# Supporting Information

## Ionic Permeability and Mechanical Properties of DNA Origami Nanoplates on Solid-State Nanopores

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## 1. Nanoplate Conductance in 1M KCl

Here we present the relative conductances for all the nanoplate designs docked onto nanopores of various diameters. First, the data for individual nanoplates is shown at 200 mV (Figures S1-S3). Subsequently data for all designs is shown at 100 mV, 200 mV, and 300 mV (Figures S4-S6). Relative conductances were determined using the mean value of the current after nanoplate docking divided by the mean value of the bare pore current, as described in Eq. 6. Solid lines represent fits using the model described in the main manuscript. The bottom x-axis is the measured bare pore conductance for that respective data point, while the top x-axis is the estimated diameter of the nanopore based on the formula

$$d = \frac{1}{2\pi\kappa}\left(\pi G_{pore} + \sqrt{\left(\pi G_{pore}\right)^2 + 16\pi\kappa l G_{pore}}\right) \quad . \quad \text{(S1)}$$

where the measured conductivity of the buffer $\kappa$ is 13.5 S/m and the effective thickness is taken to be 8.6 nm as previously determined.[1] We observe the relative conductance increase as the nanopore diameter is increased from 5 nm to 30 nm, as predicted by Eq. 6. The voltage dependence of the fit parameter $\alpha$ is shown in Figure S7. The value of $\alpha$ is observed to decrease, indicating that the plates become less permeable, as the applied voltage is increased. A number of IV curves for each type of plate, docked onto various size nanopores are shown in Figures S8-S11.

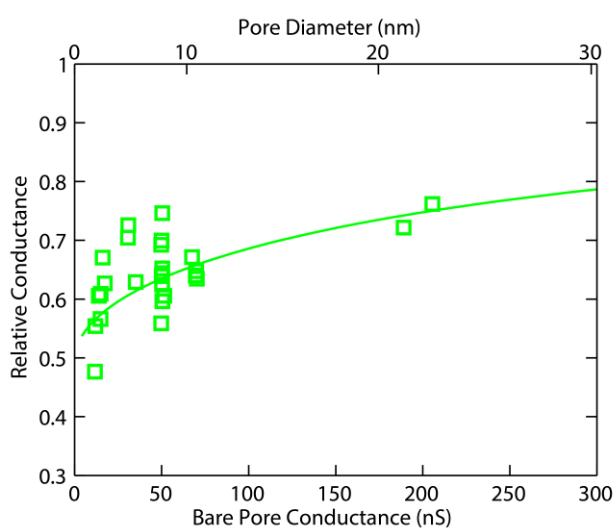


**Figure S1** - Relative conductance for Rothemund Rectangle (RR) nanoplates at 200 mV in 1M KCl.

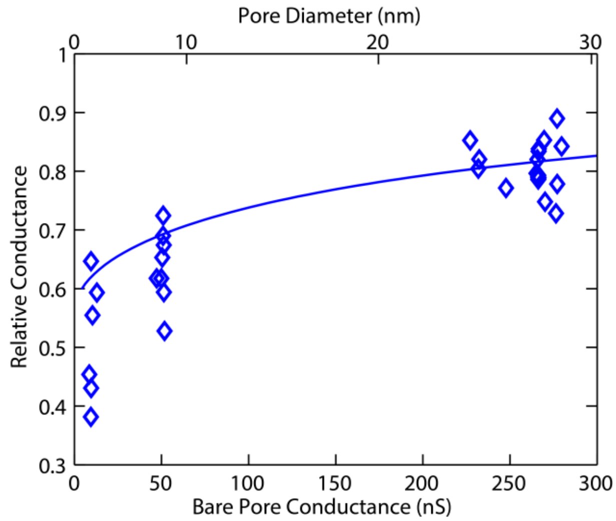


**Figure S2** - Relative conductance for 2 Layer Lattice (2LL) nanoplates at 200 mV in 1M KCl.

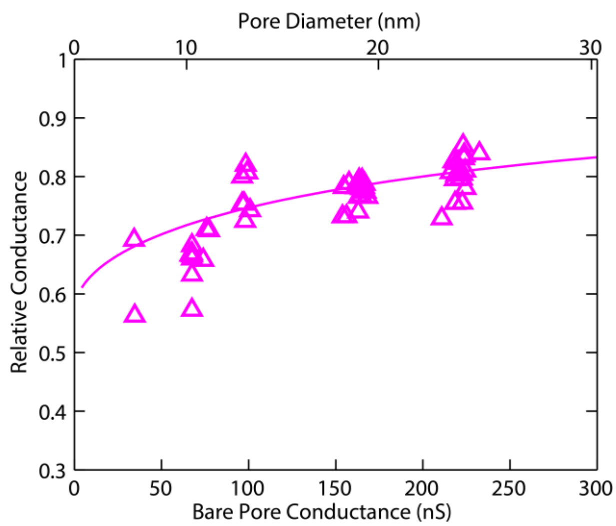


**Figure S3** - Relative conductance for 3 Layer Lattice (3LL) nanoplates at 200 mV in 1M KCl.

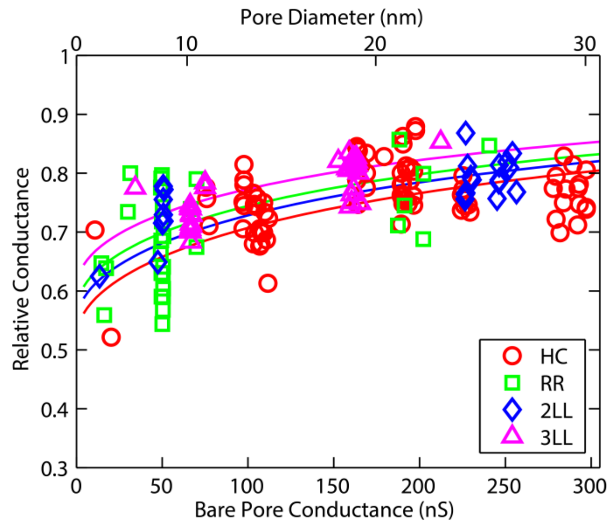


**Figure S4** - Relative conductances for the four different nanoplate designs at 100 mV in 1M KCl.

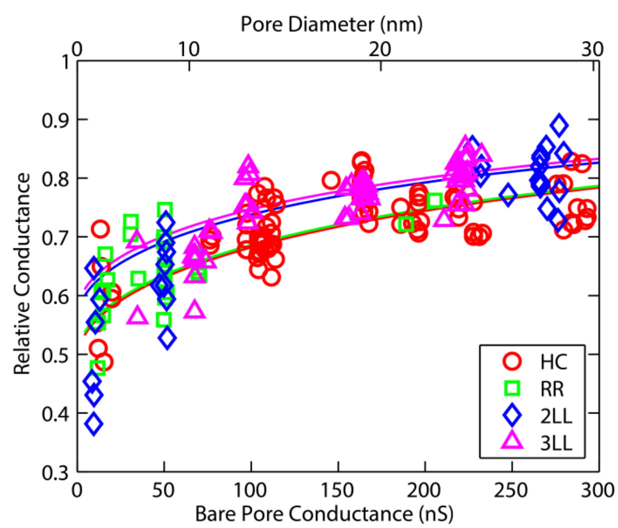


**Figure S5** - Relative conductances for the four different nanoplate designs at 200 mV in 1M KCl.

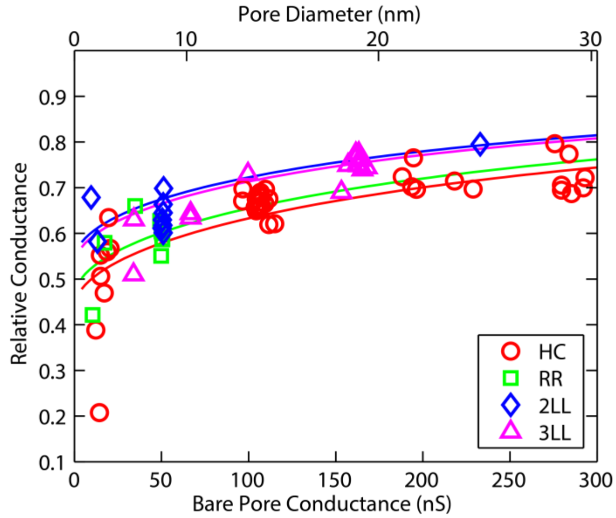


**Figure S6** - Relative conductances for the four different nanoplate designs at 300 mV.

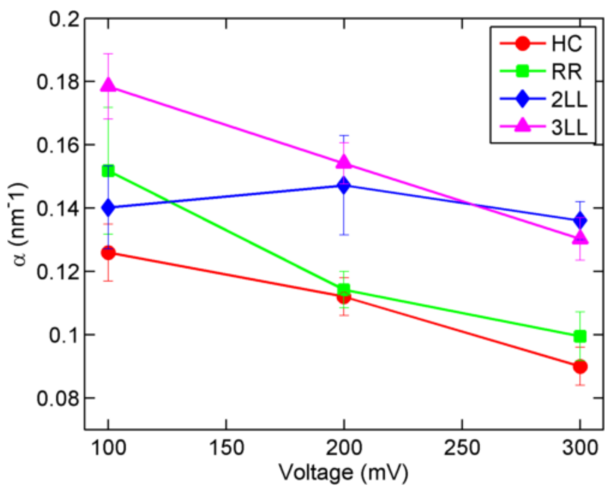


**Figure S7** – Dependence of the fit parameter α on the applied voltage. Smaller values of α represent less leakage through the nanoplate. We observe, with the exception of the 2LL nanoplate, that the leakage decreases as the voltage is increased. Error bars represent 95% confidence intervals, *i.e.* 2 standard deviations from the least squares fit.

In Figure S7 we see the counter-intuitive trend that thicker plates seem to have a higher leakage. Several observations and considerations indicate that leakage currents passing underneath the plate do not contribute significantly to the nanopore current: (1) Since the tails that protrude from the center of the DNA nanoplate are used to thread the plate into the pore, it is very unlikely that the nanoplate will be off center by more than the radius of the pore, relative to the axis of the pore. This ensures full coverage of the pore, leaving no path for a leakage current between the SiN surface and the nanoplate in all but the very largest nanopores. Moreover, if an effect of non-complete coverage were present, we would expect our model to underestimate the relative conductance in large pores, since the presence of leakage currents would increase the value of the relative conductance observed. No such effect is observed in our data. (2) We can take a different approach that might lead to leaking currents and assume that the nanoplate is properly centered on the nanopore but that there is a small gap remaining between the SiN surface and the bottom surface of the plate which allows ions to flow through. The leakage current will then involve a surface-current contribution. The ratio between the bulk conduction through the ion permeable nanoplate and the surface leakage component increases as the pore becomes smaller which implies that the leakage currents would have a much larger effect in small pores. As a rough quantitative estimate of this type of effect, let's assume that a potential leakage current between the plate and the SiN surface is due to the contribution of the counterions shielding the surface change. Using equation 1 from Smeets *et al.*[2] we calculate the contribution of the counterion current relative to the bulk ionic current. At 1M KCl for a 20 nm pore, 5.8% of the total current (14nS of 251nS total) is due to the counterion current. If the pore diameter is reduced to 5 nm, the surface contribution increases to 19.6% (3.6nS of 18.3nS total). So we would expect the contribution of a potential leakage current to increase 3.4x between 20 nm and 5 nm. This is not at all what we observe. (3) The presence of leakage currents would have the effect of increasing the relative conductance, and we thus expect that our model would give smaller relative conductances compared to experimental data. Accordingly, the gap between model and experimental values would be largest at the smallest pore values. In fact we see just the opposite: Looking at Fig S2, S3, S4, and S5, it seems that the model over-estimates the relative conductance. Hence, also this observation indicates that a significant leakage current is not present.

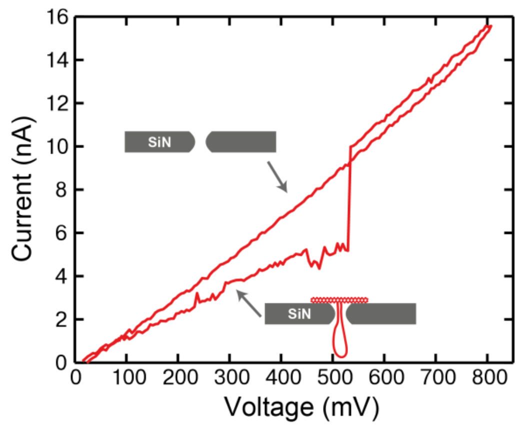


**Figure S8** – IV curve for an RR nanoplate docked onto a 4.5 nm pore. The nanoplate is pulled through the nanopore at 540 mV, after which the current returns to the bare nanopore values.

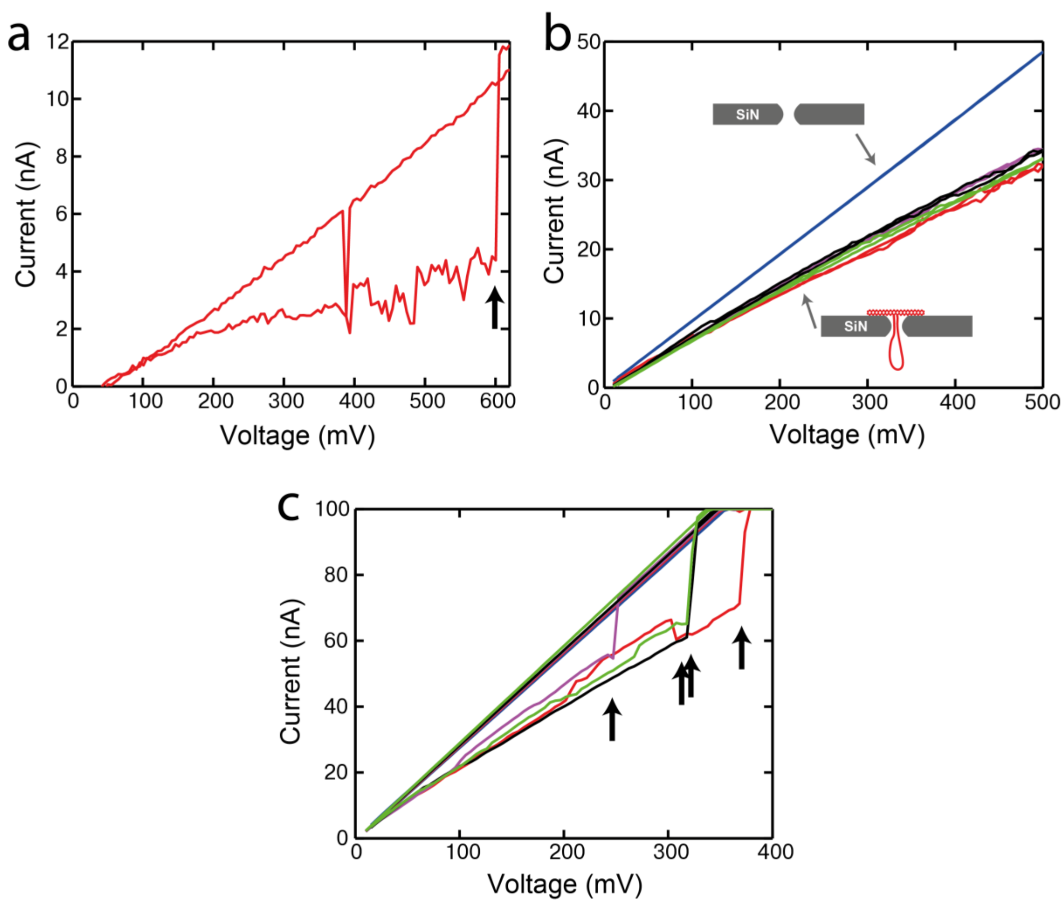


**Figure S9** – IV curves for HC plates docked onto three different size pores. Black arrows indicate the voltages at which the nanoplates were pulled through the nanopore. The uncertainty in the current data is 0.25 nA (STD). a) A plate on a 4 nm pore. b) Four plates on a 14 nm pore. c) Four plates on a 28 nm pore.

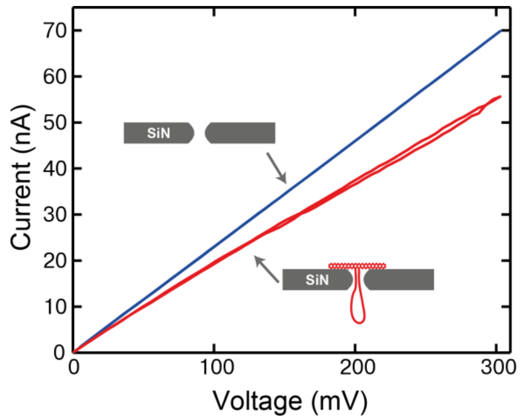


**Figure S10** – IV curve of a 2LL plate docked onto a 26 nm pore (red). The blue curve shows the IV characteristics for the bare nanopore.

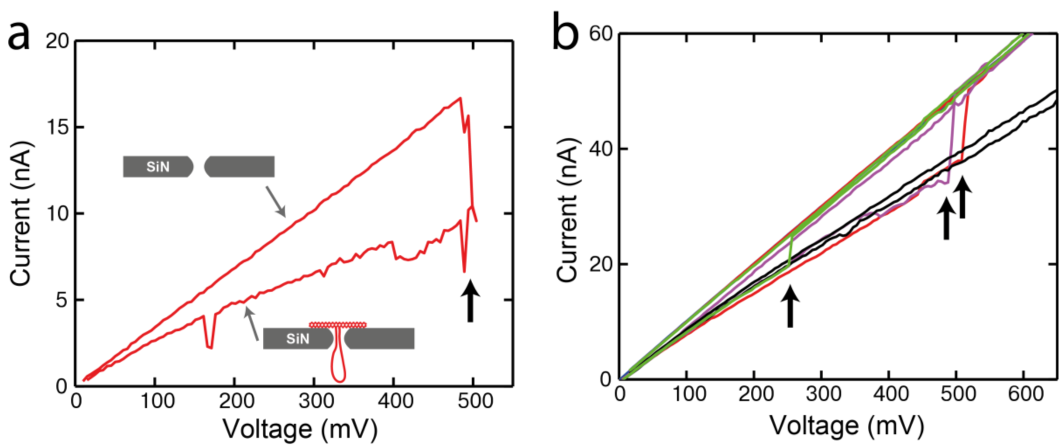


**Figure S11** – IV curves for 3LL nanoplates docked onto two different size pores. The black arrows indicate the voltage at which a nanoplate was pulled through the pore. a) 6.6 nm pore b) 13 nm pore.

## 2. Nanoplate Conductance in 100 mM KCl

The relative conductances for all the nanoplate designs docked into nanopores of various diameters in 100 mM KCl, 10 mM Tris, 1 mM EDTA, and 11 mM $Mg^{2+}$. The data for all designs is plotted at 200 mV and 300 mV. We observe a similar trend as seen with the data taken in 1M KCl, *i.e.*, a smaller RC for smaller pore diameters. The conductance model used to fit the data at 1M KCl, gives a poor fit at 100 mM

KCl. The model should, at low salt, be extended by integrating the contributions of surface charge, similar to previous work by Smeets *et al*.[2]

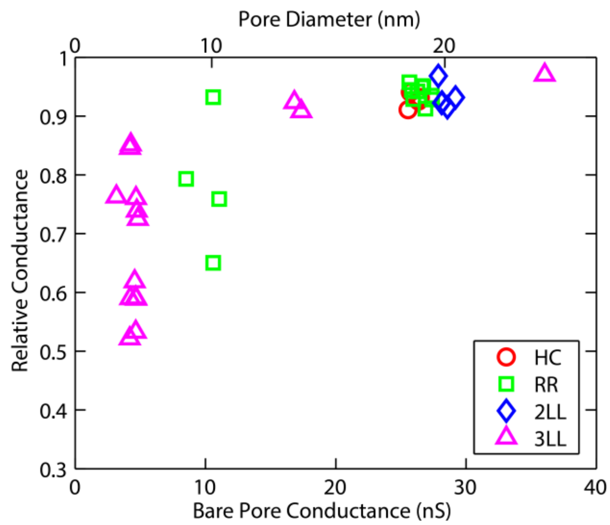


**Figure S12** - Relative conductances for the different nanoplate designs at 200 mV in 100 mM KCl.

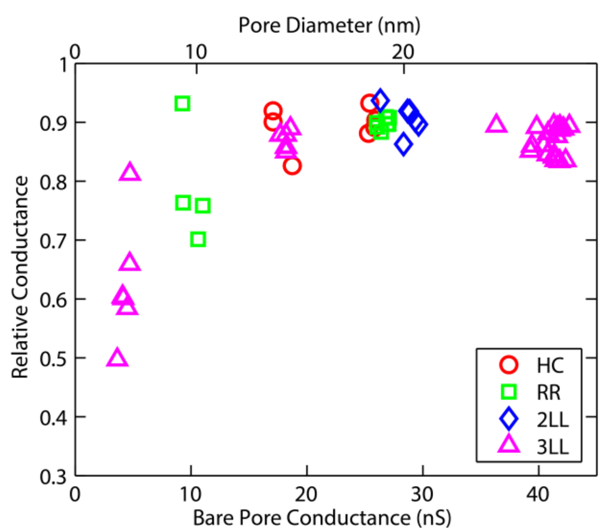


**Figure S13** - Relative conductances for the different nanoplate designs at 300 mV in 100 mM KCl.

## 3. Salt Dependence of a Honeycomb Nanoplate

The relative conductance of all nanoplates is observed to increase as the ionic strength is decreased from 1M to 100 mM. This trend is shown for HC nanoplate data in Figure S14 for three different applied voltage levels. Similar trends are observed for 3LL and RR nanoplates (data not shown).

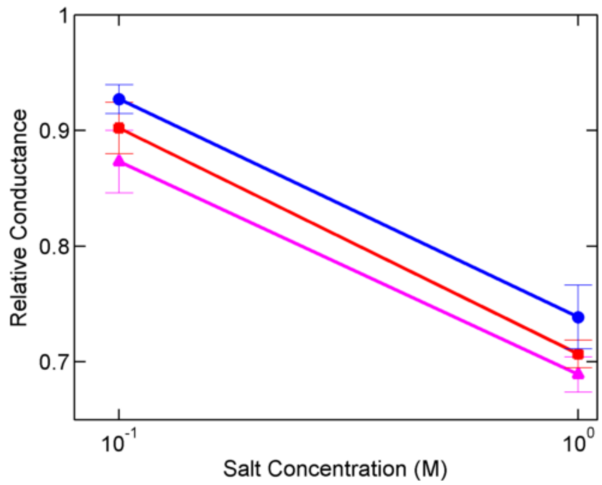


**Figure S14** – The relative conductance observed at low (100 mM) and high (1M) KCl concentrations for Honeycomb (HC) nanoplates docked onto 20 nm pores at 200 mV (top-blue), 300 mV (middle-red), and 400 mV (bottom-magenta).

## 4. Spike Events and Nanoplate Recaptures

If a nanoplate is very flexible and the nanopore's diameter is sufficiently large, the nanoplate is instantly pulled through the nanopore instead of being docked. These events show up in current traces as fast, high amplitude spikes as shown in Figure S15 for RR nanoplates passing through a 24 nm pore at several voltages. We successfully carried out recapture experiments, shown in Figure S16, in order to confirm that the nanoplates are being pulled through the nanopores.

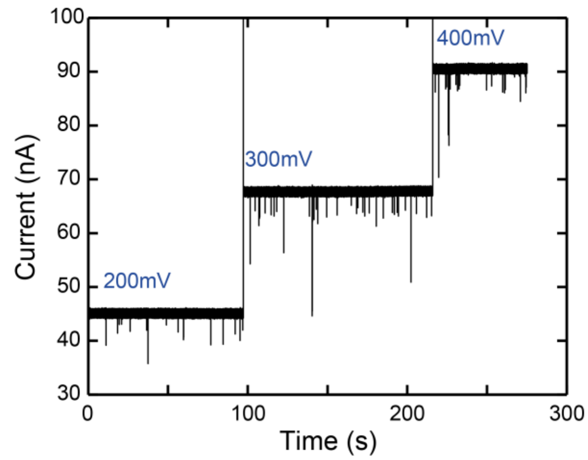


**Figure S15** – Short spike events observed for RR nanoplates in a 24 nm pore at voltages of 200 mV or higher.

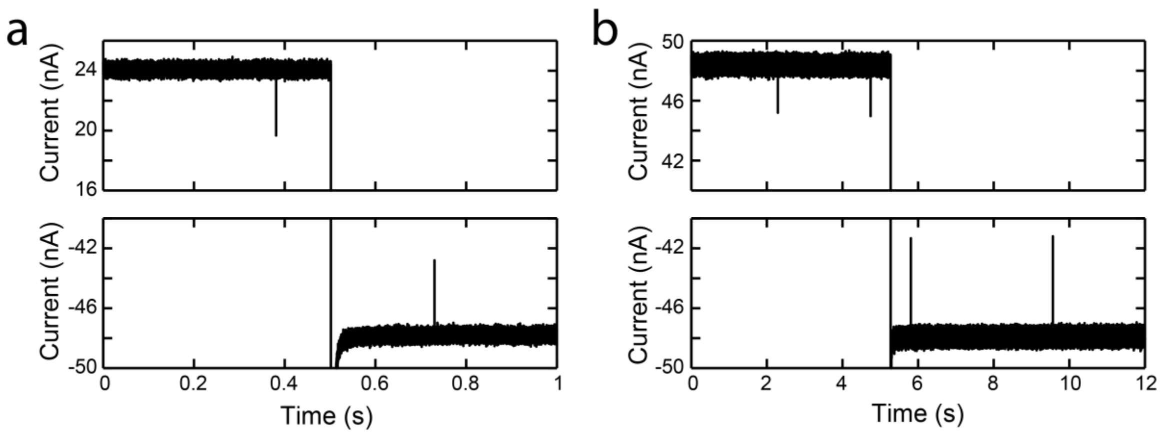


**Figure S16** - The recapture of RR nanoplates that are pulled through a 24 nm pore. (a) An event is observed at a voltage of 100 mV. The voltage is then switched to -200 mV, 120 ms after the first event. The nanoplate is recaptured 228 ms after switching. (b) Two short events are observed at 200 mV applied voltage. The polarity is reversed 2.98 s after the first event and 530 ms after the second. After reversal two recapture events are observed at 530 ms and 4.29 s after switching.

## 5. Multi-Level Conductance in Docked Nanoplates

Current traces from docked nanoplates often exhibit spontaneous sudden jumps in the current level. Examples of this multi-level conductance effect are shown in Figure S17 for HC nanoplates in several different pores. The phenomenon of multiple conductance levels was observed with all nanoplate designs, in all pore diameters, at all salt concentrations tested. The source of this effect is attributed to mechanical buckling and re-orientation of the nanoplate. This is supported by the observation that current level jumps are often observed before a docked nanoplate is pulled through the nanopore, as shown in Figure S18 and Figure S19.

Statistics on docked nanoplates reveal that, except for the 2LL nanoplate, 60% to 75% of docked nanoplates have multiple levels at 100 mV applied voltage, as shown in Figure S20. The effect occurs more frequently as the voltage is increased. The magnitude of these jumps, given as the change in relative conductance normalized by the average relative conductance, is shown in Figure S21. It varies from 0.05 to 0.07 at 100 mV, and increases to 0.08 to 0.1 at 200 mV.

In considering possible sources for the observed current jumps we also considered the free staple oligos present in the DNA nanoplate solution after purification. The possibility of free staples causing the observed current jumps can be ruled out by several experimental observations. (1) We observe that not all nanoplates show the current jumps, even within the same experiment with the same buffer containing excess staples. For example, in Figure S20 at 100 mV, at least 25% of events show no jumping behavior. If excess staples were the cause we would expect all plates to show some jumping behavior. (2) We typically see current jumps occur in both directions, *i.e.* towards higher and towards lower current values. If current jumps were due to staples approaching the plate, the observance of both downward and upward current jumps would mean that staples which are brought to the nanoplate either pass through the plate, which is extremely unlikely, or return back into solution which is also unlikely due to the high electric fields. (3) Let us nevertheless assume that free staples temporarily get stuck to the surface of the DNA nanoplate. What magnitude current drop would we expect? The magnitude of the jumps we observe ranges from 5% to 10% of the baseline value (Figure S21). If we assume optimistic values for the hydration volume of the free staples (3 nm radius of gyration) and use the standard volume exclusion formula to calculate the expected current blockade produced by a free staple inside the pore we find values that vary from 1.5% for 20 nm pores, to 36% for 5 nm pores. This does not match our observations which show no significant pore size dependence for the current jumps. Furthermore, excluded volume analysis states that there should be no voltage dependency for the normalized blockade, while our data shows that the normalized blockade increases with voltage for most plates (Figure S21). (4) Using pessimistic retention values of 30% for the low-MW oligos and 95% for the high-MW DNA nanoplates, if we start with 20 nM scaffold DNA and 200 nM staples, we estimate final concentrations of 14 nM nanoplates and 14 nM staples after 4x purification (assuming a retention volume of 58uL). Such a free staple concentration of 14 nM should produce an event rate of ~4Hz. The observation that the frequency of buckling is observed to vary substantially among different plates in the same experiment, suggests that the free staples are not the source of buckling.

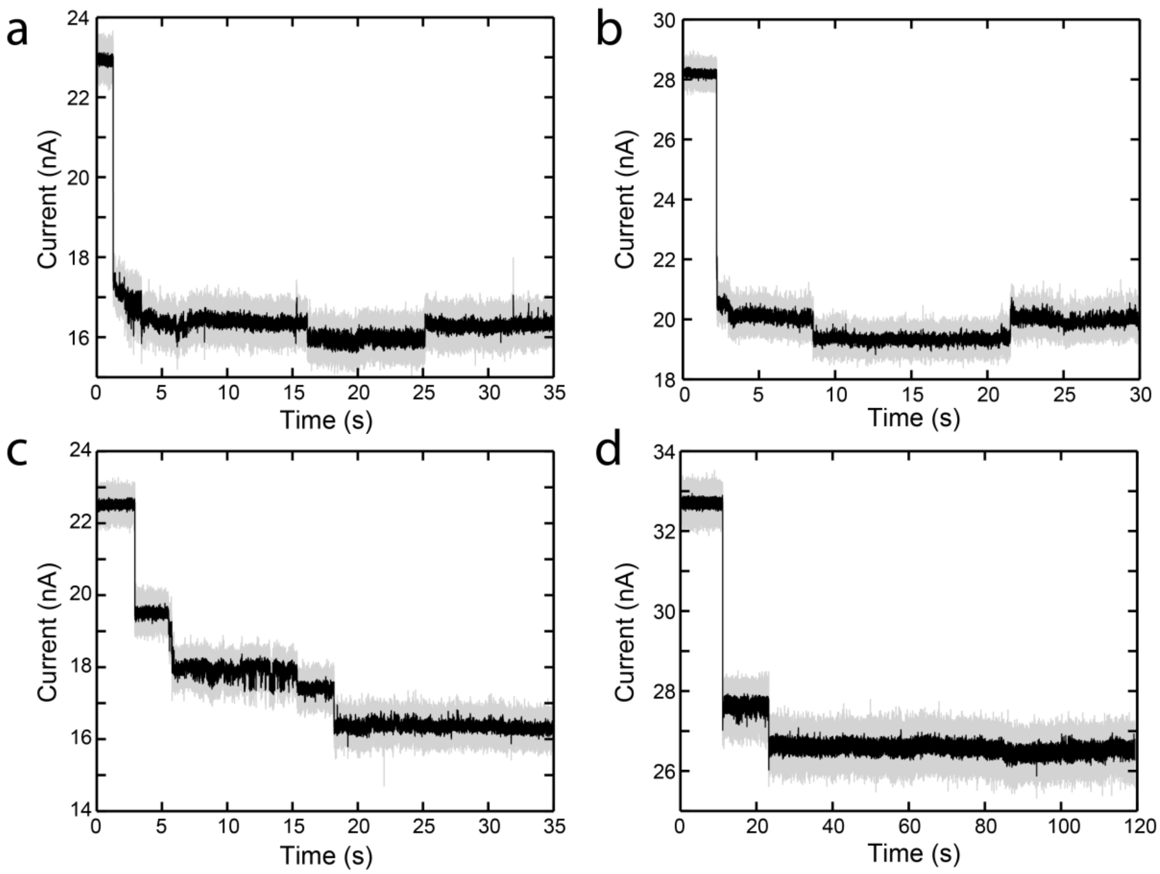


**Figure S17** - Examples of Honeycomb nanoplate docking events in several different pores exhibiting multiple conductance levels.

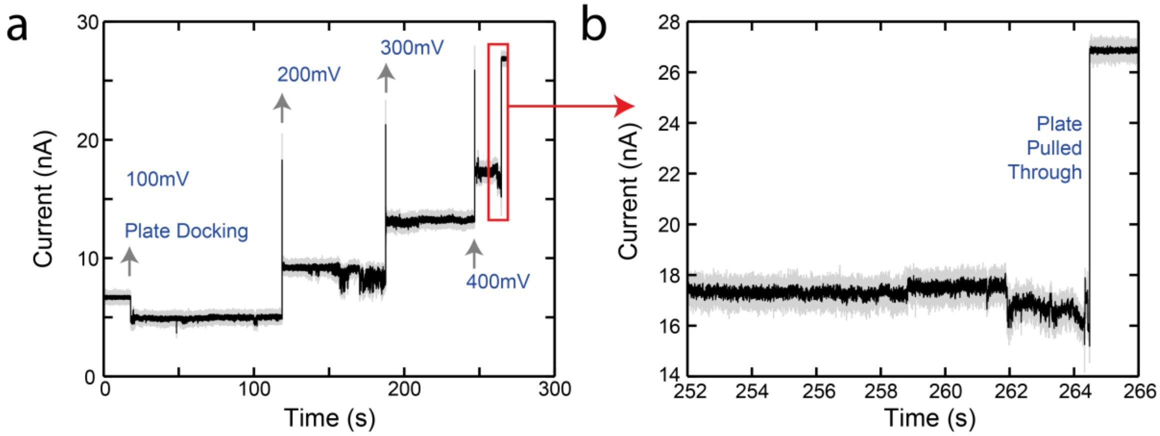


**Figure S18** - a) A 3 Layer Lattice nanoplate is captured in a 10 nm pore at 100 mV. The applied voltage is then increased to 200 mV, 300 mV, and 400 mV. The nanoplate is finally pulled through the pore after the voltage was set to 400 mV. b) Close-up of the trace in the seconds before the nanoplate is pulled through. The presence of multiple levels in the current trace right before the nanoplate is pulled through (Figures S18, S19) supports the hypothesis that these levels are related to mechanical buckling of the nanoplates.

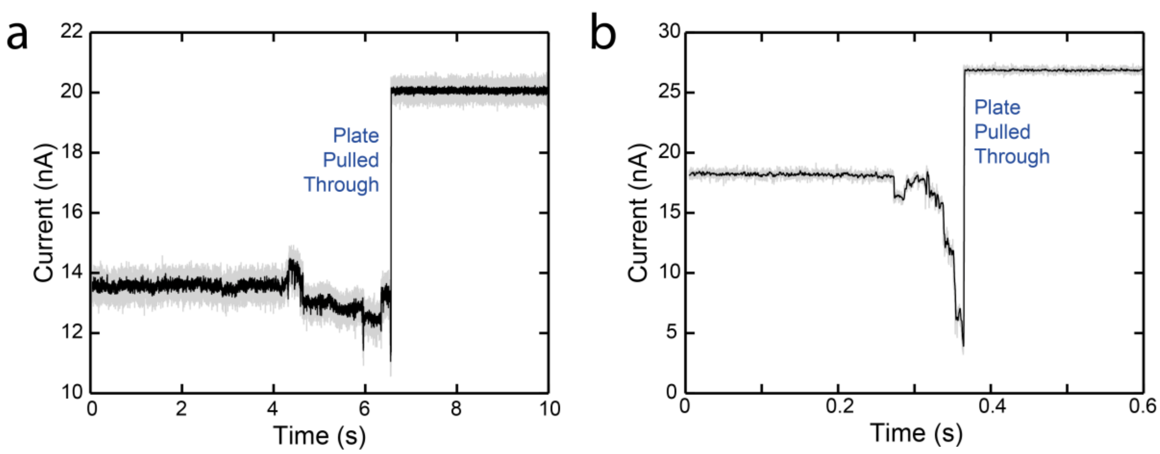


**Figure S19** – Examples of two other nanoplates exhibiting, similar to the data in Figure S18, multiple conductance levels right before being pulled through the pore.

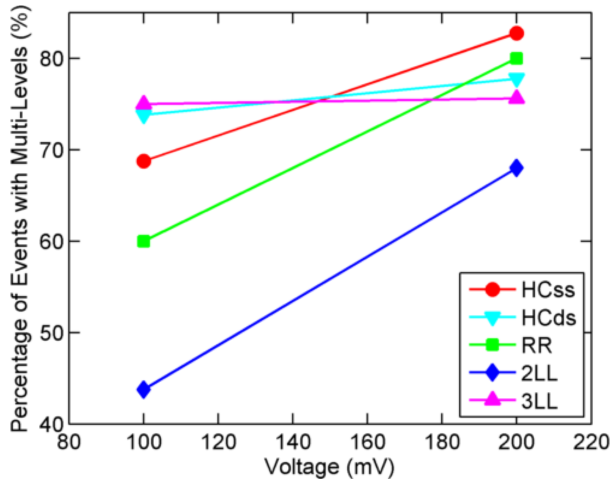


**Figure S20** – Percentage of events which displayed conductance levels jumps, while docked into a nanopore, as a function of voltage. In all cases we see the percentage of events with jumps to increase as the voltage is increased.

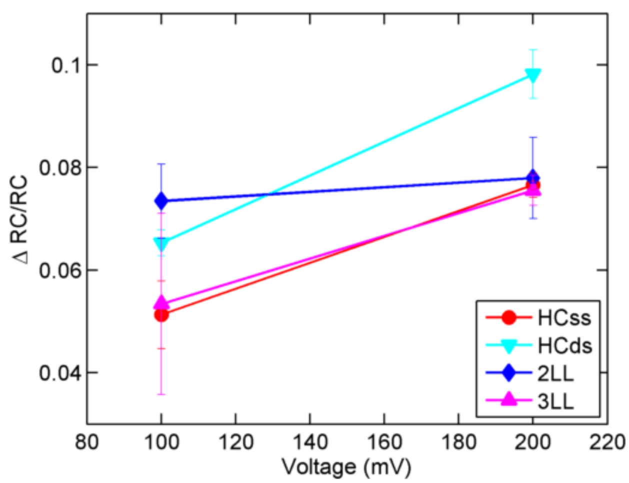


**Figure S21** – The normalized magnitude of the conductance levels shifts (ΔRC/RC) as a function of voltage. The magnitude of the jumps increases as the voltage is increased, except for the 2LL nanoplate.

## 6. Comparison of Single-Stranded and Double-Stranded DNA Tails

Two HC nanoplates, one with a ssDNA tail and another with a fully hybridized dsDNA tail, were compared, as shown in Figure S22, in order to determine if the nanoplate's tail influenced the observed conductance values. The slightly lower relative conductance seen for the dsDNA tail can be explained by its larger excluded volume, since the tail is threaded through the pore while the nanoplate is docked.

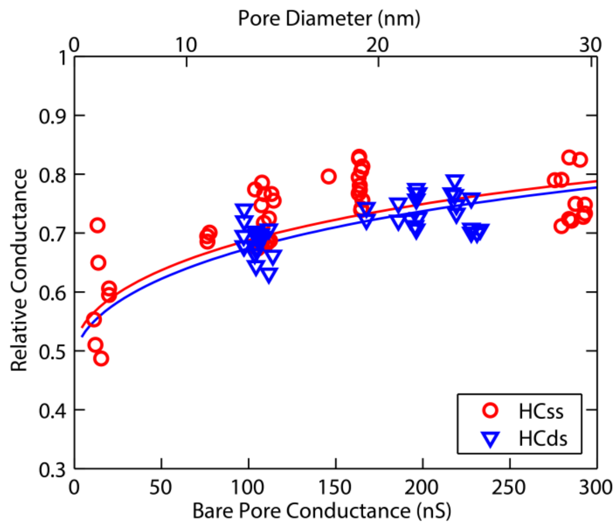


**Figure S22** - Relative conductance for Honeycomb nanoplates with single-stranded and double-stranded DNA tails docked at 200 mV in 1M KCl. The slightly lower conductance of the nanoplate with a dsDNA tail is attributed to the tail's higher excluded volume.

## 7. TEM and AFM Characterization

The long single stranded tail forms a large blob above the nanoplate as visible in Figures S23 and S24. The nanoplates were also scanned with AFM under a variety of different ionic conditions and found to be stable (Figure S25).

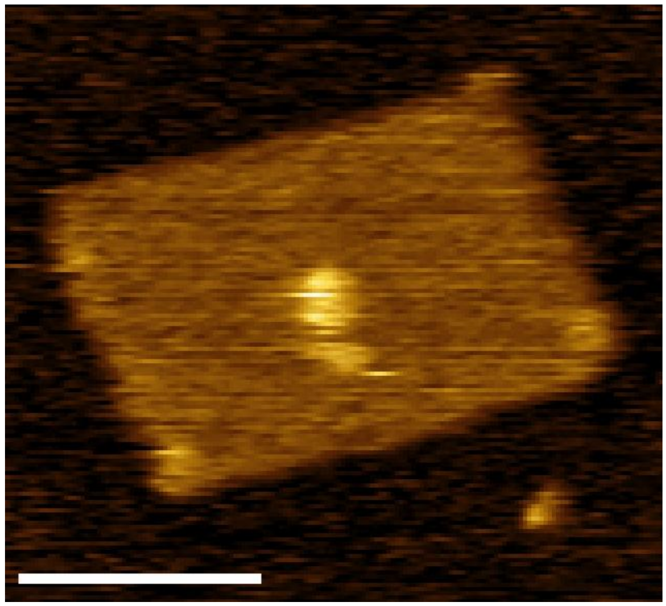

**Figure S23** – An AFM image of a RR nanoplate with the ssDNA tail visible. The scale bar is 50 nm.

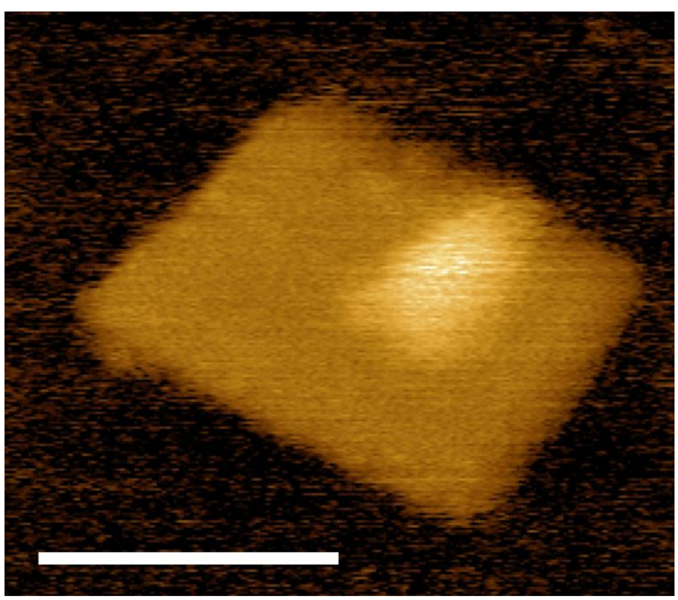

**Figure S24** - An AFM image of a 2LL nanoplate with the ssDNA tail visible. The scale bar is 50 nm.

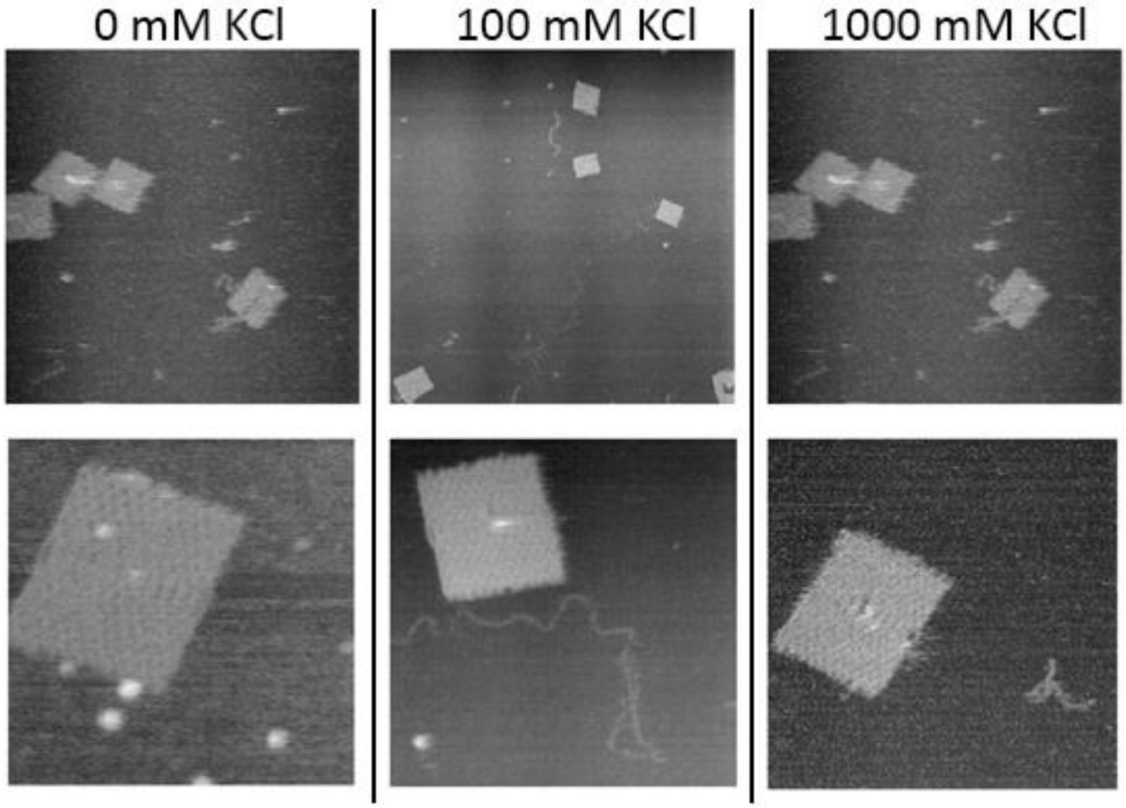


**Figure S25** - The RR nanoplate imaged at three different ionic strengths. No significant differences are noticeable between the different ionic conditions. **Left**: 0 mM KCl, **Center**: 100mM KCl, **Right**: 1000mM KCl.

Montages of the TEM micrographs for all plates are shown in Figures S26 to S29.

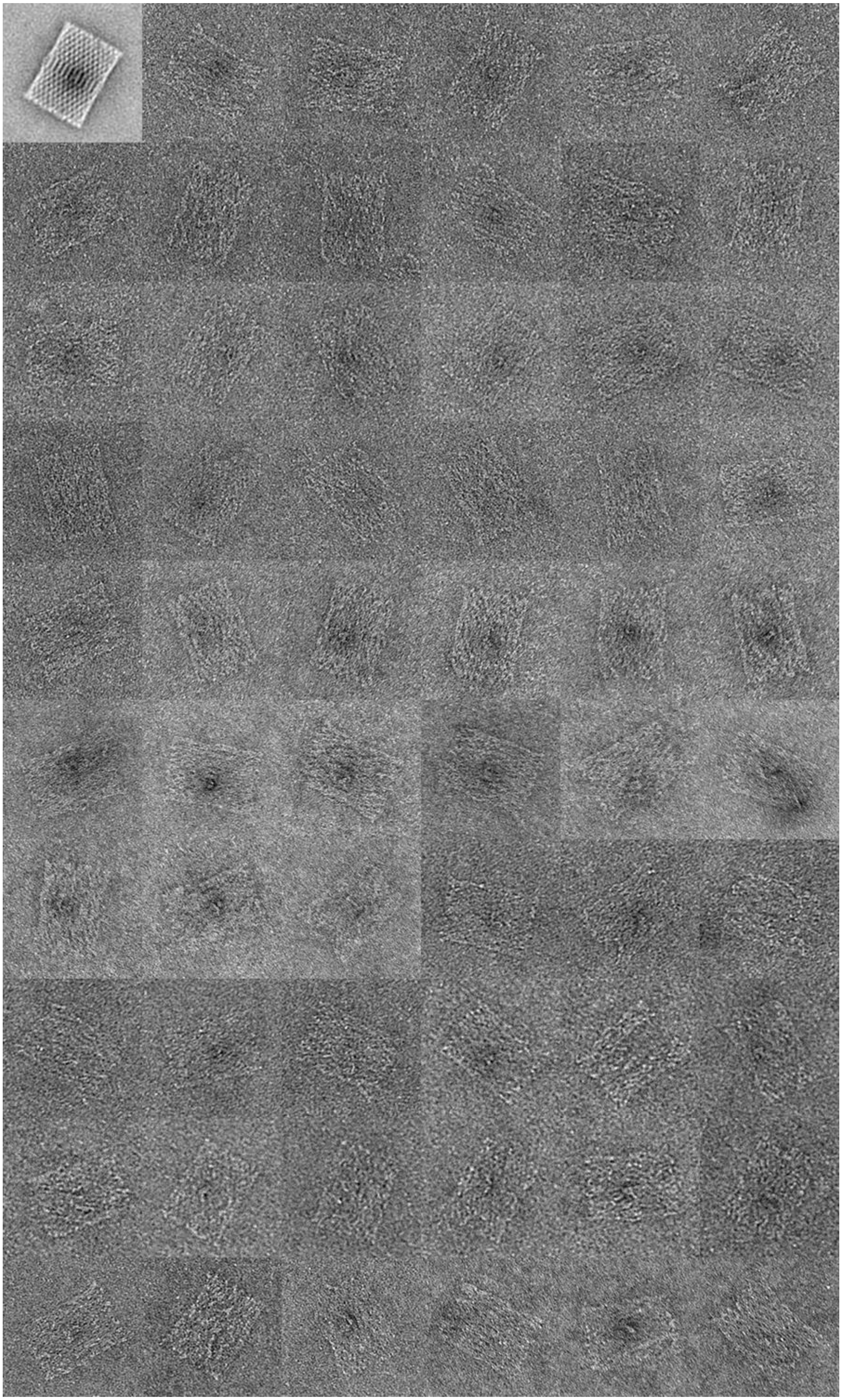

**Figure S26** – The negative stain micrographs of the RR nanoplate, with the average shown in the top left. Each micrograph is 137nm x 137nm. Adapted from Sobczak *et al*.[3]

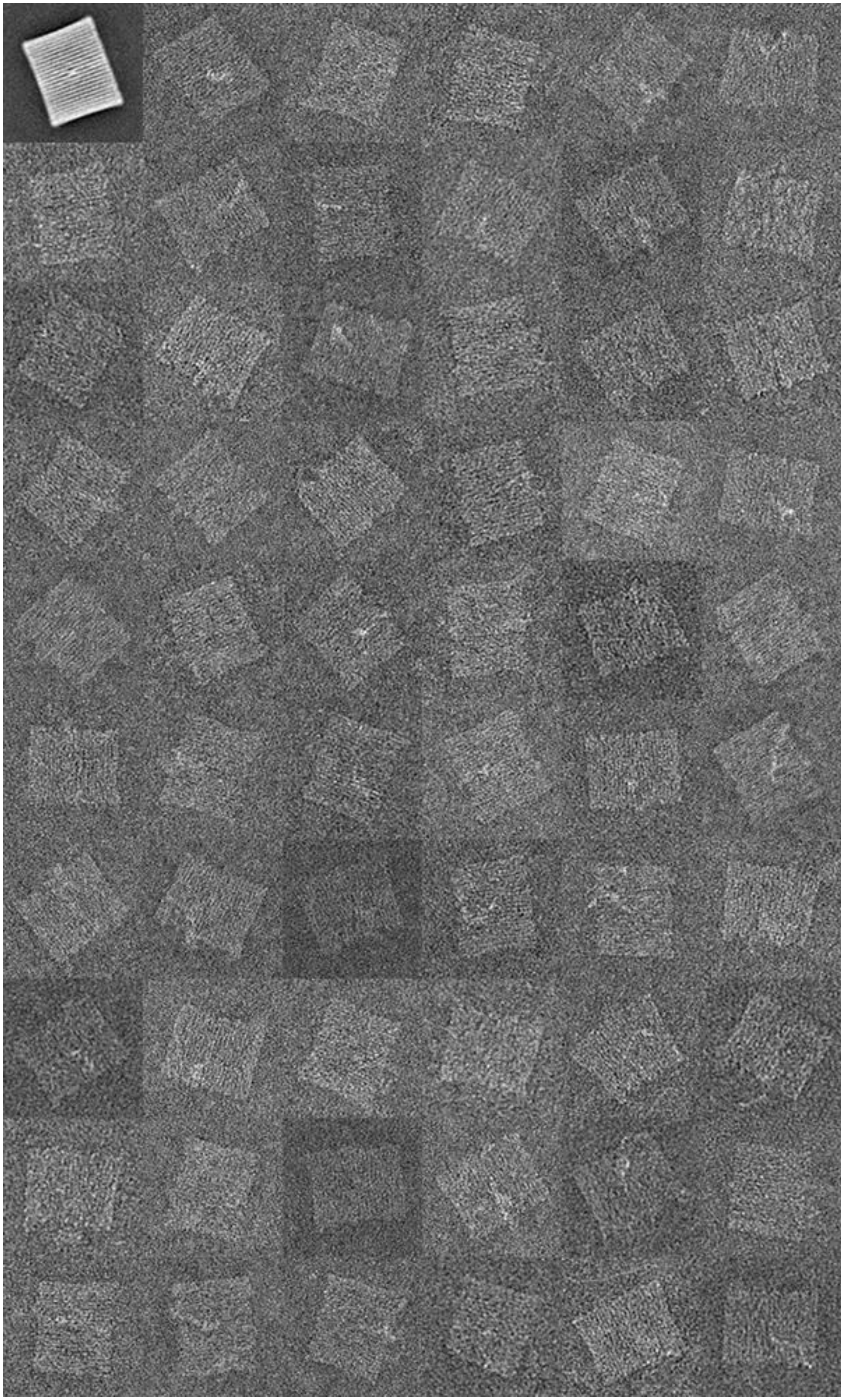

**Figure S27** – The negative stain micrographs of the 2LL nanoplate, with the average shown in the top left.

Each micrograph is 91nm x 91nm.

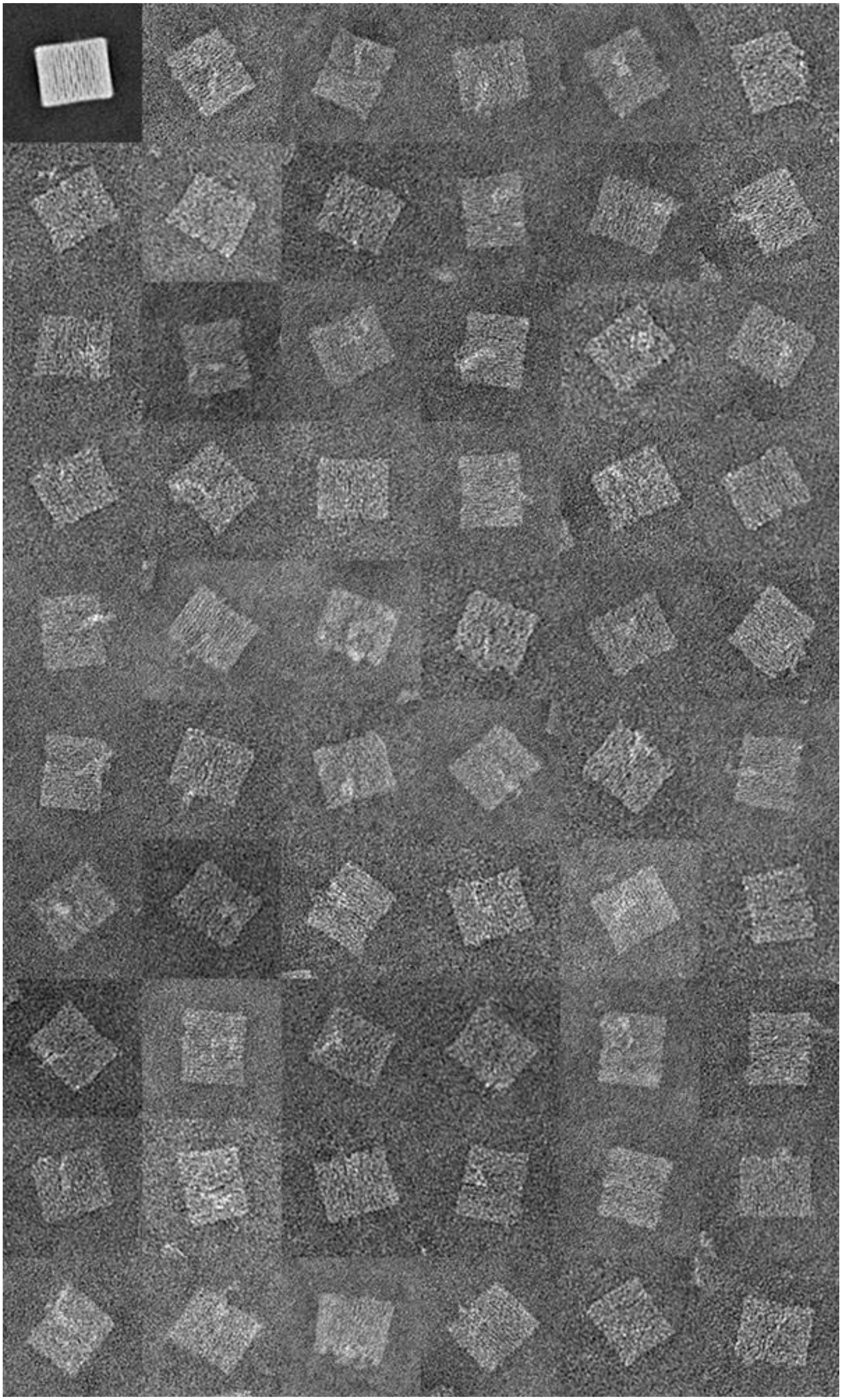

**Figure S28** – The negative stain micrographs of the 3LL nanoplate, with the average shown in the top left.

Each micrograph is 91nm x 91nm.

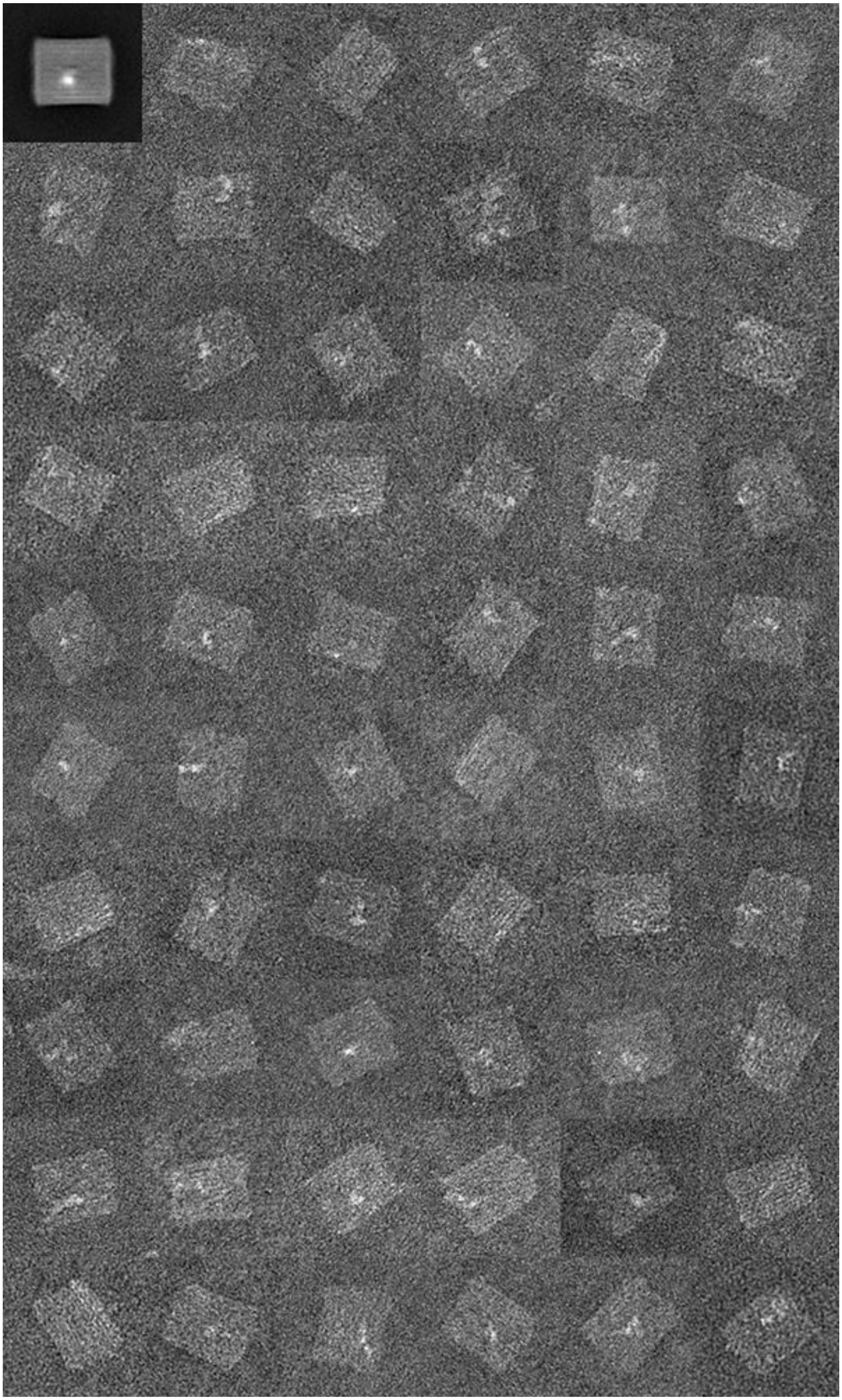

**Figure S29** – The negative stain micrographs of the HC nanoplate, with the average shown in the top left.

Each micrograph is 91nm x 91nm.

## 8. Nanoplate Design Details

A detailed description of each nanoplate design is provided. CanDo modeling results are shown for each plate (Figure S30 to S33) as heat maps of the RMS fluctuations in different regions of each object. Briefly, these fluctuations are determined by applying external forces to an origami object which has been modeled as a series of elastic rods where cross-overs are rigid constraints and observing the structural relaxation using finite element analysis.[4] The scaffold routing diagrams are provided for each plate design (Figures S35 to S38) as generated by caDNAno, as well as a gel-electrophoresis characterization of assembled plates (Figure S34). Finally, we provide the sequences of all of the oligo-staples used to generate each nanoplate.

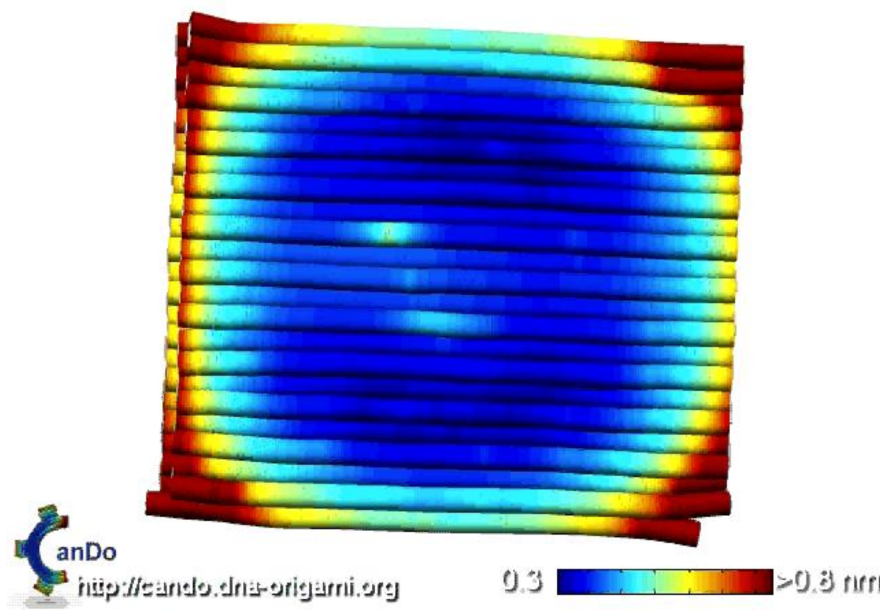


**Figure S30** – CanDo simulation of the HC plate. This plate is predicted to exhibit the lowest flexibility of all of the designs, as evidenced by the small RMS fluctuations present over much of the plate.

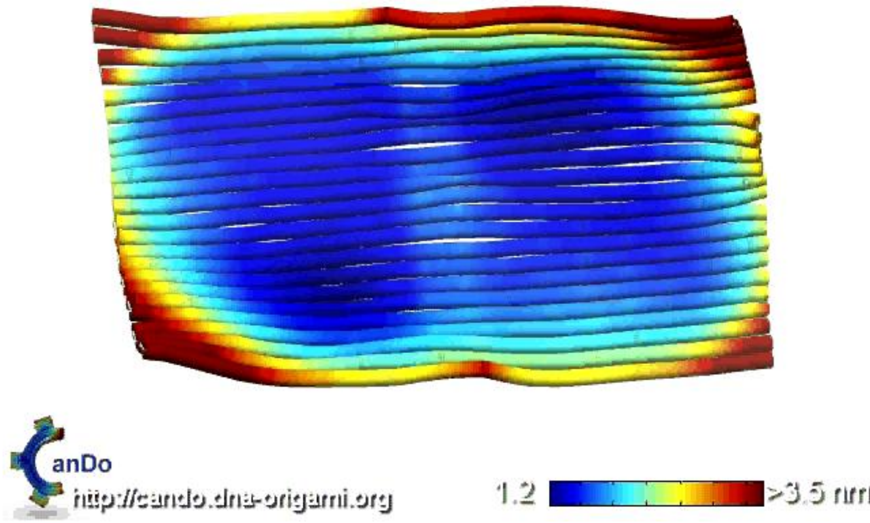


**Figure S31** – CanDo simulation of the RR plate. This plate is predicted to exhibit the highest flexibility of all of the designs.

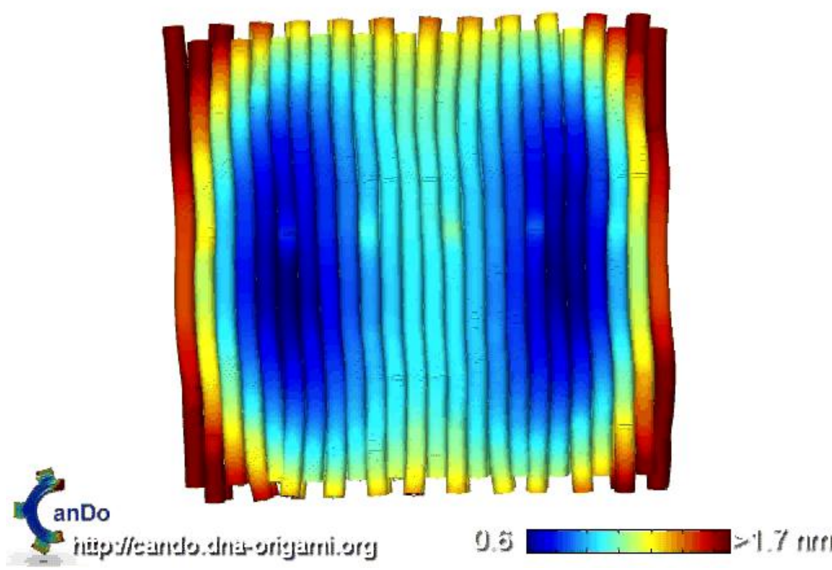


**Figure S32** – CanDo simulation of a 2LL plate. This plate is predicted to exhibit a lower flexibility than the RR plate, but higher than 3LL or HC.

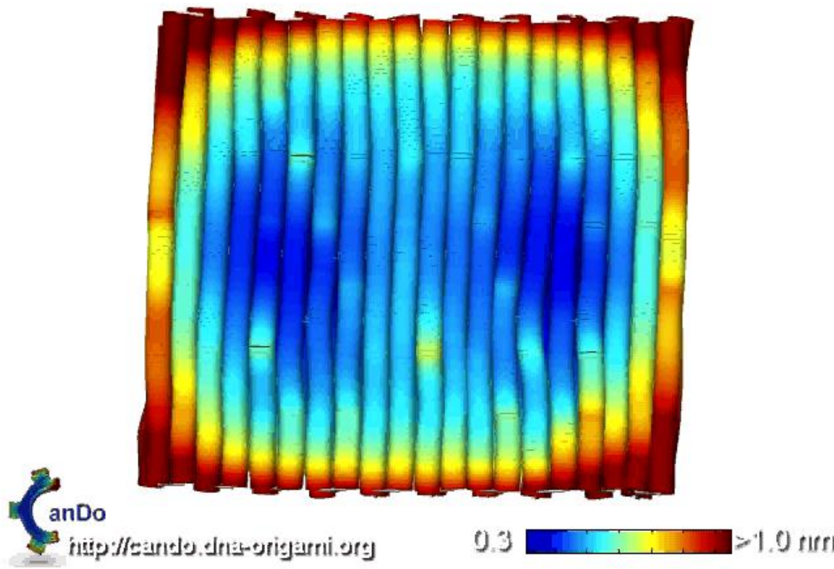


**Figure S33** – CanDo simulation of a 3LL plate. This plate is predicted to exhibit a low flexibility, slightly larger than the HC.

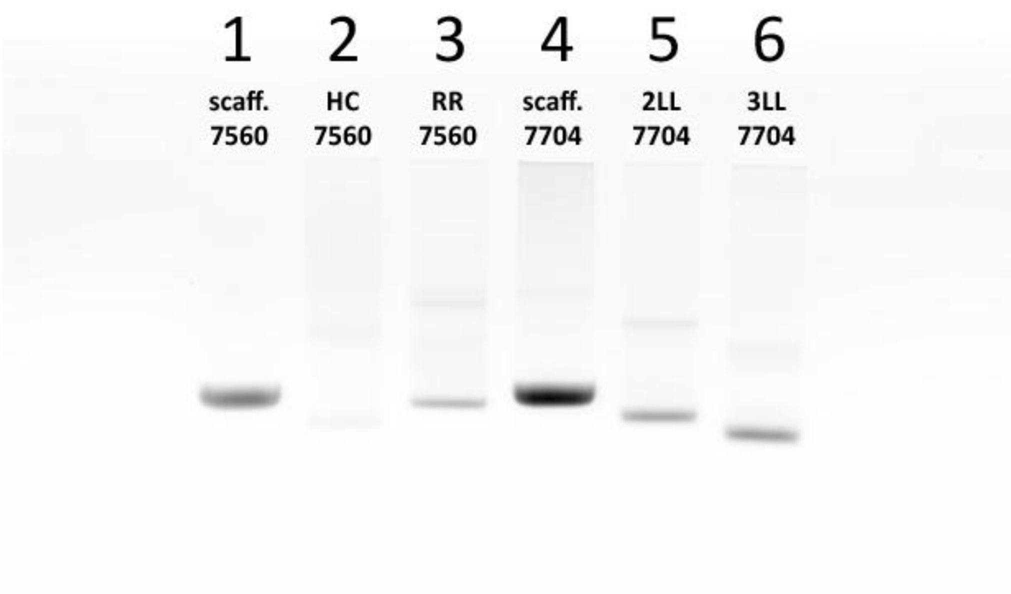


**Figure S34** – The spin-filtered nanoplates run on a 2 % agarose gel containing EtBr. From left to right: scaffold 7560, HC (7560), RR (7560), scaffold 7704, 2L (7704), 3L (7704). The scaffold is a reference only for the running speed of structures, the concentrations are not comparable. All the excess strands have been filtered out as described in the methods.

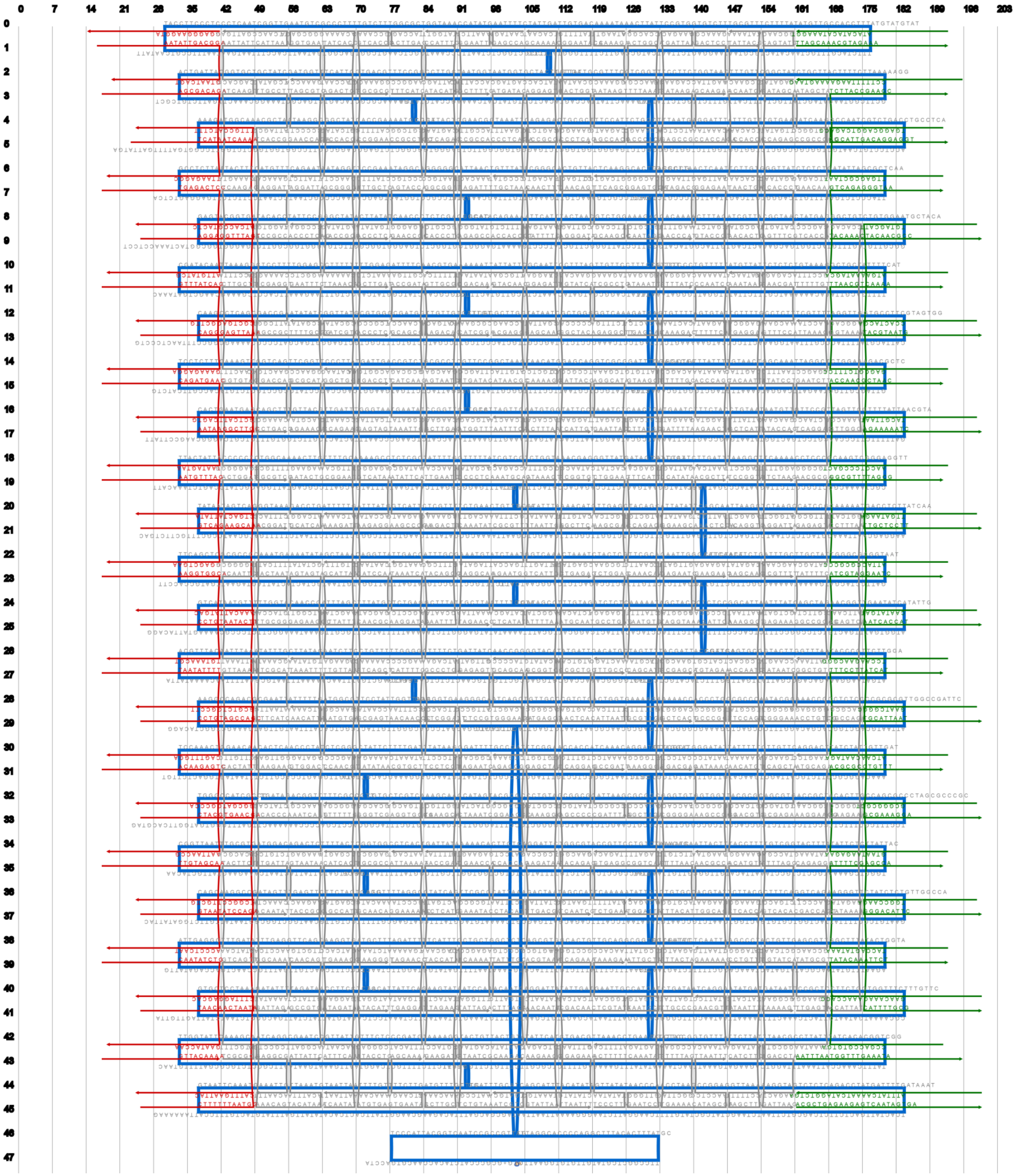

**Figure S35** – The scaffold routing for the HC plate. Generated using caDNAno v 0.2.

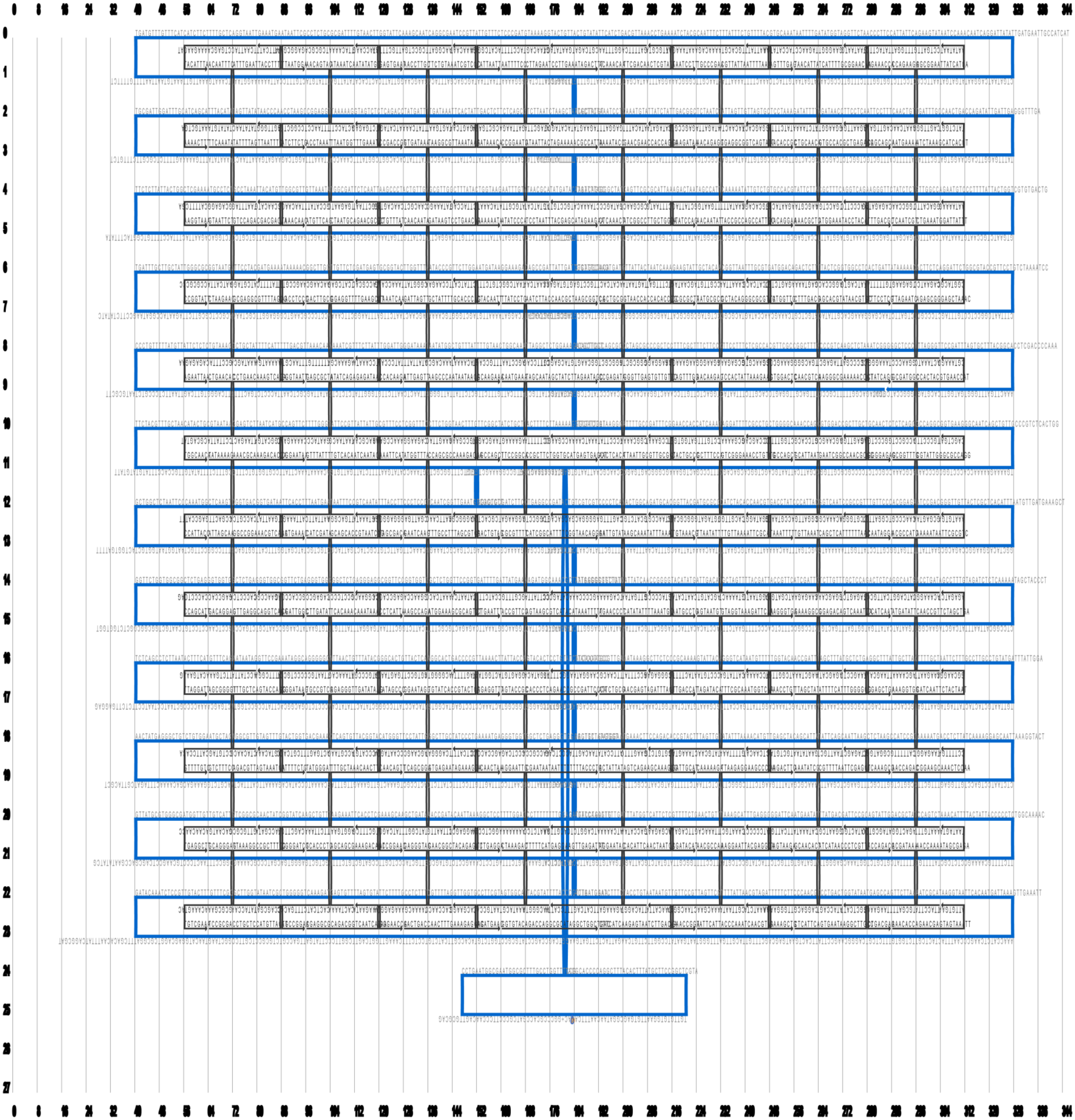

**Figure S36** – The scaffold routing for the RR plate. Generated using caDNAno v 0.2.

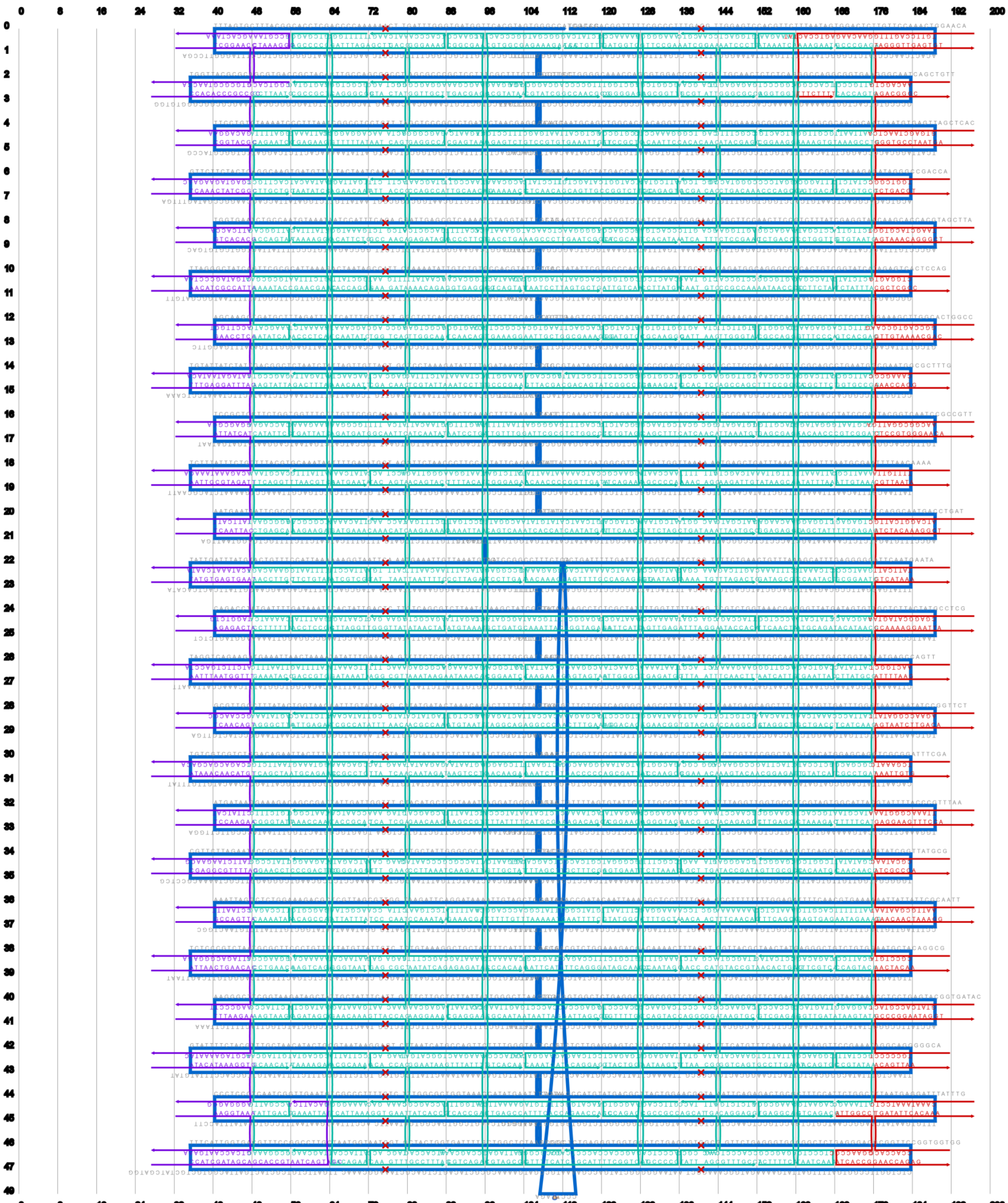

**Figure S37** – The scaffold routing for the 2LL plate. Generated using caDNAno v 0.2.

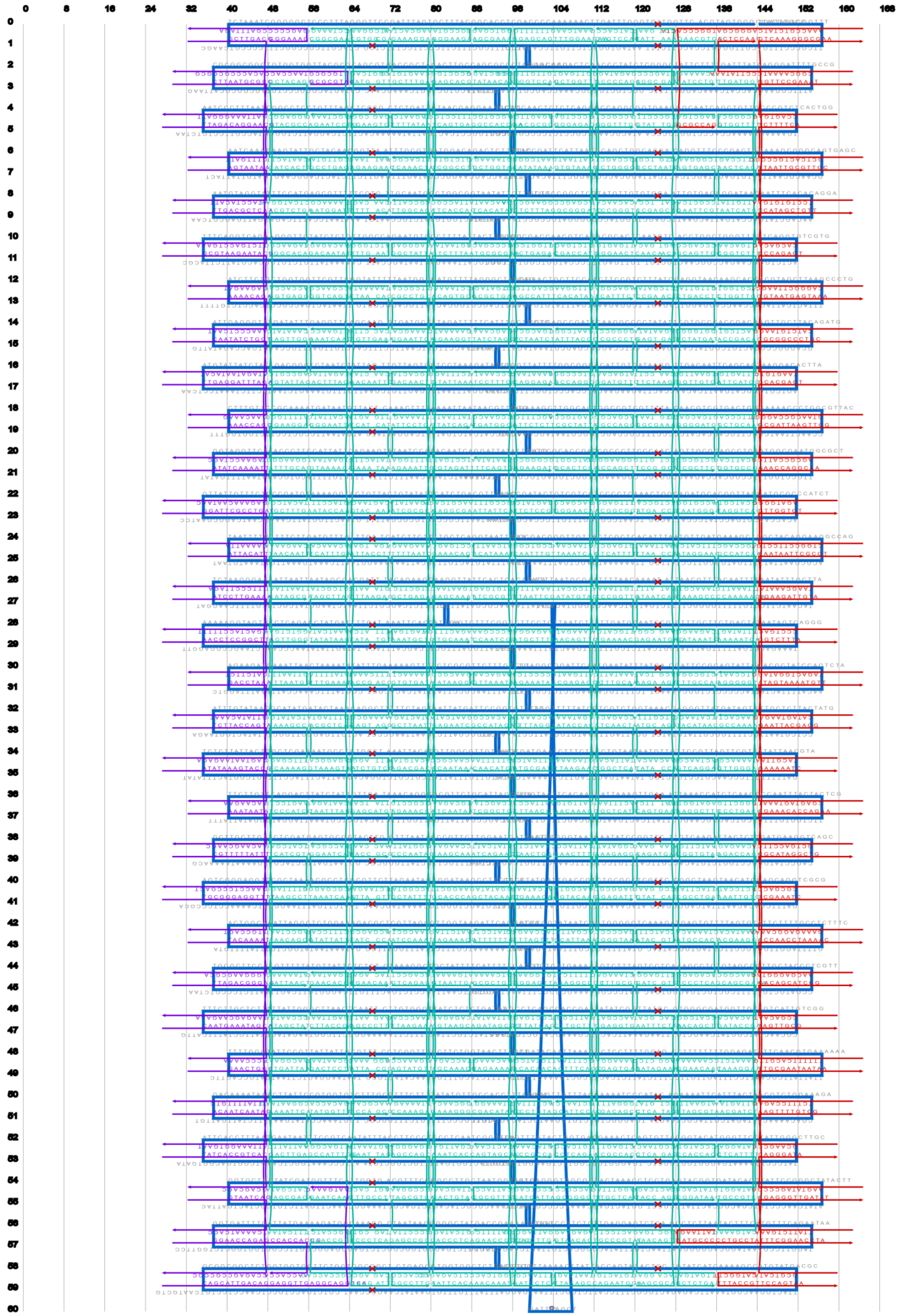

**Figure S38** – The scaffold routing for the 3LL plate. Generated using caDNAno v 0.2.

Staple sequences for **HC** plate:

| **sequence** | **description** | **length** |
|---|---|---|
| GCTATATTTTCATTTACTAATGTACCAATTTCATCAACATTAATCAAAA | core | 49 |
| CATCTTCAATAAGACCTGTTTGTAGGGCACATGTAAAAAGGTAACATGT | core | 49 |
| GTTGATAGAGAGTTATTGCCCCTAAATCGGAACCCAGGGCGC | core | 42 |
| AACAGTGAGGAGTGAATCACCAGTAGCACCATTACGCTTTTG | core | 42 |
| CTTGAGTCAACAGTCGTTAGTGGCTACAGAGGCTTTCTTTGATCGCCTG | core | 49 |
| GAAACATAAGGATTTAGGTGTGGCCGCTTTTGCGGCCGATAT | core | 42 |
| AAACAGTAAGATTTTGCTAAATTGCGAATAATAATCGACAAA | core | 42 |
| AGCCACCCAGAATGAATAAGTTTTAAATAAACCGAACTGGCA | core | 42 |
| GAAAGTAATCAAGTCAGCACCAATTATTCATTAAATTCAACCGATTGAG | core | 49 |
| GAACAAAGCCTTTACAGAGAGAAACGATAACGAAAATACCAG | core | 42 |
| TCACCGGAACCAGACCCCCTTTAGCGTCTTATTCT | core | 35 |
| AGATAACACACCCTCATAGTTGTTTCCATTAAACGAACCTAA | core | 42 |
| AATTGAGTTAAGCCTTAGACGAAGTTTTTAAAGAC | core | 35 |
| TAACTGACCACAAGACAATGACCGAACATATTACG | core | 35 |
| ACCGTTCAGAGCCACCACCCTTTTTCTGTATGGGTCATCGGA | core | 42 |
| CAGATAGAATAGCATTGATATAGTTTCGTCACCAGCAGCCCT | core | 42 |
| GCAAGCCTTCCAGATTCAGCGGAGTGCACACGGGGTCAGTGC | core | 42 |
| AGGATTAAGGCTCCAAAAGGATCGAGGTATTCGGTCCTGACG | core | 42 |
| CAGTATGGGCAACACCAGAGCCGCCGCCATTGGCCATAGCTAATCAGAG | core | 49 |
| ATAAGTTCAAAAGAGGAAACGCAATAATTACTGGTGAAAGCGAGGGATA | core | 49 |
| GAAACGCGACTCCTAAGTTACCAGAAGGAATAAGAATCCTCAAACCCAT | core | 49 |
| GGCGGATTAATGCCATACATGCATTAGCCCATTTG | core | 35 |
| GCCGTCGCACCCTCCAGTAAGCTCAGAGTATGGTT | core | 35 |
| CAATAGAGAGCCAGCAAAACGGAATACCTATTTTGCCCTCAG | core | 42 |
| ATAAATTCGAGAATAGAAAGGAACAACTTGTATCACCCCCAGTCATTGT | core | 49 |
| TTTTTGTAGAGCCTAATTTGCTTATCCTGAACAACAGGATTA | core | 42 |
| TCGCCCAGAGTAGTAAATTGGCGGATATCATCAAGAATAGCG | core | 42 |
| GGAATTAAAATTCACCGCCACCCTCAGATGAATTTATGATACCCCGTAT | core | 49 |
| CACTAAAGATTTTAAGAACTGCAGGTAGACCCAGCAAATCAA | core | 42 |
| AGCGTAAAACACTGTCACAAAACCACCATATAAAA | core | 35 |
| TTTCATCCCCTGCCTATTTCGTTTGCTCTGATATAACCCTCA | core | 42 |
| GCAGCGAACAACCAACCGATAGCGCAGACGGTCAATGACCTT | core | 42 |
| ACGAGGGACCAAGCGCGAAACATGGTTTAATTTCATCAACTA | core | 42 |
| TGAGGACGTCGTCTCAATAGGTTAAAGCACCCTCACCACGGA | core | 42 |
| CGATTATTAGCAACAAATGAACATTTTCCAGTCTCACCGCCATCACAAT | core | 49 |
| TCGATAGTTGCCTTATTAGCGACCGCCACCCTCAGCCCGGAA | core | 42 |
| GAACCGCAGAGGGTAGTACCACGTTGAAAATCTCCGCTTGAT | core | 42 |
| GTAAGCTTATTGTGTCGAAATCCGCGACAATTACGTAGGAATAGCTTCA | core | 49 |
| TCATTACAAGAGGAAGCCCGAGAGAATGATATTCAAAATGGT | core | 42 |
| ATGCAGACAAATATCGCGTTTTAATTCGACCACATACTTTAA | core | 42 |
| AAAGATTGGAAGCAAACTCCAAATTGCTACGCTTA | core | 35 |
| AAAACGAGTTGGGAAGGCACCGGTAAAACCACAGA | core | 35 |
| AACCGCCGTCATAGGCCACCAACAAAAGGGCGACAGGTGAATGAAACCA | core | 49 |
| TGATTAAAAAGACAGAGCCGCCACCAGACAAATAAGCAAGAA | core | 42 |
| AGAAACAAACGTAAGCGCATAAAGAAGTTTTGCCAAGCGTCC | core | 42 |
| GAATTACTGAGATTAGGCATACACTATCATAACCCACGGTGT | core | 42 |
| TCAGGACACTAACGGAATCTTTGCGGGAGGTTTTGTTCTAAG | core | 42 |
| GAGGGGGGGTGTACCAACTTTCTTGCTTGCCTTTATCAAGAG | core | 42 |
| AGAGGCTGTCATAAACCATAACAACGCAAGGATAA | core | 35 |
| ACGATAACCCCTCAAATGCAATGACCATTAGATAC | core | 35 |
| TCGTTTACAAAAGGCTGCTCCGGAGATTAAAGGAACAACTTT | core | 42 |
| GATTAGTCCATATAGAATATATAGGTAAAGATTCAGCCGGAGGAAGAAC | core | 49 |
| GTACCGTCGATCTAGGAGAATTAAAAACAGGGAAGATTTATC | core | 42 |
| GTCACCGGCCAAAGCCGGAACCGCCTCCCGTCGGCATTTTCGACCCTCA | core | 49 |
| TTGAATCAAACCAAAGTAATCGAACGAGGTTGCGCTTTTTCA | core | 42 |
| TTTTTCAAAGAATACCAATCCAAAATAAACAGCCAATTTTGC | core | 42 |
| CTTTACCTTGCGGGAGAAGCCATCGGTTAGTAGTATGTATAA | core | 42 |
| CATGTTTATGCAATGCCTGAGTGAGAGATCTGGAGAACTAGC | core | 42 |
| AGAGCTTACAGGTCATTATTAGCTCATTGAGGCAATGAGGAA | core | 42 |
| ATGGCTTGAGAAAGGCCGGAGCGTTCTATATTTTCTATTAAA | core | 42 |
| GAATTTCGGAACCGAACTGACAGACCAGCAAAGCTGCGGATT | core | 42 |
| TACCAGCACTTGAGAAGGCCGGAAACGTAGCGCGT | core | 35 |
| GCATCAAATCAGGTAATACTGCGGAATCTTTGCAAGGCTGGCTCATAAG | core | 49 |
| AAAGATTCCAAATCCCAGAACCGCATAAGATCGTCAGTATAG | core | 42 |

| | | |
|---|---|---|
| AAGACTTCAAGAACGCTTGAGAATGACAAAGACAG | core | 35 |
| AAGCGAAAGCTCAACTGGAAGTGCGAACGAGTAGACTGAGAG | core | 42 |
| GAGAGTATTTGCGGAACGCGAAATAGCAAGCAAATCCGTTTT | core | 42 |
| GTACAACATGTTACTTAGCCGTTGATACATAACGCCCAGACG | core | 42 |
| GAAGATGAGTACCTTACCATACAGCAAATACCGAATTTTTAT | core | 42 |
| TTAAACAAAAAAAAGCGGGGTGAACCTAAGACTGTCACCAATTATCACC | core | 49 |
| CAATAACCATCCAAGAGCATAGCGAGTAACAACCC | core | 35 |
| AAGGCAAAAATTAAGCAATAAAAATTTTAGAAAAC | core | 35 |
| AAGCAAGCAGATATAGAAGAGTTGATTCGAGAATCAGGGTAGGCTCACT | core | 49 |
| AGCCTCATAAATCAAAGCCCCAAAAACAATCAGCT | core | 35 |
| TCTACAAAACTCACATTAATTTTTTCACTTTGCCC | core | 35 |
| GCTGATACGGGAAACCTGTCGGGGGAGAGGCTGTCTAAGTCC | core | 42 |
| TTCTGTCATTTAACACGTGGCTTGCCCGAACGTTAATATTCC | core | 42 |
| TCCCTTATATATAAACTTTTTCAAATATCAGTAGATTTTCAG | core | 42 |
| CTCATATCATAGCAAGAATGGTCATTGCTTTAGTTCTAAAGT | core | 42 |
| TAATGTGATGCTGTCCAGACCCATCAGTCTTATGCACACTCA | core | 42 |
| GCAAATATTCGCATATAATTCTCACCCAAATCAAGAAACCGT | core | 42 |
| ACGCTGAGAGCCAGTCAAAATTTTGGATTCTGTAAATCGTCGTGATGCA | core | 49 |
| ATGTCAAACGCTGGCAGTGAGAGCCCCCGATTTAGCCGCGCTGCCGATT | core | 49 |
| CCAAGTAAATAATCGGCGGTTGCGAGAAAGGAAGGTGGCAAG | core | 42 |
| ACTGATAGCTCATGGGTTGCTTAAAGCATTCACCGGTCGGATT | core | 43 |
| CCTTTTTTAGCTTATATCATCTTAATTTGAAAGCGTTCACCA | core | 42 |
| TAAATTTAGATAGGGTTGAGTAAAGAACCTATCAGACAATAT | core | 42 |
| CATTTTGATAAATCAAAAGAACATATAACGTGCTTAATCAGT | core | 42 |
| CAGCATTATCGTAACAAACAACCAATTCTTTCATTTGAGCAA | core | 42 |
| CCTTTAACCAATAGGGGTCGAGGTGCCGTTGACGA | core | 35 |
| CAGGGTGCGGGGAAAGCCGGCTGCGCGTAATAAACAAAGTAA | core | 42 |
| TCAATATGAGGAAGATAGATATGAGTAGAGCCATTGGGCGAA | core | 42 |
| CAGAGGCGCCAACGCTCAACAAGTATCAGCGGAATGATTAAG | core | 42 |
| CTCCGTGGGAAGAACAGCTGGCAGCAACCGAAAT | core | 34 |
| GTGAGCTAGGCTATATTTTAATAAATATGCTTTAAACAGTTCTAGAACC | core | 49 |
| GCCCGCTTGGGCGCTGTAGAAAATATCCCATCCTACGACGAC | core | 42 |
| TGCCAGCATTCAACACAGTCAGGTCATTCCTTTAA | core | 35 |
| GTTGTTCGTTAAAATTTAAATTCAATTCTGGGGCGACTGGAT | core | 42 |
| CGGCAAATAGAATCGTACTATGAAATACCTACATTTCTTTAACCAGCAG | core | 49 |
| GAAAAATACCAATCCCGCACTCATCGTGAACGGTAACGAGCA | core | 42 |
| TGAACAATCAGCTATGTAGCGGTCACACGACCAGTAACCCTT | core | 42 |
| TCTGAAAATATTTTGTGAGGCGGTCAATCAGATTTTAGACAG | core | 42 |
| TACCGCCAAGAACTGTAATAATTGCTGAACCTCAA | core | 35 |
| GTGGACTAAAGAGTCTGTCCATTGATTACAAACTAGATTAGA | core | 42 |
| CCAACGTTAGCCCGTTGTTAAGGAAGATGCATTAACTGTTTA | core | 42 |
| TCCTCGTATCCCTTGCCCTGAATCAGAATACAGGCATTTCGC | core | 42 |
| AGAGCGGAATCCTGAGAAGTGCGAACCATGCGCGATATTAGA | core | 42 |
| AAAGGGAATGGCGAAAATCCTGTTTGATACAGGAGTAATGCGTCAATCG | core | 49 |
| ATGCAGATATAAAGTACCGACATTTAGGCTGACCTTAAAAGT | core | 42 |
| GCACGAAGCAACAGGAAAAACGCCCTAAAACATCCATACATT | core | 42 |
| AACCACCTTTACATTGGCAGATAAGAATAACGCCATTAATTG | core | 42 |
| GTCACGCGAACGTGTGCGTATTTCCAGTAATTAATAAAGGGT | core | 42 |
| AGAATCGATTACTATGATTATTGAAAACATAGCGAAACCTCCTTAATTT | core | 49 |
| ATTTCAAAACAATATGAAAGGCATCACCCATCACTCCGAGTA | core | 42 |
| TTTTTTGGAACGCCAATGTGAAAGCTAATTTATTTATCAAAA | core | 42 |
| TGAGGATCTGAATAATGGATTATGTGAGTGAATAAATCAAGAAGCAAAA | core | 49 |
| ACGCCAGGAGCTAAGGTGGTTGCGGTCCTCATATGTACCCCG | core | 42 |
| GAACGGTAACAGAGTGAATGGCGACAACTCGTATTTGGCAATTAAAGAA | core | 49 |
| GGCAAATAAAATATAAACAGTACATAAAACATTTAATTATTC | core | 42 |
| TAGAACCTTTACATCGGGAGATTACCTGAAACAAAATTAATT | core | 42 |
| GTTGGGTGAATCCTCAGATGAAAATCCTACAGACA | core | 35 |
| AACAATTCTATTAGTTGACGCCCGCTACTAAAGGGACGGGCA | core | 42 |
| AATCCGAAACAAACCCTTGCTTATACTTTTAGAAG | core | 35 |
| GAAAAAGATAAACACCGGAATATTTTAGGGCTTAG | core | 35 |
| ATTGCTACCGTATTAACACCGCCTGCAAACAGAAATCATCAATTAATTT | core | 49 |
| GAGGCCATGCGCCATTAAAAATGAAAAATCTAAAGAAAGGGT | core | 42 |
| AAGAACGGTCAGATACGTAAACAGTGCCAAGATAA | core | 35 |
| TGGATTAACACCCGAGCTTGAGTTTTTCGCGTTGCCTATTTT | core | 42 |
| GTTTAACCGAGAAACTATATGTAAATGCCTATTAATATAATC | core | 42 |
| TCGCGCATTGCTTTGTCAGTTATATCAATACTTCTTCACGCACACTATT | core | 49 |
| ACATTATGAGATAGAATAAAAAGGGCGCGAAGAAAAACGCGC | core | 42 |

| | | |
|---|---|---|
| TTGAGTAAGAAGGATATGCGTTAAATAAGGCGTTATGACCTAGAGACTA | core | 49 |
| GCCGTCAGTTATCTCAACAGTACGGATTCGCCTGAGAGGCGAACAATTT | core | 49 |
| CTTTACACTGATTGTATTTGCGAATATACAGTAACATAATCGCAAGACA | core | 49 |
| TCCGGTAAAGCCTTTACAATTCAGTTACAAATAAGAATAACA | core | 42 |
| TTTTTTTTTTTTTTTTAAGGTGGCATGTAAACGTTTTTTTTTTTTTTTT | polyT_left | 49 |
| TTTTTTTTTTTTTTTAATATTGACGGAGTAATCAGTTTTTTTTTTTTTT | polyT_left | 49 |
| TTTTTTTTTTTTTTTTCAGATGAACTAATAGTAATTTTTTTTTTTTTTT | polyT_left | 49 |
| GGAGGGAAGGTATTTTTTTTTTTTTTTT | polyT_left | 28 |
| TTTTTTTTTTTTCTTTTTAATGGCTTTAGGAGCACTTTTTTTTTTTTTT | polyT_left | 49 |
| TTTTTTTTTTTTTTTTAGCGACAGATTAAGAGGCTTTTTTTTTTTTTTT | polyT_left | 49 |
| TTTTTTTTTTTTTTTTTAATATTTCAGTTTGGATTTTTTTTTTTTTTTT | polyT_left | 49 |
| TTTTTTTTTTTTTTTTTTGTAGCAAACCCTCAATTTTTTTTTTTTTTTT | polyT_left | 49 |
| TTTTTTTTTTTTCAGGGAGTTAAAATCACCGTACTCTTTTTTTTTTTTT | polyT_left | 49 |
| CATTTGAATTACTTTTTTTTTTTTT | polyT_left | 25 |
| TTTTTTTTTTTTTTTCATAATCAAAA | polyT_left | 26 |
| TTTTTTTTTTTTGTCAGAAGCAAAGCTCATTCAGTGTTTTTTTTTTTTT | polyT_left | 49 |
| TTTTTTTTTTTTTTTTACAAGAGTCAATTAACCGTTTTTTTTTTTTTTT | polyT_left | 49 |
| TTTTTTTTTTTTTTTTAATGTTTAGCGAGCTGAATTTTTTTTTTTTTTT | polyT_left | 49 |
| TTTTTTTTTTTTTTTTGTTTATCAGGAAAGAGGATTTTTTTTTTTTTTT | polyT_left | 49 |
| TTTTTTTTTTTTAATAAGGCTTGCCGCTGAGGCTTGTTTTTTTTTTTTT | polyT_left | 49 |
| TTTTTTTTTTTTTTTTGTTACAAAA | polyT_left | 25 |
| TTTTTTTTTTTTTTTTTGAGACTCCATTGTATCGTTTTTTTTTTTTTTT | polyT_left | 49 |
| TTTTTTTTTTTTCCTGTAGCCAGCAAACATTATGACTTTTTTTTTTTTT | polyT_left | 49 |
| TTTTTTTTTTTTTAACAACTAATATCGGCCTTGCTGTTTTTTTTTTTTT | polyT_left | 49 |
| TTTTTTTTTTTTAGGAGGTTTAGTTTTGCCATCTTTTTTTTTTTTTTTT | polyT_left | 49 |
| TTTTTTTTTTTTCTACGTGAACCAGCGTCTGGCCTTTTTTTTTTTTTTT | polyT_left | 49 |
| TTTTTTTTTTTTTTTTCAATATCTGGAATACCAATTTTTTTTTTTTTTT | polyT_left | 49 |
| TTTTTTTTTTTTCCTGTAATACTTCTGACTATTATATTTTTTTTTTTTT | polyT_left | 49 |
| TTTTTTTTTTTTGTAATATCCAGAGGCGATGGCCCATTTTTTTTTTTTT | polyT_left | 49 |
| TTTTTTTTTTTTCCGACCGTGTGATATACAAATTCTTTTTTTTTTTTTT | polyT_right | 49 |
| TTTTTTTTTTTTTTTCAATATGATTGCATTAATTTTTTTTTTTTTTTTT | polyT_right | 49 |
| TTTTTTTTTTTTTTGAGCGCTAATTCTTACCGAAGCTTTTTTTTTTTTT | polyT_right | 49 |
| TTTTTTTTTTTTTTTTTGATAAGAAATCACCATTTTTTTTTTTTTTTTT | polyT_right | 49 |
| TTTTTTTTTTTTTTCCAAGAACGGGATCGTAGGAATCTTTTTTTTTTTT | polyT_right | 49 |
| TTTTTTTTTTTTTTTCCACTACGAAGAAAAATCTTTTTTTTTTTTTTTT | polyT_right | 49 |
| TTTTTTTTTTTTTTTTGGCCAACACATTTTGCGTTTTTTTTTTTTTTTT | polyT_right | 49 |
| TTTTTTTTTTTTTGTAATAAGAGAAACGCGCCTGTTTTTTTTTTTTTTT | polyT_right | 49 |
| AATTTAATGGTTTGAAATATTTTTTTTTTTTTTTT | polyT_right | 35 |
| TTTTTTTTTGAGGCAGGTCAGACGAGCATTGACAGGAGGTTTTTTTTTT | polyT_right | 49 |
| TTTTTTTTTTTTTGAGCGTCTTTCCTTAACGTCAAAATTTTTTTTTTTT | polyT_right | 49 |
| TTTTTTTTTTTTTTTTACGTTAATTTGCTCCTTTTTTTTTTTTTTTTTT | polyT_right | 49 |
| TTTTTTTTTTTTTTTTATTTATCAAAATCATAGGTCTGA | polyT_right | 39 |
| TTTTTTTTTTTTTTTTCCTTTTTAAGAAAAGTAAG | polyT_right | 35 |
| TTTTTTTTTTTTTTTTGTAGCATTTACGTAATGTTTTTTTTTTTTTTTT | polyT_right | 49 |
| TTTTTTTTTTTTTTTGCGGGCGCTGGGACATTCTTTTTTTTTTTTTTTT | polyT_right | 49 |
| TTAGCAAACGTAGAAATTTTTTTTTTTTTTTT | polyT_right | 32 |
| TTTTTTTTTTTTTTTTGAACAAAGAAACCACC | polyT_right | 32 |
| TACAAACTACAACGCCTTTTTTTTTTTTTTTT | polyT_right | 32 |
| TTTTTTTTTTTTTAACCTCCCGACTACCAACGCTAACTTTTTTTTTTTT | polyT_right | 49 |
| TTTTTTTTTTTTTATCAACAATAGATTTCCTTATCATTTTTTTTTTTTT | polyT_right | 49 |
| ACGCTGAGAAGAGTCAATAGTGATTTTTTTTTTTTTTTT | polyT_right | 39 |
| TTTTTTTTTTTTTTTTATACATACATAAAGGT | polyT_right | 32 |
| TTTTTTTTTTTTTTACCAGTATAAAATTTTCGAGCCATTTTTTTTTTTT | polyT_right | 49 |
| TTTTTTTTTTTTTTTGAATCGGCCGCGAAAGGATTTTTTTTTTTTTTTT | polyT_right | 49 |
| TTTTTTTTTTTTTATGAAAATAGCAGTCAGAGGGTAATTTTTTTTTTTT | polyT_right | 49 |
| TTTTTTTTTTTTTATTACCGCGCCCGGCGTTTTAGCGTTTTTTTTTTTT | polyT_right | 49 |

Staple sequences for **RR** plate:

| sequence | length |
|---|---|
| TTACAAAATCGCGCAGAGGCGAATTTAATGGA | 32 |
| AACGGATTCGCCTGATTGCTTTGAGAGTGAAT | 32 |
| GTAACAGTACCTTTTACATCGGGATATTAATT | 32 |
| GATTTTCAGGTTTAACGTCAGATGAATATACA | 32 |
| TGCACGTAAAACAGAAATAAAGAAAAATCCTT | 32 |

| | |
|---|---|
| GAAGGGTTAGAACCTACCATATCAAGTTTGAG | 32 |
| CCTGATTGTTTGGATTATACTTCTAGAAACCA | 32 |
| TCAATTACCTGAGCAAAAGAAGATTACATTTA | 32 |
| TAATAACGATATCAGAGAGATAACTCCAAATA | 32 |
| AAAGTTACAAGCCCAATAATAAGATACAAAAT | 32 |
| CCTTTTTATAGCAATAGCTATCTTAGAATAGC | 32 |
| CGGCAAAAGGGTTGAGTGTTGTTCAAAGGAGC | 32 |
| GCGAAAATTCCACTATTAAAGAACCGAACGTG | 32 |
| AGCAAGCGAAGGGCGAAAAACCGTCCCCCGAT | 32 |
| TGCCCTTCCCACTACGTGAACCATCGTAAAGC | 32 |
| TTAAGACTCCTGAACAAAGTCAGAAAAAATGA | 32 |
| ATGGTTTACGATTGAGGGAGGGAATAGCGACA | 32 |
| TTCCGGCAAGGAAGATCGCACTCCGACTGTAG | 32 |
| AACTCACACAGTTTGAGGGGACGACGACAGTA | 32 |
| GCTTTCCATGTAGATGGGCGCATCTGTAAACG | 32 |
| GCATTAATCGGATTGACCGTAATGTAAATTTT | 32 |
| GCGGTTTGCAACCCGTCGGATTCTCAATAGGA | 32 |
| TATAAAAGCCGACTTGAGCCATTTCCATTACC | 32 |
| GTTTATTTAATTATTCATTAAAGGAATGAAAC | 32 |
| TTGACGGATGTCACAATCAATAGAAAACGCAA | 32 |
| CATTCAACCCAGCGCCAAAGACAAAGCCGAAC | 32 |
| TCGGCCTCCCGCTTCTGGTGCATGAGTGAGCT | 32 |
| GCATCTGCTTAATTGCGTTGCGCTTCCGAAAT | 32 |
| CACGTTGGGTCGGGAAACCTGTCGCCCAGCAG | 32 |
| ACAAACGGGAATCGGCCAACGCGCAGAGTTGC | 32 |
| GCGAGTAACGTATTGGGCGCCAGGCAGCTGAT | 32 |
| CACCGTCAAAACGCAAAGACACCATGGCATGA | 32 |
| GAATCAAGGGAACCAGAGCCACCACCTCATTA | 32 |
| CGCGTTTTGCGTTTGCCATCTTTTCTGAATTT | 32 |
| GATTGTATTCAGAAAAGCCCCAAACATAGCCC | 32 |
| TTAATATTAGCATGTCAATCATATAATGCCTG | 32 |
| TGTTAAATCAAGAGAATCGATGAAAAGGGTGA | 32 |
| ACGCCATCTATCAGGTCATTGCCTCCATCAAT | 32 |
| ATTAGCAAGAGCCACCACCCTCAGCCAGCATT | 32 |
| CATCGATACAGAGCCGCCACCCTCCGATTGGC | 32 |
| GCCTCCCTGCAGCACCGTAATCAGGGTAAATA | 32 |
| AAATCACCTTTGCCTTTAGCGTCAAAGGGCGA | 32 |
| CCTTATTACATCGGCATTTTCGGTAACAGGAA | 32 |
| GTTGATAAAAGCAAATATTTAAATGTAACCGT | 32 |
| GTAAAACTTTGTTAAAATTCGCATGGATAGGT | 32 |
| GGAGCAAACAGCTCATTTTTTAACCCGTGGGA | 32 |
| ACAAAGGCAAAAATAATTCGCGTCAAATGTGA | 32 |
| CACCCTCAGGCCGGAAACGTCACCTGAATTAT | 32 |
| AAGCCAGAAGTGCCTTGAGTAACATATAGCCC | 32 |
| ACCGTTCCGGAGTGTACTGGTAATGGAGGTTT | 32 |
| AGAACCCTTTCAACGCAAGGATAAGGCTTTTG | 32 |
| AGTAATGTCCCTGTAATACTTTTGTTGACCAT | 32 |
| GAAAGGCCAAGCTAAATCGGTTGTTAACCTGT | 32 |
| ATGATATTAGCAAAATTAAGCAATCGAGCTGA | 32 |
| GACAGGAGTTCTGAAACATGAAAGTTAGGATT | 32 |
| CTTGATATTTAATGCCCCCTGCCTCGGATAAG | 32 |
| ATAAACAGTCACAAACAAATAAATCCGGAACC | 32 |
| ACGGGGTCATGGAAAGCGCAGTCTCATAATCA | 32 |
| ATGATACAAGTAAGCGTCATACATAAATTTTT | 32 |
| GCCTTTATCATATATTTTAAATGCGTACCCCG | 32 |
| CATTATGAGTAGGTAAAGATTCAACGGTAATC | 32 |
| AGAGCATAGGAGACAGTCAAATCAGAGAGTCT | 32 |
| AAAGAATTCAACCGTTCTAGCTGAAGAGATCT | 32 |
| ACCTATTAGTTGAGGCAGGTCAGAAGAACCGC | 32 |
| GGAATAGGAGCAAGCCCAATAGGACAACAGTT | 32 |
| AGTACCGCCCCTCAGAGCCACCACACAACTAA | 32 |
| ATTCTGCGATTCCATATAACAGTTACCCTCAG | 32 |
| TAGATACATATGCAACTAAAGTACGATTGCAT | 32 |

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|---|---|
| TTAGCTATGAATATAATGCTGTAGAAGACTTC | 32 |
| AAAGGTGGCATTTTTGCGGATGGCTCAAAGCG | 32 |
| AGCGGGGTCCTGTAGCATTCCACAGTTTTGTC | 32 |
| TGCCGTCGACTGAGTTTCGTCACCATTTTCTG | 32 |
| ACCGTAACAGAGGGTTGATATAAGGTGCCCGT | 32 |
| TCAGGGATTGTATCACCGTACTCAAAGTTTTA | 32 |
| AACCGCCACACCCTCAGAACCGCCGATTCCCA | 32 |
| GAAGTTTCAACGAGTAGATTTAGTCGGGAGAA | 32 |
| GTTTTAAATTTCGCAAATGGTCAAACCAAAAA | 32 |
| TAATTGCTATTTTCATTTGGGGCGAAAGCCTC | 32 |
| TAAGAGGTCATCAATTCTACTAATGGCAAGGC | 32 |
| CTACAACGTTTGCTCAGTACCAGGATTTCGGA | 32 |
| TCAGCGGATATCGGTTTATCAGCTATCGGAAC | 32 |
| AGGAATTGAAAAAAAAGGCTCCAATTTGAGGA | 32 |
| ACTATTATATCAAAAATCAGGTCTCACGTTGA | 32 |
| CAAAAAGATTAAACAGTTCAGAAAAGATACAT | 32 |
| AAATATCGCATAAATATTCATTGATAGTAAGA | 32 |
| AACCAGACAGACTGGATAGCGTCCACCAGACG | 32 |
| GTCTTTCCGACAATGACAACAACCTGAGGCTT | 32 |
| TATGGGATTTCTTAAACAGCTTGACGGGATCG | 32 |
| AACCTTGCTTATCAAAATCATAGGCCGACCGT | 32 |
| AATTTTCCGATTAAGACGCTGAGAAATAAACA | 32 |
| ACAAACAAGAGGATTTAGAAGTATACATAGCG | 32 |
| TGCCCGAAATAGATTAGAGCCGTCGAAGATAA | 32 |
| TAACATTAATCTAAAATATCTTTAAACACCGC | 32 |
| CCAGAAGGAAATCAACAGTTGAAACAGCAGCA | 32 |
| ACAATTTCTATATGTAAATGCTGAAAAACTTT | 32 |
| AACAGTACTTTAACCTCCGGCTTAATCTTCTG | 32 |
| AGGTGAATTTTGCTAAACAACTTTACCCATGT | 32 |
| TTTAATTGGTGAGAATAGAAAGGACCTCATTT | 32 |
| AAATCTCCCGAATAATAATTTTTTTTACCCTG | 32 |
| GACCATAAAGTCAGAAGCAAAGCGGGTGTCTG | 32 |
| CAAATGCTTTAAGAGGAAGCCCGACTCAACAT | 32 |
| GGAATCGTCGTTTTAATTCGAGCTTTAGAGCT | 32 |
| AAATGTTTCGGAAGCAAACTCCAACCTTTTGA | 32 |
| GTTGCGCCAGACGTTAGTAAATGAAGTACAAA | 32 |
| GAGGGTAGTAAAACGAAAGAGGCAGGGAACCG | 32 |
| CTAAAGACAAATACGTAATGCCACAGATGAAC | 32 |
| AGGAATACAGAAAGATTCATCAGTTTCCATTA | 32 |
| AACGCCAAAAACGAACTAACGGAAGAACCGGA | 32 |
| GCAACACTCAGGACGTTGGGAAGACAAAGCTG | 32 |
| ACGATAAATGCGATTTTAAGAACTCTGACGAG | 32 |
| GCAGGGAGGCGCGAAACAAAGTACTGTCGAAA | 32 |
| TCACCCTCCACTCATCTTTGACCCAGCCGGAA | 32 |
| CACTAAAAAGCAGCGAAAGACAGCTGCTTTCG | 32 |
| CACCAACCCAACGGCTACAGAGGCAAGGAGCC | 32 |
| AACGGGTATTTTTCATGAGGAAGTTGAGATTT | 32 |
| TTACAGGTCACATTCAACTAATGCACGAGAAT | 32 |
| CGTTAATAAAGGAATTACGAGGCAATCCCCCT | 32 |
| ATACCAGTATCATAACCCTCGTTTAATACTGC | 32 |
| TTACCTTAAACCAAAATAGCGAGATAATAGTA | 32 |
| TATACCAATTAAAGGCCGCTTTTGTACCGATA | 32 |
| AACTGACCAACTTTGAAAGAGGACTACGAAGG | 32 |
| GGTGTACAGACCAGGCGCATAGGCTGGCTGAC | 32 |
| CTTCATCAAGAGTAATCTTGACAACAACATTA | 32 |
| TATTCATTACCCAAATCAACGTAAAAAATCTA | 32 |
| CTCATTCAGTGAATAAGGCTTGCCGGCTCATT | 32 |
| AAACACCAGAACGAGTAGTAAATTATTGTGAA | 32 |
| TCCGCGACCTGCTCCATGTTACTTCCAGCGAT | 32 |
| CGAGGCGCAGACGGTCAATCATAAAAAGAATA | 32 |
| ACTACCTTATAAATCAATATATGTATACCAAG | 32 |
| TAGTGAATTTCTGTAAATCGTCGCGAAACAAT | 32 |
| ATAGCTTACTTAGAATCCTTGAAATAGACTTT | 32 |

| | |
|---|---|
| ATACATTTTTCGACAACTCGTATTATTGCGTA | 32 |
| AACAACTACGTTATTAATTTTAAAAAATTATT | 32 |
| GGAAGGTTTCATTTTGCGGAACAAGAATAATG | 32 |
| CAGTTGGCAGCGGAATTATCATCAAATATAAT | 32 |
| TATATAACATTTGAATTACCTTTTTATTCATT | 32 |
| GTGATAAACAACGCTCAACAGTAGCTGTTTAT | 32 |
| CCGGAATCATGCGTTATACAAATTGAAAAATA | 32 |
| AAAATACCGATAGCCCTAAAACATGCCTGTTT | 32 |
| AACAGAGGTTGAATGGCTATTAGTATATCCAG | 32 |
| CTGCAACAAAGCGTAAGAATACGTAACAGGAA | 32 |
| AATGAAAATGGCCAACAGAGATAGTTTGACGC | 32 |
| TTCAAATAGCAGAGGCATTTTCGAAAGGTAAA | 32 |
| ACCTAAATGCCATATTTAACAACGTAAACAAC | 32 |
| TGAGAATCTTAATGGTTTGAAATATCTGAGAG | 32 |
| TATAAAGCTAAGGCGTTAAATAAGAGAGTCAA | 32 |
| AGTATCATATAATTACTAGAAAAACGCCATTA | 32 |
| CGCGAACTGAACGAACCACCAGCAAATAGATA | 32 |
| CAATATTTTGAGGCGGTCAGTATTGGAGCACT | 32 |
| TGACCTGAGTGCCACGCTGAGAGCGGAATTGA | 32 |
| GGACATTCATCTAAAGCATCACCTTATCTGGT | 32 |
| TAATTTAGTATTTTAGTTAATTTCGGTTGGGT | 32 |
| CAACAATACGGGTATTAAACCAAGTAAATCAA | 32 |
| ATATCCCATAATCGGCTGTCTTTCCTACAATT | 32 |
| CTCAAACTACATCACTTGCCTGAGTGTAGAAA | 32 |
| AACAATATCCGTTGTAGCAATACTCCGCGCTT | 32 |
| AAACGCTCGAGTAAAAGAGTCTGTTATGGTTG | 32 |
| TCAATCGTTGAGAAGTGTTTTTATTTTCCTCG | 32 |
| GTAATTCTAATCATTACCGCGCCCCCGGTATT | 32 |
| ATGTTCAGAACAAGCAAGCCGTTTAACCTCCC | 32 |
| TCATCGAGCTAATGCAGAACGCGCGGCTTAAT | 32 |
| TCCAAGAAGATAAGTCCTGAACAACTTACCAG | 32 |
| CCAATCAATCCTAATTTACGAGCATAGAAGAA | 32 |
| TAGTAATAATCGGCCTTGCTGGTACTTTAATG | 32 |
| CAAATTAATACCGCCAGCCATTGCGGCACAGA | 32 |
| AGGCCACCATGGAAATACCTACATAACCCTTC | 32 |
| CAGAATCCCTGAAATGGATTATTTAATAAAAG | 32 |
| ATCGTAGGGTCCAGACGACGACAACCAACATG | 32 |
| GATTAGTTATATTATTTATCCCAACCACAAGA | 32 |
| TTATCCTGAGCCTAATTTGCCAGTGCAAGAAA | 32 |
| CGCTGCGCGGGCGCTGGCAAGTGTACGAGCGT | 32 |
| AATGCGCCGGAAGGGAAGAAAGCGCAGTTTGG | 32 |
| CTTTGACGTGACGGGGAAAGCCGGGTGGACTC | 32 |
| TTAGAATCGGAACCCTAAAGGGAGCTATCAGG | 32 |
| CTAAGAACGCCTTTACAGAGAGAAAGAATTAA | 32 |
| GACTTGCGTTTTTTGTTTAACGTCGGGTAATT | 32 |
| AGAAACGAGGAGGTTTTGAAGCCTTACCGCAC | 32 |
| AAACAGCCGCTATTTTGCACCCAGCTTATCAT | 32 |
| CTTTCCAGAATCTTACCAACGCTAAGCGGTCA | 32 |
| GGGCGCTAGTAACCACCACACCCGTCTTTGAT | 32 |
| GCGAGAAAGCTACAGGGCGCGTACCCATCACG | 32 |
| TTAGAGCTAGCACGTATAACGTGCAATCAGTG | 32 |
| ACTAAATCAGAGCGGGAGCTAAACCGGTACGC | 32 |
| AAATAGCAGCGAGGCGTTTTAGCGTTATTTTC | 32 |
| ATTGAGTTCAGAAGGAAACCGAGGAAATTCAT | 32 |
| CAATGAAAAGAAAAGTAAGCAGATAGCCAGCT | 32 |
| CCGAGATATCCCTTATAAATCAAAACCGAAGC | 32 |
| AACAAGAGCCTGTTTGATGGTGGTCACTGCCC | 32 |
| CAACGTCAGTCCACGCTGGTTTGCTGCCAGCT | 32 |
| GCGATGGCACCGCCTGGCCCTGAGGGGGAGAG | 32 |
| CTGAACACCCTTATTACGCAGTATTGGCAACA | 32 |
| GAGCGCTAGAATACCCAAAAGAACCGGAATAA | 32 |

Staple sequences for **2LL** plate:

| sequence | description | length |
|---|---|---|
| TTTTTTTTTGTTCCAGTTTGGAACAAGAGTCCACTATTTTCTTTT | rightside_polyT | 45 |
| TTTTTTTTAACAGCTGTAGGGTTGAGTGTTTTTTTTT | rightside_polyT | 37 |
| TTTTTTTTGTGAGCTAACTCAAGACGGGCTTTTTTTT | rightside_polyT | 37 |
| TTTTTTTTTGGTCGGCGGGTGCCTAATGATTTTTTTT | rightside_polyT | 37 |
| TTTTTTTTTAAGCTACGTGGTTCTGACGTTTTTTTTT | rightside_polyT | 37 |
| TTTTTTTTCTGGAGTGAGTAAACAGGGCTTTTTTTTT | rightside_polyT | 37 |
| TTTTTTTTGGCCAGTGCCAAGCGCTCGCCTTTTTTTT | rightside_polyT | 37 |
| TTTTTTTTCAAAGCGCGTTGTAAAACGACTTTTTTTT | rightside_polyT | 37 |
| TTTTTTTTAACGGCGGATTGAAAACCAGGTTTTTTTT | rightside_polyT | 37 |
| TTTTTTTTTTTTGTTACTCCGTGGGAACATTTTTTTT | rightside_polyT | 37 |
| TTTTTTTTATCAGGTCATTGCCGTTAATATTTTTTTT | rightside_polyT | 37 |
| TTTTTTTTTATTCATTATCTACAAAGGCTTTTTTTTT | rightside_polyT | 37 |
| TTTTTTTTCGAGGCATAGTAAGTCATAAATTTTTTTT | rightside_polyT | 37 |
| TTTTTTTTAACTGGCTCCAAAAGGAATTATTTTTTTT | rightside_polyT | 37 |
| TTTTTTTTAGAACCGGATATTATTTTAAGTTTTTTTT | rightside_polyT | 37 |
| TTTTTTTTTCGAAATCAGTAATCTTGACATTTTTTTT | rightside_polyT | 37 |
| TTTTTTTTTTAAACGGGTAAAAAATTGTGTTTTTTTT | rightside_polyT | 37 |
| TTTTTTTTCGCATAACGAGGAAGTTTCCATTTTTTTT | rightside_polyT | 37 |
| TTTTTTTTAATTGCGAATAATATCGCCCATTTTTTTT | rightside_polyT | 37 |
| TTTTTTTTCGCCTGTAGAACAACTAAAGGTTTTTTTT | rightside_polyT | 37 |
| TTTTTTTTGTATCACCGTACTAACTACAATTTTTTTT | rightside_polyT | 37 |
| TTTTTTTTTGCCCCCTGCCCGGAATAGGTTTTTTTTT | rightside_polyT | 37 |
| TTTTTTTTCAAATAAATCCTCACAGTTAATTTTTTTT | rightside_polyT | 37 |
| ATTGGCCTGGAACCGCATCACCGGAACCAGAGTTTTTTTT | rightside_polyT | 40 |
| TTTTTTTTCCACCACCTGATATTCACAAATTTTTTTT | rightside_polyT | 37 |
| TTTTTTTTTCGGAACCCTGCGCGTAACCATTTTTTTT | leftside_polyT | 37 |
| CGGTCACGCTAAAGGGGCCGTAAAGCACTAAATTTTTTTT | leftside_polyT | 40 |
| TTTTTTTTCCACACCCGCCGCGACAGGAATTTTTTTT | leftside_polyT | 37 |
| TTTTTTTTCGGTACGCTGAGTAGAAGAACTTTTTTTT | leftside_polyT | 37 |
| TTTTTTTTTCAAACTATCGGCATTCACCATTTTTTTT | leftside_polyT | 37 |
| TTTTTTTTGTCACACGCTGATAGCCCTAATTTTTTTT | leftside_polyT | 37 |
| TTTTTTTTAACATCGCCATTAACCTTGCTTTTTTTTT | leftside_polyT | 37 |
| TTTTTTTTGAACCTCAAATAGATAATACATTTTTTTT | leftside_polyT | 37 |
| TTTTTTTTTTTGAGGATTTAGGGAGCGGATTTTTTTT | leftside_polyT | 37 |
| TTTTTTTTATTATCATACAGAAATAAAGATTTTTTTT | leftside_polyT | 37 |
| TTTTTTTTAATTGCGTAGATTTATTCATTTTTTTTTT | leftside_polyT | 37 |
| TTTTTTTTTCAATTACACATAAATCAATATTTTTTTT | leftside_polyT | 37 |
| TTTTTTTTTATGTGAGTGAATTAGGTCTGTTTTTTTT | leftside_polyT | 37 |
| TTTTTTTTAGAGACTAATCTTCTGACCTATTTTTTTT | leftside_polyT | 37 |
| TTTTTTTTAATTTAATGGTTTGCCAACGCTTTTTTTT | leftside_polyT | 37 |
| TTTTTTTTTCAACAGTCCAGACGACGACATTTTTTTT | leftside_polyT | 37 |
| TTTTTTTTATAAACAACATGTCTTATCATTTTTTTTT | leftside_polyT | 37 |
| TTTTTTTTTCCAAGAATATTCTAAGAACGTTTTTTTT | leftside_polyT | 37 |

| | | |
|---|---|---|
| TTTTTTTTCGAGGCGTTTTAGCCTAATTTTTTTTTTT | leftside_polyT | 37 |
| TTTTTTTTGCCAGTTAATTAGACGGGAGATTTTTTTT | leftside_polyT | 37 |
| TTTTTTTTATTAACTGAACACAAGCCCTTTTTTTTTT | leftside_polyT | 37 |
| TTTTTTTTTTTAAGAAACGTAGAAAATACTTTTTTTT | leftside_polyT | 37 |
| TTTTTTTTATACATAAAGGTGAGGGAGGGTTTTTTTT | leftside_polyT | 37 |
| TTTTTTTTAAGGTAAAGTCACCAATGAAATTTTTTTT | leftside_polyT | 37 |
| TTTTTTTTCCATCGATAGCAGCACCGTAATCAGTAGCGACATTCA | leftside_polyT | 45 |
| TTTTTGGGCAGGGCGCGCGCTGGCGTTTTTATAATCAGTACTTCTT | core | 46 |
| AAAGGGCGGGCGGTTTGCGGTCCAACAATTCCACACAACAGCTCGA | core | 46 |
| TCCTGTTTTCTATCAGGGCGATGGCCCACTACACGTATAA | core | 40 |
| GCCCGAGAATTGCCCTCACCAGTGCATTAATT | core | 32 |
| AGGGAAGAAGAGTCTGTCCGTGTGAAATTGTT | core | 32 |
| CGCTGGTTTGCCCCAGCAGGCGGACGTATCGGCCAACGCG | core | 40 |
| TCACCGCCTAAAGTGTAAAGCCTGCCTATCTCTGAGTGCGGCTTGTTA | core | 48 |
| CGCCGCTAGTCGAGGTAGCCCCCGATTTAGAGCTTGACGCGCTAGG | core | 46 |
| GTACTATGCTAAACAGGAGGCCAGAACAATTGATTAGTACATTCTG | core | 46 |
| TGACGAGCGTGAACCACGGCGAACGTGGCGAGAAAGAAAA | core | 40 |
| CGGGGAGAAAAAACCGGATGGTGGTTCCGAAATCGGCAAGCAGCAA | core | 46 |
| GCGTATTCAGTCGGGAAACCTGCCAGAGTCATTCGTAATCACATAA | core | 46 |
| GGGTGGTTTAAAGAACATAAATCAAAAGAATA | core | 32 |
| GCTGCATTAATGAGCTTTCCTCGTGAAAAACG | core | 32 |
| GCGTTGCGGGTGACATTTTAGGCGCCTGGTTG | core | 32 |
| CGAGTAAAAAGCGAAAGGAGCGGGGGGAAAGCTCACCCAAATCAAGT | core | 47 |
| CGGAAGCATGGCCCTGAGAGAGTTAATCCCTTGTGGACTCCAACGTC | core | 47 |
| GTAGCAATGAGGCCACGAGCGGGAGGTTGCTT | core | 32 |
| ACGCAAATGACCTGAAAGCCCTTGAATCGGCT | core | 32 |
| TTCCTATCCTCAACAGCAGTTGCCGGTCTTGCTCGTGCCAATCCGCTC | core | 48 |
| TAATATCCGATTAAAGTGAGAAGTAAGTGTAG | core | 32 |
| ATTACCGATCGTCTGAAATGGACACCAGCAGGCTATTATCAATATC | core | 46 |
| ACGACACGCAGTTCCCACTGAGCCTTATGACAACTCGTTGCAAGGC | core | 46 |
| TGGGGAACTCAACATGGAAATACCGTCAGTAT | core | 32 |
| CCTCGATAGCTTCTAAATACCGACTTTTCCCA | core | 32 |
| TAAAAGGGAATAACATCACTTGCCCAGAATCCGGATTTTAGCTTAATG | core | 48 |
| GCCAACATTTGAATGAAGATAAGCCAGCAGCAAATGAAACAATT | core | 44 |
| ATCATTTCTGTAAGCAATGTCCTAAGTGGTTGTGAAGGAAGATC | core | 44 |
| TCTGACCTGGATCCCCGGGTACCGATACGAGCCCGCTTTCGGGCGCCA | core | 48 |
| GTGTAATGACTCTATGTCTATTTACTTTCTCAGGAGAAGCCCGCTTCT | core | 48 |
| ACAATATTGAGATAGAGACGCTCACCAGCCATTGCAACAGTAGAATCA | core | 48 |
| AGAATACGTGAAAGGAATTGCTGGCGAAAGGG | core | 32 |
| CGGTGGGCACGAATATAGGGGGTATAATCCTTAGTGCTGA | core | 40 |
| CCTGCCATCTCCGAACAGTTGGAACTGACAAACCCAGCCACTCACTGC | core | 48 |
| ATTGTCAAACCGACCAGACGCATTTCATGGTCATAGCTGT | core | 40 |
| ACGCTGAGAAACAGAGGTGAGGCGTACATTTTACCCTTCTTAACCGTT | core | 48 |
| CACGACTTAAGTGCACCGCCTGCAGCCCGAAC | core | 32 |
| ACCCTCAAGTCTTTAATGCGCGAAACCAGTAAATTGGCAGCTTGCTGG | core | 48 |

| | | |
|---|---|---|
| TGGTCAGGAGCACTCGACAACATCATTTTGCGGAACGATGAATA | core | 44 |
| GATTAAGAGGGCGAGCACTCCGGCGCATCGTAACCGAGCCCCAA | core | 44 |
| GTCACGACCATTCGCCGGTGCCGGCCGTAATGGGATAGGTATATTTAA | core | 48 |
| GAGCCGTCAATATCAAAAAGCATCAAAATACCGAACGAACTTATTTAC | core | 48 |
| AACAACTAAGATGATGGCAATTCACCTACCTACAGTATACCAAG | core | 44 |
| GAAGGTTATTGTTTGGATTCGCGTCTGGCCTT | core | 32 |
| CGCCAGAGGTTACGACGACAGTATCGGCCTCATTCATGCGGGATGTGC | core | 48 |
| TCGGTGCGCAGCTTTCATCAACAATTTTTTAAACAGGAACGGTA | core | 44 |
| TGTTGGGATTGGGTAAATGTTCTTCCGCCAAAATAACCCCAAGACGGA | core | 48 |
| ATTCAGGCAACAACCCGTCGGATTAAATTCGCATTGTAAACTGAGAGT | core | 48 |
| GTAACATTTCGTATTAAATCCTTTACAGTGCCTCAACAGTTGGCACAG | core | 48 |
| CCAGTTTGAGGGGATTAATTTTAACGGGAGAA | core | 32 |
| TGTAGATGAGCCAGCTTTCCGGCACAGGGTGGCGCCAGGGAGTGCGGC | core | 48 |
| CACGTAAACATATTCCCACCAGAAAAGTATTAGACTTTACAAAAATCT | core | 48 |
| ATATCAAAGATGAAACAAACATCCATTTGATATTAATAGAAGAG | core | 44 |
| CTTCTGAACAGTCAAATCACCATCAATATGAT | core | 32 |
| GGAACGCCATCAAAAATAATTATAACAACCCCGGTTGATA | core | 40 |
| AACCAATAGTTCTAGCTGATAAAAAACGAGAAAATGTCGACGAT | core | 44 |
| ATTAAATTTAGCTATTTTTGAGAGGAATCCCCGCGGAATCGAGCAACA | core | 48 |
| TTTTACATAAGTTTGAAATCCTGATCTAAAATATCTTTAGTTGGCAAA | core | 48 |
| ATCAGAAATGCATCTGCCTGTAGCGGCCTCTTCGCTATTA | core | 40 |
| AGGCGAATTTCAGGTTTAACGTCAAAAGAAACTGATTATCATAGATTA | core | 48 |
| TTACAAAAATCGTCGCATTACCTTCTTAGGTTGGGTTATAAACTTT | core | 46 |
| GTCAATCATATGTATAACGGATTCTCCTTGAA | core | 32 |
| ATCGTAAAGTAATAGTAATGACCAAGTTGAGATTTAGGATCTACGT | core | 46 |
| AATCGATGAAGATTGTATAAGCAACACGTTGGGAGCGAGTTGCGCAAC | core | 48 |
| CTGGAGCACCAATACTCTCAAATGATGCAGATACATAACGCATTATAC | core | 48 |
| GCCGGAGAGCTGATGCAAATTACAGGTAGAAA | core | 32 |
| TGAGAAAGAACAAAGAAGTTTTGCCAGAGGGGACTAGCATATTCAACC | core | 48 |
| TTCTGTAATCGCGCAGAAGAAGATATTATTTG | core | 32 |
| CCTTAGAAGCCTGATTAAAATTAATAATGGAAGGGTTAGAATCAATAT | core | 48 |
| GATAGCGTAACAAGAGGGAGAGGGTTTGTTAAATCAGCTCTTAAATGT | core | 48 |
| TCAATAGTGATAAATATTCAAATATCGCCATATTTAACAAAAGTAC | core | 46 |
| AGAGGCTTTTGCAATAGCGATAGCCGGAATCA | core | 32 |
| AAAAACCATGAGATGGTAATAAAATGAACGGTGTACAGAAGGCGCA | core | 46 |
| CTATCATATGAATTACCAGTCAGGGCTGACCT | core | 32 |
| ATGTAAATTTACATTTAACAATTTAAGAAAACGCTTTGAAACAGTACC | core | 48 |
| ACGCGAGAATAACTATAGACGCTGTAATTTTC | core | 32 |
| AATCGCAATAGGCAGAGGCCCAACTTTGAAAG | core | 32 |
| CGAACTAACGGAACAACATTATCCTAAGAACGAGTAGTAA | core | 40 |
| GACCGTGTGAATTTATACCTCCGGTTTTAATGGAAACAGTCTGAGCAA | core | 48 |
| AGGCGTTTATGCGTTATACAAAGCGCCTGTCGACAAAATACCGCAC | core | 46 |
| ATTGGGCTAAATAGCGGATTCATCTAAATCAAAAATCAGG | core | 40 |
| TTTAATTTTCAGTGAATAAGGCACCAAGCGGACGGTCAAGGGTAGC | core | 46 |
| AATCATTGACCCTCGTTTCAACTACTTTAAACAGTTCAGATTAATGCC | core | 48 |

| | | |
|---|---|---|
| CTTATGCGCATTACCCAAATCAACTGTATCATGCTCCATGCTAAAGAC | core | 48 |
| ACGAGAAACACCATTACTAGAAAAAACAAGAA | core | 32 |
| ATTGAGAATATTTTAGTTAATTTCCCTTTTTACAAAATCAAACCTTGC | core | 48 |
| ATAGGCTGACGTTGGGAAGAAAAAATACCACATTACCAGATTAGACTG | core | 48 |
| TCATCAAGCGCGACCTCGCCTGATATACGTAATGCCACTAGACAATGA | core | 48 |
| GAGAATATACGCCAACTAGTATCAAAATAAGAATAAACACTTAGATTA | core | 48 |
| TTCGAGCCTTTATTTTCATGCGAAAGACAGCA | core | 32 |
| ACTGAATTAAATCTTTGACCCCCAGCGATTATTTGCCCTGAGGACAGA | core | 48 |
| TTATCAAGTAGAAACCAATCAACGGGAGGTATCAGATAATTATTTA | core | 46 |
| AAGTCCTGAGCCTGTTATGTAATTGACAAAGA | core | 32 |
| CGAAACAAAACGAAAGAGGCAATCTTAAACCCGCTTTTTTTTGCTA | core | 46 |
| ACTAAAACACTCATAATATCCCATGTTGCTAT | core | 32 |
| AAACCAAGGGTAAAGTAATTCTGTAGGGCTTAAGTATAAAGAAATACC | core | 48 |
| TCATCGACAAGCAATTTGAAGCTTACCAACGCTAACGGGTAATT | core | 44 |
| AACGGCTTTAAAGGAGCTTGAGGCTCCAAAAGGAGCCCAATAGG | core | 44 |
| TTTGAGGATTACTTAGCCGGAACGCCAGGCGCGCTGCTCATCAACTTT | core | 48 |
| TTTTTCATCGATATATCAACAACCAATTTTTTCACGTTGATTTCGTCA | core | 48 |
| TTATCCGGCGGGTATTTGTCTTTCTCAGCTAATGCAGAACTTCTTACC | core | 48 |
| TTACCGCGCCCAATAGGAACAAGCACGAGCATCAATAGAT | core | 40 |
| AGGAATCATTTTTGTTTAAAAATGAATTTTCT | core | 32 |
| GCGGGATCGTCACCCTCAGCACGTTTTAGCTTGCTTTCGA | core | 40 |
| GCAGGGAGACAGAGGCCCAACCTAAAGTACAACGGAGATTGTAACAAA | core | 48 |
| TCGGTCGCGAGTGAGAATAGAAAGGCATTCCACCAGTACACAGGAGGT | core | 48 |
| GGTGAATTAAGAATACTCGGAACGATCATAAGGGAACCGA | core | 40 |
| TCCTGAATCCTTAAATCAAGATTACCTAATTTAAGCCGTTAGTAATAA | core | 48 |
| GTATCGGTTTATCGCACCCAGCTACCCACAAG | core | 32 |
| TCCCAATCAGAGAGGAGCGCTAAACAATGAAATAGCACGCAAAG | core | 44 |
| AACAACTACGATCTAACCCATCCACCCTCAGAACCGAATAAGTT | core | 44 |
| GGAAGCGCCAAAATAATTCCAGAGCGAACCTCCCGACTTGTAATCGGC | core | 48 |
| AATAACATGAACAAAGTTACCAGTAAGACTACACCACCAAAGAC | core | 44 |
| CAAAAATGCGCAATAATAATTAGGATTAGCGG | core | 32 |
| TTAGTCGTAATTCATTTTCAGGGATAGCAAGCCTTTAATTGTATGGGA | core | 48 |
| AAAGTTTTTCAGTACCAGGCGGAAAAGTATTTAACGGATTTACC | core | 44 |
| TTAGCGTATTCAACAGAAAAAAAATACCGATAGTTGCGCCCGAAGGCA | core | 48 |
| CAGACAGCGGTTGATATAAGTATAGCCTATTTCCGTATAAATTAAAGC | core | 48 |
| AAGTCAGAGAGCGTCTACAGCCATTAGAAGGC | core | 32 |
| AGAGCAAGAATATCAGAGAGATAACAATTTTAGAAACGAT | core | 40 |
| CAATAATACGAGGAAAAAAATAGCAGCCTTTACCAAATAA | core | 40 |
| AGAGCCACCACCCTGAGTTAAGCCGTCACAAT | core | 32 |
| CAGAACCGGTACCGTAACACTGAGAAATCTCCTTTCAGCGTGAGGCTT | core | 48 |
| TTAGTACCAACAGTGCCGGAACCTGTCAGACG | core | 32 |
| CCTTATTATCATTAAAGGTGAATTAGCACCCAAGTTTGCCTTTAG | core | 45 |
| AATACCCATTGAGCCATTTCACCAGAACCACC | core | 32 |
| TGAGACTCCTCAAGAGAAGGACGGCAAATGATACAGGAGT | core | 40 |
| TAAGAGGCCGCCGCCAGCATTGAAACCGCCTATTAGCGTTTGCCA | core | 45 |

| | | |
|---|---|---|
| TAAAAGAAAATAGCTAAGATAGCCAAAAACAG | core | 32 |
| GTACTGGTCCACCCTCGGTTTTGCGTCGTCTTTCCAGACG | core | 40 |
| AAAAGGGCGACAGAATATTACCATTAGCAAGG | core | 32 |
| TACATGGCTTTTGTAGAAAATTCATGTAGCGCAATTAGAGCCAGCAAA | core | 48 |
| GTTCCAGTAGCCCCCTACCCTCAGAGCCACCACCCTCAGA | core | 40 |
| GTCTCTGAGGTCAGTGCCTTGAGTGCCACCCTGTCGAGAGCCTCATAG | core | 48 |
| CAGAATGGTAATCAAACTCCCTCAGAGCCGCCACCCTCAGCAGGAGGT | core | 48 |
| GAAATTATCGCAGTATGTTAGCAAAAGTAAGCTCTTACCGCCTGAACA | core | 48 |
| CCGGAAACTATTGACGACCGATTGGCAACATA | core | 32 |
| ATCACCAGTATCACCGACCAGCGCGGAATAAGTTTATTTT | core | 40 |
| GCCGCGGGGTTTTCATCGGCATTTTCGGTCATAAGCGTCAACCAGAGC | core | 48 |
| CGTCAGACTATGGTTTTCACCGACAAAGAACTGGCATGATAAGGAAAC | core | 48 |
| TCTTTTCAAAAGCGCATGAGGCAGATTATTCTGAAACATGTAAGTGCC | core | 48 |

Staple sequences for **3LL** plate:

| sequence | description | length |
|---|---|---|
| TTTTTTTTAAACCGTCTATCAGGGCGATGGCCCACTAGCGCCAGG | rightside_polyT | 45 |
| TTTTTTTTCGGCAAAATCCCTTATAAAACTCCAAC | rightside_polyT | 35 |
| TTTTTTTTCCAGTGAGGTCAAAGGGCGAATTTTTTTT | rightside_polyT | 37 |
| TTTTTTTTGCTCACTGCCCGCTCTTTTCATTTTTTTT | rightside_polyT | 37 |
| TTTTTTTTTCCTGTGTGAAGGTTCCGAAATTTTTTTTT | rightside_polyT | 38 |
| TTTTTTTTCACGACACTTAATTGCGTTGCTTTTTTTT | rightside_polyT | 37 |
| TTTTTTTTCAGGGCTTAAGCTCCCAGAGTTTTTTTTT | rightside_polyT | 37 |
| TTTTTTTTCATCTGTAAGCTCATAGCTGTTTTTTTTTT | rightside_polyT | 38 |
| TTTTTTTTTAAGTGTCTGTAATGAGTAAATTTTTTTT | rightside_polyT | 37 |
| TTTTTTTTGTAACGCCAGGGTGCACGACTTTTTTTTT | rightside_polyT | 37 |
| TTTTTTTTAGCGCCATTCGTGCGGCCCTGCTTTTTTTTT | rightside_polyT | 38 |
| TTTTTTTTAGATGGGCGCGATTAAGTTGGTTTTTTTT | rightside_polyT | 37 |
| TTTTTTTTCTGGCCTTCCTGTGTTGGTGTTTTTTTTT | rightside_polyT | 37 |
| TTTTTTTTTAAGCAAATATAAACCAGGCAATTTTTTTT | rightside_polyT | 38 |
| TTTTTTTTCCCTGACTAAATAATTCGCGTTTTTTTTT | rightside_polyT | 37 |
| TTTTTTTTTAGACTGGATAGCGGTCTTTATTTTTTTT | rightside_polyT | 37 |
| TTTTTTTTCATAGTAAGAGGGAAGATTGTATTTTTTTTT | rightside_polyT | 38 |
| TTTTTTTTTACGTTAAATAGTAAAATGTTTTTTTTTT | rightside_polyT | 37 |
| TTTTTTTTCGAGTAGTAAATTGAAAAATCTTTTTTTT | rightside_polyT | 37 |
| TTTTTTTTGCTGACCTTCAGAATTACGAGGTTTTTTTT | rightside_polyT | 38 |
| TTTTTTTTCGCGACCTAGAAACACCAGAATTTTTTTT | rightside_polyT | 37 |
| TTTTTTTTGAAAGAGGCAAAATCGAAATCTTTTTTTT | rightside_polyT | 37 |
| TTTTTTTTAACGAGGGTAGCGCATAGGCTGTTTTTTTT | rightside_polyT | 38 |
| TTTTTTTTCCGACAATACCAACCTAAAACTTTTTTTT | rightside_polyT | 37 |
| TTTTTTTTTTTTTTCACGTTGTAGTTGCGTTTTTTTT | rightside_polyT | 37 |
| TTTTTTTTTCTTTCCAGACGACAGCATCGGTTTTTTTT | rightside_polyT | 38 |
| TTTTTTTTGCAAGCCCTTGCGAATAATAATTTTTTTT | rightside_polyT | 37 |
| TTTTTTTTAAGTATAGCCCGGCAGGGATATTTTTTTT | rightside_polyT | 37 |
| TATTAAGAAATGCCCCCTGCCTATTTCGGAACCTATTTTTTTT | rightside_polyT | 43 |
| TTTTTTTTTTATTCTGAAAAAGTTTTGTCGTTTTTTTT | rightside_polyT | 38 |
| CATGGCTTTTTACCGTTCCAGTAATTTTTTTT | rightside_polyT | 32 |
| TTTTTTTTGCGTCATAAGAGGGTTGATATTTTTTTTT | rightside_polyT | 37 |
| TTTTTTTTGCTTGACGGATTAAAGGGATTTTTTTTTT | leftside_polyT | 37 |
| GGGAAAGCGAGCCCCCGATTTAGATTTTTTTT | leftside_polyT | 32 |
| TTTTTTTTCTTAATGCGCCATACCTACATTTTTTTTTT | leftside_polyT | 38 |
| GCGCGTACCTGCGCGTAACCACCACACCCGCCGCGTTTTTTTT | leftside_polyT | 43 |
| TTTTTTTTTTAGACAGGAACGCTTTGATTTTTTTTTT | leftside_polyT | 37 |
| TTTTTTTTAGTAATAATTCTGACCTGAAATTTTTTTT | leftside_polyT | 37 |
| TTTTTTTTTTGACGCTCAAAAACCCTCAATTTTTTTTT | leftside_polyT | 38 |

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|---|---|---|
| TTTTTTTTGCGTAAGAATACGCAGAAGATTTTTTTTT | leftside_polyT | 37 |
| TTTTTTTTAAAACAGAATAGATAATACATTTTTTTTT | leftside_polyT | 37 |
| TTTTTTTTCAATATCTGGTTAGAACCTACCTTTTTTTT | leftside_polyT | 38 |
| TTTTTTTTTTGAGGATTTAGAGAACAAAGTTTTTTTT | leftside_polyT | 37 |
| TTTTTTTTAAACCACCGAGAAACAATAACTTTTTTTT | leftside_polyT | 37 |
| TTTTTTTTATATCAAAATTTTTCCCTTAGATTTTTTTT | leftside_polyT | 38 |
| TTTTTTTTGGATTCGCCTGATCAAAATTATTTTTTTT | leftside_polyT | 37 |
| TTTTTTTTATTACATTAGACTACCTTTTTTTTTTTTT | leftside_polyT | 37 |
| TTTTTTTTATCCTTGAAAAGTTATACAAATTTTTTTTT | leftside_polyT | 38 |
| TTTTTTTTAACCTCCGGCTTACATCTTCTTTTTTTTT | leftside_polyT | 37 |
| TTTTTTTTGACCTAAACAGTAATAAGAGATTTTTTTT | leftside_polyT | 37 |
| TTTTTTTTTCTTACCAGTAAACAAGCAAGCTTTTTTTT | leftside_polyT | 38 |
| TTTTTTTTATATAAAGTACCGAACAAGAATTTTTTTT | leftside_polyT | 37 |
| TTTTTTTTAAATAATAGAACCTCCCGACTTTTTTTTT | leftside_polyT | 37 |
| TTTTTTTTCGTTTTTATTTAGGGAAGCGCATTTTTTTT | leftside_polyT | 38 |
| TTTTTTTTTGCGGGAGGTTTTTTGCCAGTTTTTTTTT | leftside_polyT | 37 |
| TTTTTTTTTACAAAATTAAGAGCAAGAAATTTTTTTT | leftside_polyT | 37 |
| TTTTTTTTTTAGACGGGAGTTTATTTTGTCTTTTTTTT | leftside_polyT | 38 |
| TTTTTTTTCAATGAAATAGCAACCCAAAATTTTTTTT | leftside_polyT | 37 |
| TTTTTTTTGAACTGGCATTAAAGGTGAATTTTTTTTT | leftside_polyT | 37 |
| TTTTTTTTACAATCAATAGTCAAAATCACCTTTTTTTT | leftside_polyT | 38 |
| TTTTTTTTTATCACCGTCACCGCAGCACCTTTTTTTT | leftside_polyT | 37 |
| TTTTTTTTGTAATCAGCCAGAGCCGCCGCTTTTTTTT | leftside_polyT | 37 |
| TTTTTTTTGGAACCAGAGCCACCACCGAACCACCA | leftside_polyT | 35 |
| TTTTTTTTCAGCATTGACAGGAGGTTGAGGCAGGTCAAATGAAAC | leftside_polyT | 45 |
| ATCGGAACAGAAGTGTGAGCGGGAGAAGAACCAACAGGATTTACA | core | 45 |
| AAATCAAGTTTTTTGGAACGCGCGAGAGTTGCTATATAAA | core | 40 |
| CGGCGAACGTGGCGACGGTCACGTATGGTTGCTTTGACAGCCATTG | core | 46 |
| AGCGAAAGGAGCAGTTTGGAACAAGCCCTGAG | core | 32 |
| GCGCTGGCAAGTGTAGGAAAGGAATAGAATCATTTTATAAATCACGCA | core | 48 |
| GCTGGTTTACGAGCCGGAAGCCCACTCTTTAGGCGGGATCGAATCGGC | core | 48 |
| AGGCGAAATAGCCCGAGATAGGGTTGAGTGTTGTTCCGGCGGTCCAC | core | 47 |
| TTGATGGTATTGTTATAACTCACACTGACAAACGGTCTTGACGTGGTG | core | 48 |
| CAGCTGATAGTGAGCTCCGCTCACGAATTCGTAATCATGGAACTCGTC | core | 48 |
| ACGGGCAAGTGGTTTTTTTCCAGTCGGGAAAC | core | 32 |
| GGGAGAGGCATTAATGAATCGGCCACTGAGAC | core | 32 |
| GTATTGGCGTGAACTATTAAAGAACGTGGTCAAAAGAAATCCTGT | core | 45 |
| AATTAACTTTGAATTTCTGGCCTTAACACCACCTTGAGTTGAAA | core | 44 |
| CATCACTTCAATACTTGTACGCCAGAATCCTGCCTAAAGG | core | 40 |
| TCAAACTAAAGGGACAGGCTATTAATCGCCAT | core | 32 |
| TCGGCCTTGTCTGTCCTCAGTGAGGCCACCGAGGTCGAGG | core | 40 |
| GCTGGTAAAGCGTGCTTTCCTCGTGGGAAGAATGCCGTAAAGCACTAA | core | 48 |
| GTGTAAAGGTCTGACGCGACCATGGTTGGAAGCAGTTCCCCAGGAGAA | core | 48 |
| CACAACATGCCCCAGCACCGCCTGGAGTCCACCATCACCC | core | 40 |
| AATGGATTAAAAACGCTCATGGAAGCTACAGGAGGAGGCC | core | 40 |
| TTGGCAGATAAAGCATCGCCTGCAAGCACTAAGACAACTCTTAAAAGT | core | 48 |
| TCACATATGAACAATATTACCGCCGAGCACGTATAACAAGGCGCTAGG | core | 48 |
| TTGGTCGGAGCCATTTCACATAAAGTCCCGCCGCCAGGGTCAGTGCCA | core | 48 |
| TGGCACAGACAATATTCGTTGTAGGCCTGAGTAGCTAAAC | core | 40 |
| GCAGTTGCCCCAGCCACTGACCTCGGTGGGCATCTATGAT | core | 40 |
| TAAAAATAAACAATTCCAACTAATCATCATTATACTTCGAAATAA | core | 45 |
| AGACGGAAGGGAACTCAACAACACTGTCGTGCCTAATGTGCCCTTC | core | 46 |
| CTTGTTACGGTTGTGATGAATTGTGGGGATGTGCTGCGCACCGCTTCT | core | 48 |
| CTGGTTGGCTTAGTGCATTCATGCTTTCCCAGTCACGACGTAATGGGA | core | 48 |
| CAAATATCTCGTCTGATAGAACCC | core | 24 |
| GAAAAATCTTCACCAGAGTAATAA | core | 24 |
| TGACGCAGTCTAATCTATTTACGCGATCGGTGCGGGCCATGGAAGATC | core | 48 |
| GGGGCCTTCCCGGGTATTGAGTGCCCTGGGGTGCCAGCTGCGGTTTGC | core | 48 |
| GGAATTGAGTTTGGATATTCCTGATGAATATAATCGCGCAAAAGAAGA | core | 48 |
| ACCGACAGCCATTCAGGCTGCAAGGCATCGTATAGGTCAC | core | 40 |
| TCTTTAGGACAGTGCCCCTAAAACGTCTTTAATGCGCGAAGTAAAAGA | core | 48 |
| AAAATAACATTCTCTTCGCTATTAGACGACGAGGGAACAAGTAACAAC | core | 48 |
| AGTATTAGACTTTACACCGAACGAGGTCAGTAAACAGAGA | core | 40 |

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|---|---|---|
| TTCTAAGTCTCGATAACCGAACTGGTGACACCGAGCTCAATTCCA | core | 45 |
| TTGAGTATTACAAACAGTAACAATTACCTTGTAAATCATTAAGAC | core | 45 |
| TATTAATTGTATTAAATCCTTTGCCTGATAGCACGCTGAGCCCCGACC | core | 48 |
| AGCTTTCTTTCTCCGTCAGTATCGCAATTTGTTAAATCAGAAAAGATT | core | 48 |
| CGGAATTATAGATTAGAAATCAACCTGAACCT | core | 32 |
| TGAATAATGGAAGGGTCAGTTGGCAGCCGTCAGGTGAGGCACCACCAG | core | 48 |
| TCCTGATTGGAAGGTTATCTAGCTCAGCAAAT | core | 32 |
| AGAAATTGTTGCTTCTTTTTAATGATAGTGAAAAATGCTGGAAAACTT | core | 48 |
| GCACTCCATTCGCATTAAATTTATTTAATTCGATATGTACCGATAAAA | core | 48 |
| TCCGGCAACTGTTGGGAAGGGCTCGCCCTGATGACAATTCATTTCT | core | 46 |
| GGTGCCGGTTAAATTGGCCATCAAATTATAGTAAAAATCAGTCCAATA | core | 48 |
| ACCGTGCAATAGGAACTAAACGTTAAAAGCCCCAAAAACACAACACTA | core | 48 |
| TTGACCGTTGTAAAGGCGAAAGCAACCTTGAGTGACCGAATATA | core | 44 |
| TGATGAATATATGTTTTATCAACCGACCAAAAGCCTCAGTAGG | core | 43 |
| CCTGAGCAGAGGCGAATTATTCATCCGAACGTTGATGGCACCCAAATA | core | 48 |
| CCGTCGGAATGCTTTAAAGAGGAAAGAAATAGCGAGAGGCGTAGAAAG | core | 48 |
| AGCCAGCTTTCATCAACATAAATCCAGAAGCATTTGCCAGTCATAACC | core | 48 |
| GTCGCTATTAATTAATATTTGCACTACATCGGAGAAGGAGATTTTGCG | core | 48 |
| TGTTAAAAGCCAGCTTTTTGAGGGCGCCAGCTACGACGGCGGATGTTC | core | 48 |
| GCTGAGAATTACTAGAGTGTGATAACATGTAAAGACGACGGCGCCTGT | core | 48 |
| ATCGCGTTATGTGAGTGAATAACCCGTAGATTTTCAGTCACAATATAA | core | 48 |
| GGTCTGAGTAACAATTCAAGAAAATGCTTTGAATACCAAGACATTATC | core | 48 |
| TATATAACACAAACATTCATTTGAGTACCTTTGTAAAACA | core | 40 |
| CCAATCGCTTCAATTAACATAAATGCCGTTTAACGTCAGATTATCAGA | core | 48 |
| AACAGTTCATTGAATCCCCCTCAAATGCGATTATTCATCACTTAACGT | core | 48 |
| TTTCAAATTTCTGTCCTTTAGGCGAGCATGTAACCAAGTACCGCG | core | 45 |
| AAATATTCAGAAAACGAGAATGACCATTAAATTTAACCATCTGCCAG | core | 47 |
| CTGCGGAAGTCAGGACACTAACGGAAGGCTTGAATCTTGACGGTGTAC | core | 48 |
| AGGGGGTATAAAACGAGTTGGGAAGGGCTTGAGATGGTTTCGCCTGAT | core | 48 |
| ACCAAATAATTTAGGAATACCACACATTACCCAAATCTCCGAACTGAC | core | 48 |
| CCAGACGACCCGGTTGTTGCATCACTCATTTTGTGAGCGAACGGCGGA | core | 48 |
| GCTTAATTGGGTATTAAGAAACCATCCGGTATGCTATTTTCAACGCTA | core | 48 |
| TACATAACGCCAAAAGTCAAGAGTCCCTGACGGCTCCATGAAATTGTG | core | 48 |
| ACAAAAGGTAAAGTAAATATTTTATTTGAAATAAATCATATAGCTTAG | core | 48 |
| CAACATGTAAGACAAAGTTAAATAGCCCGAAAGACTTTCAGAAACAGT | core | 48 |
| TTAAGAACCATTGTGAATTACCTTCGAAACAAATCATAAGTTTAGTTT | core | 48 |
| TATACCATCGTCATAAGAAGTAAGCGGAATAATCAGAATATTT | core | 43 |
| TTATCAAATTAGTTTCTAAGAATATCCCATACAGAGTGAACAAA | core | 44 |
| TAATTTACAGAGGCATACGCTCAAGTTTAGTATCATATGCCATAGCGA | core | 48 |
| TCGGCTGTGTTTTTAACAACGCCAAATAAGGCGAACGCGAATGCAAAT | core | 48 |
| AACAAAGCGACGGTCAAGTACAACGCGATTATACCAAGCGTTTATCAG | core | 48 |
| TCATCGAGTAAAGCCATTTCGAGCTTTAATGGGTTAATTTGGTTGGGT | core | 48 |
| CCAAGAACGAGAATCGCCATAGAGAACACCGGAATCATAAGAGCAAAT | core | 48 |
| CGGATATTTTCAACTATATTACAGTTTTGCAA | core | 32 |
| CCCAATAGGCAGCCTTATCCAAATTAACCCACTTAAGAAAGGAAACCG | core | 48 |
| CAACTTTGTTTTTCATGAGGAAACGGGAGTTAAAGGCCGCGCTAAACA | core | 48 |
| AGACCAGGCAACGGCTACGAAGGCGACAACAAGATACCGA | core | 40 |
| TTACTTAGATGCCACTACAGAGGCACCCTCAGCAGCGAAAGTTAGTAA | core | 48 |
| GCACCCAGCTACAATTTCAGCTAA | core | 24 |
| GTATCATAATTTCACAGTGAATAACAACATATGCAGACTCGTTTA | core | 45 |
| ACGAGCGTAGCCCTTTAAGAATTATTACGCAACGCAAAACCAGCG | core | 45 |
| TCATCTTTATACGTACCGGAACCAGATGAACAAGAAC | core | 37 |
| GAATACACTAAAACACAACAGCTTCCATCGCCGGAACAAC | core | 40 |
| ATTTTTTGGGATATAGAAGGCTTAATCAATAATGCAGAACACAATAAA | core | 48 |
| CCATTAAATATTCGGTCTTGCTTTCCTTTAATTGTATCGGACCGCCAC | core | 48 |
| ATAAAAACTCATCGTAGTTTTAGCTCCCATCCAAGTCCTG | core | 40 |
| CTAAAGACAAAGAGGAGAGGCGCATGCTCATTACTTTAATTGGCTCAT | core | 48 |
| GTCAGAGGATAAAAGAAGTATGTTGGAGGGAAAGCCAGCAGCCGGAAA | core | 48 |
| GCGCTGCAGTCAAAAATGAAAATACAAGCAAATCAGAACCTTATCATT | core | 48 |
| CCCAATAAAAACAGCCAGCCTAATGAAGCCTTAAATCAAGCAATAGAT | core | 48 |
| CGCTGAGGACACAACAGTTTCAGCCGTCACCACCTCAGAATACCGCCA | core | 48 |
| CTTACCGACTTTCCAGATATTATTCGCGAGGCGGAATCATTACCGCAC | core | 48 |
| GCAATAATGACTCCTTGAGTTAAGGAACACCCAGAATAAC | core | 40 |

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|---|---|---|
| AGGAAACGAATTAGGGTAAATATTTGCCTT | core | 30 |
| AAAATCTCCAAAAAAACCACCACCCCCATGTACGGATAAG | core | 40 |
| TAAAGGAAAATAGGAACTCATTTTAATAGGTGTATCACCGTCTCTGAA | core | 48 |
| GGCAACATGTAATTGACAGAGAGAAAGAAACGAATCTTAC | core | 40 |
| ACTTTTACGCCTGTAGCATTCCACAGAGAAGGATTAGCGGTGCCTTGA | core | 48 |
| GGGATTTTTTTTGCGGAACCGATACGGGTAAAGACCCCCAGGAGATTT | core | 48 |
| ATGAATTTTTAGCGTAACGATCTACATGAAAGTGCCGTCG | core | 40 |
| CCAAAGACCCCCTTATTAGCGTCAACCACCCTGGCCTTGA | core | 40 |
| CGATTGAGAGCAAACGTACCAGAAAGTAAGCAGATAGCCGTTATCCTG | core | 48 |
| GTACAAACCATGATTAGCGGGGTTTAATAAGTTTAAAGCCAGAATGGA | core | 48 |
| CTGAGTTTGGAGTGAGAAAAGGAGCGAGGTGAATTTCTTA | core | 40 |
| CTCAGAGAGGCTCCAATAGAAACACGCATGATCGTCTTTGAGGA | core | 44 |
| CGTCACCGACGATTCAGAGCCGCCACCAGGAACCGCCTGCCATCT | core | 45 |
| TTAGCAAGAAATCACCAGTAGCACAACAAAGTTAGAAAATCTTAATAT | core | 48 |
| CCCTCAGAAATCCTCATTTAACGGGGTCACCCTCAGAGCCGACTGTAG | core | 48 |
| TAGCGACACATCGATAGACTTGAGCCATTTGG | core | 32 |
| GAATCAAGTTGACGGATATGGTTTGACACCACGGAATAAGAATTAACT | core | 48 |
| TTTCATAAAAAATTCAAATTATTCATGATTAAAACGGAATATAGCTAT | core | 48 |
| TAGCGTTTCCCTCAGAGCCGCCACCCTCAGAACCGCCAGCATTTTCG | core | 47 |
| GTCATAGCAAAAGGGCGACATAACATAAAGGT | core | 32 |
| GTAACAGTGCCCGTATTGTACTGGTTGCTCAGAGGTTTAGCCGCCACC | core | 48 |
| TTGATGATACAGGAGAAACAGTTGGCTGAGACTCCTCAAGACAGCC | core | 46 |
| TATTCACAAACAAATACATTACCACGCGTTTTTACTCAAC | core | 40 |
| AAGCGCAGTACTCAGGTACCAGGCCGTAACACTCATAGTCTGTAT | core | 45 |

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