

## Supplementary Information S6

### Structure diagrams

This supplementary note contains the diagrams for the following structures reported the paper:

- Rectangles: R0, R1, R2, R3, R4, R5, R6, and R7
- Tubes: T1, T2, T3, T4, T5
- Core set and edge protectors for the molecular canvas

In order to see the segment names properly, one should print the file with a minimal size of 11×17 inches, 34×11 inches and 11×17 inches respectively for pages 2, 3 and 4.

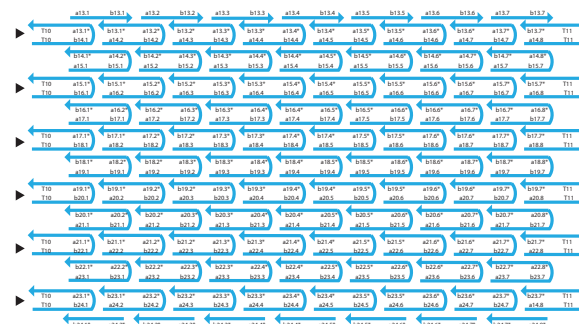
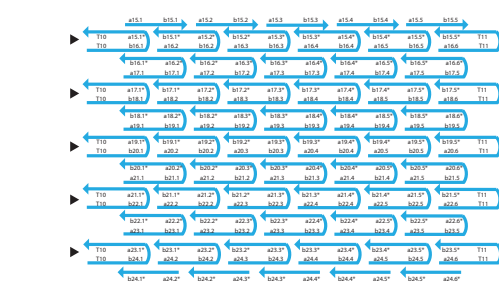
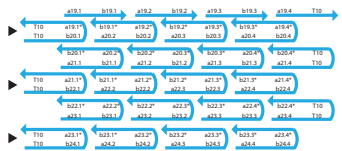
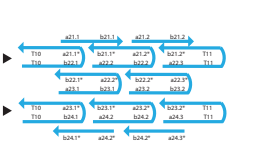
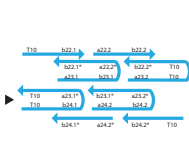
R0

R1

R2

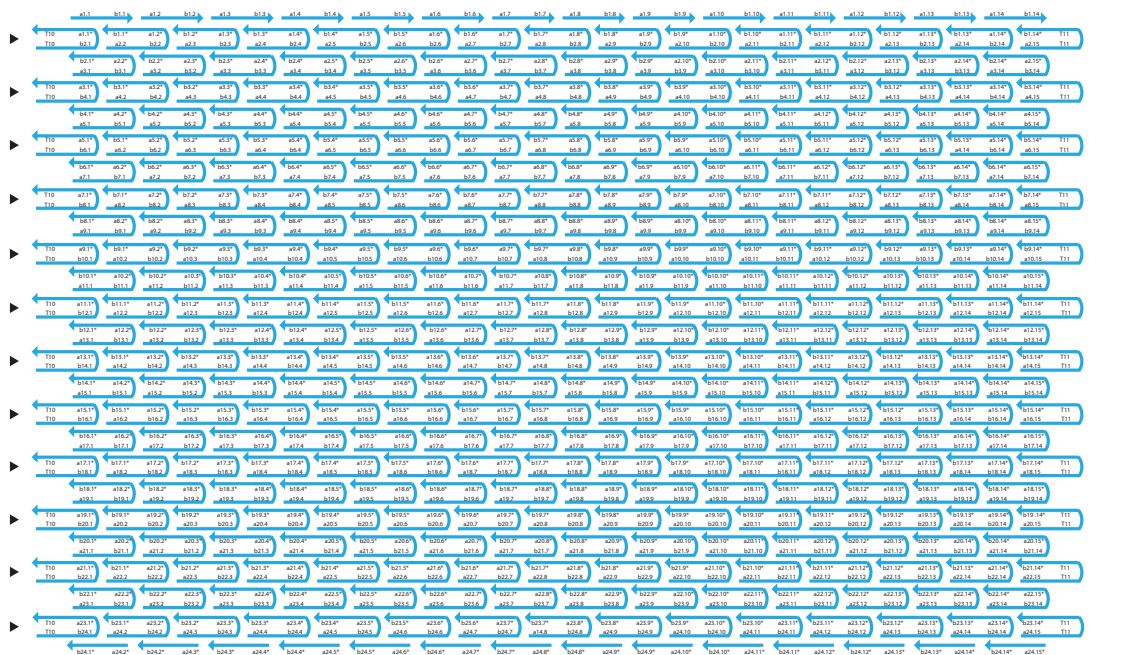
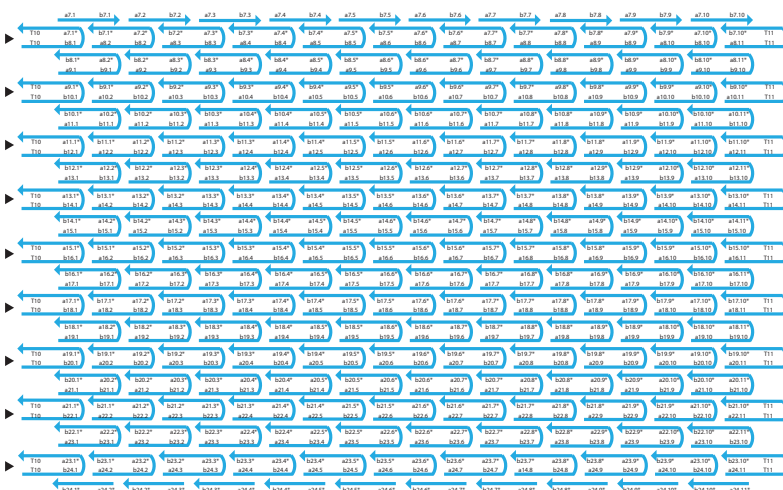
R3

R4

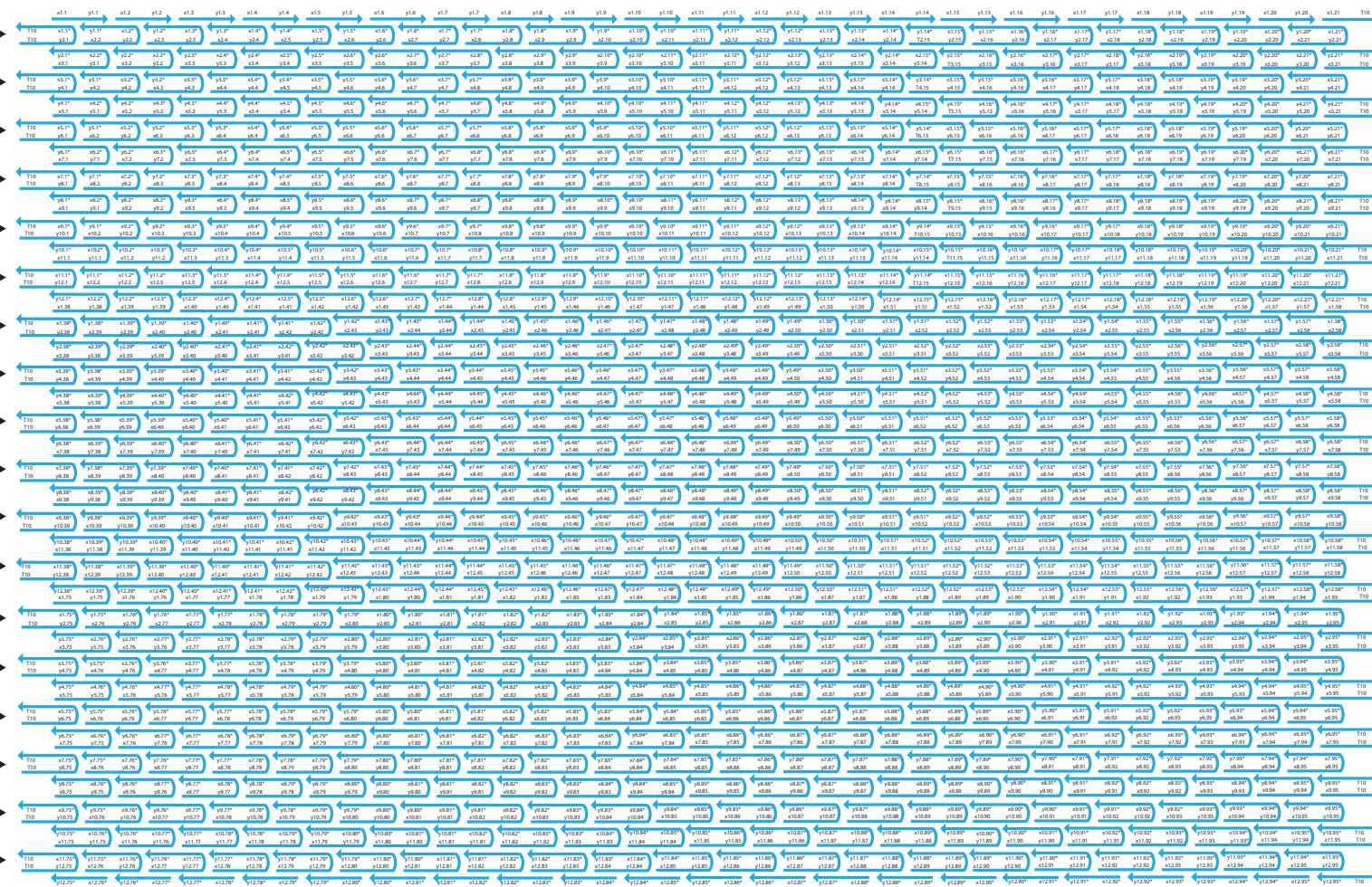


R5

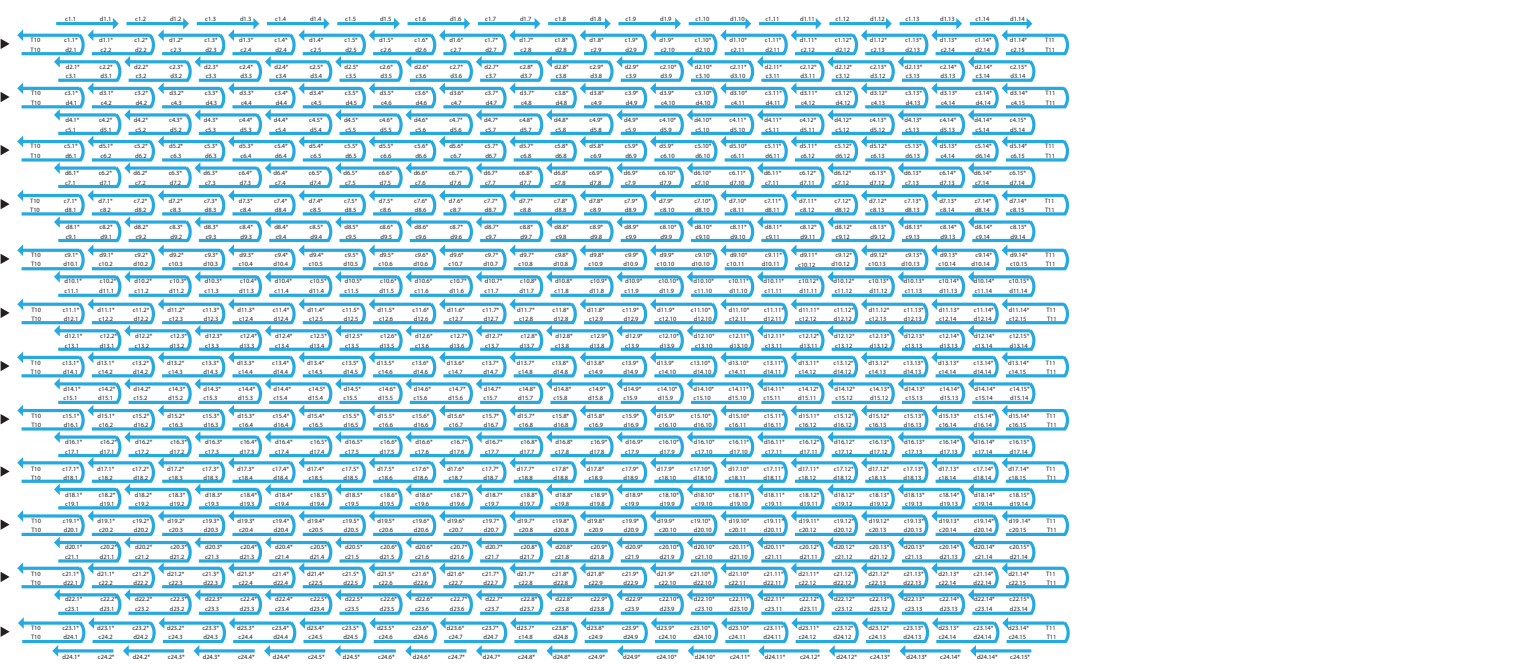
R6



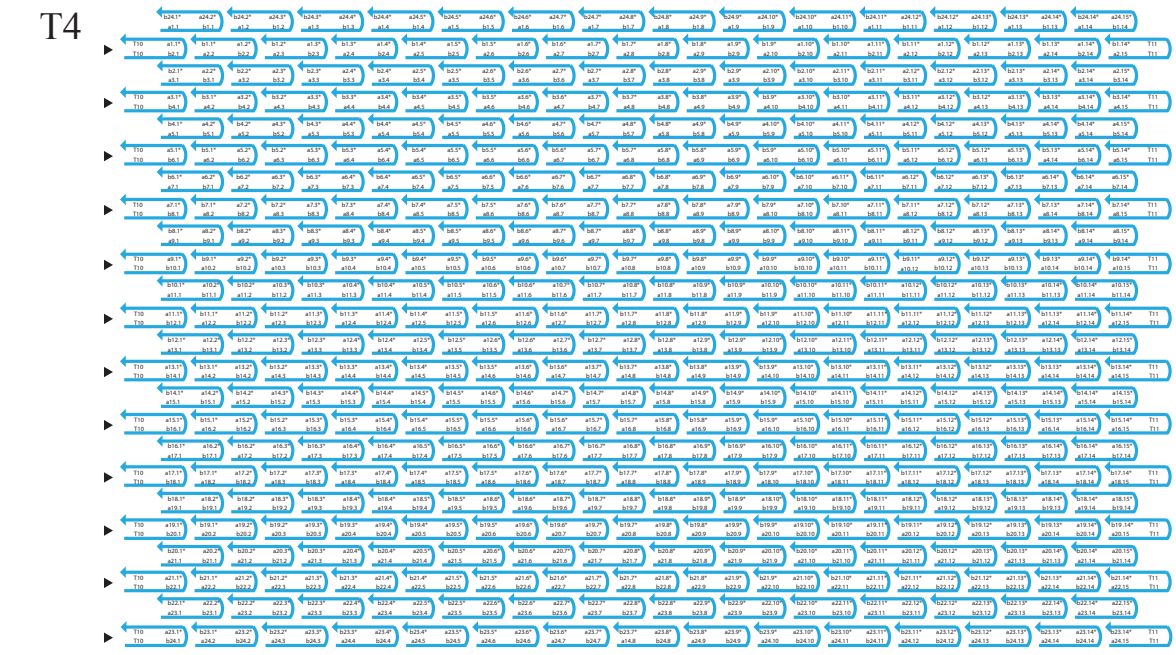
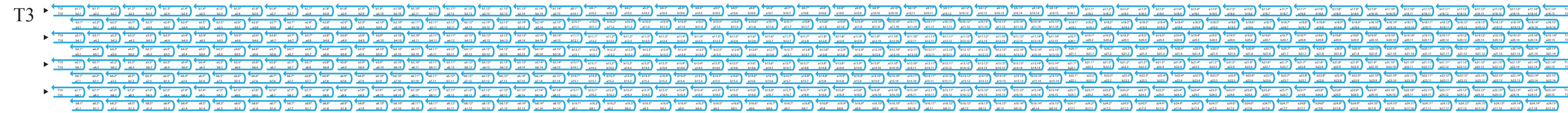
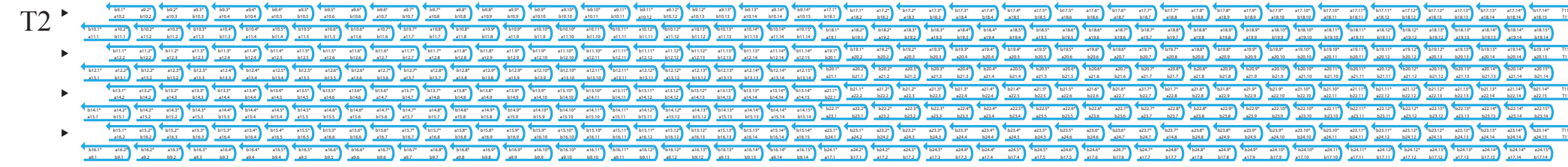
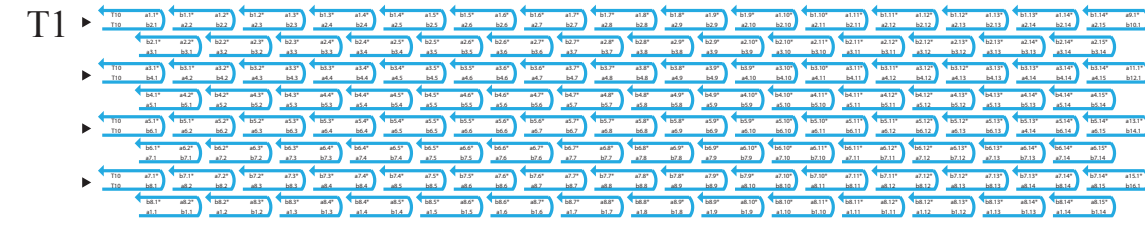
R7



R6R



**Schematics of rectangles across scale.** R0: 3H×3T rectangle, R1: 4H×4T rectangle, R2: 6H×7T rectangle, R3: 10H×10T rectangle, R4: 12H×14T rectangle, R5: 18H×20T rectangle, R6: 24H×28T rectangle, R7: 36H×41T rectangle, R6R: 24H×28T rectangle (random sequence set). Structure R7 was converted from structure T5 and a majority of strands are shared. Triangles on the left hand side of the individual schematics indicate rows with 10nt-11nt-11nt-10nt domain arrangement; the others have 11nt-10nt-10nt-11nt instead. Detailed sequence information can be found in Supplementary Information S7 and S8.



**Schematics of tubes across scale** T1: 8Hx28T tube, T2: 8Hx55T tube, T3: 8Hx84T tube, T4: 24Hx28T tube, T5: 12Hx177T tube. T4 and T3 are converted from R6 and a majority of strands are shared. T1 is left 1/3 of T3 and T2 is right 2/3 of T3. Triangles on the left hand side of the individual schematics indicate rows with 10nt-11nt-11nt-10nt domain arrangement; the others have 11nt-10nt-10nt-11nt instead. Detailed sequence information can be found in Supplementary Information S7 and S8.

### core set



### set 1\*



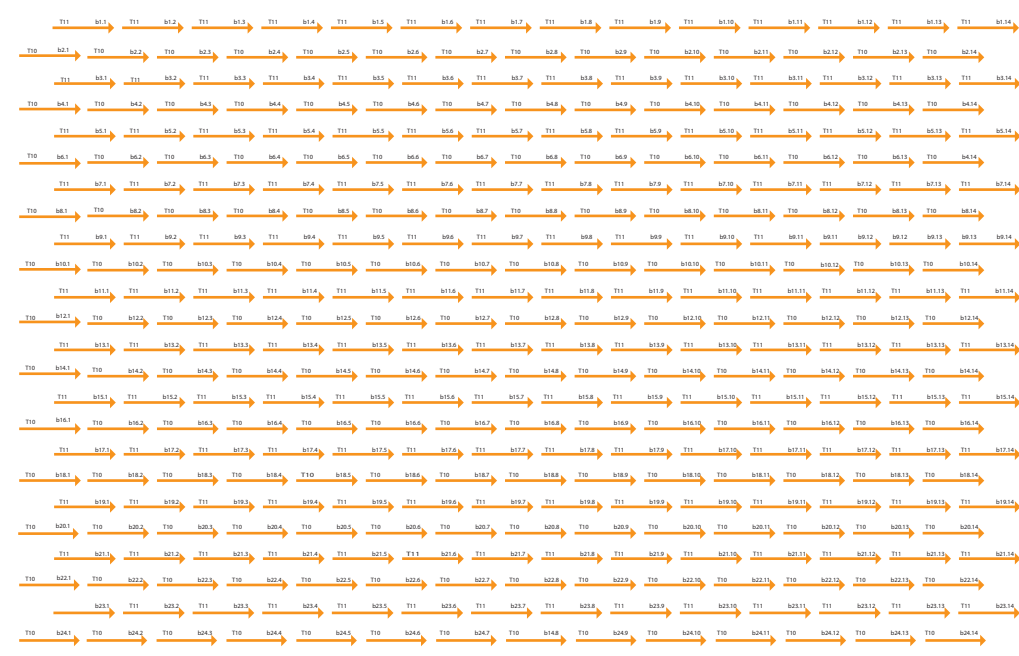
### set 2\*



### set 3\*



### set 4\*



**Schematics of core set and edge protector sets for “molecular canvas”.** Domain names of individual strands are provided and the sequence information can be found in Supplementary Information S7 and S8. For each protector strand in set 1\*, the sequence synthesized differs from the correct design by one nucleotide (the 11th nt) by mistake (see Supplementary Information S7 and S8 for details). However, this mistake did not lead to the failure for the formation of the designed structures.