggcaagaatcagtactttatcgtgcctatctatgcctggcaggtggccgagaacatcctg
ccagacatcgattgcaagggctacagaatcgacgatagctatacattctgtttttccctgcacaagtatgacctgatcgccttccagaaggatgagaagtccaaggtggagtttgcct
actatatcaattgcgactcctctaacggcaggttctacctggcctggcacgataagggcagcaaggagcagcagtttcgcatctccacccagaatctggtgctgatccagaagtatca
ggtgaacgagctgggcaaggagatcaggccatgtcggctgaagaagcgcccacccgtgcggaggataaaagaaccgccgacggcagcgaattcgagcccaagaagaagaggg
aaagtc

Nme2-ABE8e-i1_linker10 (D56R): BPSV40-NLS, nNme2Cas9, TadA8e, Linkers

MKRTADGSEFESPKKKRKVEDMAAFKPNPINYILGLAIGIASVGWAMVEIDEEENPIRLIDLGVRVFERAEVPKTGRSLAMARRLARSVRRLTRR
RAHRLLRARRLLKREGVLQAADFDENGLIKSLPNTPWQLRAAALDRKLTPLEWSAVLLHLIKHRGYLSQRKNEGETADKELGALLKGVANNAHAL
QTGDFRTPAELALNKFEKESGHIRNQRGDYSHTFSRKDLQAELILLFEKQKEFGNPHVSGGLKEGIETLLMTQRPALSGDAVQKMLGHCTFEPAE
PKAAKNTYTAERFIWLTKLNNLRILEQSGGSGGSGGSSEVEFSHEYWMRHALTLAKRARDEREVPVGAVLVLNNRVIGEGWNRAIGLHDPTAH
AEIMALRQGGLVMQNYRLIDATLYVTFEPCVMCAGAMIHSRIGRVVFGVRNSKRGAAGSLMNVLNYPGMNHRVEITEGILADECAALLCDFYR
MPRQVFNAQKKAQSSINETPGTSESATGSERPLTDTERATLMDEPYRKSKLTYAQARKLLGLEDTAFFKGLRYGKDNAEASTLMEMKAYHAISR
ALEKEGLKDKKSPLNLSSELQDEIGTAFSLFKTDEDITGRLKDRVQPEILEALLKHISFDKFVQISLKALRRIVPLMEQGKRYDEACAEIYGDHYGKKN
TEEKIYLPPIPADEIRNPVVLRALSQARKVINGVVRRYGSPARIHIETAREVGKSFKDRKEIEKRQEENRKDREKAAAKFREYFPNFVGEPKSKDILKL
RLYEQQHGKCLYSGKEINLVRLNEKGYVEIDHALPFSRTWDDSFNNKVLVLGSENQNKGNQTPYEYFNGKDNSREWQEFKARVETSRFPRSKK
QRILLQKFDEDGFKECNLNDTRYVNRFLCQFVADHILLTGKGKRRVFASNGQITNLLRGFWGLRKVRAENDRHHALDAVVVACSTVAMQQKIT
RFVRYKEMNAFDGKTIDKETGKVLHQKTHFPQPWEFFAQEVMIRVFGKPDGKPEFEEADTPEKLRTLLAEKLSSRPEAVHEYVTPLFVSRAPNRK
MSGAHKDTLRSAKRFVKHNEKISVKRVWLTEIKLADLENMVNYKNGREIELYEALKARLEAYGGNAKQAFDPKDNPFYKKGGQLVKAVRVEKT
QESGVLLNKKNAYTIADNGDMVRVDVFCKVDKKGKNQYFIVPIYAWQVAENILPDIDCKGYRIDDSYTFCFSLHKYDLIAFQKDEKSKVEFAYYIN
CDSSNGRFYLAWHDKGSKEQQFRISTQNLVLIQKYQVNELGKEIRPCRLKKRPPVREDKRTADGSEFEPKKKRKV

atgaaacggacagccgacggaagcgagttcgagtcaccaaagaagaagcggaaagtcgaagatatggccgccttcaagcctaacccaatcaattacatcctgggactggccatcg
gaatcgcatccgtgggatgggctatggtggagatcgacgaggaggagaatcctatccggctgatcgatctgggcgtgagagtgtttgagagggccgaggtgccaaagaccggcC
GTtctctggctatggcccggagactggcacggagcgtgaggcgcctgacacggagaagggcacacaggctgctgagggcacgccggctgctgaagagagagggcgtgctgcag
gcagcagacttcgatgagaatggcctgatcaagagcctgccaaacacccctggcagctgagagcagccgccctggacaggaagctgacaccactggagtggtctgccgtgctgc
tgcacctgatcaagcaccgcggctacctgagccagcggaagaacgagggagagacagcagacaaggagctgggcgccctgctgaagggagtggccaacaatgcccacgccctg
cagaccggcgatttcaggacacctgccgagctggccctgaataagtttgagaaggagtccggccacatcagaaaccagaggggcgactatagccacaccttctcccgcaaggatct
gcaggccgagctgatcctgctgttcgagaagcagaaggagtttggcaatccacacgtgagcggaggcctgaaggagggaatcgagaccctgctgatgacacagaggcctgccctg
tccggcgacgcagtgcagaagatgctgggacactgcaccttcgagcctgcagagccaaaggccgccaagaacacctacacagccgagcggtttatctggctgacaaagctgaaca
atctgagaatcctggagcagtctggcggttcaggtggatcaggcggtagctctgaggtggagttttcccacgagtactggatgagacatgccctgaccctggccaagagggcacgc
gatgagagggaggtgcctgtgggagccgtgctggtgctgaacaatagagtgatcggcgagggctggaacagagccatcggcctgcacgacccaacagcccatgccgaaattatgg
ccctgagacagggcggcctggtcatgcagaactacagactgattgacgccaccctgtacgtgacattcgagccttgcgtgatgtgcgccggcgccatgatccactctaggatcggcc
gcgtggtgtttggcgtgaggaacagcaaacggggcgccgcaggctccctgatgaacgtgctgaactaccccggcatgaatcaccgcgtcgaaattaccgagggaatcctggcagat
gaatgtgccgccctgctgtgcgacttctaccggatgcctagacaggtgttcaatgctcagaagaaggcccagagctccatcaacgagacacctggcacaagcgagagcgcaacag
gatccgagaggccactgaccgacacagagagggccaccctgatggatgagccttaccggaagtctaagctgacatatgcccaggccagaaagctgctgggcctggaggacaccg
ccttctttaagggcctgagatacggcaaggataatgccgaggcctccacactgatggagatgaaggcctatcacgccatctctcgcgccctggagaaggagggcctgaaggacaag
aagtccccccctgaacctgagctccgagctgcaggatgagatcggcaccgccttctctctgtttaagaccgacgaggatatcacaggccgcctgaaggacagggtgcagcctgagat
cctggaggccctgctgaagcacatctctttcgataagtttgtgcagatcagcctgaaggccctgagaaggatcgtgccactgatggagcagggcaagcggtacgacgaggcctgcg
ccgagatctacggcgatcactatggcaagaagaacacagaggagaagatctatctgccccctatccctgccgacgagatcagaaatcctgtggtgctgagggccctgtcccaggca
agaaaagtgatcaacggagtggtgcgccggtacggatctccagcccggatccacatcgagaccgccagagaagtgggcaagagcttcaaggaccggaaggagatcgagaagag
acaggaggagaatcgcaaggatcgggagaaggccgccgccaagtttagggagtacttccctaactttgtgggcgagccaaagtctaaggacatcctgaagctgcgcctgtacgag
cagcagcacggcaagtgtctgtatagcggcaaggagatcaatctggtgcggctgaacgagaagggctatgtggagatcgatcacgccctgcctttctccagaacctgggacgattct
tttaacaataaggtgctggtgctgggcagcgagaaccagaataagggcaatcagacaccatacgagtatttcaatggcaaggacaactccagggagtggcaggagttcaaggccc
gcgtggagacctctagatttcccaggagcaagaagcagcggatcctgctgcagaagttcgacgaggatggctttaaggagtgcaacctgaatgacaccagatacgtgaaccggttc
ctgtgccagtttgtggccgatcacatcctgctgaccggcaagggcaagagaaagggtgttcgcctctaatggccagatcacaaacctgctgaggggattttggggactgaggaaggtg
cgggcagagaatgacagacaccacgcactggatgcagtggtggtggcatgcagcaccgtggcaatgcagcagaagatcacaagattcgtgaggtataaggagatgaacgcctttg
acggcaagaccatcgataaggagacaggcaaggtgctgcaccagaagacccacttcccccagccttgggagttctttgcccaggaagtgatgatccgggtgttcggcaagccaga
cggcaagcctgagtttgaggaggccgataccccagagaagctgaggacactgctggcagagaagctgtctagcaggccagaggcagtgcacgagtacgtgaccccactgttcgtg
tccagggcacccaatcggaagatgtctggcgcccacaaggacacactgagaagcgccaagaggtttgtgaagcacaacgagaagatctccgtgaagagagtgtggctgaccgag
atcaagctggccgatctggagaacatggtgaattacaagaacggcagggagatcgagctgtatgaggccctgaaggcaaggctggaggcctacggaggaaatgccaagcaggcc
ttcgacccaaaggataacccctttataagaagggaggacagctggtgaaggccgtgcgggtggagaagacccaggagagcggcgtgctgctgaataagaagaacgcctacaca
atcgccgacaatggcgatatggtgagagtggacgtgttctgtaaggtggataagaagggcaagaatcagtactttatcgtgcctatctatgcctggcaggtggccgagaacatcctg
ccagacatcgattgcaagggctacagaatcgacgatagctatacattctgtttttccctgcacaagtatgacctgatcgccttccagaaggatgagaagtccaaggtggagtttgcct
actatatcaattgcgactcctctaacggcaggttctacctggcctggcacgataagggcagcaaggagcagcagtttcgcatctccacccagaatctggtgctgatccagaagtatca
ggtgaacgagctgggcaaggagatcaggccatgtcggctgaagaagcgcccacccgtgcggaggatAAAAGAACCGCCGACGGCAGCGAATTCGAGCCCAAGAAGAAGAGG
AAAGTC

iNme2-ABE8e-i1_linker10: BPSV40-NLS, nNme2Cas9, TadA8e, Linkers

Jenifer Dounda Lab, iNme2Cas9 (D16A) variant in domain-inlaid-i1 format

MKRTADGSEFESPKKKRKVEDMAAFKPNPINYILGLAIGIASVGWAMVEIDEEENPIRLIDLGVRVFERAEVPKTGDSLAMARRLARSVRRLTRR
RAHRLLRARRLLKREGVLQAADFDENGLIKSLPNTPWQLRAAALDRKLTPLEWSAVLLHLIKHRGYLSQRKNEGETADKELGALLKGVANNAHAL
QTGDFRTPAELALNKFEKESGHIRNQRGDYSHTFSRKDLQAELILLFEKQKEFGNPHVSGGLKEGIETLLMTQRPALSGDAVQKMLGHCTFEPAE
PKAAKNTYTAERFIWLTKLNNLRILEQSGGSGGSGGSSEVEFSHEYWMRHALTLAKRARDEREVPVGAVLVLNNRVIGEGWNRAIGLHDPTAH
AEIMALRQGGLVMQNYRLIDATLYVTFEPCVMCAGAMIHSRIGRVVFGVRNSKRGAAGSLMNVLNYPGMNHRVEITEGILADECAALLCDFYR
MPRQVFNAQKKAQSSINETPGTSESATGSERPLTDTERATLMDEPYRKSKLTYAQARKLLGLEDTAFFKGLRYGKDNAEASTLMEMKAYHAISR
ALEKEGLKDKKSPLNLSSELQDEIGTAFSLFKTDEDITGRLKDRVQPEILEALLKHISFDKFVQISLKALRRIVPLMEQGKRYDEACAEIYGDHYGKKN
TEEKIYLPPIPADEIRNPVVLRALSQARKVINGVVRRYGSPARIHIETAREVGKSFKDRKEIEKRQEENRKDREKAAAKFREYFPNFVGEPKSKDILKL
RLYEQQHGKCLYSGKEINLVRLNEKGYVEIDHALPFSRTWDDSFNNKVLVLGSENQNKGNQTPYEYFNGKDNSREWQEFKARVETSRFPRSKK
QRILLQKFDEDGFKECNLNDTRYVNRFLCQFVADHILLTGKGKRRVFASNGQITNLLRGFWGLRKVRAENDRHHALDAVVVACSTVAMQQKIT
RFVRYKEMNAFDGKTIDKETGKVLHQKTHFPQPWEFFAQEVMIRVFGKPDGKPEFEEADTPEKLRTLLAEKLSSRPEAVHEYVTPLFVSRAPNRK
MSGAHKGTLRSAKRFVKHNEKISVKRVWLTKIRLAALENMVNYKNGREIELYEALKARLEAYGGNAKQAFDPKGNPFYKKGGQLVKAVRVERT
QKSGVLLNKKNAYTIADNGDMVRVDVFCKVDKKGKNQYFIVPIYAWQVAENILPDIDCKGYRIDDSYTFCFSLHKYDLIAFQKDEKSKVEFAYYIN
CDSSNGRFYLAWHDKGSKEQQFRISTQNLVLIQKYQVNELGKEIRPCRLKKRPPVREDKRTADGSEFEPKKKRKV

atgaaacggacagccgacggaagcgagttcgagtcaccaaagaagaagcggaaagtcgaagatatggccgccttcaagcctaacccaatcaattacatcctgggactggccatcg
gaatcgcatccgtgggatgggctatggtggagatcgacgaggaggagaatcctatccggctgatcgatctgggcgtgagagtgtttgagagggccgaggtgccaaagaccggcga
ttctctggctatggcccggagactggcacggagcgtgaggcgcctgacacggagaagggcacacaggctgctgagggcacgccggctgctgaagagagagggcgtgctgcaggc
agcagacttcgatgagaatggcctgatcaagagcctgccaaacacccctggcagctgagagcagccgccctggacaggaagctgacaccactggagtggtctgccgtgctgctg
cacctgatcaagcaccgcggctacctgagccagcggaagaacgagggagagacagcagacaaggagctgggcgccctgctgaagggagtggccaacaatgcccacgccctgca
gaccggcgatttcaggacacctgccgagctggccctgaataagtttgagaaggagtccggccacatcagaaaccagaggggcgactatagccacaccttctcccgcaaggatctgc
aggccgagctgatcctgctgttcgagaagcagaaggagtttggcaatccacacgtgagcggaggcctgaaggagggaatcgagaccctgctgatgacacagaggcctgccctgtc
cggcgacgcagtgcagaagatgctgggacactgcaccttcgagcctgcagagccaaaggccgccaagaacacctacacagccgagcggtttatctggctgacaaagctgaacaat
ctgagaatcctggagcagtctggcggttcaggtggatcaggcggtagctctgaggtggagttttcccacgagtactggatgagacatgccctgaccctggccaagagggcacgcga
tgagagggaggtgcctgtgggagccgtgctggtgctgaacaatagagtgatcggcgagggctggaacagagccatcggcctgcacgacccaacagcccatgccgaaattatggcc
ctgagacagggcggcctggtcatgcagaactacagactgattgacgccaccctgtacgtgacattcgagccttgcgtgatgtgcgccggcgccatgatccactctaggatcggccgc
gtggtgtttggcgtgaggaacagcaaacggggcgccgcaggctccctgatgaacgtgctgaactaccccggcatgaatcaccgcgtcgaaattaccgagggaatcctggcagatg
aatgtgccgccctgctgtgcgacttctaccggatgcctagacaggtgttcaatgctcagaagaaggcccagagctccatcaacgagacacctggcacaagcgagagcgcaacagg
atccgagaggccactgaccgacacagagagggccaccctgatggatgagccttaccggaagtctaagctgacatatgcccaggccagaaagctgctgggcctggaggacaccgc
cttctttaagggcctgagatacggcaaggataatgccgaggcctccacactgatggagatgaaggcctatcacgccatctctcgcgccctggagaaggagggcctgaaggacaag
aagtccccccctgaacctgagctccgagctgcaggatgagatcggcaccgccttctctctgtttaagaccgacgaggatatcacaggccgcctgaaggacagggtgcagcctgagat
cctggaggccctgctgaagcacatctctttcgataagtttgtgcagatcagcctgaaggccctgagaaggatcgtgccactgatggagcagggcaagcggtacgacgaggcctgcg
ccgagatctacggcgatcactatggcaagaagaacacagaggagaagatctatctgccccctatccctgccgacgagatcagaaatcctgtggtgctgagggccctgtcccaggca
agaaaagtgatcaacggagtggtgcgccggtacggatctccagcccggatccacatcgagaccgccagagaagtgggcaagagcttcaaggaccggaaggagatcgagaagag
acaggaggagaatcgcaaggatcgggagaaggccgccgccaagtttagggagtacttccctaactttgtgggcgagccaaagtctaaggacatcctgaagctgcgcctgtacgag
cagcagcacggcaagtgtctgtatagcggcaaggagatcaatctggtgcggctgaacgagaagggctatgtggagatcgatcacgccctgcctttctccagaacctgggacgattct
ttaacaataaggtgctggtgctgggcagcgagaaccagaataagggcaatcagacaccatacgagtatttcaatggcaaggacaactccagggagtggcaggagttcaaggccc
gcgtggagacctctagatttcccaggagcaagaagcagcggatcctgctgcagaagttcgacgaggatggctttaaggagtgcaacctgaatgacaccagatacgtgaaccggttc
ctgtgccagtttgtggccgatcacatcctgctgaccggcaagggcaagagaagggtgttcgcctctaatggccagatcacaaacctgctgaggggattttggggactgaggaaggtg
cgggcagagaatgacagacaccacgcactggatgcagtggtggtggcatgcagcaccgtggcaatgcagcagaagatcacaagattcgtgaggtataaggagatgaacgcctttg
acggcaagaccatcgataaggagacaggcaaggtgctgcaccagaagacccacttccccagccttgggagttctttgcccaggaagtgatgatccgggtgttcggcaagccaga
cggcaagcctgagtttgaggaggccgataccccagagaagctgaggacactgctggcagagaagctgtctagcaggccagaggcagtgcacgagtacgtgaccccactgttcgtg
tccagggcacccaatcggaagatgtctggcgcccacaagGGCacactgagaagcgccaagaggtttgtgaagcacaacgagaagatctccgtgaagagagtgtggctgaccAA
GatcAGGctggccGCCctggagaacatggtgaattacaagaacggcagggagatcgagctgtatgaggccctgaaggcaaggctggaggcctacggaggaaatgccaagca
ggccttcgacccaaagGGCaaccccttttataagaagggaggacagctggtgaaggccgtgcgggtggagAGGacccagAAGagcggcgtgctgctgaataagaagaacgc
ctacacaatcgccgacaatggcgatatggtgagagtggacgtgttctgtaaggtggataagaagggcaagaatcagtactttatcgtgcctatctatgcctggcaggtggccgagaa
catcctgccagacatcgattgcaagggctacagaatcgacgatagctatacattctgtttttccctgcacaagtatgacctgatcgccttccagaaggatgagaagtccaaggtggag
tttgcctactatatcaattgcgactcctctaacggcaggttctacctggcctggcacgataagggcagcaaggagcagcagtttcgcatctccacccagaatctggtgctgatccaga
agtatcaggtgaacgagctgggcaaggagatcaggccatgtcggctgaagaagcgcccacccgtgcggaggatgaaagaaccgccgacggcagcgaattcgagcccaagaag
aagaggaaagtc

Nme2^{Smu}-ABE8e-i1_linker10 (WT): BPSV40-NLS, Nme2Cas9 – delta PID, TadA8e, SmuCas9 PID, Linkers

MKRTADGSEFESPKKKRKVEDMAAFKPNPINYILGLAIGIASVGWAMVEIDEEENPIRLIDLGVRVFERAEVPKTGDSLAMARRLARSVRRLTRR
RAHRLLRARRLLKREGVLQAADFDENGLIKSLPNTPWQLRAAALDRKLTPLEWSAVLLHLIKHRGYLSQRKNEGETADKELGALLKGVANNAHAL
QTGDFRTPAELALNKFEKESGHIRNQRGDYSHTFSRKDLQAELILLFEKQKEFGNPHVSGGLKEGIETLLMTQRPALSGDAVQKMLGHCTFEPAE
PKAAKNTYTAERFIWLTKLNNLRILEQSGGSGGSGGSSEVEFSHEYWMRHALTLAKRARDEREVPVGAVLVLNNRVIGEGWNRAIGLHDPTAH
AEIMALRQGGLVMQNYRLIDATLYVTFEPCVMCAGAMIHSRIGRVVFGVRNSKRGAAGSLMNVLNYPGMNHRVEITEGILADECAALLCDFYR
MPRQVFNAQKKAQSSINETPGTSESATGSERPLTDTERATLMDEPYRKSKLTYAQARKLLGLEDTAFFKGLRYGKDNAEASTLMEMKAYHAISR
ALEKEGLKDKKSPLNLSSELQDEIGTAFSLFKTDEDITGRLKDRVQPEILEALLKHISFDKFVQISLKALRRIVPLMEQGKRYDEACAEIYGDHYGKKN
TEEKIYLPPIPADEIRNPVVLRALSQARKVINGVVRRYGSPARIHIETAREVGKSFKDRKEIEKRQEENRKDREKAAAKFREYFPNFVGEPKSKDILKL
RLYEQQHGKCLYSGKEINLVRLNEKGYVEIDHALPFSRTWDDSFNNKVLVLGSENQNKGNQTPYEYFNGKDNSREWQEFKARVETSRFPRSKK
QRILLQKFDEDGFKECNLNDTRYVNRFLCQFVADHILLTGKGKRRVFASNGQITNLLRGFWGLRKVRAENDRHHALDAVVVACSTVAMQQKIT
RFVRYKEMNAFDGKTIDKETGKVLHQKTHFPQPWEFFAQEVMIRVFGKPDGKPEFEEADTPEKLRTLLAEKLSSRPEAVHEYVTPLFVSRAPNRK
MSGAHKDTLRSAKRFVKHNEKISVKRVWLTEIKLADLENMVNYKNGREIELYEALKARLEAYGGNAKQAFDPKDNPFYKKGGQLVKAVRVEKT
QESGVLLNKKNAYTIADNATMVRVDVYTKAGKNYLVPVYVWQVAQGILPNRAVTSGKSEADWDLIDESFEFKFSLSRGDLVEMISNKGRIFGYY
NGLDRANGSIGIREHDLEKSKGKDGVHRVGVKTATAFNKYHVDPLGKEIHRCSSEPRPTLKIKSKKEDKRTADGSEFEPKKKRKV

atgaaacggacagccgacggaagcgagttcgagtcaccaaagaagaagcggaaagtcgaagatatggccgccttcaagcctaacccaatcaattacatcctgggactggccatcg
gaatcgcatccgtgggatgggctatggtggagatcgacgaggaggagaatcctatccggctgatcgatctgggcgtgagagtgtttgagagggccgaggtgccaaagaccggcga
ttctctggctatggcccggagactggcacggagcgtgaggcgcctgacacggagaagggcacacaggctgctgagggcacgccggctgctgaagagagagggcgtgctgcaggc
agcagacttcgatgagaatggcctgatcaagagcctgccaaacacccctggcagctgagagcagccgccctggacaggaagctgacaccactggagtggtctgccgtgctgctg
cacctgatcaagcaccgcggctacctgagccagcggaagaacgagggagagacagcagacaaggagctgggcgccctgctgaagggagtggccaacaatgcccacgccctgca
gaccggcgatttcaggacacctgccgagctggccctgaataagtttgagaaggagtccggccacatcagaaaccagaggggcgactatagccacaccttctcccgcaaggatctgc
aggccgagctgatcctgctgttcgagaagcagaaggagtttggcaatccacacgtgagcggaggcctgaaggagggaatcgagaccctgctgatgacacagaggcctgccctgtc
cggcgacgcagtgcagaagatgctgggacactgcaccttcgagcctgcagagccaaaggccgccaagaacacctacacagccgagcggtttatctggctgacaaagctgaacaat
ctgagaatcctggagcagtctggcggttcaggtggatcaggcggtagctctgaggtggagttttcccacgagtactggatgagacatgccctgaccctggccaagagggcacgcga
tgagagggaggtgcctgtgggagccgtgctggtgctgaacaatagagtgatcggcgagggctggaacagagccatcggcctgcacgacccaacagcccatgccgaaattatggcc
ctgagacagggcggcctggtcatgcagaactacagactgattgacgccaccctgtacgtgacattcgagccttgcgtgatgtgcgccggcgccatgatccactctaggatcggccgc
gtggtgtttggcgtgaggaacagcaaacggggcgccgcaggctccctgatgaacgtgctgaactaccccggcatgaatcaccgcgtcgaaattaccgagggaatcctggcagatg
aatgtgccgccctgctgtgcgacttctaccggatgcctagacaggtgttcaatgctcagaagaaggcccagagctccatcaacgagacacctggcacaagcgagagcgcaacagg
atccgagaggccactgaccgacacagagagggccaccctgatggatgagccttaccggaagtctaagctgacatatgcccaggccagaaagctgctgggcctggaggacaccgc
cttctttaagggcctgagatacggcaaggataatgccgaggcctccacactgatggagatgaaggcctatcacgccatctctcgcgccctggagaaggagggcctgaaggacaag
aagtccccccctgaacctgagctccgagctgcaggatgagatcggcaccgccttctctctgtttaagaccgacgaggatatcacaggccgcctgaaggacagggtgcagcctgagat
cctggaggccctgctgaagcacatctctttcgataagtttgtgcagatcagcctgaaggccctgagaaggatcgtgccactgatggagcagggcaagcggtacgacgaggcctgcg
ccgagatctacggcgatcactatggcaagaagaacacagaggagaagatctatctgccccctatccctgccgacgagatcagaaatcctgtggtgctgagggccctgtcccaggca
agaaaagtgatcaacggagtggtgcgccggtacggatctccagcccggatccacatcgagaccgccagagaagtgggcaagagcttcaaggaccggaaggagatcgagaagag
acaggaggagaatcgcaaggatcgggagaaggccgccgccaagtttagggagtacttccctaactttgtgggcgagccaaagtctaaggacatcctgaagctgcgcctgtacgag
cagcagcacggcaagtgtctgtatagcggcaaggagatcaatctggtgcggctgaacgagaagggctatgtggagatcgatcacgccctgcctttctccagaacctgggacgattct
tttaacaataaggtgctggtgctgggcagcgagaaccagaataagggcaatcagacaccatacgagtatttcaatggcaaggacaactccagggagtggcaggagttcaaggccc
gcgtggagacctctagatttcccaggagcaagaagcagcggatcctgctgcagaagttcgacgaggatggctttaaggagtgcaacctgaatgacaccagatacgtgaaccggttc
ctgtgccagtttgtggccgatcacatcctgctgaccggcaagggcaagagaaagggtgttcgcctctaatggccagatcacaaacctgctgaggggattttggggactgaggaaggtg
cgggcagagaatgacagacaccacgcactggatgcagtggtggtggcatgcagcaccgtggcaatgcagcagaagatcacaagattcgtgaggtataaggagatgaacgcctttg
acggcaagaccatcgataaggagacaggcaaggtgctgcaccagaagacccacttcccccagccttgggagttctttgcccaggaagtgatgatccgggtgttcggcaagccaga
cggcaagcctgagtttgaggaggccgataccccagagaagctgaggacactgctggcagagaagctgtctagcaggccagaggcagtgcacgagtacgtgaccccactgttcgtg
tccagggcacccaatcggaagatgtctggcgcccacaaggacacactgagaagcgccaagaggtttgtgaagcacaacgagaagatctccgtgaagagagtgtggctgaccgag
atcaagctggccgatctggagaacatggtgaattacaagaacggcagggagatcgagctgtatgaggccctgaaggcaaggctggaggcctacggaggaaatgccaagcaggcc
ttcgacccaaaggataaccccttttataagaagggaggacagctggtgaaggccgtgcgggtggagaagacccaggagagcggcgtgctgctgaataagaagaacgcctacaca
atcgccgacaacgccaccatggtgcgggtggacgtgtacaccaaggccggcaagaactacctggttcctgtgtacgtgtggcaggtggcccagggcatcttacccaaccgcgccgt
gaccagcggcaagtccgaggctgactgggacctgatcgatgagagcttcgagttcaagttctctctgtcccggggagatctcgtggaaatgatctccaacaagggcagaatcttcgg
ctactacaacggcctggacagagccaacggctctattggaattagagagcacgacctagagaagagcaagggcaaagacggcgtgcatagagtgggagtgaaaacagctacag
catttaacaagtaccacgtggatcccctgggcaaagagatccacagatgcagcagcgaacccagacctacactgaaaatcaagtctaagaaggaggataaaagaaccgccgacg
gcagcgaattcgagcccaagaagaagaggaaagtc

Nme2^{Smu}-ABE8e-i1_linker10 (E932R): BPSV40-NLS, Nme2Cas9 – delta PID, TadA8e, SmuCas9 PID, Linkers

MKRTADGSEFESPKKKRKVEDMAAFKPNPINYILGLAIGIASVGWAMVEIDEEENPIRLIDLGVRVFERAEVPKTGDSLAMARRLARSVRRLTRR
RAHRLLRARRLLKREGVLQAADFDENGLIKSLPNTPWQLRAAALDRKLTPLEWSAVLLHLIKHRGYLSQRKNEGETADKELGALLKGVANNAHAL
QTGDFRTPAELALNKFEKESGHIRNQRGDYSHTFSRKDLQAELILLFEKQKEFGNPHVSGGLKEGIETLLMTQRPALSGDAVQKMLGHCTFEPAE
PKAAKNTYTAERFIWLTKLNNLRILEQSGGSGGSGGSSEVEFSHEYWMRHALTLAKRARDEREVPVGAVLVLNNRVIGEGWNRAIGLHDPTAH
AEIMALRQGGLVMQNYRLIDATLYVTFEPCVMCAGAMIHSRIGRVVFGVRNSKRGAAGSLMNVLNYPGMNHRVEITEGILADECAALLCDFYR
MPRQVFNAQKKAQSSINETPGTSESATGSERPLTDTERATLMDEPYRKSKLTYAQARKLLGLEDTAFFKGLRYGKDNAEASTLMEMKAYHAISR
ALEKEGLKDKKSPLNLSSELQDEIGTAFSLFKTDEDITGRLKDRVQPEILEALLKHISFDKFVQISLKALRRIVPLMEQGKRYDEACAEIYGDHYGKKN
TEEKIYLPPIPADEIRNPVVLRALSQARKVINGVVRRYGSPARIHIETAREVGKSFKDRKEIEKRQEENRKDREKAAAKFREYFPNFVGEPKSKDILKL
RLYEQQHGKCLYSGKEINLVRLNEKGYVEIDHALPFSRTWDDSFNNKVLVLGSENQNKGNQTPYEYFNGKDNSREWQEFKARVETSRFPRSKK
QRILLQKFDEDGFKECNLNDTRYVNRFLCQFVADHILLTGKGKRRVFASNGQITNLLRGFWGLRKVRAENDRHHALDAVVVACSTVAMQQKIT
RFVRYKEMNAFDGKTIDKETGKVLHQKTHFPQPWEFFAQEVMIRVFGKPDGKPEFEEADTPEKLRTLLAEKLSSRPEAVHEYVTPLFVSRAPNRK
MSGAHKDTLRSAKRFVKHNEKISVKRVWLTEIKLADLENMVNYKNGREIELYEALKARLEAYGGNAKQAFDPKDNPFYKKGGQLVKAVRVEKT
QRSGVLLNKKNAYTIADNATMVRVDVYTKAGKNYLVPVYVWQVAQGILPNRAVTSGKSEADWDLIDESFEFKFSLSRGDLVEMISNKGRIFGYY
NGLDRANGSIGIREHDLEKSKGKDGVHRVGVKTATAFNKYHVDPLGKEIHRCSSEPRPTLKIKSKKEDKRTADGSEFEPKKKRKV

atgaaacggacagccgacggaagcgagttcgagtcaccaaagaagaagcggaaagtcgaagatatggccgccttcaagcctaacccaatcaattacatcctgggactggccatcg
gaatcgcatccgtgggatgggctatggtggagatcgacgaggaggagaatcctatccggctgatcgatctgggcgtgagagtgtttgagagggccgaggtgccaaagaccggcga
ttctctggctatggcccggagactggcacggagcgtgaggcgcctgacacggagaagggcacacaggctgctgagggcacgccggctgctgaagagagagggcgtgctgcaggc
agcagacttcgatgagaatggcctgatcaagagcctgccaaacacccctggcagctgagagcagccgccctggacaggaagctgacaccactggagtggtctgccgtgctgctg
cacctgatcaagcaccgcggctacctgagccagcggaagaacgagggagagacagcagacaaggagctgggcgccctgctgaagggagtggccaacaatgcccacgccctgca
gaccggcgatttcaggacacctgccgagctggccctgaataagtttgagaaggagtccggccacatcagaaaccagaggggcgactatagccacaccttctcccgcaaggatctgc
aggccgagctgatcctgctgttcgagaagcagaaggagtttggcaatccacacgtgagcggaggcctgaaggagggaatcgagaccctgctgatgacacagaggcctgccctgtc
cggcgacgcagtgcagaagatgctgggacactgcaccttcgagcctgcagagccaaaggccgccaagaacacctacacagccgagcggtttatctggctgacaaagctgaacaat
ctgagaatcctggagcagtctggcggttcaggtggatcaggcggtagctctgaggtggagttttcccacgagtactggatgagacatgccctgaccctggccaagagggcacgcga
tgagagggaggtgcctgtgggagccgtgctggtgctgaacaatagagtgatcggcgagggctggaacagagccatcggcctgcacgacccaacagcccatgccgaaattatggcc
ctgagacagggcggcctggtcatgcagaactacagactgattgacgccaccctgtacgtgacattcgagccttgcgtgatgtgcgccggcgccatgatccactctaggatcggccgc
gtggtgtttggcgtgaggaacagcaaacggggcgccgcaggctccctgatgaacgtgctgaactaccccggcatgaatcaccgcgtcgaaattaccgagggaatcctggcagatg
aatgtgccgccctgctgtgcgacttctaccggatgcctagacaggtgttcaatgctcagaagaaggcccagagctccatcaacgagacacctggcacaagcgagagcgcaacagg
atccgagaggccactgaccgacacagagagggccaccctgatggatgagccttaccggaagtctaagctgacatatgcccaggccagaaagctgctgggcctggaggacaccgc
cttctttaagggcctgagatacggcaaggataatgccgaggcctccacactgatggagatgaaggcctatcacgccatctctcgcgccctggagaaggagggcctgaaggacaag
aagtccccccctgaacctgagctccgagctgcaggatgagatcggcaccgccttctctctgtttaagaccgacgaggatatcacaggccgcctgaaggacagggtgcagcctgagat
cctggaggccctgctgaagcacatctctttcgataagtttgtgcagatcagcctgaaggccctgagaaggatcgtgccactgatggagcagggcaagcggtacgacgaggcctgcg
ccgagatctacggcgatcactatggcaagaagaacacagaggagaagatctatctgccccctatccctgccgacgagatcagaaatcctgtggtgctgagggccctgtcccaggca
agaaaagtgatcaacggagtggtgcgccggtacggatctccagcccggatccacatcgagaccgccagagaagtgggcaagagcttcaaggaccggaaggagatcgagaagag
acaggaggagaatcgcaaggatcgggagaaggccgccgccaagtttagggagtacttccctaactttgtgggcgagccaaagtctaaggacatcctgaagctgcgcctgtacgag
cagcagcacggcaagtgtctgtatagcggcaaggagatcaatctggtgcggctgaacgagaagggctatgtggagatcgatcacgccctgcctttctccagaacctgggacgattct
tttaacaataaggtgctggtgctgggcagcgagaaccagaataagggcaatcagacaccatacgagtatttcaatggcaaggacaactccagggagtggcaggagttcaaggccc
gcgtggagacctctagatttcccaggagcaagaagcagcggatcctgctgcagaagttcgacgaggatggctttaaggagtgcaacctgaatgacaccagatacgtgaaccggttc
ctgtgccagtttgtggccgatcacatcctgctgaccggcaagggcaagagaaagggtgttcgcctctaatggccagatcacaaacctgctgaggggattttggggactgaggaaggtg
cgggcagagaatgacagacaccacgcactggatgcagtggtggtggcatgcagcaccgtggcaatgcagcagaagatcacaagattcgtgaggtataaggagatgaacgcctttg
acggcaagaccatcgataaggagacaggcaaggtgctgcaccagaagacccacttcccccagccttgggagttctttgcccaggaagtgatgatccgggtgttcggcaagccaga
cggcaagcctgagtttgaggaggccgataccccagagaagctgaggacactgctggcagagaagctgtctagcaggccagaggcagtgcacgagtacgtgaccccactgttcgtg
tccagggcacccaatcggaagatgtctggcgcccacaaggacacactgagaagcgccaagaggtttgtgaagcacaacgagaagatctccgtgaagagagtgtggctgaccgag
atcaagctggccgatctggagaacatggtgaattacaagaacggcagggagatcgagctgtatgaggccctgaaggcaaggctggaggcctacggaggaaatgccaagcaggcc
ttcgacccaaaggataacccctttttataagaagggaggacagctggtgaaggccgtgcgggtggagaagacccagCGTagcggcgtgctgctgaataagaagaacgcctacaca
atcgccgacaacgccaccatggtgcgggtggacgtgtacaccaaggccggcaagaactacctggttcctgtgtacgtgtggcaggtggcccagggcatcttacccaaccgcgccgt
gaccagcggcaagtccgaggctgactgggacctgatcgatgagagcttcgagttcaagttctctctgtcccggggagatctcgtggaaatgatctccaacaagggcagaatcttcgg
ctactacaacggcctggacagagccaacggctctattggaattagagagcacgacctagagaagagcaagggcaaagacggcgtgcatagagtgggagtgaaaacagctacag
catttaacaagtaccacgtggatcccctgggcaaagagatccacagatgcagcagcgaacccagacctacactgaaaatcaagtctaagaaggaggataaaagaaccgccgacg
gcagcgaattcgagcccaagaagaagaggaaagtc

Nme2^{Smu}-ABE8e-i1_linker10 (D56R): BPSV40-NLS, Nme2Cas9 – delta PID, TadA8e, SmuCas9 PID, Linkers

MKRTADGSEFESPKKKRKVEDMAAFKPNPINYILGLAIGIASVGWAMVEIDEEENPIRLIDLGVRVFERAEVPKTGRSLAMARRLARSVRRLTRR
RAHRLLRARRLLKREGVLQAADFDENGLIKSLPNTPWQLRAAALDRKLTPLEWSAVLLHLIKHRGYLSQRKNEGETADKELGALLKGVANNAHAL
QTGDFRTPAELALNKFEKESGHIRNQRGDYSHTFSRKDLQAELILLFEKQKEFGNPHVSGGLKEGIETLLMTQRPALSGDAVQKMLGHCTFEPAE
PKAAKNTYTAERFIWLTKLNNLRILEQSGGSGGSGGSSEVEFSHEYWMRHALTLAKRARDEREVPVGAVLVLNNRVIGEGWNRAIGLHDPTAH
AEIMALRQGGLVMQNYRLIDATLYVTFEPCVMCAGAMIHSRIGRVVFGVRNSKRGAAGSLMNVLNYPGMNHRVEITEGILADECAALLCDFYR
MPRQVFNAQKKAQSSINETPGTSESATGSERPLTDTERATLMDEPYRKSKLTYAQARKLLGLEDTAFFKGLRYGKDNAEASTLMEMKAYHAISR
ALEKEGLKDKKSPLNLSSELQDEIGTAFSLFKTDEDITGRLKDRVQPEILEALLKHISFDKFVQISLKALRRIVPLMEQGKRYDEACAEIYGDHYGKKN
TEEKIYLPPIPADEIRNPVVLRALSQARKVINGVVRRYGSPARIHIETAREVGKSFKDRKEIEKRQEENRKDREKAAAKFREYFPNFVGEPKSKDILKL
RLYEQQHGKCLYSGKEINLVRLNEKGYVEIDHALPFSRTWDDSFNNKVLVLGSENQNKGNQTPYEYFNGKDNSREWQEFKARVETSRFPRSKK
QRILLQKFDEDGFKECNLNDTRYVNRFLCQFVADHILLTGKGKRRVFASNGQITNLLRGFWGLRKVRAENDRHHALDAVVVACSTVAMQQKIT
RFVRYKEMNAFDGKTIDKETGKVLHQKTHFPQPWEFFAQEVMIRVFGKPDGKPEFEEADTPEKLRTLLAEKLSSRPEAVHEYVTPLFVSRAPNRK
MSGAHKDTLRSAKRFVKHNEKISVKRVWLTEIKLADLENMVNYKNGREIELYEALKARLEAYGGNAKQAFDPKDNPFYKKGGQLVKAVRVEKT
QESGVLLNKKNAYTIADNATMVRVDVYTKAGKNYLVPVYVWQVAQGILPNRAVTSGKSEADWDLIDESFEFKFSLSRGDLVEMISNKGRIFGYY
NGLDRANGSIGIREHDLEKSKGKDGVHRVGVKTATAFNKYHVDPLGKEIHRCSSEPRPTLKIKSKKEDKRTADGSEFEPKKKRKV

atgaaacggacagccgacggaagcgagttcgagtcaccaaagaagaagcggaaagtcgaagatatggccgccttcaagcctaacccaatcaattacatcctgggactggccatcg
gaatcgcatccgtgggatgggctatggtggagatcgacgaggaggagaatcctatccggctgatcgatctgggcgtgagagtgtttgagagggccgaggtgccaaagaccggcC
GTtctctggctatggcccggagactggcacggagcgtgaggcgcctgacacggagaagggcacacaggctgctgagggcacgccggctgctgaagagagagggcgtgctgcag
gcagcagacttcgatgagaatggcctgatcaagagcctgccaaacacccccctggcagctgagagcagccgccctggacaggaagctgacaccactggagtggtctgccgtgctgc
tgcacctgatcaagcaccgcggctacctgagccagcggaagaacgagggagagacagcagacaaggagctgggcgccctgctgaagggagtggccaacaatgcccacgccctg
cagaccggcgatttcaggacacctgccgagctggccctgaataagtttgagaaggagtccggccacatcagaaaccagaggggcgactatagccacaccttctcccgcaaggatct
gcaggccgagctgatcctgctgttcgagaagcagaaggagtttggcaatccacacgtgagcggaggcctgaaggagggaatcgagaccctgctgatgacacagaggcctgccctg
tccggcgacgcagtgcagaagatgctgggacactgcaccttcgagcctgcagagccaaaggccgccaagaacacctacacagccgagcggtttatctggctgacaaagctgaaca
atctgagaatcctggagcagtctggcggttcaggtggatcaggcggtagctctgaggtggagttttcccacgagtactggatgagacatgccctgaccctggccaagagggcacgc
gatgagagggaggtgcctgtgggagccgtgctggtgctgaacaatagagtgatcggcgagggctggaacagagccatcggcctgcacgacccaacagcccatgccgaaattatgg
ccctgagacagggcggcctggtcatgcagaactacagactgattgacgccaccctgtacgtgacattcgagccttgcgtgatgtgcgccggcgccatgatccactctaggatcggcc
gcgtggtgtttggcgtgaggaacagcaaacggggcgccgcaggctccctgatgaacgtgctgaactaccccggcatgaatcaccgcgtcgaaattaccgagggaatcctggcagat
gaatgtgccgccctgctgtgcgacttctaccggatgcctagacaggtgttcaatgctcagaagaaggcccagagctccatcaacgagacacctggcacaagcgagagcgcaacag
gatccgagaggccactgaccgacacagagagggccaccctgatggatgagccttaccggaagtctaagctgacatatgcccaggccagaaagctgctgggcctggaggacaccg
ccttctttaagggcctgagatacggcaaggataatgccgaggcctccacactgatggagatgaaggcctatcacgccatctctcgcgccctggagaaggagggcctgaaggacaag
aagtccccccctgaacctgagctccgagctgcaggatgagatcggcaccgccttctctctgtttaagaccgacgaggatatcacaggccgcctgaaggacagggtgcagcctgagat
cctggaggccctgctgaagcacatctctttcgataagtttgtgcagatcagcctgaaggccctgagaaggatcgtgccactgatggagcagggcaagcggtacgacgaggcctgcg
ccgagatctacggcgatcactatggcaagaagaacacagaggagaagatctatctgccccctatccctgccgacgagatcagaaatcctgtggtgctgagggccctgtcccaggca
agaaaagtgatcaacggagtggtgcgccggtacggatctccagcccggatccacatcgagaccgccagagaagtgggcaagagcttcaaggaccggaaggagatcgagaagag
acaggaggagaatcgcaaggatcgggagaaggccgccgccaagtttagggagtacttccctaactttgtgggcgagccaaagtctaaggacatcctgaagctgcgcctgtacgag
cagcagcacggcaagtgtctgtatagcggcaaggagatcaatctggtgcggctgaacgagaagggctatgtggagatcgatcacgccctgcctttctccagaacctgggacgattct
tttaacaataaggtgctggtgctgggcagcgagaaccagaataagggcaatcagacaccatacgagtatttcaatggcaaggacaactccagggagtggcaggagttcaaggccc
gcgtggagacctctagatttcccaggagcaagaagcagcggatcctgctgcagaagttcgacgaggatggctttaaggagtgcaacctgaatgacaccagatacgtgaaccggttc
ctgtgccagtttgtggccgatcacatcctgctgaccggcaagggcaagagaaagggtgttcgcctctaatggccagatcacaaacctgctgaggggattttggggactgaggaaggtg
cgggcagagaatgacagacaccacgcactggatgcagtggtggtggcatgcagcaccgtggcaatgcagcagaagatcacaagattcgtgaggtataaggagatgaacgcctttg
acggcaagaccatcgataaggagacaggcaaggtgctgcaccagaagacccacttcccccagccttgggagttctttgcccaggaagtgatgatccgggtgttcggcaagccaga
cggcaagcctgagtttgaggaggccgataccccagagaagctgaggacactgctggcagagaagctgtctagcaggccagaggcagtgcacgagtacgtgaccccactgttcgtg
tccagggcacccaatcggaagatgtctggcgcccacaaggacacactgagaagcgccaagaggtttgtgaagcacaacgagaagatctccgtgaagagagtgtggctgaccgag
atcaagctggccgatctggagaacatggtgaattacaagaacggcagggagatcgagctgtatgaggccctgaaggcaaggctggaggcctacggaggaaatgccaagcaggcc
ttcgacccaaaggataaccccttttataagaagggaggacagctggtgaaggccgtgcgggtggagaagacccaggagagcggcgtgctgctgaataagaagaacgcctacaca
atcgccgacaacgccaccatggtgcgggtggacgtgtacaccaaggccggcaagaactacctggttcctgtgtacgtgtggcaggtggcccagggcatcttacccaaccgcgccgt
gaccagcggcaagtccgaggctgactgggacctgatcgatgagagcttcgagttcaagttctctctgtcccggggagatctcgtggaaatgatctccaacaagggcagaatcttcgg
ctactacaacggcctggacagagccaacggctctattggaattagagagcacgacctagagaagagcaagggcaaagacggcgtgcatagagtgggagtgaaaacagctacag
catttaacaagtaccacgtggatcccctgggcaaagagatccacagatgcagcagcgaacccagacctacactgaaaatcaagtctaagaaggaggataaaagaaccgccgacg
gcagcgaattcgagcccaagaagaagaggaaagtc

iNme2^{Smu}-ABE8e-i1_linker10: BPSV40-NLS, iNme2Cas9 – delta PID, TadA8e, SmuCas9 PID, Linkers

Jenifer Dounda Lab, iNme2Cas9 (D16A) variant with SmuCas9 PID swap in domain-inlaid-i1 format

MKRTADGSEFESPKKKRKVEDMAAFKPNPINYILGLAIGIASVGWAMVEIDEEENPIRLIDLGVRVFERAEVPKTGDSLAMARRLARSVRRLTRR
RAHRLLRARRLLKREGVLQAADFDENGLIKSLPNTPWQLRAAALDRKLTPLEWSAVLLHLIKHRGYLSQRKNEGETADKELGALLKGVANNAHAL
QTGDFRTPAELALNKFEKESGHIRNQRGDYSHTFSRKDLQAELILLFEKQKEFGNPHVSGGLKEGIETLLMTQRPALSGDAVQKMLGHCTFEPAE
PKAAKNTYTAERFIWLTKLNNLRILEQSGGSGGSGGSSEVEFSHEYWMRHALTLAKRARDEREVPVGAVLVLNNRVIGEGWNRAIGLHDPTAH
AEIMALRQGGLVMQNYRLIDATLYVTFEPCVMCAGAMIHSRIGRVVFGVRNSKRGAAGSLMNVLNYPGMNHRVEITEGILADECAALLCDFYR
MPRQVFNAQKKAQSSINETPGTSESATGSERPLTDTERATLMDEPYRKSKLTYAQARKLLGLEDTAFFKGLRYGKDNAEASTLMEMKAYHAISR
ALEKEGLKDKKSPLNLSSELQDEIGTAFSLFKTDEDITGRLKDRVQPEILEALLKHISFDKFVQISLKALRRIVPLMEQGKRYDEACAEIYGDHYGKKN
TEEKIYLPPIPADEIRNPVVLRALSQARKVINGVVRRYGSPARIHIETAREVGKSFKDRKEIEKRQEENRKDREKAAAKFREYFPNFVGEPKSKDILKL
RLYEQQHGKCLYSGKEINLVRLNEKGYVEIDHALPFSRTWDDSFNNKVLVLGSENQNKGNQTPYEYFNGKDNSREWQEFKARVETSRFPRSKK
QRILLQKFDEDGFKECNLNDTRYVNRFLCQFVADHILLTGKGKRRVFASNGQITNLLRGFWGLRKVRAENDRHHALDAVVVACSTVAMQQKIT
RFVRYKEMNAFDGKTIDKETGKVLHQKTHFPQPWEFFAQEVMIRVFGKPDGKPEFEEADTPEKLRTLLAEKLSSRPEAVHEYVTPLFVSRAPNRK
MSGAHKGTLRSAKRFVKHNEKISVKRVWLTKIRLAALENMVNYKNGREIELYEALKARLEAYGGNAKQAFDPKGNPFYKKGGQLVKAVRVERT
QKSGVLLNKKNAYTIADNATMVRVDVYTKAGKNYLVPVYVWQVAQGILPNRAVTSGKSEADWDLIDESFEFKFSLSRGDLVEMISNKGRIFGYY
NGLDRANGSIGIREHDLEKSKGKDGVHRVGVKTATAFNKYHVDPLGKEIHRCSSEPRPTLKIKSKKEDKRTADGSEFEPKKKRKV

atgaaacggacagccgacggaagcgagttcgagtcaccaaagaagaagcggaaagtcgaagatatggccgccttcaagcctaacccaatcaattacatcctgggactggccatcg
gaatcgcatccgtgggatgggctatggtggagatcgacgaggaggagaatcctatccggctgatcgatctgggcgtgagagtgtttgagagggccgaggtgccaaagaccggcga
ttctctggctatggcccggagactggcacggagcgtgaggcgcctgacacggagaagggcacacaggctgctgagggcacgccggctgctgaagagagagggcgtgctgcaggc
agcagacttcgatgagaatggcctgatcaagagcctgccaaacacccccctggcagctgagagcagccgccctggacaggaagctgacaccactggagtggtctgccgtgctgctg
cacctgatcaagcaccgcggctacctgagccagcggaagaacgagggagagacagcagacaaggagctgggcgccctgctgaagggagtggccaacaatgcccacgccctgca
gaccggcgatttcaggacacctgccgagctggccctgaataagtttgagaaggagtccggccacatcagaaaccagaggggcgactatagccacaccttctcccgcaaggatctgc
aggccgagctgatcctgctgttcgagaagcagaaggagtttggcaatccacacgtgagcggaggcctgaaggagggaatcgagaccctgctgatgacacagaggcctgccctgtc
cggcgacgcagtgcagaagatgctgggacactgcaccttcgagcctgcagagccaaaggccgccaagaacacctacacagccgagcggtttatctggctgacaaagctgaacaat
ctgagaatcctggagcagtctggcggttcaggtggatcaggcggtagctctgaggtggagttttcccacgagtactggatgagacatgccctgaccctggccaagagggcacgcga
tgagagggaggtgcctgtgggagccgtgctggtgctgaacaatagagtgatcggcgagggctggaacagagccatcggcctgcacgacccaacagcccatgccgaaattatggcc
ctgagacagggcggcctggtcatgcagaactacagactgattgacgccaccctgtacgtgacattcgagccttgcgtgatgtgcgccggcgccatgatccactctaggatcggccgc
gtggtgtttggcgtgaggaacagcaaacggggcgccgcaggctccctgatgaacgtgctgaactaccccggcatgaatcaccgcgtcgaaattaccgagggaatcctggcagatg
aatgtgccgccctgctgtgcgacttctaccggatgcctagacaggtgttcaatgctcagaagaaggcccagagctccatcaacgagacacctggcacaagcgagagcgcaacagg
atccgagaggccactgaccgacacagagagggccaccctgatggatgagccttaccggaagtctaagctgacatatgcccaggccagaaagctgctgggcctggaggacaccgc
cttctttaagggcctgagatacggcaaggataatgccgaggcctccacactgatggagatgaaggcctatcacgccatctctcgcgccctggagaaggagggcctgaaggacaag
aagtccccccctgaacctgagctccgagctgcaggatgagatcggcaccgccttctctctgtttaagaccgacgaggatatcacaggccgcctgaaggacagggtgcagcctgagat
cctggaggccctgctgaagcacatctctttcgataagtttgtgcagatcagcctgaaggccctgagaaggatcgtgccactgatggagcagggcaagcggtacgacgaggcctgcg
ccgagatctacggcgatcactatggcaagaagaacacagaggagaagatctatctgccccctatccctgccgacgagatcagaaatcctgtggtgctgagggccctgtcccaggca
agaaaagtgatcaacggagtggtgcgccggtacggatctccagcccggatccacatcgagaccgccagagaagtgggcaagagcttcaaggaccggaaggagatcgagaagag
acaggaggagaatcgcaaggatcgggagaaggccgccgccaagtttagggagtacttccctaactttgtgggcgagccaaagtctaaggacatcctgaagctgcgcctgtacgag
cagcagcacggcaagtgtctgtatagcggcaaggagatcaatctggtgcggctgaacgagaagggctatgtggagatcgatcacgccctgcctttctccagaacctgggacgattct
ttaacaataaggtgctggtgctgggcagcgagaaccagaataagggcaatcagacaccatacgagtatttcaatggcaaggacaactccagggagtggcaggagttcaaggccc
gcgtggagacctctagatttcccaggagcaagaagcagcggatcctgctgcagaagttcgacgaggatggctttaaggagtgcaacctgaatgacaccagatacgtgaaccggttc
ctgtgccagtttgtggccgatcacatcctgctgaccggcaagggcaagagaagggtgttcgcctctaatggccagatcacaaacctgctgaggggattttggggactgaggaaggtg
cgggcagagaatgacagacaccacgcactggatgcagtggtggtggcatgcagcaccgtggcaatgcagcagaagatcacaagattcgtgaggtataaggagatgaacgcctttg
acggcaagaccatcgataaggagacaggcaaggtgctgcaccagaagacccacttccccagccttgggagttctttgcccaggaagtgatgatccgggtgttcggcaagccaga
cggcaagcctgagtttgaggaggccgataccccagagaagctgaggacactgctggcagagaagctgtctagcaggccagaggcagtgcacgagtacgtgaccccactgttcgtg
tccagggcacccaatcggaagatgtctggcgcccacaagGGCacactgagaagcgccaagaggtttgtgaagcacaacgagaagatctccgtgaagagagtgtggctgaccAA
GatcAGGctggccGCCctggagaacatggtgaattacaagaacggcagggagatcgagctgtatgaggccctgaaggcaaggctggaggcctacggaggaaatgccaagca
ggccttcgacccaaagGGCaaccccttttataagaagggaggacagctggtgaaggccgtgcgggtggagAGGacccagAAGagcggcgtgctgctgaataagaagaacgc
ctacacaatcgccgacaacgccaccatggtgcgggtggacgtgtacaccaaggccggcaagaactacctggttcctgtgtacgtgtggcaggtggcccagggcatcttacccaacc
gcgccgtgaccagcggcaagtccgaggctgactgggacctgatcgatgagagcttcgagttcaagttctctctgtcccggggagatctcgtggaaatgatctccaacaagggcaga
atcttcggctactacaacggcctggacagagccaacggctctattggaattagagagcacgacctagagaagagcaagggcaaagacggcgtgcatagagtgggagtgaaaaca
gctacagcatttaacaagtaccacgtggatcccctgggcaaagagatccacagatgcagcagcgaacccagacctacactgaaaatcaagtctaagaaggaggataaaagaacc
gccgacggcagcgaattcgagcccaagaagaagaggaaagtc

eNme2-C-ABE8e-i1_linker10: BPSV40-NLS, nNme2Cas9, TadA8e, Linkers

David Liu Lab, eNme2-C ABE8e variant in domain-inlaid-i1 format

MKRTADGSEFESPKKKRKVEDAAFKSNPINYILGLAIGIASVGWAMVEIDEEGNPIRLIDLGVRVFERAEVPKTGDSLAMARRLARSVRRLTRRRA
HRLLRARRLLKREGVLQAADFDENGLITSLPNTPWQLRAAALDRKLTPLEWSAVLLHLIKHRGYLSQRKNEGETAAKELGALLKGVANNAHALQT
GDFRTPAELALNKFEKESGHIRNQRGDYSHTFSRKDLQAELILLFEKQKEFGNPHVSGGLKEGIETLLMTQRPALSGDAVQKMLGHCTLEPTEPK
AAKNTYTAERFIWLTKLNNLRILEQSGGSGGSGGSSEVEFSHEYWMRHALTLAKRARDEREVPVGAVLVLNNRVIGEGWNRAIGLHDPTAHAEI
MALRQGGLVMQNYRLIDATLYVTFEPCVMCAGAMIHSRIGRVVFGVRNSKRGAAGSLMNVLNYPGMNHRVEITEGILADECAALLCDFYRMP
RQVFNAQKKAQSSINETPGTSESATGSERPLTDTERSTLMDEPYRKSKLTYAQARKLLGLEDTAFFKGLRYGKDNAEASTLMEMKAYHAISRALE
KEGLKDKKSPLNLSSELQDEIGTAFSLFKTDEDITGRLKDRVQPEILEALLKHISFDKFVQISLKALRRIVPLMEQGKRYDEACAEIYGVHYGKKNTEE
KIYLPPIPADEIRNPVVLRALSQARKVINGVVRRYGSPARIHIETAREVGKSFKDRKEIAKRQEENRKDREKAAAKFREYFPNFVGEPKSKDILKLRLY
EQQHGKCLYSGKEINLVRLNEKGYVEIDHALPFSRTWDDSFNNKVLVLGSENQNKGNQTPYEYFNGKDNSREWQEFKARVETSRFPSSKKQRIL
LQKFDEDGFKECNLNDTRYVNRFLCQFVADHILLTGKGKRRVVASNGQITNLLRGFWRLRKVRAENDRHHALDAVVVACSTVAMQQKITRFVR
YKEMNAFDGKTVDKETGKVLYQKTHFPQPWEFFAQEVMIRVFGKPDGKPEFEEADTPEKLRTLLAEKLSSRPEAVHEYVTPLFVSRAPNRKMSG
AHKDTLRSAKRFVKHNEKISVKRVWLTEIKLADLENMVNYKNGREIELYEALKARLEAYGGNAKQAFDPKDNPFYKKGGQLVKAVRVEKTQKSG
VLLNKKNAYTIADNGDMVRVDVFCKVDKKGKNQYFIVPIYAWQVAENILPDIDCKGYRIDDSYTFCFSLHKYDLIAFQKDEKSKVEFAYYINCDSS
SGGFYLAWHDKGSREQRFRISTQNLALIQKYQVNELGKEIRPCRLKKRPPVRSGGSKRTADGSEFEPKKKRKV

atgaaacggacagccgacggaagcgagttcgagtcaccaaagaagaagcggaaagtcgaagatgcagcattcaagtcaaacccaatcaattacatcctgggactggcaatcgga
atcgcatccgtgggatgggctatggtggagatcgacgaggaggggaatcctatccggctgatcgatctgggcgtgagagtgtttgagagggccgaggtgccaaagaccggcgattc
tctggctatggcccggagactggcacggagcgtgaggcgcctgacacggagaagggcacacaggctgctgagggcacgccggctgctgaagagagagggcgtgctgcaggcag
cagacttcgatgagaatggcctgatcacgagcttgccaaacacccccctggcagctgagagcagccgccctggacaggaagctgacaccactggagtggtctgccgtgctgctgcac
ctgatcaagcaccgcggctacctgagccagcggaagaacgagggagagacagcagccaaggagctgggcgccctgctgaagggagtggccaacaatgcccacgccctgcagac
cggcgatttcaggacacctgccgagctggccctgaataagtttgagaaggagtccggccacatcagaaaccagaggggcgactatagccacaccttctcccgcaaggatctgcagg
ccgagctgatcctgctgttcgagaagcagaaggagtttggcaatccacacgtgagcggaggcctgaaggagggaatcgagaccctgctgatgacacagaggcctgccctgtccgg
cgacgcagtgcagaagatgctggggcactgcaccctcgagcctacagagccaaaggccgccaagaacacctacacagccgagcggtttatctggctgacaaagctgaacaatctg
agaatcctggagcagtctggcggttcaggtggatcaggcggtagctctgaggtggagttttcccacgagtactggatgagacatgccctgaccctggccaagagggcacgcgatga
gagggaggtgcctgtgggagccgtgctggtgctgaacaatagagtgatcggcgagggctggaacagagccatcggcctgcacgacccaacagcccatgccgaaattatggccctg
agacagggcggcctggtcatgcagaactacagactgattgacgccaccctgtacgtgacattcgagccttgcgtgatgtgcgccggcgccatgatccactctaggatcggccgcgtg
gtgtttggcgtgaggaacagcaaacggggcgccgcaggctccctgatgaacgtgctgaactaccccggcatgaatcaccgcgtcgaaattaccgagggaatcctggcagatgaat
gtgccgccctgctgtgcgacttctaccggatgcctagacaggtgttcaatgctcagaagaaggcccagagctccatcaacgagacacctggcacaagcgagagcgcaacaggatc
cgagaggccactgaccgacacagagaggtccaccctgatggatgagccttaccggaagtctaaactgacatatgcccaggccagaaagctgctgggcctggaggacaccgccttc
tttaagggcctgagatacggcaaggataatgccgaggcctccacactgatggagatgaaggcctatcacgccatctctcgcgccctggagaaggagggcctgaaggacaagaagt
ccccccctgaacctgagctccgagctgcaggatgagatcggcaccgccttctctctgtttaagaccgacgaggatatcacaggccgcctgaaggacagggtgcagcctgagatcctg
gaggccctgctgaagcacatctctttcgataagtttgtgcagatcagcctgaaggccctgagaaggatcgtgccactgatggagcagggcaagcggtacgacgaggcctgcgccga
gatctacggcgttcactatggcaagaagaacacagaggagaagatctatctgccccctatccctgccgacgagatcagaaatcctgtggtgctgagggccctgtcccaggcaagaa
aagtgatcaacggagtggtgcgccggtacggatctccagcccggatccacatcgagaccgccagagaagtgggcaagagcttcaaggaccggaaggagatcgcgaagagacag
gaggagaatcgcaaggatcgggagaaggccgccgccaagtttagggagtacttccctaactttgtgggcgagccaaagtctaaggacatcctgaagctgcgcctgtacgagcagc
agcacggcaagtgtctgtatagcggcaaagagatcaatctggtgcggctgaacgagaagggctatgtggagatcgatcacgccctgccttttctccagaacctgggacgattctttta
acaataaggtgctggtgctgggcagcgagaaccagaataagggcaatcagacaccatacgagtatttcaatggcaaggacaactccagggagtggcaggagttcaaggcccgcg
tggagacctctagatttcccagtagcaagaagcagcggatcctgctgcagaagttcgacgaggatggctttaaggagtgcaacctgaatgacaccagatacgtgaaccggttcctgt
gccagtttgtggccgatcacatcctgctgaccggcaagggcaagagaagggtggtcgcctctaatggccagatcacaaacctgctgagggggttttggagactgaggaaggtgcgg
gcagagaatgacagacaccacgcactggatgcagtggtggtggcatgcagcaccgtggcaatgcagcagaagatcacaagattcgtgaggtataaggagatgaacgcctttgacg
gcaagaccgtcgataaggagacaggcaaggtgctgtaccagaagacccacttcccccagccttgggagttctttgcccaggaagttatgatccgggtgttcggcaagccagacggc
aagcctgagtttgaggaggccgataccccagagaagctgaggacactgctggcagagaagctgtctagcaggccagaggcagtgcacgagtacgtgaccccgctgttcgtgtcca
gggcacccaatcggaagatgtctggcgcccacaaggacacactgagaagcgccaagaggtttgtgaagcacaacgagaagatctccgtgaagagagtgtggctgaccgagatca
agctggccgatctggagaacatggtgaattacaagaacggcagggagatcgagctgtatgaggccctgaaggcaaggctggaggcctacggaggaaatgccaagcaggccttcg
acccaaaggataacccctttataagaagggaggacagctggtgaaggccgtgcgggtggagaagacccagaagagcggcgtgctgctgaataagaagaacgcctacacaatcg
ccgacaatggtgatatggtgagagtggacgtgttctgtaaggtggataagaagggcaagaatcagtactttatcgtgcctatctatgcctggcaggtggccgagaacatcctgccag
acatcgattgcaagggctacagaatcgacgatagctatacattctgtttttccctgcacaagtatgacctgatcgccttccagaaggatgagaagtccaaggtggagtttgcctactat
atcaattgcgactcctctagcggcgggttctacctggcctggcacgataagggcagcagggagcagcggtttcgcatctccacccagaatctggcgctgatccagaagtatcaggtg
aacgagctgggcaaggagatcaggccatgtcggctgaagaagcgcccacccgtgcggtctggcggctcaaaaagaaccgccgacggcagcgaattcgagcccaagaagaagagg
gaaagtc

Nme2-ABE8e-i8_linker10 (WT): BPSV40-NLS, Nme2Cas9 – delta PID, TadA8e, SmuCas9 PID, Linkers

MKRTADGSEFESPKKKRKVEDMAAFKPNPINYILGLAIGIASVGWAMVEIDEEENPIRLIDLGVRVFERAEVPKTGDSLAMARRLARSVRRLTRR
RAHRLLRARRLLKREGVLQAADFDENGLIKSLPNTPWQLRAAALDRKLTPLEWSAVLLHLIKHRGYLSQRKNEGETADKELGALLKGVANNAHAL
QTGDFRTPAELALNKFEKESGHIRNQRGDYSHTFSRKDLQAELILLFEKQKEFGNPHVSGGLKEGIETLLMTQRPALSGDAVQKMLGHCTFEPAE
PKAAKNTYTAERFIWLTKLNNLRILEQGSERPLTDTERATLMDEPYRKSKLTYAQARKLLGLEDTAFFKGLRYGKDNAEASTLMEMKAYHAISRAL
EKEGLKDKKSPLNLSSELQDEIGTAFSLFKTDEDITGRLKDRVQPEILEALLKHISFDKFVQISLKALRRIVPLMEQGKRYDEACAEIYGDHYGKKNTE
EKIYLPPIPADEIRNPVVLRALSQARKVINGVVRRYGSPARIHIETAREVGKSFKDRKEIEKRQEENRKDREKAAAKFREYFPNFVGEPKSKDILKLRL
YEQQHGKCLYSGKEINLVRLNEKGYVEIDHALPFSRTWDDSFNNKVLVLGSENQNKGNQTPYEYFNGKDNSREWQEFKARVETSRFPRSKKQRI
LLQKFDEDGFKECNLNDTRYVNRFLCQFVADHILLTGKGKRRVFASNGQITNLLRGFWGLRKVRAENDRHHALDAVVVACSTVAMQQKITRFV
RYKEMNAFDGKTIDKETGKVLHQKTHFPQPWEFFAQEVMIRVFGKPDGKPSGGSGGSGGSSEVEFSHEYWMRHALTLAKRARDEREVPVGA
VLVLNNRVIGEGWNRAIGLHDPTAHAEIMALRQGGLVMQNYRLIDATLYVTFEPCVMCAGAMIHSRIGRVVFGVRNSKRGAAGSLMNVLNYP
GMNHRVEITEGILADECAALLCDFYRMPRQVFNAQKKAQSSINETPGTSESATEFEEADTPEKLRTLLAEKLSSRPEAVHEYVTPLFVSRAPNRKM
SGAHKDTLRSAKRFVKHNEKISVKRVWLTEIKLADLENMVNYKNGREIELYEALKARLEAYGGNAKQAFDPKDNPFYKKGGQLVKAVRVEKTQE
SGVLLNKKNAYTIADNGDMVRVDVFCKVDKKGKNQYFIVPIYAWQVAENILPDIDCKGYRIDDSYTFCFSLHKYDLIAFQKDEKSKVEFAYYINCD
SSNGRFYLAWHDKGSKEQQFRISTQNLVLIQKYQVNELGKEIRPCRLKKRPPVREDKRTADGSEFEPKKKRKV

atgaaacggacagccgacggaagcgagttcgagtcaccaaagaagaagcggaaagtcgaagatatggccgccttcaagcctaacccaatcaattacatcctgggactggCcatc
ggaatcgcatccgtgggatgggctatggtggagatcgacgaggaggagaatcctatccggctgatcgatctgggcgtgagagtgtttgagagggccgaggtgccaaagaccggcg
attctctggctatggcccggagactggcacggagcgtgaggcgcctgacacggagaagggcacacaggctgctgagggcacgccggctgctgaagagagagggcgtgctgcagg
cagcagacttcgatgagaatggcctgatcaagagcctgccaaacacccccctggcagctgagagcagccgcccctggacaggaagctgacaccactggagtggtctgccgtgctgct
gcacctgatcaagcaccgcggctacctgagccagcggaagaacgagggagagacagcagacaaggagctgggcgccctgctgaagggagtggccaacaatgcccacgccctgc
agaccggcgatttcaggacacctgccgagctggccctgaataagtttgagaaggagtccggccacatcagaaaccagaggggcgactatagccacaccttctcccgcaaggatctg
caggccgagctgatcctgctgttcgagaagcagaaggagtttggcaatccacacgtgagcggaggcctgaaggagggaatcgagaccctgctgatgacacagaggcctgccctgt
ccggcgacgcagtgcagaagatgctgggacactgcaccttcgagcctgcagagccaaaggccgccaagaacacctacacagccgagcggtttatctggctgacaaagctgaaca
atctgagaatcctggagcagggatccgagaggccactgaccgacacagagagggccaccctgatggatgagccttaccggaagtctaagctgacatatgcccaggccagaaagct
gctgggcctggaggacaccgccttctttaagggcctgagatacggcaaggataatgccgaggcctccacactgatggagatgaaggcctatcacgccatctctcgcgccctggaga
aggagggcctgaaggacaagaagtccccccctgaacctgagctccgagctgcaggatgagatcggcaccgccttctctctgtttaagaccgacgaggatatcacaggccgcctgaag
gacagggtgcagcctgagatcctggaggccctgctgaagcacatctctttcgataagtttgtgcagatcagcctgaaggccctgagaaggatcgtgccactgatggagcagggcaa
gcggtacgacgaggcctgcgccgagatctacggcgatcactatggcaagaagaacacagaggagaagatctatctgccccctatccctgccgacgagatcagaaatcctgtggtg
ctgagggccctgtcccaggcaagaaaagtgatcaacggagtggtgcgccggtacggatctccagcccggatccacatcgagaccgccagagaagtgggcaagagcttcaaggac
cggaaggagatcgagaagagacaggaggagaatcgcaaggatcgggagaaggccgccgccaagtttagggagtacttccctaactttgtgggcgagccaaagtctaaggacatc
ctgaagctgcgcctgtacgagcagcagcacggcaagtgtctgtatagcggcaaggagatcaatctggtgcggctgaacgagaagggctatgtggagatcgatcacgccctgccttt
ctccagaacctgggacgattcttttaacaataaggtgctggtgctgggcagcgagaaccagaataagggcaatcagacaccatacgagtatttcaatggcaaggacaactccaggg
agtggcaggagttcaaggcccgcgtggagacctctagatttcccaggagcaagaagcagcggatcctgctgcagaagttcgacgaggatggctttaaggagtgcaacctgaatga
caccagatacgtgaaccggttcctgtgccagtttgtggccgatcacatcctgctgaccggcaagggcaagagaagggtgttcgcctctaatggccagatcacaaacctgctgagggg
attttggggactgaggaaggtgcgggcagagaatgacagacaccacgcactggatgcagtggtggtggcatgcagcaccgtggcaatgcagcagaagatcacaagattcgtgag
gtataaggagatgaacgcctttgacggcaagaccatcgataaggagacaggcaaggtgctgcaccagaagacccacttccccagccttgggagttctttgcccaggaagtgatga
tccgggtgttcggcaagccagacggcaagcctctggcggttcaggtggatcaggcggtagctctgaggtggagttttcccacgagtactggatgagacatgccctgaccctggcca
agagggcacgcgatgagagggaggtgcctgtgggagccgtgctggtgctgaacaatagagtgatcggcgagggctggaacagagccatcggcctgcacgacccaacagcccatg
ccgaaattatggccctgagacagggcggcctggtcatgcagaactacagactgattgacgccaccctgtacgtgacattcgagccttgcgtgatgtgcgccggcgccatgatccact
ctaggatcggccgcgtggtgtttggcgtgaggaacagcaaacggggcgccgcaggctccctgatgaacgtgctgaactaccccggcatgaatcaccgcgtcgaaattaccgaggg
aatcctggcagatgaatgtgccgccctgctgtgcgacttctaccggatgcctagacaggtgttcaatgctcagaagaaggcccagagctccatcaacgagacacctggcacaagcg
agagcgcaacagagtttgaggaggccgataccccagagaagctgaggacactgctggcagagaagctgtctagcaggccagaggcagtgcacgagtacgtgaccccactgttcg
tgtccagggcacccaatcggaagatgtctggcgcccacaaggacacactgagaagcgccaagaggtttgtgaagcacaacgagaagatctccgtgaagagagtgtggctgaccg
agatcaagctggccgatctggagaacatggtgaattacaagaacggcagggagatcgagctgtatgaggccctgaaggcaaggctggaggcctacggaggaaatgccaagcag
gccttcgacccaaaggataaccccttttataagaagggaggacagctggtgaaggccgtgcgggtggagaagacccaggagagcggcgtgctgctgaataagaagaacgcctac
acaatcgccgacaatggcgatatggtgagagtggacgtgttctgtaaggtggataagaagggcaagaatcagtactttatcgtgcctatctatgcctggcaggtggccgagaacatc
ctgccagacatcgattgcaagggctacagaatcgacgatagctatacattctgtttttccctgcacaagtatgacctgatcgccttccagaaggatgagaagtccaaggtggagtttg
cctactatatcaattgcgactcctctaacggcaggttctacctggcctggcacgataagggcagcaaggagcagcagtttcgcatctccacccagaatctggtgctgatccagaagta
tcaggtgaacgagctgggcaaggagatcaggccatgtcggctgaagaagcgcccacccgtgcggaggatgaaaagaaccgccgacggcagcgaattcgagcccaagaagaaga
ggaaagtc

Nme2-ABE8e-i8_linker10 (E932R): BPSV40-NLS, Nme2Cas9 – delta PID, TadA8e, SmuCas9 PID, Linkers

MKRTADGSEFESPKKKRKVEDMAAFKPNPINYILGLAIGIASVGWAMVEIDEEENPIRLIDLGVRVFERAEVPKTGDSLAMARRLARSVRRLTRR
RAHRLLRARRLLKREGVLQAADFDENGLIKSLPNTPWQLRAAALDRKLTPLEWSAVLLHLIKHRGYLSQRKNEGETADKELGALLKGVANNAHAL
QTGDFRTPAELALNKFEKESGHIRNQRGDYSHTFSRKDLQAELILLFEKQKEFGNPHVSGGLKEGIETLLMTQRPALSGDAVQKMLGHCTFEPAE
PKAAKNTYTAERFIWLTKLNNLRILEQGSERPLTDTERATLMDEPYRKSKLTYAQARKLLGLEDTAFFKGLRYGKDNAEASTLMEMKAYHAISRAL
EKEGLKDKKSPLNLSSELQDEIGTAFSLFKTDEDITGRLKDRVQPEILEALLKHISFDKFVQISLKALRRIVPLMEQGKRYDEACAEIYGDHYGKKNTE
EKIYLPPIPADEIRNPVVLRALSQARKVINGVVRRYGSPARIHIETAREVGKSFKDRKEIEKRQEENRKDREKAAAKFREYFPNFVGEPKSKDILKLRL
YEQQHGKCLYSGKEINLVRLNEKGYVEIDHALPFSRTWDDSFNNKVLVLGSENQNKGNQTPYEYFNGKDNSREWQEFKARVETSRFPRSKKQRI
LLQKFDEDGFKECNLNDTRYVNRFLCQFVADHILLTGKGKRRVFASNGQITNLLRGFWGLRKVRAENDRHHALDAVVVACSTVAMQQKITRFV
RYKEMNAFDGKTIDKETGKVLHQKTHFPQPWEFFAQEVMIRVFGKPDGKPSGGSGGSGGSSEVEFSHEYWMRHALTLAKRARDEREVPVGA
VLVLNNRVIGEGWNRAIGLHDPTAHAEIMALRQGGLVMQNYRLIDATLYVTFEPCVMCAGAMIHSRIGRVVFGVRNSKRGAAGSLMNVLNYP
GMNHRVEITEGILADECAALLCDFYRMPRQVFNAQKKAQSSINETPGTSESATEFEEADTPEKLRTLLAEKLSSRPEAVHEYVTPLFVSRAPNRKM
SGAHKDTLRSAKRFVKHNEKISVKRVWLTEIKLADLENMVNYKNGREIELYEALKARLEAYGGNAKQAFDPKDNPFYKKGGQLVKAVRVEKTRE
SGVLLNKKNAYTIADNGDMVRVDVFCKVDKKGKNQYFIVPIYAWQVAENILPDIDCKGYRIDDSYTFCFSLHKYDLIAFQKDEKSKVEFAYYINCD
SSNGRFYLAWHDKGSKEQQFRISTQNLVLIQKYQVNELGKEIRPCRLKKRPPVREDKRTADGSEFEPKKKRKV

atgaaacggacagccgacggaagcgagttcgagtcaccaaagaagaagcggaaagtcgaagatatggccgccttcaagcctaacccaatcaattacatcctgggactggCcatc
ggaatcgcatccgtgggatgggctatggtggagatcgacgaggaggagaatcctatccggctgatcgatctgggcgtgagagtgtttgagagggccgaggtgccaaagaccggcg
attctctggctatggcccggagactggcacggagcgtgaggcgcctgacacggagaagggcacacaggctgctgagggcacgccggctgctgaagagagagggcgtgctgcagg
cagcagacttcgatgagaatggcctgatcaagagcctgccaaacacccccctggcagctgagagcagccgcccctggacaggaagctgacaccactggagtggtctgccgtgctgct
gcacctgatcaagcaccgcggctacctgagccagcggaagaacgagggagagacagcagacaaggagctgggcgccctgctgaagggagtggccaacaatgcccacgccctgc
agaccggcgatttcaggacacctgccgagctggccctgaataagtttgagaaggagtccggccacatcagaaaccagaggggcgactatagccacaccttctcccgcaaggatctg
caggccgagctgatcctgctgttcgagaagcagaaggagtttggcaatccacacgtgagcggaggcctgaaggagggaatcgagaccctgctgatgacacagaggcctgccctgt
ccggcgacgcagtgcagaagatgctgggacactgcaccttcgagcctgcagagccaaaggccgccaagaacacctacacagccgagcggtttatctggctgacaaagctgaaca
atctgagaatcctggagcagggatccgagaggccactgaccgacacagagagggccaccctgatggatgagccttaccggaagtctaagctgacatatgcccaggccagaaagct
gctgggcctggaggacaccgccttctttaagggcctgagatacggcaaggataatgccgaggcctccacactgatggagatgaaggcctatcacgccatctctcgcgccctggaga
aggagggcctgaaggacaagaagtccccccctgaacctgagctccgagctgcaggatgagatcggcaccgccttctctctgtttaagaccgacgaggatatcacaggccgcctgaag
gacagggtgcagcctgagatcctggaggccctgctgaagcacatctctttcgataagtttgtgcagatcagcctgaaggccctgagaaggatcgtgccactgatggagcagggcaa
gcggtacgacgaggcctgcgccgagatctacggcgatcactatggcaagaagaacacagaggagaagatctatctgccccctatccctgccgacgagatcagaaatcctgtggtg
ctgagggccctgtcccaggcaagaaaagtgatcaacggagtggtgcgccggtacggatctccagcccggatccacatcgagaccgccagagaagtgggcaagagcttcaaggac
cggaaggagatcgagaagagacaggaggagaatcgcaaggatcgggagaaggccgccgccaagtttagggagtacttccctaactttgtgggcgagccaaagtctaaggacatc
ctgaagctgcgcctgtacgagcagcagcacggcaagtgtctgtatagcggcaaggagatcaatctggtgcggctgaacgagaagggctatgtggagatcgatcacgccctgccttt
ctccagaacctgggacgattcttttaacaataaggtgctggtgctgggcagcgagaaccagaataagggcaatcagacaccatacgagtatttcaatggcaaggacaactccaggg
agtggcaggagttcaaggcccgcgtggagacctctagatttcccaggagcaagaagcagcggatcctgctgcagaagttcgacgaggatggctttaaggagtgcaacctgaatga
caccagatacgtgaaccggttcctgtgccagtttgtggccgatcacatcctgctgaccggcaagggcaagagaagggtgttcgcctctaatggccagatcacaaacctgctgagggg
attttggggactgaggaaggtgcgggcagagaatgacagacaccacgcactggatgcagtggtggtggcatgcagcaccgtggcaatgcagcagaagatcacaagattcgtgag
gtataaggagatgaacgcctttgacggcaagaccatcgataaggagacaggcaaggtgctgcaccagaagacccacttccccagccttgggagttctttgcccaggaagtgatga
tccgggtgttcggcaagccagacggcaagcctctggcggttcaggtggatcaggcggtagctctgaggtggagttttcccacgagtactggatgagacatgccctgaccctggcca
agagggcacgcgatgagagggaggtgcctgtgggagccgtgctggtgctgaacaatagagtgatcggcgagggctggaacagagccatcggcctgcacgacccaacagcccatg
ccgaaattatggccctgagacagggcggcctggtcatgcagaactacagactgattgacgccaccctgtacgtgacattcgagccttgcgtgatgtgcgccggcgccatgatccact
ctaggatcggccgcgtggtgtttggcgtgaggaacagcaaacggggcgccgcaggctccctgatgaacgtgctgaactaccccggcatgaatcaccgcgtcgaaattaccgaggg
aatcctggcagatgaatgtgccgccctgctgtgcgacttctaccggatgcctagacaggtgttcaatgctcagaagaaggcccagagctccatcaacgagacacctggcacaagcg
agagcgcaacagagtttgaggaggccgataccccagagaagctgaggacactgctggcagagaagctgtctagcaggccagaggcagtgcacgagtacgtgaccccactgttcg
tgtccagggcacccaatcggaagatgtctggcgcccacaaggacacactgagaagcgccaagaggtttgtgaagcacaacgagaagatctccgtgaagagagtgtggctgaccg
agatcaagctggccgatctggagaacatggtgaattacaagaacggcagggagatcgagctgtatgaggccctgaaggcaaggctggaggcctacggaggaaatgccaagcag
gccttcgacccaaaggataaccccttttataagaagggaggacagctggtgaaggccgtgcgggtggagaagacccagCGTagcggcgtgctgctgaataagaagaacgcctac
acaatcgccgacaatggcgatatggtgagagtggacgtgttctgtaaggtggataagaagggcaagaatcagtactttatcgtgcctatctatgcctggcaggtggccgagaacatc
ctgccagacatcgattgcaagggctacagaatcgacgatagctatacattctgtttttccctgcacaagtatgacctgatcgccttccagaaggatgagaagtccaaggtggagtttg
cctactatatcaattgcgactcctctaacggcaggttctacctggcctggcacgataagggcagcaaggagcagcagtttcgcatctccacccagaatctggtgctgatccagaagta
tcaggtgaacgagctgggcaaggagatcaggccatgtcggctgaagaagcgcccacccgtgcggaggatgaaaagaaccgccgacggcagcgaattcgagcccaagaagaaga
ggaaagtc

Nme2-ABE8e-i8_linker10 (D56R): BPSV40-NLS, Nme2Cas9 – delta PID, TadA8e, SmuCas9 PID, Linkers

MKRTADGSEFESPKKKRKVEDMAAFKPNPINYILGLAIGIASVGWAMVEIDEEENPIRLIDLGVRVFERAEVPKTGRSLAMARRLARSVRRLTRR
RAHRLLRARRLLKREGVLQAADFDENGLIKSLPNTPWQLRAAALDRKLTPLEWSAVLLHLIKHRGYLSQRKNEGETADKELGALLKGVANNAHAL
QTGDFRTPAELALNKFEKESGHIRNQRGDYSHTFSRKDLQAELILLFEKQKEFGNPHVSGGLKEGIETLLMTQRPALSGDAVQKMLGHCTFEPAE
PKAAKNTYTAERFIWLTKLNNLRILEQGSERPLTDTERATLMDEPYRKSKLTYAQARKLLGLEDTAFFKGLRYGKDNAEASTLMEMKAYHAISRAL
EKEGLKDKKSPLNLSSELQDEIGTAFSLFKTDEDITGRLKDRVQPEILEALLKHISFDKFVQISLKALRRIVPLMEQGKRYDEACAEIYGDHYGKKNTE
EKIYLPPIPADEIRNPVVLRALSQARKVINGVVRRYGSPARIHIETAREVGKSFKDRKEIEKRQEENRKDREKAAAKFREYFPNFVGEPKSKDILKLRL
YEQQHGKCLYSGKEINLVRLNEKGYVEIDHALPFSRTWDDSFNNKVLVLGSENQNKGNQTPYEYFNGKDNSREWQEFKARVETSRFPRSKKQRI
LLQKFDEDGFKECNLNDTRYVNRFLCQFVADHILLTGKGKRRVFASNGQITNLLRGFWGLRKVRAENDRHHALDAVVVACSTVAMQQKITRFV
RYKEMNAFDGKTIDKETGKVLHQKTHFPQPWEFFAQEVMIRVFGKPDGKPSGGSGGSGGSSEVEFSHEYWMRHALTLAKRARDEREVPVGA
VLVLNNRVIGEGWNRAIGLHDPTAHAEIMALRQGGLVMQNYRLIDATLYVTFEPCVMCAGAMIHSRIGRVVFGVRNSKRGAAGSLMNVLNYP
GMNHRVEITEGILADECAALLCDFYRMPRQVFNAQKKAQSSINETPGTSESATEFEEADTPEKLRTLLAEKLSSRPEAVHEYVTPLFVSRAPNRKM
SGAHKDTLRSAKRFVKHNEKISVKRVWLTEIKLADLENMVNYKNGREIELYEALKARLEAYGGNAKQAFDPKDNPFYKKGGQLVKAVRVEKTQE
SGVLLNKKNAYTIADNGDMVRVDVFCKVDKKGKNQYFIVPIYAWQVAENILPDIDCKGYRIDDSYTFCFSLHKYDLIAFQKDEKSKVEFAYYINCD
SSNGRFYLAWHDKGSKEQQFRISTQNLVLIQKYQVNELGKEIRPCRLKKRPPVREDKRTADGSEFEPKKKRKV

atgaaacggacagccgacggaagcgagttcgagtcaccaaagaagaagcggaaagtcgaagatatggccgccttcaagcctaacccaatcaattacatcctgggactggCcatc
ggaatcgcatccgtgggatgggctatggtggagatcgacgaggaggagaatcctatccggctgatcgatctgggcgtgagagtgtttgagagggccgaggtgccaaagaccggcC
GTtctctggctatggcccggagactggcacggagcgtgaggcgcctgacacggagaagggcacacaggctgctgagggcacgccggctgctgaagagagagggcgtgctgcag
gcagcagacttcgatgagaatggcctgatcaagagcctgccaaacacccccctggcagctgagagcagccgccctggacaggaagctgacaccactggagtggtctgccgtgctgc
tgcacctgatcaagcaccgcggctacctgagccagcggaagaacgagggagagacagcagacaaggagctgggcgccctgctgaagggagtggccaacaatgcccacgccctg
cagaccggcgatttcaggacacctgccgagctggccctgaataagtttgagaaggagtccggccacatcagaaaccagaggggcgactatagccacaccttctcccgcaaggatct
gcaggccgagctgatcctgctgttcgagaagcagaaggagtttggcaatccacacgtgagcggaggcctgaaggagggaatcgagaccctgctgatgacacagaggcctgccctg
tccggcgacgcagtgcagaagatgctgggacactgcaccttcgagcctgcagagccaaaggccgccaagaacacctacacagccgagcggtttatctggctgacaaagctgaaca
atctgagaatcctggagcagggatccgagaggccactgaccgacacagagagggccaccctgatggatgagccttaccggaagtctaagctgacatatgcccaggccagaaagct
gctgggcctggaggacaccgccttctttaagggcctgagatacggcaaggataatgccgaggcctccacactgatggagatgaaggcctatcacgccatctctcgcgccctggaga
aggagggcctgaaggacaagaagtccccccctgaacctgagctccgagctgcaggatgagatcggcaccgccttctctctgtttaagaccgacgaggatatcacaggccgcctgaag
gacagggtgcagcctgagatcctggaggccctgctgaagcacatctctttcgataagtttgtgcagatcagcctgaaggccctgagaaggatcgtgccactgatggagcagggcaa
gcggtacgacgaggcctgcgccgagatctacggcgatcactatggcaagaagaacacagaggagaagatctatctgccccctatccctgccgacgagatcagaaatcctgtggtg
ctgagggccctgtcccaggcaagaaaagtgatcaacggagtggtgcgccggtacggatctccagcccggatccacatcgagaccgccagagaagtgggcaagagcttcaaggac
cggaaggagatcgagaagagacaggaggagaatcgcaaggatcgggagaaggccgccgccaagtttagggagtacttccctaactttgtgggcgagccaaagtctaaggacatc
ctgaagctgcgcctgtacgagcagcagcacggcaagtgtctgtatagcggcaaggagatcaatctggtgcggctgaacgagaagggctatgtggagatcgatcacgccctgccttt
ctccagaacctgggacgattcttttaacaataaggtgctggtgctgggcagcgagaaccagaataagggcaatcagacaccatacgagtatttcaatggcaaggacaactccaggg
agtggcaggagttcaaggcccgcgtggagacctctagatttcccaggagcaagaagcagcggatcctgctgcagaagttcgacgaggatggctttaaggagtgcaacctgaatga
caccagatacgtgaaccggttcctgtgccagtttgtggccgatcacatcctgctgaccggcaagggcaagagaagggtgttcgcctctaatggccagatcacaaacctgctgagggg
attttggggactgaggaaggtgcgggcagagaatgacagacaccacgcactggatgcagtggtggtggcatgcagcaccgtggcaatgcagcagaagatcacaagattcgtgag
gtataaggagatgaacgcctttgacggcaagaccatcgataaggagacaggcaaggtgctgcaccagaagacccacttccccagccttgggagttctttgcccaggaagtgatga
tccgggtgttcggcaagccagacggcaagcctctggcggttcaggtggatcaggcggtagctctgaggtggagttttcccacgagtactggatgagacatgccctgaccctggcca
agagggcacgcgatgagagggaggtgcctgtgggagccgtgctggtgctgaacaatagagtgatcggcgagggctggaacagagccatcggcctgcacgacccaacagcccatg
ccgaaattatggccctgagacagggcggcctggtcatgcagaactacagactgattgacgccaccctgtacgtgacattcgagccttgcgtgatgtgcgccggcgccatgatccact
ctaggatcggccgcgtggtgtttggcgtgaggaacagcaaacggggcgccgcaggctccctgatgaacgtgctgaactaccccggcatgaatcaccgcgtcgaaattaccgaggg
aatcctggcagatgaatgtgccgccctgctgtgcgacttctaccggatgcctagacaggtgttcaatgctcagaagaaggcccagagctccatcaacgagacacctggcacaagcg
agagcgcaacagagtttgaggaggccgataccccagagaagctgaggacactgctggcagagaagctgtctagcaggccagaggcagtgcacgagtacgtgaccccactgttcg
tgtccagggcacccaatcggaagatgtctggcgcccacaaggacacactgagaagcgccaagaggtttgtgaagcacaacgagaagatctccgtgaagagagtgtggctgaccg
agatcaagctggccgatctggagaacatggtgaattacaagaacggcagggagatcgagctgtatgaggccctgaaggcaaggctggaggcctacggaggaaatgccaagcag
gccttcgacccaaaggataaccccttttataagaagggaggacagctggtgaaggccgtgcgggtggagaagacccaggagagcggcgtgctgctgaataagaagaacgcctac
acaatcgccgacaatggcgatatggtgagagtggacgtgttctgtaaggtggataagaagggcaagaatcagtactttatcgtgcctatctatgcctggcaggtggccgagaacatc
ctgccagacatcgattgcaagggctacagaatcgacgatagctatacattctgtttttccctgcacaagtatgacctgatcgccttccagaaggatgagaagtccaaggtggagtttg
cctactatatcaattgcgactcctctaacggcaggttctacctggcctggcacgataagggcagcaaggagcagcagtttcgcatctccacccagaatctggtgctgatccagaagta
tcaggtgaacgagctgggcaaggagatcaggccatgtcggctgaagaagcgcccacccgtgcggaggatAAAAGAACCGCCGACGGCAGCGAATTCGAGCCCAAGAAGAAGA
GGAAAGTC

Nme2^{Smu}-ABE8e-i8_linker10 (WT): BPSV40-NLS, Nme2Cas9 – delta PID, TadA8e, SmuCas9 PID, Linkers

MKRTADGSEFESPKKKRKVEDMAAFKPNPINYILGLAIGIASVGWAMVEIDEEENPIRLIDLGVRVFERAEVPKTGDSLAMARRLARSVRRLTRR
RAHRLLRARRLLKREGVLQAADFDENGLIKSLPNTPWQLRAAALDRKLTPLEWSAVLLHLIKHRGYLSQRKNEGETADKELGALLKGVANNAHAL
QTGDFRTPAELALNKFEKESGHIRNQRGDYSHTFSRKDLQAELILLFEKQKEFGNPHVSGGLKEGIETLLMTQRPALSGDAVQKMLGHCTFEPAE
PKAAKNTYTAERFIWLTKLNNLRILEQGSERPLTDTERATLMDEPYRKSKLTYAQARKLLGLEDTAFFKGLRYGKDNAEASTLMEMKAYHAISRAL
EKEGLKDKKSPLNLSSELQDEIGTAFSLFKTDEDITGRLKDRVQPEILEALLKHISFDKFVQISLKALRRIVPLMEQGKRYDEACAEIYGDHYGKKNTE
EKIYLPPIPADEIRNPVVLRALSQARKVINGVVRRYGSPARIHIETAREVGKSFKDRKEIEKRQEENRKDREKAAAKFREYFPNFVGEPKSKDILKLRL
YEQQHGKCLYSGKEINLVRLNEKGYVEIDHALPFSRTWDDSFNNKVLVLGSENQNKGNQTPYEYFNGKDNSREWQEFKARVETSRFPRSKKQRI
LLQKFDEDGFKECNLNDTRYVNRFLCQFVADHILLTGKGKRRVFASNGQITNLLRGFWGLRKVRAENDRHHALDAVVVACSTVAMQQKITRFV
RYKEMNAFDGKTIDKETGKVLHQKTHFPQPWEFFAQEVMIRVFGKPDGKPSGGSGGSGGSSEVEFSHEYWMRHALTLAKRARDEREVPVGA
VLVLNNRVIGEGWNRAIGLHDPTAHAEIMALRQGGLVMQNYRLIDATLYVTFEPCVMCAGAMIHSRIGRVVFGVRNSKRGAAGSLMNVLNYP
GMNHRVEITEGILADECAALLCDFYRMPRQVFNAQKKAQSSINETPGTSESATEFEEADTPEKLRTLLAEKLSSRPEAVHEYVTPLFVSRAPNRKM
SGAHKDTLRSAKRFVKHNEKISVKRVWLTEIKLADLENMVNYKNGREIELYEALKARLEAYGGNAKQAFDPKDNPFYKKGGQLVKAVRVEKTQE
SGVLLNKKNAYTIADNATMVRVDVYTKAGKNYLVPVYVWQVAQGILPNRAVTSGKSEADWDLIDESFEFKFSLSRGDLVEMISNKGRIFGYYNG
LDRANGSIGIREHDLEKSKGKDGVHRVGVKTATAFNKYHVDPLGKEIHRCSSEPRPTLKIKSKKEDKRTADGSEFEPKKKRKV

atgaaacggacagccgacggaagcgagttcgagtcaccaaagaagaagcggaaagtcgaagatatggccgccttcaagcctaacccaatcaattacatcctgggactggCcatc
ggaatcgcatccgtgggatgggctatggtggagatcgacgaggaggagaatcctatccggctgatcgatctgggcgtgagagtgtttgagagggccgaggtgccaaagaccggcg
attctctggctatggcccggagactggcacggagcgtgaggcgcctgacacggagaagggcacacaggctgctgagggcacgccggctgctgaagagagagggcgtgctgcagg
cagcagacttcgatgagaatggcctgatcaagagcctgccaaacacccccctggcagctgagagcagccgccctggacaggaagctgacaccactggagtggtctgccgtgctgct
gcacctgatcaagcaccgcggctacctgagccagcggaagaacgagggagagacagcagacaaggagctgggcgccctgctgaagggagtggccaacaatgcccacgccctgc
agaccggcgatttcaggacacctgccgagctggccctgaataagtttgagaaggagtccggccacatcagaaaccagaggggcgactatagccacaccttctcccgcaaggatctg
caggccgagctgatcctgctgttcgagaagcagaaggagtttggcaatccacacgtgagcggaggcctgaaggagggaatcgagaccctgctgatgacacagaggcctgccctgt
ccggcgacgcagtgcagaagatgctgggacactgcaccttcgagcctgcagagccaaaggccgccaagaacacctacacagccgagcggtttatctggctgacaaagctgaaca
atctgagaatcctggagcagggatccgagaggccactgaccgacacagagagggccaccctgatggatgagccttaccggaagtctaagctgacatatgcccaggccagaaagct
gctgggcctggaggacaccgccttctttaagggcctgagatacggcaaggataatgccgaggcctccacactgatggagatgaaggcctatcacgccatctctcgcgccctggaga
aggagggcctgaaggacaagaagtccccccctgaacctgagctccgagctgcaggatgagatcggcaccgccttctctctgtttaagaccgacgaggatatcacaggccgcctgaag
gacagggtgcagcctgagatcctggaggccctgctgaagcacatctctttcgataagtttgtgcagatcagcctgaaggccctgagaaggatcgtgccactgatggagcagggcaa
gcggtacgacgaggcctgcgccgagatctacggcgatcactatggcaagaagaacacagaggagaagatctatctgccccctatccctgccgacgagatcagaaatcctgtggtg
ctgagggccctgtcccaggcaagaaaagtgatcaacggagtggtgcgccggtacggatctccagcccggatccacatcgagaccgccagagaagtgggcaagagcttcaaggac
cggaaggagatcgagaagagacaggaggagaatcgcaaggatcgggagaaggccgccgccaagtttagggagtacttccctaactttgtgggcgagccaaagtctaaggacatc
ctgaagctgcgcctgtacgagcagcagcacggcaagtgtctgtatagcggcaaggagatcaatctggtgcggctgaacgagaagggctatgtggagatcgatcacgccctgccttt
ctccagaacctgggacgattcttttaacaataaggtgctggtgctgggcagcgagaaccagaataagggcaatcagacaccatacgagtatttcaatggcaaggacaactccaggg
agtggcaggagttcaaggcccgcgtggagacctctagatttcccaggagcaagaagcagcggatcctgctgcagaagttcgacgaggatggctttaaggagtgcaacctgaatga
caccagatacgtgaaccggttcctgtgccagtttgtggccgatcacatcctgctgaccggcaagggcaagagaagggtgttcgcctctaatggccagatcacaaacctgctgagggg
attttggggactgaggaaggtgcgggcagagaatgacagacaccacgcactggatgcagtggtggtggcatgcagcaccgtggcaatgcagcagaagatcacaagattcgtgag
gtataaggagatgaacgcctttgacggcaagaccatcgataaggagacaggcaaggtgctgcaccagaagacccacttccccagccttgggagttctttgcccaggaagtgatga
tccgggtgttcggcaagccagacggcaagcctctggcggttcaggtggatcaggcggtagctctgaggtggagttttcccacgagtactggatgagacatgccctgaccctggcca
agagggcacgcgatgagagggaggtgcctgtgggagccgtgctggtgctgaacaatagagtgatcggcgagggctggaacagagccatcggcctgcacgacccaacagcccatg
ccgaaattatggccctgagacagggcggcctggtcatgcagaactacagactgattgacgccaccctgtacgtgacattcgagccttgcgtgatgtgcgccggcgccatgatccact
ctaggatcggccgcgtggtgtttggcgtgaggaacagcaaacggggcgccgcaggctccctgatgaacgtgctgaactaccccggcatgaatcaccgcgtcgaaattaccgaggg
aatcctggcagatgaatgtgccgccctgctgtgcgacttctaccggatgcctagacaggtgttcaatgctcagaagaaggcccagagctccatcaacgagacacctggcacaagcg
agagcgcaacagagtttgaggaggccgataccccagagaagctgaggacactgctggcagagaagctgtctagcaggccagaggcagtgcacgagtacgtgaccccactgttcg
tgtccagggcacccaatcggaagatgtctggcgcccacaaggacacactgagaagcgccaagaggtttgtgaagcacaacgagaagatctccgtgaagagagtgtggctgaccg
agatcaagctggccgatctggagaacatggtgaattacaagaacggcagggagatcgagctgtatgaggccctgaaggcaaggctggaggcctacggaggaaatgccaagcag
gccttcgacccaaaggataaccccttttataagaagggaggacagctggtgaaggccgtgcgggtggagaagacccaggagagcggcgtgctgctgaataagaagaacgcctac
acaatcgccgacaacgccaccatggtgcgggtggacgtgtacaccaaggccggcaagaactacctggttcctgtgtacgtgtggcaggtggcccagggcatcttacccaaccgcgc
cgtgaccagcggcaagtccgaggctgactgggacctgatcgatgagagcttcgagttcaagttctctctgtcccggggagatctcgtggaaatgatctccaacaagggcagaatctt
cggctactacaacggcctggacagagccaacggctctattggaattagagagcacgacctagagaagagcaagggcaaagacggcgtgcatagagtgggagtgaaaacagcta
cagcatttaacaagtaccacgtggatcccctgggcaaagagatccacagatgcagcagcgaacccagacctacactgaaaatcaagtctaagaaggaggatgaaaagaaccgccg
acggcagcgaattcgagcccaagaagaagaggaaagtc

Nme2^{Smu}-ABE8e-i8_linker10 (E932R): BPSV40-NLS, Nme2Cas9 – delta PID, TadA8e, SmuCas9 PID, Linkers

MKRTADGSEFESPKKKRKVEDMAAFKPNPINYILGLAIGIASVGWAMVEIDEEENPIRLIDLGVRVFERAEVPKTGDSLAMARRLARSVRRLTRR
RAHRLLRARRLLKREGVLQAADFDENGLIKSLPNTPWQLRAAALDRKLTPLEWSAVLLHLIKHRGYLSQRKNEGETADKELGALLKGVANNAHAL
QTGDFRTPAELALNKFEKESGHIRNQRGDYSHTFSRKDLQAELILLFEKQKEFGNPHVSGGLKEGIETLLMTQRPALSGDAVQKMLGHCTFEPAE
PKAAKNTYTAERFIWLTKLNNLRILEQGSERPLTDTERATLMDEPYRKSKLTYAQARKLLGLEDTAFFKGLRYGKDNAEASTLMEMKAYHAISRAL
EKEGLKDKKSPLNLSSELQDEIGTAFSLFKTDEDITGRLKDRVQPEILEALLKHISFDKFVQISLKALRRIVPLMEQGKRYDEACAEIYGDHYGKKNTE
EKIYLPPIPADEIRNPVVLRALSQARKVINGVVRRYGSPARIHIETAREVGKSFKDRKEIEKRQEENRKDREKAAAKFREYFPNFVGEPKSKDILKLRL
YEQQHGKCLYSGKEINLVRLNEKGYVEIDHALPFSRTWDDSFNNKVLVLGSENQNKGNQTPYEYFNGKDNSREWQEFKARVETSRFPRSKKQRI
LLQKFDEDGFKECNLNDTRYVNRFLCQFVADHILLTGKGKRRVFASNGQITNLLRGFWGLRKVRAENDRHHALDAVVVACSTVAMQQKITRFV
RYKEMNAFDGKTIDKETGKVLHQKTHFPQPWEFFAQEVMIRVFGKPDGKPSGGSGGSGGSSEVEFSHEYWMRHALTLAKRARDEREVPVGA
VLVLNNRVIGEGWNRAIGLHDPTAHAEIMALRQGGLVMQNYRLIDATLYVTFEPCVMCAGAMIHSRIGRVVFGVRNSKRGAAGSLMNVLNYP
GMNHRVEITEGILADECAALLCDFYRMPRQVFNAQKKAQSSINETPGTSESATEFEEADTPEKLRTLLAEKLSSRPEAVHEYVTPLFVSRAPNRKM
SGAHKDTLRSAKRFVKHNEKISVKRVWLTEIKLADLENMVNYKNGREIELYEALKARLEAYGGNAKQAFDPKDNPFYKKGGQLVKAVRVEKTQR
SGVLLNKKNAYTIADNATMVRVDVYTKAGKNYLVPVYVWQVAQGILPNRAVTSGKSEADWDLIDESFEFKFSLSRGDLVEMISNKGRIFGYYNG
LDRANGSIGIREHDLEKSKGKDGVHRVGVKTATAFNKYHVDPLGKEIHRCSSEPRPTLKIKSKKEDKRTADGSEFEPKKKRKV

atgaaacggacagccgacggaagcgagttcgagtcaccaaagaagaagcggaaagtcgaagatatggccgccttcaagcctaacccaatcaattacatcctgggactggCcatc
ggaatcgcatccgtgggatgggctatggtggagatcgacgaggaggagaatcctatccggctgatcgatctgggcgtgagagtgtttgagagggccgaggtgccaaagaccggcg
attctctggctatggcccggagactggcacggagcgtgaggcgcctgacacggagaagggcacacaggctgctgagggcacgccggctgctgaagagagagggcgtgctgcagg
cagcagacttcgatgagaatggcctgatcaagagcctgccaaacacccccctggcagctgagagcagccgccctggacaggaagctgacaccactggagtggtctgccgtgctgct
gcacctgatcaagcaccgcggctacctgagccagcggaagaacgagggagagacagcagacaaggagctgggcgccctgctgaagggagtggccaacaatgcccacgccctgc
agaccggcgatttcaggacacctgccgagctggccctgaataagtttgagaaggagtccggccacatcagaaaccagaggggcgactatagccacaccttctcccgcaaggatctg
caggccgagctgatcctgctgttcgagaagcagaaggagtttggcaatccacacgtgagcggaggcctgaaggagggaatcgagaccctgctgatgacacagaggcctgccctgt
ccggcgacgcagtgcagaagatgctgggacactgcaccttcgagcctgcagagccaaaggccgccaagaacacctacacagccgagcggtttatctggctgacaaagctgaaca
atctgagaatcctggagcagggatccgagaggccactgaccgacacagagagggccaccctgatggatgagccttaccggaagtctaagctgacatatgcccaggccagaaagct
gctgggcctggaggacaccgccttctttaagggcctgagatacggcaaggataatgccgaggcctccacactgatggagatgaaggcctatcacgccatctctcgcgccctggaga
aggagggcctgaaggacaagaagtccccccctgaacctgagctccgagctgcaggatgagatcggcaccgccttctctctgtttaagaccgacgaggatatcacaggccgcctgaag
gacagggtgcagcctgagatcctggaggccctgctgaagcacatctctttcgataagtttgtgcagatcagcctgaaggccctgagaaggatcgtgccactgatggagcagggcaa
gcggtacgacgaggcctgcgccgagatctacggcgatcactatggcaagaagaacacagaggagaagatctatctgccccctatccctgccgacgagatcagaaatcctgtggtg
ctgagggccctgtcccaggcaagaaaagtgatcaacggagtggtgcgccggtacggatctccagcccggatccacatcgagaccgccagagaagtgggcaagagcttcaaggac
cggaaggagatcgagaagagacaggaggagaatcgcaaggatcgggagaaggccgccgccaagtttagggagtacttccctaactttgtgggcgagccaaagtctaaggacatc
ctgaagctgcgcctgtacgagcagcagcacggcaagtgtctgtatagcggcaaggagatcaatctggtgcggctgaacgagaagggctatgtggagatcgatcacgccctgccttt
ctccagaacctgggacgattcttttaacaataaggtgctggtgctgggcagcgagaaccagaataagggcaatcagacaccatacgagtatttcaatggcaaggacaactccaggg
agtggcaggagttcaaggcccgcgtggagacctctagatttcccaggagcaagaagcagcggatcctgctgcagaagttcgacgaggatggctttaaggagtgcaacctgaatga
caccagatacgtgaaccggttcctgtgccagtttgtggccgatcacatcctgctgaccggcaagggcaagagaagggtgttcgcctctaatggccagatcacaaacctgctgagggg
attttggggactgaggaaggtgcgggcagagaatgacagacaccacgcactggatgcagtggtggtggcatgcagcaccgtggcaatgcagcagaagatcacaagattcgtgag
gtataaggagatgaacgcctttgacggcaagaccatcgataaggagacaggcaaggtgctgcaccagaagacccacttccccagccttgggagttctttgcccaggaagtgatga
tccgggtgttcggcaagccagacggcaagcctctggcggttcaggtggatcaggcggtagctctgaggtggagttttcccacgagtactggatgagacatgccctgaccctggcca
agagggcacgcgatgagagggaggtgcctgtgggagccgtgctggtgctgaacaatagagtgatcggcgagggctggaacagagccatcggcctgcacgacccaacagcccatg
ccgaaattatggccctgagacagggcggcctggtcatgcagaactacagactgattgacgccaccctgtacgtgacattcgagccttgcgtgatgtgcgccggcgccatgatccact
ctaggatcggccgcgtggtgtttggcgtgaggaacagcaaacggggcgccgcaggctccctgatgaacgtgctgaactaccccggcatgaatcaccgcgtcgaaattaccgaggg
aatcctggcagatgaatgtgccgccctgctgtgcgacttctaccggatgcctagacaggtgttcaatgctcagaagaaggcccagagctccatcaacgagacacctggcacaagcg
agagcgcaacagagtttgaggaggccgataccccagagaagctgaggacactgctggcagagaagctgtctagcaggccagaggcagtgcacgagtacgtgaccccactgttcg
tgtccagggcacccaatcggaagatgtctggcgcccacaaggacacactgagaagcgccaagaggtttgtgaagcacaacgagaagatctccgtgaagagagtgtggctgaccg
agatcaagctggccgatctggagaacatggtgaattacaagaacggcagggagatcgagctgtatgaggccctgaaggcaaggctggaggcctacggaggaaatgccaagcag
gccttcgacccaaaggataaccccttttataagaagggaggacagctggtgaaggccgtgcgggtggagaagacccagCGTagcggcgtgctgctgaataagaagaacgcctac
acaatcgccgacaacgccaccatggtgcgggtggacgtgtacaccaaggccggcaagaactacctggttcctgtgtacgtgtggcaggtggcccagggcatcttacccaaccgcgc
cgtgaccagcggcaagtccgaggctgactgggacctgatcgatgagagcttcgagttcaagttctctctgtcccggggagatctcgtggaaatgatctccaacaagggcagaatctt
cggctactacaacggcctggacagagccaacggctctattggaattagagagcacgacctagagaagagcaagggcaaagacggcgtgcatagagtgggagtgaaaacagcta
cagcatttaacaagtaccacgtggatcccctgggcaaagagatccacagatgcagcagcgaacccagacctacactgaaaatcaagtctaagaaggaggatgaaaagaaccgccg
acggcagcgaattcgagcccaagaagaagaggaaagtc

Nme2^{Smu}-ABE8e-i8_linker10 (D56R): BPSV40-NLS, Nme2Cas9 – delta PID, TadA8e, SmuCas9 PID, Linkers

MKRTADGSEFESPKKKRKVEDMAAFKPNPINYILGLAIGIASVGWAMVEIDEEENPIRLIDLGVRVFERAEVPKTGRSLAMARRLARSVRRLTRR
RAHRLLRARRLLKREGVLQAADFDENGLIKSLPNTPWQLRAAALDRKLTPLEWSAVLLHLIKHRGYLSQRKNEGETADKELGALLKGVANNAHAL
QTGDFRTPAELALNKFEKESGHIRNQRGDYSHTFSRKDLQAELILLFEKQKEFGNPHVSGGLKEGIETLLMTQRPALSGDAVQKMLGHCTFEPAE
PKAAKNTYTAERFIWLTKLNNLRILEQGSERPLTDTERATLMDEPYRKSKLTYAQARKLLGLEDTAFFKGLRYGKDNAEASTLMEMKAYHAISRAL
EKEGLKDKKSPLNLSSELQDEIGTAFSLFKTDEDITGRLKDRVQPEILEALLKHISFDKFVQISLKALRRIVPLMEQGKRYDEACAEIYGDHYGKKNTE
EKIYLPPIPADEIRNPVVLRALSQARKVINGVVRRYGSPARIHIETAREVGKSFKDRKEIEKRQEENRKDREKAAAKFREYFPNFVGEPKSKDILKLRL
YEQQHGKCLYSGKEINLVRLNEKGYVEIDHALPFSRTWDDSFNNKVLVLGSENQNKGNQTPYEYFNGKDNSREWQEFKARVETSRFPRSKKQRI
LLQKFDEDGFKECNLNDTRYVNRFLCQFVADHILLTGKGKRRVFASNGQITNLLRGFWGLRKVRAENDRHHALDAVVVACSTVAMQQKITRFV
RYKEMNAFDGKTIDKETGKVLHQKTHFPQPWEFFAQEVMIRVFGKPDGKPSGGSGGSGGSSEVEFSHEYWMRHALTLAKRARDEREVPVGA
VLVLNNRVIGEGWNRAIGLHDPTAHAEIMALRQGGLVMQNYRLIDATLYVTFEPCVMCAGAMIHSRIGRVVFGVRNSKRGAAGSLMNVLNYP
GMNHRVEITEGILADECAALLCDFYRMPRQVFNAQKKAQSSINETPGTSESATEFEEADTPEKLRTLLAEKLSSRPEAVHEYVTPLFVSRAPNRKM
SGAHKDTLRSAKRFVKHNEKISVKRVWLTEIKLADLENMVNYKNGREIELYEALKARLEAYGGNAKQAFDPKDNPFYKKGGQLVKAVRVEKTQE
SGVLLNKKNAYTIADNATMVRVDVYTKAGKNYLVPVYVWQVAQGILPNRAVTSGKSEADWDLIDESFEFKFSLSRGDLVEMISNKGRIFGYYNG
LDRANGSIGIREHDLEKSKGKDGVHRVGVKTATAFNKYHVDPLGKEIHRCSSEPRPTLKIKSKKEDKRTADGSEFEPKKKRKV

atgaaacggacagccgacggaagcgagttcgagtcaccaaagaagaagcggaaagtcgaagatatggccgccttcaagcctaacccaatcaattacatcctgggactggCcatc
ggaatcgcatccgtgggatgggctatggtggagatcgacgaggaggagaatcctatccggctgatcgatctgggcgtgagagtgtttgagagggccgaggtgccaaagaccggcC
GTtctctggctatggcccggagactggcacggagcgtgaggcgcctgacacggagaagggcacacaggctgctgagggcacgccggctgctgaagagagagggcgtgctgcag
gcagcagacttcgatgagaatggcctgatcaagagcctgccaaacacccccctggcagctgagagcagccgccctggacaggaagctgacaccactggagtggtctgccgtgctgc
tgcacctgatcaagcaccgcggctacctgagccagcggaagaacgagggagagacagcagacaaggagctgggcgccctgctgaagggagtggccaacaatgcccacgccctg
cagaccggcgatttcaggacacctgccgagctggccctgaataagtttgagaaggagtccggccacatcagaaaccagaggggcgactatagccacaccttctcccgcaaggatct
gcaggccgagctgatcctgctgttcgagaagcagaaggagtttggcaatccacacgtgagcggaggcctgaaggagggaatcgagaccctgctgatgacacagaggcctgccctg
tccggcgacgcagtgcagaagatgctgggacactgcaccttcgagcctgcagagccaaaggccgccaagaacacctacacagccgagcggtttatctggctgacaaagctgaaca
atctgagaatcctggagcagggatccgagaggccactgaccgacacagagagggccaccctgatggatgagccttaccggaagtctaagctgacatatgcccaggccagaaagct
gctgggcctggaggacaccgccttctttaagggcctgagatacggcaaggataatgccgaggcctccacactgatggagatgaaggcctatcacgccatctctcgcgccctggaga
aggagggcctgaaggacaagaagtccccccctgaacctgagctccgagctgcaggatgagatcggcaccgccttctctctgtttaagaccgacgaggatatcacaggccgcctgaag
gacagggtgcagcctgagatcctggaggccctgctgaagcacatctctttcgataagtttgtgcagatcagcctgaaggccctgagaaggatcgtgccactgatggagcagggcaa
gcggtacgacgaggcctgcgccgagatctacggcgatcactatggcaagaagaacacagaggagaagatctatctgccccctatccctgccgacgagatcagaaatcctgtggtg
ctgagggccctgtcccaggcaagaaaagtgatcaacggagtggtgcgccggtacggatctccagcccggatccacatcgagaccgccagagaagtgggcaagagcttcaaggac
cggaaggagatcgagaagagacaggaggagaatcgcaaggatcgggagaaggccgccgccaagtttagggagtacttccctaactttgtgggcgagccaaagtctaaggacatc
ctgaagctgcgcctgtacgagcagcagcacggcaagtgtctgtatagcggcaaggagatcaatctggtgcggctgaacgagaagggctatgtggagatcgatcacgccctgccttt
ctccagaacctgggacgattcttttaacaataaggtgctggtgctgggcagcgagaaccagaataagggcaatcagacaccatacgagtatttcaatggcaaggacaactccaggg
agtggcaggagttcaaggcccgcgtggagacctctagatttcccaggagcaagaagcagcggatcctgctgcagaagttcgacgaggatggctttaaggagtgcaacctgaatga
caccagatacgtgaaccggttcctgtgccagtttgtggccgatcacatcctgctgaccggcaagggcaagagaagggtgttcgcctctaatggccagatcacaaacctgctgagggg
attttggggactgaggaaggtgcgggcagagaatgacagacaccacgcactggatgcagtggtggtggcatgcagcaccgtggcaatgcagcagaagatcacaagattcgtgag
gtataaggagatgaacgcctttgacggcaagaccatcgataaggagacaggcaaggtgctgcaccagaagacccacttccccagccttgggagttctttgcccaggaagtgatga
tccgggtgttcggcaagccagacggcaagcctctggcggttcaggtggatcaggcggtagctctgaggtggagttttcccacgagtactggatgagacatgccctgaccctggcca
agagggcacgcgatgagagggaggtgcctgtgggagccgtgctggtgctgaacaatagagtgatcggcgagggctggaacagagccatcggcctgcacgacccaacagcccatg
ccgaaattatggccctgagacagggcggcctggtcatgcagaactacagactgattgacgccaccctgtacgtgacattcgagccttgcgtgatgtgcgccggcgccatgatccact
ctaggatcggccgcgtggtgtttggcgtgaggaacagcaaacggggcgccgcaggctccctgatgaacgtgctgaactaccccggcatgaatcaccgcgtcgaaattaccgaggg
aatcctggcagatgaatgtgccgccctgctgtgcgacttctaccggatgcctagacaggtgttcaatgctcagaagaaggcccagagctccatcaacgagacacctggcacaagcg
agagcgcaacagagtttgaggaggccgataccccagagaagctgaggacactgctggcagagaagctgtctagcaggccagaggcagtgcacgagtacgtgaccccactgttcg
tgtccagggcacccaatcggaagatgtctggcgcccacaaggacacactgagaagcgccaagaggtttgtgaagcacaacgagaagatctccgtgaagagagtgtggctgaccg
agatcaagctggccgatctggagaacatggtgaattacaagaacggcagggagatcgagctgtatgaggccctgaaggcaaggctggaggcctacggaggaaatgccaagcag
gccttcgacccaaaggataaccccttttataagaagggaggacagctggtgaaggccgtgcgggtggagaagacccaggagagcggcgtgctgctgaataagaagaacgcctac
acaatcgccgacaacgccaccatggtgcgggtggacgtgtacaccaaggccggcaagaactacctggttcctgtgtacgtgtggcaggtggcccagggcatcttacccaaccgcgc
cgtgaccagcggcaagtccgaggctgactgggacctgatcgatgagagcttcgagttcaagttctctctgtcccggggagatctcgtggaaatgatctccaacaagggcagaatctt
cggctactacaacggcctggacagagccaacggctctattggaattagagagcacgacctagagaagagcaagggcaaagacggcgtgcatagagtgggagtgaaaacagcta
cagcatttaacaagtaccacgtggatcccctgggcaaagagatccacagatgcagcagcgaacccagacctacactgaaaatcaagtctaagaaggaggatAAAAGAACCGCCG
ACGGCAGCGAATTCGAGCCCAAGAAGAAGAGGAAAGTC

iNme2-ABE8e-nt: BPSV40-NLS, nNme2Cas9, TadA8e, Linkers

Jenifer Dounda Lab, iNme2Cas9 (D16A) variant in n-terminally fused ABE8e format.

MKRTADGSEFESPKKKRKVGGSGGGSGGGSGSEVEFSHEYWMRHALTLAKRARDEREVPVGAVLVLNNRVIGEGWNRAIGLHDPTAHAEIM
ALRQGGLVMQNYRLIDATLYVTFEPCVMCAGAMIHSRIGRVVFGVRNSKRGAAGSLMNVLNYPGMNHRVEITEGILADECAALLCDFYRMPR
QVFNAQKKAQSSINSGGSSGGSSGSETPGTSESATPESSGGSSGGSMAAFKPNPINYILGLAIGIASVGWAMVEIDEEENPIRLIDLGVRVFERAE
VPKTGDSLAMARRLARSVRRLTRRRAHRLLRARRLLKREGVLQAADFDENGLIKSLPNTPWQLRAAALDRKLTPLEWSAVLLHLIKHRGYLSQRK
NEGETADKELGALLKGVANNAHALQTGDFRTPAELALNKFEKESGHIRNQRGDYSHTFSRKDLQAELILLFEKQKEFGNPHVSGGLKEGIETLLM
TQRPALSGDAVQKMLGHCTFEPAEPKAAKNTYTAERFIWLTKLNNLRILEQGSERPLTDTERATLMDEPYRKSKLTYAQARKLLGLEDTAFFKGL
RYGKDNAEASTLMEMKAYHAISRALEKEGLKDKKSPLNLSSELQDEIGTAFSLFKTDEDITGRLKDRVQPEILEALLKHISFDKFVQISLKALRRIVPL
MEQGKRYDEACAEIYGDHYGKKNTEEKIYLPPIPADEIRNPVVLRALSQARKVINGVVRRYGSPARIHIETAREVGKSFKDRKEIEKRQEENRKDRE
KAAAKFREYFPNFVGEPKSKDILKLRLYEQQHGKCLYSGKEINLVRLNEKGYVEIDHALPFSRTWDDSFNNKVLVLGSENQNKGNQTPYEYFNGK
DNSREWQEFKARVETSRFPRSKKQRILLQKFDEDGFKECNLNDTRYVNRFLCQFVADHILLTGKGKRRVFASNGQITNLLRGFWGLRKVRAEND
RHHALDAVVVACSTVAMQQKITRFVRYKEMNAFDGKTIDKETGKVLHQKTHFPQPWEFFAQEVMIRVFGKPDGKPEFEEADTPEKLRTLLAEK
LSSRPEAVHEYVTPLFVSRAPNRKMSGAHKGTLRSAKRFVKHNEKISVKRVWLTKIRLAALENMVNYKNGREIELYEALKARLEAYGGNAKQAFD
PKGNPFYKKGGQLVKAVRVERTQKSGVLLNKKNAYTIADNGDMVRVDVFCKVDKKGKNQYFIVPIYAWQVAENILPDIDCKGYRIDDSYTFCFS
LHKYDLIAFQKDEKSKVEFAYYINCDSSNGRFYLAWHDKGSKEQQFRISTQNLVLIQKYQVNELGKEIRPCRLKKRPPVREDKRTADGSEFEPKKK
RKV

atgaaacggacagccgacggaagcgagttcgagtcaccaaagaagaagcggaaagtcggcggtagcggcggaggcagcggtggcggcagcggctctgaggtggagttttccca
cgagtactggatgagacatgccctgaccctggccaagagggcacgcgatgagagggaggtgcctgtgggagccgtgctggtgctgaacaatagagtgatcggcgagggctggaa
cagagccatcggcctgcacgacccaacagcccatgccgaaattatggccctgagacagggcggcctggtcatgcagaactacagactgattgacgccaccctgtacgtgacattcg
agccttgcgtgatgtgcgccggcgccatgatccactctaggatcggccgcgtggtgtttggcgtgaggaacagcaaacggggcgccgcaggctccctgatgaacgtgctgaactac
cccggcatgaatcaccgcgtcgaaattaccgagggaatcctggcagatgaatgtgccgccctgctgtgcgacttctaccggatgcctagacaggtgttcaatgctcagaagaaggcc
cagagctccatcaactccggaggatctagcggaggctcctctggctctgagacacctggcacaagcgagagcgcaacacctgaaagcagcgggggcagcagcgggggtcaatg
gccgccttcaagcctaacccaatcaattacatcctgggactggccatcggaatcgcatccgtgggatgggctatggtggagatcgacgaggaggagaatcctatccggctgatcgat
ctgggcgtgagagtgtttgagagggccgaggtgccaaagaccggcgattctctggctatggcccggagactggcacggagcgtgaggcgcctgacacggagaagggcacacagg
ctgctgagggcacgccggctgctgaagagagagggcgtgctgcaggcagcagacttcgatgagaatggcctgatcaagagcctgccaaacacccccctggcagctgagagcagcc
gccctggacaggaagctgacaccactggagtggtctgccgtgctgctgcacctgatcaagcaccgcggctacctgagccagcggaagaacgagggagagacagcagacaaggag
ctgggcgccctgctgaagggagtggccaacaatgcccacgccctgcagaccggcgatttcaggacacctgccgagctggccctgaataagtttgagaaggagtccggccacatca
gaaaccagaggggcgactatagccacaccttctcccgcaaggatctgcaggccgagctgatcctgctgttcgagaagcagaaggagtttggcaatccacacgtgagcggaggcct
gaaggagggaatcgagaccctgctgatgacacagaggcctgccctgtccggcgacgcagtgcagaagatgctgggacactgcaccttcgagcctgcagagccaaaggccgccaa
gaacacctacacagccgagcggtttatctggctgacaaagctgaacaatctgagaatcctggagcagggatccgagaggccactgaccgacacagagagggccaccctgatggat
gagccttaccggaagtctaagctgacatatgcccaggccagaaagctgctgggcctggaggacaccgccttctttaagggcctgagatacggcaaggataatgccgaggcctccac
actgatggagatgaaggcctatcacgccatctctcgcgccctggagaaggagggcctgaaggacaagaagtccccccctgaacctgagctccgagctgcaggatgagatcggcacc
gccttctctctgtttaagaccgacgaggatatcacaggccgcctgaaggacagggtgcagcctgagatcctggaggccctgctgaagcacatctctttcgataagtttgtgcagatca
gcctgaaggccctgagaaggatcgtgccactgatggagcagggcaagcggtacgacgaggcctgcgccgagatctacggcgatcactatggcaagaagaacacagaggagaag
atctatctgcccccctatccctgccgacgagatcagaaatcctgtggtgctgagggccctgtcccaggcaagaaaagtgatcaacggagtggtgcgccggtacggatctccagcccgg
atccacatcgagaccgccagagaagtgggcaagagcttcaaggaccggaaggagatcgagaagagacaggaggagaatcgcaaggatcgggagaaggccgccgccaagttta
gggagtacttccctaactttgtgggcgagccaaagtctaaggacatcctgaagctgcgcctgtacgagcagcagcacggcaagtgtctgtatagcggcaaggagatcaatctggtg
cggctgaacgagaagggctatgtggagatcgatcacgccctgcctttctccagaacctgggacgattcttttaacaataaggtgctggtgctgggcagcgagaaccagaataaggg
caatcagacaccatacgagtatttcaatggcaaggacaactccagggagtggcaggagttcaaggcccgcgtggagacctctagatttcccaggagcaagaagcagcggatcctg
ctgcagaagttcgacgaggatggctttaaggagtgcaacctgaatgacaccagatacgtgaaccggttcctgtgccagtttgtggccgatcacatcctgctgaccggcaagggcaag
agaagggtgttcgcctctaatggccagatcacaaacctgctgaggggattttggggactgaggaaggtgcgggcagagaatgacagacaccacgcactggatgcagtggtggtgg
catgcagcaccgtggcaatgcagcagaagatcacaagattcgtgaggtataaggagatgaacgccttgacggcaagaccatcgataaggagacaggcaaggtgctgcaccaga
agacccacttccccagccttgggagttctttgcccaggaagtgatgatccgggtgttcggcaagccagacggcaagcctgagtttgaggaggccgataccccagagaagctgagg
acactgctggcagagaagctgtctagcaggccagaggcagtgcacgagtacgtgaccccactgttcgtgtccagggcacccaatcggaagatgtctggcgcccacaagggcacac
tgagaagcgccaagaggtttgtgaagcacaacgagaagatctccgtgaagagagtgtggctgaccaagatcaggctggccgccctggagaacatggtgaattacaagaacggca
gggagatcgagctgtatgaggccctgaaggcaaggctggaggcctacggaggaaatgccaagcaggccttcgacccaaagggcaacccctttttataagaagggaggacagctgg
tgaaggccgtgcgggtggagaggacccagaagagcggcgtgctgctgaataagaagaacgcctacacaatcgccgacaatggcgatatggtgagagtggacgtgttctgtaaggt
ggataagaagggcaagaatcagtactttatcgtgcctatctatgcctggcaggtggccgagaacatcctgccagacatcgattgcaagggctacagaatcgacgatagctatacatt
ctgtttttccctgcacaagtatgacctgatcgccttccagaaggatgagaagtccaaggtggagtttgcctactatatcaattgcgactcctctaacggcaggttctacctggcctggca
cgataagggcagcaaggagcagcagtttcgcatctccacccagaatctggtgctgatccagaagtatcaggtgaacgagctgggcaaggagatcaggccatgtcggctgaagaag
cgcccacccgtgcggaggatgaaaagaaccgccgacggcagcgaattcgagcccaagaagaagaggaaagtc

iNme2^{Smu}-ABE8e-nt: BPSV40-NLS, Nme2Cas9 – delta PID, TadA8e, SmuCas9 PID, Linkers

Jenifer Dounda Lab, iNme2Cas9 (D16A) variant with SmuCas9 PID swap in n-terminally fused ABE8e format

MKRTADGSEFESPKKKRKVGGSGGGSGGGSGSEVEFSHEYWMRHALTLAKRARDEREVPVGAVLVLNNRVIGEGWNRAIGLHDPTAHAEIM
ALRQGGLVMQNYRLIDATLYVTFEPCVMCAGAMIHSRIGRVVFGVRNSKRGAAGSLMNVLNYPGMNHRVEITEGILADECAALLCDFYRMPR
QVFNAQKKAQSSINSGGSSGGSSGSETPGTSESATPESSGGSSGGSMAAFKPNPINYILGLAIGIASVGWAMVEIDEEENPIRLIDLGVRVFERAE
VPKTGDSLAMARRLARSVRRLTRRRAHRLLRARRLLKREGVLQAADFDENGLIKSLPNTPWQLRAAALDRKLTPLEWSAVLLHLIKHRGYLSQRK
NEGETADKELGALLKGVANNAHALQTGDFRTPAELALNKFEKESGHIRNQRGDYSHTFSRKDLQAELILLFEKQKEFGNPHVSGGLKEGIETLLM
TQRPALSGDAVQKMLGHCTFEPAEPKAAKNTYTAERFIWLTKLNNLRILEQGSERPLTDTERATLMDEPYRKSKLTYAQARKLLGLEDTAFFKGL
RYGKDNAEASTLMEMKAYHAISRALEKEGLKDKKSPLNLSSELQDEIGTAFSLFKTDEDITGRLKDRVQPEILEALLKHISFDKFVQISLKALRRIVPL
MEQGKRYDEACAEIYGDHYGKKNTEEKIYLPPIPADEIRNPVVLRALSQARKVINGVVRRYGSPARIHIETAREVGKSFKDRKEIEKRQEENRKDRE
KAAAKFREYFPNFVGEPKSKDILKLRLYEQQHGKCLYSGKEINLVRLNEKGYVEIDHALPFSRTWDDSFNNKVLVLGSENQNKGNQTPYEYFNGK
DNSREWQEFKARVETSRFPRSKKQRILLQKFDEDGFKECNLNDTRYVNRFLCQFVADHILLTGKGKRRVFASNGQITNLLRGFWGLRKVRAEND
RHHALDAVVVACSTVAMQQKITRFVRYKEMNAFDGKTIDKETGKVLHQKTHFPQPWEFFAQEVMIRVFGKPDGKPEFEEADTPEKLRTLLAEK
LSSRPEAVHEYVTPLFVSRAPNRKMSGAHKGTLRSAKRFVKHNEKISVKRVWLTKIRLAALENMVNYKNGREIELYEALKARLEAYGGNAKQAFD
PKGNPFYKKGGQLVKAVRVERTQKSGVLLNKKNAYTIADNATMVRVDVYTKAGKNYLVPVYVWQVAQGILPNRAVTSGKSEADWDLIDESFE
FKFSLSRGDLVEMISNKGRIFGYYNGLDRANGSIGIREHDLEKSKGKDGVHRVGVKTATAFNKYHVDPLGKEIHRCSSEPRPTLKIKSKKEDKRTA
DGSEFEPKKKRKV

atgaaacggacagccgacggaagcgagttcgagtcaccaaagaagaagcggaaagtcggcggtagcggcggaggcagcggtggcggcagcggctctgaggtggagttttccca
cgagtactggatgagacatgccctgaccctggccaagagggcacgcgatgagagggaggtgcctgtgggagccgtgctggtgctgaacaatagagtgatcggcgagggctggaa
cagagccatcggcctgcacgacccaacagcccatgccgaaattatggccctgagacagggcggcctggtcatgcagaactacagactgattgacgccaccctgtacgtgacattcg
agccttgcgtgatgtgcgccggcgccatgatccactctaggatcggccgcgtggtgtttggcgtgaggaacagcaaacggggcgccgcaggctccctgatgaacgtgctgaactac
cccggcatgaatcaccgcgtcgaaattaccgagggaatcctggcagatgaatgtgccgccctgctgtgcgacttctaccggatgcctagacaggtgttcaatgctcagaagaaggcc
cagagctccatcaactccggaggatctagcggaggctcctctggctctgagacacctggcacaagcgagagcgcaacacctgaaagcagcgggggcagcagcgggggtcaatg
gccgccttcaagcctaacccaatcaattacatcctgggactggccatcggaatcgcatccgtgggatgggctatggtggagatcgacgaggaggagaatcctatccggctgatcgat
ctgggcgtgagagtgtttgagagggccgaggtgccaaagaccggcgattctctggctatggcccggagactggcacggagcgtgaggcgcctgacacggagaagggcacacagg
ctgctgagggcacgccggctgctgaagagagagggcgtgctgcaggcagcagacttcgatgagaatggcctgatcaagagcctgccaaacacccccctggcagctgagagcagcc
gccctggacaggaagctgacaccactggagtggtctgccgtgctgctgcacctgatcaagcaccgcggctacctgagccagcggaagaacgagggagagacagcagacaaggag
ctgggcgccctgctgaagggagtggccaacaatgcccacgccctgcagaccggcgatttcaggacacctgccgagctggccctgaataagtttgagaaggagtccggccacatca
gaaaccagaggggcgactatagccacaccttctcccgcaaggatctgcaggccgagctgatcctgctgttcgagaagcagaaggagtttggcaatccacacgtgagcggaggcct
gaaggagggaatcgagaccctgctgatgacacagaggcctgccctgtccggcgacgcagtgcagaagatgctgggacactgcaccttcgagcctgcagagccaaaggccgccaa
gaacacctacacagccgagcggtttatctggctgacaaagctgaacaatctgagaatcctggagcagggatccgagaggccactgaccgacacagagagggccaccctgatggat
gagccttaccggaagtctaagctgacatatgcccaggccagaaagctgctgggcctggaggacaccgccttctttaagggcctgagatacggcaaggataatgccgaggcctccac
actgatggagatgaaggcctatcacgccatctctcgcgccctggagaaggagggcctgaaggacaagaagtccccccctgaacctgagctccgagctgcaggatgagatcggcacc
gccttctctctgtttaagaccgacgaggatatcacaggccgcctgaaggacagggtgcagcctgagatcctggaggccctgctgaagcacatctctttcgataagtttgtgcagatca
gcctgaaggccctgagaaggatcgtgccactgatggagcagggcaagcggtacgacgaggcctgcgccgagatctacggcgatcactatggcaagaagaacacagaggagaag
atctatctgccccctatccctgccgacgagatcagaaatcctgtggtgctgagggccctgtcccaggcaagaaaagtgatcaacggagtggtgcgccggtacggatctccagcccgg
atccacatcgagaccgccagagaagtgggcaagagcttcaaggaccggaaggagatcgagaagagacaggaggagaatcgcaaggatcgggagaaggccgccgccaagttta
gggagtacttccctaactttgtgggcgagccaaagtctaaggacatcctgaagctgcgcctgtacgagcagcagcacggcaagtgtctgtatagcggcaaggagatcaatctggtg
cggctgaacgagaagggctatgtggagatcgatcacgccctgcctttctccagaacctgggacgattcttttaacaataaggtgctggtgctgggcagcgagaaccagaataaggg
caatcagacaccatacgagtatttcaatggcaaggacaactccagggagtggcaggagttcaaggcccgcgtggagacctctagatttcccaggagcaagaagcagcggatcctg
ctgcagaagttcgacgaggatggctttaaggagtgcaacctgaatgacaccagatacgtgaaccggttcctgtgccagtttgtggccgatcacatcctgctgaccggcaagggcaag
agaagggtgttcgcctctaatggccagatcacaaacctgctgaggggattttggggactgaggaaggtgcgggcagagaatgacagacaccacgcactggatgcagtggtggtgg
catgcagcaccgtggcaatgcagcagaagatcacaagattcgtgaggtataaggagatgaacgcctttgacggcaagaccatcgataaggagacaggcaaggtgctgcaccaga
agacccacttcccccagccttgggagttctttgcccaggaagtgatgatccgggtgttcggcaagccagacggcaagcctgagtttgaggaggccgataccccagagaagctgagg
acactgctggcagagaagctgtctagcaggccagaggcagtgcacgagtacgtgaccccactgttcgtgtccagggcacccaatcggaagatgtctggcgcccacaagggcacac
tgagaagcgccaagaggtttgtgaagcacaacgagaagatctccgtgaagagagtgtggctgaccaagatcaggctggccgccctggagaacatggtgaattacaagaacggca
gggagatcgagctgtatgaggccctgaaggcaaggctggaggcctacggaggaaatgccaagcaggccttcgacccaaagggcaacccctttttataagaagggaggacagctgg
tgaaggccgtgcgggtggagaggacccagaagagcggcgtgctgctgaataagaagaacgcctacacaatcgccgacaacgccaccatggtgcgggtggacgtgtacaccaagg
ccggcaagaactacctggttcctgtgtacgtgtggcaggtggcccagggcatcttacccaaccgcgccgtgaccagcggcaagtccgaggctgactgggacctgatcgatgagagc
ttcgagttcaagttctctctgtcccggggagatctcgtggaaatgatctccaacaagggcagaatcttcggctactacaacggcctggacagagccaacggctctattggaattagag
agcacgacctagagaagagcaagggcaaagacggcgtgcatagagtgggagtgaaaacagctacagcatttaacaagtaccacgtggatcccctgggcaaagagatccacaga
tgcagcagcgaacccagacctacactgaaaatcaagtctaagaaggaggataaaagaaccgccgacggcagcgaattcgagcccaagaagaagaggaaagtc

Nucleotide and amino acid sequences of deaminase linkers used in this study and their orientation with *n*Cas9 domains.

Nme2^{Smu}-ABE8e-i1 (WT): BPSV40-NLS, Nme2Cas9 – delta PID, TadA8e, SmuCas9 PID, Deaminase Flanking Linkers

MKRTADGSEFESPKKKRKVEDMAAFKPNPINYILGLAIGIASVGWAMVEIDEEENPIRLIDLGVRVFERAEVPKTGDSLAMARRLARSVRRLTRRRAHRLLRARRLLKREGVLQAADFD
ENGLIKSLPNTPWQLRAAALDRKLTPLEWSAVLLHLIKHRGYLSQRKNEGETADKELGALLKGVANNAHALQTGDFRTPAELALNKFEKESGHIRNQRGDYSHTFSRKDLQAELILLFEK
QKEFGNPHVSGGLKEGIETLLMTQRPALSGDAVQKMLGHCTFEPAEPKAAKNTYTAERFIWLTKLNNLRILEQ(N_Linker)SEVEFSHEYWMRHALTLAKRARDEREVPVGAVLVLN
NRVIGEGWNRAIGLHDPTAHAEIMALRQGGLVMQNYRLIDATLYVTFEPCVMCAGAMIHSRIGRVVFGVRNSKRGAAGSLMNVLNYPGMNHRVEITEGILADECAALLCDFYRMP
RQVFNAQKKAQSSIN(C_Linker)GSERPLTDTERATLMDEPYRKSKLTYAQARKLLGLEDTAFFKGLRYGKDNAEASTLMEMKAYHAISRALEKEGLKDKKSPLNLSSELQDEIGTAFSLF
KTDEDITGRLKDRVQPEILEALLKHISFDKFVQISLKALRRIVPLMEQGKRYDEACAEIYGDHYGKKNTEEKIYLPPIPADEIRNPVVLRALSQARKVINGVVRRYGSPARIHIETAREVGKSF
KDRKEIEKRQEENRKDREKAAAKFREYFPNFVGEPKSKDILKLRLYEQQHGKCLYSGKEINLVRLNEKGYVEIDHALPFSRTWDDSFNNKVLVLGSENQNKGNQTPYEYFNGKDNSREW
QEFKARVETSRFPRSKKQRILLQKFDEDGFKECNLNDTRYVNRFLCQFVADHILLTGKGKRRVFASNGQITNLLRGFWGLRKVRAENDRHHALDAVVVACSTVAMQQKITRFVRYKE
MNAFDGKTIDKETGKVLHQKTHFPQPWEFFAQEVMIRVFGKPDGKPEFEEADTPEKLRTLLAEKLSSRPEAVHEYVTPLFVSRAPNRKMSGAHKDTLRSAKRFVKHNEKISVKRVWLT
EIKLADLENMVNYKNGREIELYEALKARLEAYGGNAKQAFDPKDNPFYKKGGQLVKAVRVEKTQESGVLLNKKNAYTIADNATMVRVDVYTKAGKNYLVPVYVWQVAQGILPNRAV
TSGKSEADWDLIDESFEFKFSLSRGDLVEMISNKGRIFGYYNGLDRANGSIGIREHDLEKSKGKDGVHRVGVKTATAFNKYHVDPLGKEIHRCSSEPRPTLKIKSKKEDKRTADGSEFEPK
KKRKV

Nme2^{Smu}-ABE8e-i8 (WT): BPSV40-NLS, Nme2Cas9 – delta PID, TadA8e, SmuCas9 PID, Deaminase Flanking Linkers

MKRTADGSEFESPKKKRKVEDMAAFKPNPINYILGLAIGIASVGWAMVEIDEEENPIRLIDLGVRVFERAEVPKTGDSLAMARRLARSVRRLTRRRAHRLLRARRLLKREGVLQAADFD
ENGLIKSLPNTPWQLRAAALDRKLTPLEWSAVLLHLIKHRGYLSQRKNEGETADKELGALLKGVANNAHALQTGDFRTPAELALNKFEKESGHIRNQRGDYSHTFSRKDLQAELILLFEK
QKEFGNPHVSGGLKEGIETLLMTQRPALSGDAVQKMLGHCTFEPAEPKAAKNTYTAERFIWLTKLNNLRILEQGSERPLTDTERATLMDEPYRKSKLTYAQARKLLGLEDTAFFKGLRY
GKDNAEASTLMEMKAYHAISRALEKEGLKDKKSPLNLSSELQDEIGTAFSLFKTDEDITGRLKDRVQPEILEALLKHISFDKFVQISLKALRRIVPLMEQGKRYDEACAEIYGDHYGKKNTE
EKIYLPPIPADEIRNPVVLRALSQARKVINGVVRRYGSPARIHIETAREVGKSFKDRKEIEKRQEENRKDREKAAAKFREYFPNFVGEPKSKDILKLRLYEQQHGKCLYSGKEINLVRLNEKG
YVEIDHALPFSRTWDDSFNNKVLVLGSENQNKGNQTPYEYFNGKDNSREWQEFKARVETSRFPRSKKQRILLQKFDEDGFKECNLNDTRYVNRFLCQFVADHILLTGKGKRRVFASNG
QITNLLRGFWGLRKVRAENDRHHALDAVVVACSTVAMQQKITRFVRYKEMNAFDGKTIDKETGKVLHQKTHFPQPWEFFAQEVMIRVFGKPDGKP(N_Linker)SEVEFSHEYWM
RHALTLAKRARDEREVPVGAVLVLNNRVIGEGWNRAIGLHDPTAHAEIMALRQGGLVMQNYRLIDATLYVTFEPCVMCAGAMIHSRIGRVVFGVRNSKRGAAGSLMNVLNYPGM
NHRVEITEGILADECAALLCDFYRMPRQVFNAQKKAQSSIN(C_Linker)EFEEADTPEKLRTLLAEKLSSRPEAVHEYVTPLFVSRAPNRKMSGAHKDTLRSAKRFVKHNEKISVKRVWL
TEIKLADLENMVNYKNGREIELYEALKARLEAYGGNAKQAFDPKDNPFYKKGGQLVKAVRVEKTQESGVLLNKKNAYTIADNATMVRVDVYTKAGKNYLVPVYVWQVAQGILPNRA
VTSGKSEADWDLIDESFEFKFSLSRGDLVEMISNKGRIFGYYNGLDRANGSIGIREHDLEKSKGKDGVHRVGVKTATAFNKYHVDPLGKEIHRCSSEPRPTLKIKSKKEDKRTADGSEFEP
KKKRKV

N-Linker Length	N-Linker AA. Seq	N-Linker nuc. Seq
20	GGSGGSGGSGGSGGSGGSGG	ggcggatcaggaggctctggcggttcaggtggatcaggcggtagcggaggttcaggtggt
10	SGGSGGSGGS	tctggcggttcaggtggatcaggcggtagc
5	GGSGG	ggcggttcaggtgga
5	GGSGG	ggcggttcaggtgga
0	n/a	n/a

C-linker Length	C-Linker AA. Seq	C-Linker nuc. Seq
20	GSSGSETPGTSESATPESSG	ggctcctctggctctgagacacctggcacaagcgagagcgcaacacctgaaagcagcggc
10	ETPGTSESAT	gagacacctggcacaagcgagagcgcaaca
5	GTSES	ggcacaagcgagagc
0	n/a	n/a

Narrow window TadA deaminase variants used in this study

TAD9e: Tu et al. *Mol* Ther. 2022. DOI: 10.1016/j.ymthe.2022.07.010

TCTGAGGTGGAGTTTTCCCACGAGTACTGGATGAGACATGCCCTGACCCTGGCCAAGAGGGCACGCGATGAGAGGGAGGTGCCTGTGGGAGCCGTGCTGGTGCTGAACAAT
AGAGTGATCGGCGAGGGCTGGAACAGAGCCATCGGCCTGCACGACCCAACAGCCCATGCCGAAATTATGGCCCTGAGACAGGGCGGCCTGGTCATGCAGAACTACAGACTG
ATTGACGCCACCCTGTACGTGACATTCGAGCCTTGCGTGATGTGCGCCGGCGCCATGATCCACTCTAGGATCGGCCGCGTGGTGTTTGGCGTGAGGAACAGCAAAACCGGCGC
CGCAGGCTCCCTGATGAACGTGCTGAACTACCCCGGCATGAATAAGCACCGCGTCGAAATTACCGAGGGAATCCTGGCAGATGAATGTGCCGCCCTGCTGTGCGACTTCTACC
GGATGCCTAGAAGACAGGTGTTCAATGCTCAGAAGAAGGCCCAGAGCTCCATCAAC

TAD9: Chen et al. *Nat Chem Biol*. 2023. DOI: 10.1038/s41589-022-01163-8.

TCTGAGGTGGAGTTTTCCCACGAGTACTGGATGAGACATGCCCTGACCCTGGCCAAGAGGGCACGGGATGAGAGGGAGGTGCCTGTGGGAGCCGTGCTGG
TGCTGAACAATAGAGTGATCGGCGAGGGCTGGAACAGAGCCATCGGCCTGCACGACCCAACAGCCCATGCCGAAATTATGGCCCTGAGACAGGGCGGCCT
GGTCATGCAGAACTACAGACTGATTGACGCCACCCTGTACGTGACATTCGAGCCTTGCGTGATGTGCGCCGGCGCCATGATCCACTCTAGGATCGGCCGCGT
GGTGTTTGGCGTGAGGCAGTCAAAAAGAGGCGCCGCAGGCTCCCTGATGAACGTGCTGAACTACCCCGGCATGAATCACCGCGTCGAAATTACCGAGGGA
ATCCTGGCAGATGAATGTGCCGCCCTGACCTGCGATTTCTATCGGATGCCTAGACAGGTGTTCAATGCTCAGAAGAAGGCCCAGAGCTCCATCAAC