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Supplementary Materials for

A universal way to enrich the nanoparticle lattices with polychrome DNA origami "homologs"

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I. DNA Sequences

a. Staples of regular octahedron

R_oct_staple_1	TCAAAGCGAACCAGACCGTTTTATATAGTC
R_oct_staple_2	GCTTTGAGGACTAAAGAGCAACGGGGAGTT
R_oct_staple_3	GTAAATCGTCGCTATTGAATAACTCAAGAA
R_oct_staple_4	AAGCCTTAAATCAAGACTTGCGGAGCAAAT
R_oct_staple_5	ATTTTAAGAACTGGCTTGAATTATCAGTGA
R_oct_staple_6	GTTAAAATTCGCATTATAAACGTAAACTAG
R_oct_staple_7	AGCACCATTACCATTACAGCAAATGACGGA
R_oct_staple_8	ATTGCGTAGATTTTCAAAACAGATTGTTTG
R_oct_staple_9	TAACCTGTTTAGCTATTTTCGCATTCATTC
R_oct_staple_10	GTCAGAGGGTAATTGAGAACACCAAAATAG
R_oct_staple_11	CTCCAGCCAGCTTTCCCCTCAGGACGTTGG
R_oct_staple_12	GTCCACTATTAAAGAACCAGTTTTGGTTCC
R_oct_staple_13	TAAAGGTGGCAACATAGTAGAAAATAATAA
R_oct_staple_14	GATAAGTCCTGAACAACTGTTTAAAGAGAA
R_oct_staple_15	GGTAATAGTAAAATGTAAGTTTTACACTAT
R_oct_staple_16	TCAGAACCGCCACCCTCTCAGAGTATTAGC
R_oct_staple_17	AAGGGAACCGAACTGAGCAGACGGTATCAT
R_oct_staple_18	GTAAAGATTCAAAAGGCCTGAGTTGACCCT
R_oct_staple_19	AGGCGTTAAATAAGAAGACCGTGTCGCAAG
R_oct_staple_20	CAGGTCGACTCTAGAGCAAGCTTCAAGGCG
R_oct_staple_21	CAGAGCCACCACCCTCTCAGAACTCGAGAG
R_oct_staple_22	TTCACGTTGAAAATCTTGCGAATGGGATTT
R_oct_staple_23	AAGTTTTAACGGGGTCGGAGTGTAGAATGG
R_oct_staple_24	TTGCGTATTGGGCGCCCGCGGGGTGCGCTC
R_oct_staple_25	GTCACCAGAGCCATGGTGAATTATCACCAATCAGAAAAGCCT
R_oct_staple_26	GGACAGAGTTACTTTGTCGAAATCCGCGTGTATCACCGTACG
R_oct_staple_27	CAACATGATTTACGAGCATGGAATAAGTAAGACGACAATAAA
R_oct_staple_28	AACCAGACGCTACGTTAATAAAACGAACATACCACATTCAGG
R_oct_staple_29	TGACCTACTAGAAAAAGCCCCAGGCAAAGCAATTTCATCTTC
R_oct_staple_30	TGCCGGAAGGGGACTCGTAACCGTGCATTATATTTTAGTTCT
R_oct_staple_31	AGAACCCCAAATCACCATCTGCGGAATCGAATAAAAATTTTT
R_oct_staple_32	GCTCCATTGTGTACCGTAACACTGAGTTAGTTAGCGTAACCT
R_oct_staple_33	AGTACCGAATAGGAACCCAAACGGTGTAACCTCAGGAGGTTT
R_oct_staple_34	CAGTTTGAATGTTTAGTATCATATGCGTAGAATCGCCATAGC
R_oct_staple_35	AAGATTGTTTTTAACCAAGAAACCATCGACCCAAAAACAGG
R_oct_staple_36	TCAGAGCGCCACCACATAATCAAAATCAGAACGAGTAGTATG
R_oct_staple_37	GATGGTTGGGAAGAAAAATCCACCAGAAATAATTGGGCTTGA
R_oct_staple_38	CTCCTTAACGTAGAAACCAATCAATAATTCATCGAGAACAGA
R_oct_staple_39	AGACACCTTACGCAGAACTGGCATGATTTTCTGTCCAGACAA
R_oct_staple_40	GCCAGCTAGGCGATAGCTTAGATTAAGACCTTTTTAACCTGT
R_oct_staple_41	CCGACTTATTAGGAACGCCATCAAAAATGAGTAACAACCCCA

R_oct_staple_42	GTCCAATAGCGAGAACCAGACGACGATATTCAACGCAAGGGA
R_oct_staple_43	CCAAAATACAATATGATATTCAACCGTTAGGCTATCAGGTAA
R_oct_staple_44	AACAGTACTTGAAAACATATGAGACGGGTCTTTTTAATGGA
R_oct_staple_45	TTTCACCGCATTAAAGTCGGGAAACCTGATTTGAATTACCCA
R_oct_staple_46	GAGAATAGAGCCTTACCGTCTATCAAATGGAGCGGAATTAGA
R_oct_staple_47	ATAATTAAATTTAAAAAACTTTTTCAAACTTTTAACAACGCC
R_oct_staple_48	GCACCCAGCGTTTTTTATCCGGTATTCTAGGCGAATTATTCA
R_oct_staple_49	GGAAGCGCCCACAAACAGTTAATGCCCCGACTCCTCAAGATA
R_oct_staple_50	GTTTGCCTATTCACAGGCAGGTCAGACGCCACCACACCACCC
R_oct_staple_51	CGCGAGCTTAGTTTTTCCCAATTCTGCGCAAGTGTAAAGCCT
R_oct_staple_52	AGAAGCAACCAAGCCAAAAGAATACACTAATGCCAAAACTCC
R_oct_staple_53	ATTAAGTATAAAGCGGCAAGGCAAAGAAACTAATAGGGTACC
R_oct_staple_54	CAGTGCCTACATGGGAATTTACCGTTCCACAAGTAAGCAGAT
R_oct_staple_55	ATAAGGCGCCAAAAGTTGAGATTTAGGATAACGGACCAGTCA
R_oct_staple_56	TGCTAAACAGATGAAGAAACCACCAGAATTTAAAAAAAGGCT
R_oct_staple_57	CAGCCTTGGTTTTGTATTAAGAGGCTGACTGCCTATATCAGA
R_oct_staple_58	CGGAATAATTCAACCCAGCGCCAAAGACTTATTTTAACGCAA
R_oct_staple_59	CGCCTGAATTACCCTAATCTTGACAAGACAGACCATGAAAGA
R_oct_staple_60	ACGCGAGGCTACAACAGTACCTTTTACAAATCGCGCAGAGAA
R_oct_staple_61	CAGCGAACATTAAAAGAGAGTACCTTTACTGAATATAATGAA
R_oct_staple_62	GGACGTTTAATTTCGACGAGAAACACCACCACTAATGCAGAT
R_oct_staple_63	AAAGCGCCAAAGTTTATCTTACCGAAGCCCAATAATGAGTAA
R_oct_staple_64	GAGCTCGTTGTAAACGCCAGGGTTTTCCAAAGCAATAAAGCC
R_oct_staple_65	AATTATTGTTTTCATGCCTTTAGCGTCAGATAGCACGGAAAC
R_oct_staple_66	AAGTTTCAGACAGCCGGGATCGTCACCCTTCTGTAGCTCAAC
R_oct_staple_67	ACAAAGAAATTTAGGTAGGGCTTAATTGTATACAACGGAATC
R_oct_staple_68	AACAAAAATAACTAGGTCTGAGAGACTACGCTGAGTTTCCCT
R_oct_staple_69	CATAACCTAAATCAACAGTTCAGAAAACGTCATAAGGATAGC
R_oct_staple_70	CACGACGAATTCGTGTGGCATCAATTCTTTAGCAAAATTACG
R_oct_staple_71	CCTACCAACAGTAATTTTATCCTGAATCAAACAGCCATATGA
R_oct_staple_72	GATTATAAAGAAACGCCAGTTACAAAATTTACCAACGTCAGA
R_oct_staple_73	AGTAGATTGAAAAGAATCATGGTCATAGCCGGAAGCATAAGT
R_oct_staple_74	TAGAATCCATAAATCATTTAACAATTTCTCCCGGCTTAGGTT
R_oct_staple_75	AAAGGCCAAATATGTTAGAGCTTAATTGATTGCTCCATGAGG
R_oct_staple_76	CCAAAAGGAAAGGACAACAGTTTCAGCGAATCATCATATTCC
R_oct_staple_77	GAAATCGATAACCGGATACCGATAGTTGTATCAGCTCCAACG
R_oct_staple_78	TGAATATTATCAAAATAATGGAAGGGTTAATATTTATCCCAA
R_oct_staple_79	GAGGAAGCAGGATTCGGGTAAAATACGTAAAACACCCCCCAG
R_oct_staple_80	GGTTGATTTTCCAGCAGACAGCCCTCATTCGTCACGGGATAG
R_oct_staple_81	CAAGCCCCCACCCTTAGCCCGGAATAGGACGATCTAAAGTTT
R_oct_staple_82	TGTAGATATTACGCGGCGATCGGTGCGGGCGCCATCTTCTGG
R_oct_staple_83	CATCCTATTCAGCTAAAAGGTAAAGTAAAAAGCAAGCCGTTT
R_oct_staple_84	CAGCTCATATAAGCGTACCCCGGTTGATGTGTCGGATTCTCC
R_oct_staple_85	CATGTCACAAACGGCATTAAATGTGAGCAATTCGCGTTAAAT

R_oct_staple_86 AGCGTCACGTATAAGAATTGAGTTAAGCCCTTTTTAAGAAAG
R_oct_staple_87 TATAAAGCATCGTAACCAAGTACCGCACCGGCTGTAATATCC
R_oct_staple_88 ATAGCCCGCGAAAATAATTGTATCGGTTCGCCGACAATGAGT
R_oct_staple_89 AGACAGTTCATATAGGAGAAGCCTTTATAACATTGCCTGAGA
R_oct_staple_90 AACAGGTCCCGAAATTGCATCAAAAAGATCTTTGATCATCAG
R_oct_staple_91 ACTGCCCTTGCCCCGTTGCAGCAAGCGGCAACAGCTTTTTCT
R_oct_staple_92 TCAAAGGGAGATAGCCCTTATAAATCAAGACAACAACCATCG
R_oct_staple_93 GTAATACGCAAACATGAGAGATCTACAACTAGCTGAGGCCGG
R_oct_staple_94 GAGATAACATTAGAAGAATAACATAAAAAGGAAGGATTAGGA
R_oct_staple_95 CAGATATTACCTGAATACCAAGTTACAATCGGGAGCTATTTT
R_oct_staple_96 CATATAACTAATGAACACAACATACGAGCTGTTTCTTTGGGG
R_oct_staple_97
ATGTTTTGCTTTTGATCGGAACGAGGGTACTTTTTCTTTTGATAAGAGGTCATT
R_oct_staple_98
GGGGTGCCAGTTGAGACCATTAGATACAATTTTCACTGTGTGAAATTGTTATCC
R_oct_staple_99
CTTCGCTGGGCGCAGACGACAGTATCGGGGCACCGTCGCCATTCAGGCTGCGCA
R_oct_staple_100
TCAGAGCTGGGTAAACGACGGCCAGTGCGATCCCCGTAGTAGCATTAACATCCA
R_oct_staple_101
TTAGCGGTACAGAGCGGGAGAATTAACTGCGCTAATTTCGGAACCTATTATTCT
R_oct_staple_102
GATATTCTAAATTGAGCCGGAACGAGGCCCAACTTGGCGCATAGGCTGGCTGAC
R_oct_staple_103
TGTCGTCATAAGTACAGAACCGCCACCCATTTTCACAGTACAAACTACAACGCC
R_oct_staple_104
CGATTATAAGCGGAGACTTCAAATATCGCGGAAGCCTACGAAGGCACCAACCTA
R_oct_staple_105
AACATGTACGCGAGTGGTTTGAAATACCTAAACACATTCTTACCAGTATAAAGC
R_oct_staple_106
GTCTGGATTTTGCGTTTTAAATGCAATGGTGAGAAATAAATTAATGCCGGAGAG
R_oct_staple_107
GCCTTGAATCTTTTCCGGAACCGCCTCCCAGAGCCCAGAGCCGCCGCCAGCATT
R_oct_staple_108
CGCTGGTGCTTTCCTGAATCGGCCAACGAGGGTGGTGATTGCCCTTCACCGCCT
R_oct_staple_109
TGATTATCAACTTTACAACTAAAGGAATCCAAAAAGTTTGAGTAACATTATCAT
R_oct_staple_110
ACATAACTTGCCCTAACTTTAATCATTGCATTATAACAACATTATTACAGGTAG
R_oct_staple_111
GTAGCGCCATTAAATTGGGAATTAGAGCGCAAGGCGCACCGTAATCAGTAGCGA
R_oct_staple_112
TTATTTTTACCGACAATGCAGAACGCGCGAAAAATCTTTCCTTATCATTCCAAG
R_oct_staple_113

TTTCAATAGAAGGCAGCGAACCTCCCGATTAGTTGAAACAATAACGGATTCGCC
R_oct_staple_114
GGGCGACCCCAAAAGTATGTTAGCAAACTAAAAGAGTCACAATCAATAGAAAAT
R_oct_staple_115
AGCCGAAAGTCTCTCTTTTGATGATACAAGTGCCTTAAGAGCAAGAAACAATGA
R_oct_staple_116
GTGGGAAATCATATAAATATTTAAATTGAATTTTTGTCTGGCCTTCCTGTAGCC
R_oct_staple_117
CCCACGCGCAAAATGGTTGAGTGTTGTTCGTGGACTTGCTTTCGAGGTGAATTT
R_oct_staple_118
ATGACCACTCGTTTGGCTTTTGCAAAAGTTAGACTATATTCATTGAATCCCCCT
R_oct_staple_119
TCCAAATCTTCTGAATTATTTGCACGTAGGTTTAACGCTAACGAGCGTCTTTCC
R_oct_staple_120
GGGTTATTTAATTACAATATATGTGAGTAATTAATAAGAGTCAATAGTGAATTT

b. Staples of elongated octahedron

E_oct_staple_1	CTCGTTTACCAGACGACAACACTAAAGATT
E_oct_staple_2	AAAAGGGACATTCTGGTCACACGTTGCAAC
E_oct_staple_3	GCCACTACGAAGGCACGGGTAAAGCGAAAG
E_oct_staple_4	TTGGGGCGCGAGCTGATTAGCTATTCCATA
E_oct_staple_5	TTCAAATATATTTAGAACGCGACCTCCGG
E_oct_staple_6	CAATATAATCCTGATTGATGATGATTTTAA
E_oct_staple_7	CAGACTGTAGCGCGTTAGTTTGCCCAGTAG
E_oct_staple_8	GTCCACTATTAAAGAACCAGTTTTGGTTCC
E_oct_staple_9	GAATAATAATTTTTTCCAACTAATAACGAT
E_oct_staple_10	GGCCGATTAAAGGGATCGGGAGCCCGCCGC
E_oct_staple_11	GCCTCTTCGCTATTACAGGGCGAGCACCGC
E_oct_staple_12	AAGCCAGAATGGAAAGAAATAAACAGAGCC
E_oct_staple_13	CCAGACGACGACAATAGGTAAAGCTCAACA
E_oct_staple_14	TACCCAAATCAACGTAAGAACCGACGGTCA
E_oct_staple_15	TTGCGCTCACTGCCCGACTCACACATGGTC
E_oct_staple_16	AATTACATTTAACAATTCAAGAAATTGCTT
E_oct_staple_17	GCCATCAAAAATAATTTTTAACCTAATCAG
E_oct_staple_18	AGTCAAATCACCATCAGAGAAAGTTTCAAC
E_oct_staple_19	AACAAAGTCAGAGGGTTTAACTGTTATCCC
E_oct_staple_20	TTATTTTGTCACAATCACACCACACGCAGT
E_oct_staple_21	ATCTGGTCAGTTGGCACAAACCCAGTATTA
E_oct_staple_22	TAAGTATAGCCCGGAAGTCGAGAAAACATG
E_oct_staple_23	AGCGAACCAGACCGGATTAATTCGTCAGAA
E_oct_staple_24	GACTTGCGGGAGGTTTTTTTAGCTTACCGC
E_oct_staple_25	ACAGCATGCTCCATAGATTTGTATCATCCCCAGCGAAACGAA
E_oct_staple_26	GAAATCGGCCCCCTACGGGGTCAGTGCCCTTTTGATCCAACG

E_oct_staple_27	AACGGGTCCTGAACAAGAAAAATAATATCTTATCATTCCAAG
E_oct_staple_28	AAAAGCCCTCAGGACGTTGGTGTAGATGGGGAACAGGCCTTC
E_oct_staple_29	ATTAAATCAGCTTTCATCAACATTAAATTTGTTAAAATTCGC
E_oct_staple_30	TACATTTAATAGTACATCCAATAAATCAAAGCTAACCAAAAA
E_oct_staple_31	GCCCAATTTTGCCATAACGAGCGTCTTTGCACCCATTAAATC
E_oct_staple_32	ATAGCGAAATTACGTAGGAATACCACATCAGTACAGTACCGT
E_oct_staple_33	GTTGGGATGAAAGAGGACAGATGAACGGAGTAGATCATTAGA
E_oct_staple_34	CTTTTTCAAAGAATACTCATCTTTGACCGCCTGATGAAATCC
E_oct_staple_35	AAGCCTGCGTGCCAGCTGCATTAATGAAAAGCATAAAGTGTA
E_oct_staple_36	TCAGTGATCATCAAGAACTGACCAACTTAGAAAAATCTACGT
E_oct_staple_37	TAACAGTACCCTGTAGCCTCAGAGCATATACAGGCGCATCAA
E_oct_staple_38	CTAATGCGAATATAAGAATCGCCATATTTACCGCACTCATCG
E_oct_staple_39	ATAGCTGTTGCCCCCGGGCAACAGCTGAATTGGGCGTCGGGA
E_oct_staple_40	GCCGCCATGTAGCGGGAAGGGAAGAAAGAGAGCTTTCTGAAT
E_oct_staple_41	GGAATTAAATGGAACTACCATATCAAAACGTCAGAGTAACAG
E_oct_staple_42	TCTGAATTCATCATTTATCATTTTGCGGTAATACATGAATGG
E_oct_staple_43	AGAGGCAATGAGGAAGGGTAGCAACGGCAGGTGTCAAATTCC
E_oct_staple_44	CGTTCTATAGGTAATTTTAGAACCCTCAAGGATGAACGGTAA
E_oct_staple_45	TTCTACTCGCAAATCAATTCTGCGAACGTGTTGTAATCGGTA
E_oct_staple_46	AGGAAAACCAGCAGACTGATAGCCCTAAACAATATAGATAGA
E_oct_staple_47	GAGCCGGTCGTAAGAAAGCGGCCAACGCTGATCGTGCTCAAG
E_oct_staple_48	AAACAGGAGATAACCCACAAGAATTGAGAGAGAATAACATAA
E_oct_staple_49	GTGCATCACAACCCGTCGGATTCTCCGTGGCGCATCGTAACC
E_oct_staple_50	CTAAAGTAGGCCGCACAATGACAACAACTGAATTTAAATCTC
E_oct_staple_51	AATCCAACAAAAGAAAGTAAGCAGATAGAATAGCACGCTAAT
E_oct_staple_52	TAACGTGAGAATCCGTGAGTGAATAACCACATAGCGATAGCT
E_oct_staple_53	GGATTATTGACCTGAATACGTGGCACAGAACATCGTACCGAA
E_oct_staple_54	GTACGCCCTTTCCTTACAGGGCGCGTACAGAGTCAATAGTGA
E_oct_staple_55	ATCATTTCGAAAGGAGCGGGAATAGCCCGCGAAAAAGCGTCA
E_oct_staple_56	TTAATTGATATAATGCTGTGGAAGCCCGATTAGAGAAGGCGA
E_oct_staple_57	ATCATAAACGAACTATGCGATTTTAAGAATGGTTTTGCTCAT
E_oct_staple_58	AAGCATCGAGGAAGATATCTTTAGGAGCGAAGTATAAACAAT
E_oct_staple_59	AAAGTATTCAAAAAGTCATAAATATTCAAAATGTTATCACCG
E_oct_staple_60	GCAAGGAACTAGCAGAGAGTCTGGAGCATTTTTGAATTCAAC
E_oct_staple_61	ATCAGAGGAAGCGCACGATTTTTTGTTTACGCAATAATAACG
E_oct_staple_62	CACCATTACCACCCGCCTCCCTCAGAGCTAATCAAGCATTTT
E_oct_staple_63	TTTGCTAAAAGCGTTTATTTTGTATCGGATACCATATGAAAT
E_oct_staple_64	TAATGTGGCTGATAAATTATGCTATTTTCCGCAATGCCTGAG
E_oct_staple_65	TAGATTAAATATATTGAGAAGTGTTTTTTGGACGAGCACGTA
E_oct_staple_66	CGAGGAAAACGTCAAAAATGAAAATAGCTACAGAGCTAAAGA
E_oct_staple_67	ATGTTAGTTATACACCGGAATCATAATTGACCGTGAATTCAT
E_oct_staple_68	CAAAAGGGAGGCTTGCCACCCTCAGAACAACCCATAACTACA
E_oct_staple_69	AAGATTAGTATTCTAAATCAGATATAGATATATTTTAAATAG
E_oct_staple_70	AACCGATTTTATCAGCTTGCTTTCGAGGCATCGCCCACGCAT

E_oct_staple_71	CAAAAAACGGAGTGTCTTTCCAGACGTTCTGAGGCTTGCAGG
E_oct_staple_72	TCGGTCGAGTAAATGAATTTTCTGTATGGTCACCACGATAGC
E_oct_staple_73	CAGACCAAAATTAAGTAGCCACCAGAACGGTTGACTTAGTAC
E_oct_staple_74	CAGAGGCAAAGAACGGGTTTAGATAAGTATACCAGAAACCTA
E_oct_staple_75	GTTTCAGAAGGCTCCAAAAGGAGCCTTTAACAACTTTCAACA
E_oct_staple_76	AACCTGTGGGTGCCTGTGAAATTGTTATCAGCAAGCGGTCCA
E_oct_staple_77	CAGAAGGAATAAGAGCAAGAAACAATGACCGAACAAAGTTAC
E_oct_staple_78	TTTACAGTTAAAACACACTAAGCCCAATAAGAGGAGCTTTAC
E_oct_staple_79	GTAGGGCGCAAGCCATCGGCTGTCTTTCCCCATCCTGTTCAG
E_oct_staple_80	AAGTTTGTACATCGATTTTCAGGTTTAATTATTTGTTATACT
E_oct_staple_81	ACTTGCCATAATCAACAGTACATAAATCAGATTTCTATTCAC
E_oct_staple_82	TAATATTGTCTAAAGTTATGAGCGAGTATGATGAAAGCAACC
E_oct_staple_83	ATGGTTTACATATAAGAAAATACATACAAACTGTTTAGTATC
E_oct_staple_84	CGGTCATTAATCAGGCAAGGCCGGAAACGGAACCGCTCAGAT
E_oct_staple_85	ACCCTTCTTACATTTGGAAATACCTACAATAAAAACCATTAC
E_oct_staple_86	CAGTTCAGAGAAGGATTAGTTTCGTCACTCAACTAATAACGC
E_oct_staple_87	GGTCAGGAAAGACTATCAAAAAGATTAACACCTGCAGGTCGA
E_oct_staple_88	TGAGCAAAATGGAAGTGAGGCCACCGAGTTAGTAACTATCGG
E_oct_staple_89	AGAGTTGCCGCTCACAATTCCACACAACTTTTGACCTGAAAT
E_oct_staple_90	AGCACCGAGCCCCCTTGCCATCTTTTCACGCCACCCCACCCT
E_oct_staple_91	CTTTTTTAAGAAGACAAAATCGCGCAGAACTCAAATAACATC
E_oct_staple_92	AGGAATTACCTTGCAGTGCCACGCTGAGACTTTACTAGACGT
E_oct_staple_93	CCAGTCAGAGTAGTAAATTGGGCTTGAGACTGGCTCATTATA
E_oct_staple_94	GCAAAGCGGATCCCACGACGGCCAGTGCGGGTAACTCCAACA
E_oct_staple_95	AACACTGCAGAACCTTGCAAAAGAAGTTTAGATACATGCAAA
E_oct_staple_96	CCACCCTAGGATTAGCGGGGTTTTGCTCGAGGTTTAGGGGGT
E_oct_staple_97	GCTGAGATATGGTTGCTTTAGTAGAAGAGGCGAATAATTACC
E_oct_staple_98	AGTTTGAAAGCAAATATTTAAATTGTAAAGCCAGCAAATCTA
E_oct_staple_99	GCTTAATAAAATCATAGAATCCTTGAAATTGCTTCAGGAACG
E_oct_staple_100	TCAAAGGGAGATAGCCCTTATAAATCAAAGGCCCGTATAAAC
E_oct_staple_101	TTCTGGTATGCAACAGCTTAATTGCTGACTCCTTTGGCGAAA
E_oct_staple_102	AATAAGAAGAACGCGCCTGTTTATCAACATTTTCGAGCCAGT
E_oct_staple_103	CTTAGGTGAGCCATGACGGAAATTATTCGCGACATCATCTTC
E_oct_staple_104	AAATACCACTAGAAAAAGCTGCTGATGCAATTTAACCAAAGA
E_oct_staple_105	TGAATACGGTAATACAATACTTCTTTGATAAAAGAGAATTAC
E_oct_staple_106	TGACCTAAAATCCATATAACTATATGTATATTATCACCGTCA
E_oct_staple_107	CTGTAGCTTTTGTTCAGGAAGATTGTATGGGGACGACGACAG
E_oct_staple_108	GGGGGATCAGGCTGACCAGGCAAAGCGCGAAGCTCAACATGT
E_oct_staple_109	ACACCGCCTCGTATCATTTGAGGATTTAACTAACAAGTTGAA
E_oct_staple_110	CTGGCCCGCGGGGAGAGGCGGTTTGCGTTTGCCCTTCACCGC
E_oct_staple_111	TACTCAGAGTACCACTGAGACTCCTCAAGAAAACGAGAATGA
E_oct_staple_112	AATAGTATTGAATCCCCCTCAAATGCTTTTGCCAGAGTACCG
E_oct_staple_113	CAAAAGGATTAAAGGTGAAAAGGTGGCAACCAGCGTGGTTTG
E_oct_staple_114	TTACCGTTTGGCCTCAGGAGGTTGAGGCAAGCGCTAGGGCGC

E_oct_staple_115 TACATGGTTGAGTAACAGTGTCAGACGATCCAGTAACCGTCT
E_oct_staple_116 TTAAGTTCAAGCTTGCATGTTCGCCATTGTGCTGCAGTACCT
E_oct_staple_117 TTATCCGGTATGCCGGAGAGGGTAGCTAAACAAGAGAATCGC
E_oct_staple_118 CTGACCTATAAGGCTTGCCCTGACGAGAGGCGCATAGGCTGG
E_oct_staple_119 AACCAAGTAACAACGCCAACATGTAATTAACAAAGAAGGAGC
E_oct_staple_120 CATCAGTTAGCATTGCAAGCCCAATAGGCGCCACCAACCAAA
E_oct_staple_121
AGTTAATGCAAAATGGTTGAGTGTTGTTCGTGGACTGATACAGGAGTGTACTGG
E_oct_staple_122
GAATACCATAAGAAATTAGACGGGAGAAAATTGAGATAGCTATCTTACCGAAGC
E_oct_staple_123
GCGACCTCGGAACGAGTTTCCATTAAACCAACCTAATTATACCAAGCGCGAAAC
E_oct_staple_124
TATCGGCCCAAAAAAAATCAGCTCATTTCGCGTCTAACGGCGGATTGACCGTAA
E_oct_staple_125
TCGTAAATAAAAATAGATTCAAAAGGGTATATGATGAGATCTACAAAGGCTATC
E_oct_staple_126
CATTATGTGATTCCGGTCAATAACCTGTAAAGGTGAAGGCAAAGAATTAGCAAA
E_oct_staple_127
AGAACAATTAATTGAAGTACCGACAAAAAACAACATAATTTACGAGCATGTAGA
E_oct_staple_128
ATATGCGCAAACGTAAAGAAACGCAAAGAATAGAATGATAAATAAGGCGTTAAA
E_oct_staple_129
CCGACTTTGGGTTAATCGCAAGACAAAGTTAATTTTCAACCGATTGAGGGAGGG
E_oct_staple_130
ACGCCTGTGAGATTAGGCATAGTAAGAGCGATAAACTCAGAGCCACCACCCTCA
E_oct_staple_131
CGCTGGTTTTCCTGTAATGAGTGAGCTACTTTCCAGCCAGGGTGGTTTTTCTTT
E_oct_staple_132
CGAACCAACGCTCAGGCAGATTCACCAGCCAACAGTTTTGAATGGCTATTAGTC
E_oct_staple_133
TAATAAAGGGAACCGAGTAATCTTGACAACAAAGCAATTTCAACTTTAATCATT
E_oct_staple_134
CCTTGCTCAAGTTATGATGAAACAAACATTCATTTGTCTGTCCATCACGCAAAT
E_oct_staple_135
GAGTTAATTTGTCGAGAATAGAAAGGAAACGTTGACTTAAACAGCTTGATACCG
E_oct_staple_136
TGGCAAGGCATTGATGATATTCACAAACCGCAGTCGACGGGGAAAGCCGGCGAA
E_oct_staple_137
TCGACAACTGCAACTGAACCTCAAATATAATCAACACTAATAGATTAGAGCCGT
E_oct_staple_138
AGCCTAAAGCAAGCAAGAACGCGAGGCGTGAAGCCGCTACAATTTTATCCTGAA
E_oct_staple_139
CAGAGCCACCATTATAGCGACAGAATCATTCATCGAATCACCGGAACCAGAGCC

E_oct_staple_140
TACCTTTAGTAACAATTCCTGATTATCAGTTTGGACACGTAAAACAGAAATAAA
E_oct_staple_141
CTCTAGAGGATTGCTCAAATATCGCGTTAGCAAACGCCAGGGTTTTCCCAGTCA
E_oct_staple_142
TTTAAATGCCGGAACGCAACTGTTGGGAGCCAGCTTGATAAGAGGTCATTTTTG
E_oct_staple_143
ATTTATCGCGCCGCCGTTAGAATCAGAGTTTAGACTGTAAATCGTCGCTATTAA
E_oct_staple_144
CCATAAATAAGAGGGGCGGATAAGTGCCTAGGTGTTAGACTGGATAGCGTCCAA

c. Staples of partially elongated octahedron

P_oct_staple_1 TGAGGACTAAAGACTTACGGCTAGTTAAAG
P_oct_staple_2 AGCGAACCAGACCGGATTAATTCGTCAGAA
P_oct_staple_3 GAATTAGAGCCAGCAAGACTTGACCGATTG
P_oct_staple_4 AACAAAGAAACCACCACATTATCATTTAGA
P_oct_staple_5 TCATTTTCAGGGATAGCTCAGAGGTGTATC
P_oct_staple_6 CTCATTATACCAGTCACGATTTTAGAACGA
P_oct_staple_7 AACCGCCTCCCTCAGACCAGAGCATCGGCA
P_oct_staple_8 TCCGGCTTAGGTTGGGGACTACCCTTAGAA
P_oct_staple_9 TATTAACACCGCCTGCGAGGTGATGGCTAT
P_oct_staple_10 CGTTGAAAATCTCCAAAATAATATTTTGCT
P_oct_staple_11 AGTCAAATCACCATCAGAGAAAGTTTCAAC
P_oct_staple_12 AATCATAAGGGAACCGCGAGGCGCGCGAAA
P_oct_staple_13 TTTGCAAAAGAAGTTTAAAATAGAGGAATT
P_oct_staple_14 TTGCGCTCACTGCCCGACTCACACATGGTC
P_oct_staple_15 GCCTCTTCGCTATTACAGGGCGAGCACCGC
P_oct_staple_16 GTCCACTATTAAAGAACCAGTTTTGGTTCC
P_oct_staple_17 ATAGCAGCCTTTACAGAACGTCACTGAATC
P_oct_staple_18 GGCGAATTATTCATTTACAAAATTTAACG
P_oct_staple_19 GCCATCAAAAATAATTTTTAACCTAATCAG
P_oct_staple_20 GTTAGCAAACGTAGAACCTTATTTACCAGA
P_oct_staple_21 ATTTAACAACGCCAACAATTGAGTCATAAT
P_oct_staple_22 GAGTAACAGTGCCCGTACGGGGTTGGAAAG
P_oct_staple_23 TTGGGGCGCGAGCTGATTAGCTATTCCATA
P_oct_staple_24 TTATTTTCATCGTAGGAACAAGCCAATAAT
P_oct_staple_25 AAAATCTATCATTGTTGAGATGGTTTAAAGTAGATTTAGTAG
P_oct_staple_26 AACCGCCTCATAATCCCCTTATTAGCGTCGAAGCCTTAAATC
P_oct_staple_27 AAACAACTCAAAAACCCTCAAATGCTTTCCAATACGCTCCAA
P_oct_staple_28 TTCCATTAGCATCGATCGTCACCCTCAGAGCGTCATACATCA
P_oct_staple_29 CCAATAGCCAAGTATATCATTCCAAGAATTGACGATTGGCCT
P_oct_staple_30 GCCGCTTACTCATCAAGAGGCAAAAGAAATACGTAAGGAAGT
P_oct_staple_31 CTGGCCCGCGGGGAGAGGCGGTTTGCGTTTGCCCTTCACCGC

P_oct_staple_32	TAGTCTTCCATCCTGTTCAGCTAATGCATAAAGTACCACGCT
P_oct_staple_33	GTTTCGTAGCGTAACGATCCTCAGAACCTACCGTAACCGTCT
P_oct_staple_34	GAAAGAGCTCCATGGATTTGTATCATCGTTGTAACAAAGCTG
P_oct_staple_35	TCCTTGAAATAAGGTCTTCTGACCTAAAGCGAGAAACTATAT
P_oct_staple_36	GTTATCTAGCATCACCAGTAATAAGAGAATATTCTTACAAAG
P_oct_staple_37	AGGAAACACCAGCGAATCAATAGAAAATAAACGCAACATAAA
P_oct_staple_38	GAACGAAAGCAGCAGTACCGACAAAAGGGAACGCGCCTGTTT
P_oct_staple_39	ATAGAAGCGGGAGGTTTTGGGTATTAAACAAGCAAGAGCCAC
P_oct_staple_40	AAAGAAGTGATTGCAGTAACAGTACCTTACTGTGAATATAGT
P_oct_staple_41	ATCAACAATATAAAAATGAAAAATCTAAAAATTAAAAATACC
P_oct_staple_42	TTCTGGTATGCAACAGCTTAATTGCTGACTCCTTTGGCGAAA
P_oct_staple_43	ATAGTAATACCAGAGAGCAACACTATCAGAAACCATCGCCCA
P_oct_staple_44	TTTTCGGGTTGCTAAACCTCCCGACTTGGCTTATCCCCTCAG
P_oct_staple_45	GAAAGACAACCTATTATTCTGAAACATGTTTGCTCAGTACGC
P_oct_staple_46	GAGCCGGTCTCAGAGATTAGGCCAACGCTGTCCTTTTAAAAG
P_oct_staple_47	TAACAGTACCCTGTAGCCTCAGAGCATATACAGGCGCATCAA
P_oct_staple_48	AATCCAAGAAGCGCATTAGACGGGAGAAATATTATTTATCCC
P_oct_staple_49	TAATGTGGCTGATAAATTAATATAAAAGTCGCAATGCCTGAG
P_oct_staple_50	TTACCAATTAAGAATGAGTTAAGCCCAAAATTGAGAACATAA
P_oct_staple_51	GGTCAGGAAAGACTATCAAAAAGATTAACACCTGCAGGTCGA
P_oct_staple_52	TTAAGTTCAAGCTTGCATGTTCGCCATTGTGCTGCAGTACCT
P_oct_staple_53	CCCCCTGGTGTACTTTACCGTTCCAGTACACAGGCGGATAAG
P_oct_staple_54	ATAGCGTAAACAGTTCAGAACCCTCGTTAATGTTTTGTATCG
P_oct_staple_55	ATTCGCCATGATGAAAGAAAACAAAATTTAAATCAGTGAATA
P_oct_staple_56	AAACAGGATAAGAAGAGCGTCTTTCCAGGCTATCTTACCGAA
P_oct_staple_57	AGAGTTGCCGCTCACAATTCCACACAACACTCGTATGCCCGA
P_oct_staple_58	AACCTGTGGGTGCCTGTGAAATTGTTATCAGCAAGCGGTCCA
P_oct_staple_59	GTAGTAAACATTCATCATCAGTTGAGATACGAACTGGGAAGA
P_oct_staple_60	TACATTTAATAGTAGTAGCGTTAATAAATTTTGACCATTAGA
P_oct_staple_61	ACGTTATTATTCCTTGATGGCAATTCATACCTACCTATTTGC
P_oct_staple_62	TTCTACTCGCAAATCAATTCTGCGAACGTTTTGTACCAAAAA
P_oct_staple_63	CGCAGTCGAGAGGGAGGATTAGCGGGGTAAAGTATGTTAATG
P_oct_staple_64	TAATATTGTACATCAACAAGAGCGAGTATGAAACAGGGAGCC
P_oct_staple_65	GTGCATCACAACCCGTCGGATTCTCCGTGGCGCATCGTAACC
P_oct_staple_66	ATAGCTGTTGCCCCCGGGCAACAGCTGAATTGGGCGTCGGGA
P_oct_staple_67	AACTTTAACATTAACATCCAATAAATCAAAGCTAAATCGGTC
P_oct_staple_68	ACCCAAAACATGCCGGAGAGGGTAGCTAAACAAGAGAATCAT
P_oct_staple_69	ATCATACACAGAGATAGAAGAATAGCCCGCGAAAAACACTGA
P_oct_staple_70	TCATTAACAGTGTACAGACCAGGCGCATACCCAAATCAACAT
P_oct_staple_71	AAAAGCCCTCAGGACGTTGGTGTAGATGGGGAACAGGCCTTC
P_oct_staple_72	ATAAAGCTTTCGAGCCTTGCTGAACCTCAGGAATTCTAACAA
P_oct_staple_73	AGGGAGGTTGCCTTGTAATCAGTAGCGACCGGAAAAGTAGCA
P_oct_staple_74	CGGCTGTCACAAACCATTGACAGGAGGTAGAGCCGACCGCGC
P_oct_staple_75	AACAATGCCCTGAACAAAGTCAGAGGGTTAATAAGAGCAAGA

P_oct_staple_76 TACTAGAATTAGAGAATCAACAGTTGAAAAATATCTTAGGCA
P_oct_staple_77 ACCGTACTAAGAATGGACATTCTGGCCAATTGGCAAATAGGA
P_oct_staple_78 GTTTATCGACAATGACAACGAATAGAAACTTTAATAGACTGG
P_oct_staple_79 TTAATTGATATAATGCTGTGGAAGCCCGATTAGAGAAGGCGA
P_oct_staple_80 ATCATCATAATTTTCAAACAATTCGACAATAAAATATATCAC
P_oct_staple_81 CACCCTCTGAGGCAGGTCAGCCATCTTTACCCTCAATCAGAT
P_oct_staple_82 TCAAAGGGAGATAGCCCTTATAAATCAACCTAAAGTTTTGTC
P_oct_staple_83 ACGAGGCCCGATATCCGATAGTTGCGCCAGCTTGCGGGGGTA
P_oct_staple_84 AGTATTAACAGAAAATGGAAGGGTTAGACAATATACGGAATT
P_oct_staple_85 TGAATTTCTGATGCGCAAGACAAAGAACTTTAATGCCGACCG
P_oct_staple_86 CAAAGTAAGTGAATACCGGATATTCATTAGGCTGGCAACTTT
P_oct_staple_87 ATAAGTCTAAAACATCGCCAATATCTTTTGCGTTATACCAGT
P_oct_staple_88 AGTTTGAAAGCAAATATTTAAATTGTAATTACATCATAACGG
P_oct_staple_89 AGCAATAAGCCTAATTTGCCAGTTACAATAAGACGTCAATAG
P_oct_staple_90 GAGAGCCCCACCAGCGAACTGATAGCCCCTGAACAAGAAAAA
P_oct_staple_91 ACCCATGGCCACCCGTTTAGTACCGCCAAACCCTTCTGACCT
P_oct_staple_92 AAGGAGCGGAACAAAGTTTCAGCGGAGTTAAAACGAGAATGA
P_oct_staple_93 CCATTACAGGTGAAAATATTGACGGAAACCTGATAAATTGGA
P_oct_staple_94 GGGGGATCAGGCTGACCAGGCAAAGCGCGAAGCTCAACATGT
P_oct_staple_95 TCAGATGTTCTGTAATGGAAACAGTACAAATTACACTGAGCA
P_oct_staple_96 CTGTAGCTTTTGTTCAGGAAGATTGTATGGGGACGACGACAG
P_oct_staple_97 ATTAAATCAGCTTTCATCAACATTAAATTTGTTAAAATTCGC
P_oct_staple_98 AACAGCCTTCAATCAAATCAACTGAACAAAAAGAGCTGAGAT
P_oct_staple_99 GAAATCGCAGACGTCAGCCCTCATAGTTCACCAGTTCCAACG
P_oct_staple_100 GAGGCATCAACGCTTGTTTAGTATCATAAGGAGCAGAGGAAG
P_oct_staple_101 GGTGGCAAGAACTGACGCAATAATAACGTATATTTTAAATAT
P_oct_staple_102 CGACCTGGACAGATGAACGTTAGCAAGGCATGTCGAAATCCG
P_oct_staple_103 GCAAGGAACTAGCAGAGAGTCTGGAGCATTTTTGAATTCAAC
P_oct_staple_104 GTAAATGATCAAAAGCGATAGCTTAGATAAAAATAGTTTGTA
P_oct_staple_105 CGTTCTATAGGTAATTTTAGAACCCTCAGAGATGAACGGTAA
P_oct_staple_106 TACAGGACCTATTTCGGAAACGGGTAAATAGGCTTTTGATGA
P_oct_staple_107 AAGCCTGCGTGCCAGCTGCATTAATGAAAAGCATAAAGTGTA
P_oct_staple_108 GCAAAGCGGATCCCACGACGGCCAGTGCGGGTAACTCCAACA
P_oct_staple_109
CCATAAATTTCAACCTAAAGGAATTGCGAAAAAAGTGCGGAATCGTCATAAATA
P_oct_staple_110
CTAAAACTTGCGGGGAACGAGGGTAGCATTTCATGATGCCACTACGAAGGCACC
P_oct_staple_111
AAGATTATCATAGCCAAAATCACCGGAAGCCGCCACGGTATTCTAAGAACGCGA
P_oct_staple_112
CTAATAGAAAAGCCCAACAGTAGGGCTTATGTAATAAACCCTCAATCAATATCT
P_oct_staple_113
TTTAAATGCCGGAACGCAACTGTTGGGAGCCAGCTTGATAAGAGGTCATTTTTG
P_oct_staple_114

GTCTTTCGCAAAATGGTTGAGTGTTGTTCGTGGACACAAACTACAACGCCTGTA
P_oct_staple_115
GAAAGCGTCAGGAGTCAGAACCGCCACCCAAGCCCGATTCACCAGTCACACGAC
P_oct_staple_116
TCGTAAATAAAAATAGATTCAAAAGGGTATATGATGAGATCTACAAAGGCTATC
P_oct_staple_117
GAATACCATTGGGCTGAATTACCTTATGGGACGTTAACGGAACAACATTATTAC
P_oct_staple_118
TGATATTCTTTCCTCCGCACTCATCGAGAATCATTCCACCAGAACCACCACCAG
P_oct_staple_119
TAATATCTAATGCGCAGAAGATAAAACAAACAGTGATTCTGTCCAGACGACGAC
P_oct_staple_120
ACCTTGCAATATACTTTGAATACCAAGTCAATTACTTTAACAATTTCATTTGAA
P_oct_staple_121
ATCAAGTGAAGGTATTATCACCGTCACCAATCACCCGTCACCAATGAAACCATC
P_oct_staple_122
TATCGGCCCAAAAAAAATCAGCTCATTTCGCGTCTAACGGCGGATTGACCGTAA
P_oct_staple_123
GCCCTTTCGCTAACACGATTTTTTGTTTAGAGAATCGCTAATATCAGAGAGATA
P_oct_staple_124
CGCTGGTTTTCCTGTAATGAGTGAGCTACTTTCCAGCCAGGGTGGTTTTTCTTT
P_oct_staple_125
TGTGATAAAACATATCATAGGTCTGAGATTATATAAACTTTTTCAAATATATTT
P_oct_staple_126
TGCCGTCTCTGAATGGTAATAAGTTTTAATAAACATAAGAGGCTGAGACTCCTC
P_oct_staple_127
CATTATGTGATTCCGGTCAATAACCTGTAAAGGTGAAGGCAAAGAATTAGCAAA
P_oct_staple_128
ACGTAAAGACTTTAAAAAGTTTGAGTAAGAAGGAGATCCTGATTGTTTGGATTA
P_oct_staple_129
CGCATAAATAGTAACGACGATAAAAACCTGCCAGATTTCGAGGTGAATTTCTTA
P_oct_staple_130
CTCATTCCAACGGATTACTTAGCCGGAAAACTGACCTGACCTTCATCAAGAGTA
P_oct_staple_131
ATGGTTTCGAGGAAGCATGATTAAGACTAATACATAAGACACCACGGAATAAGT
P_oct_staple_132
CTCTAGAGGATTGCTCAAATATCGCGTTAGCAAACGCCAGGGTTTTCCCAGTCA

d. Inner strands of regular octahedron

R_oct_inner_1
ATCCATCACTTCATACTCTACGTTGTTGTTGTTGTTGTTGGGGTGCCAGTTGAGACCATT
AGATACAATTTTCACTGTGTGAAATTGTTATCC
R_oct_inner_2

ATCCATCACTTCATACTCTACGTTGTTGTTGTTGTTGTTTCAGAGCTGGGTAAACGACG
GCCAGTGCGATCCCCGTAGTAGCATTAACATCCA
R_oct_inner_3
ATCCATCACTTCATACTCTACGTTGTTGTTGTTGTTGTTTAGCGGTACAGAGCGGGAG
AATTAACTGCGCTAATTTCGGAACCTATTATTCT
R_oct_inner_4
ATCCATCACTTCATACTCTACGTTGTTGTTGTTGTTGTTTGATTATCAACTTTACAACTAA
AGGAATCCAAAAAGTTTGAGTAACATTATCAT
R_oct_inner_5
ATCCATCACTTCATACTCTACGTTGTTGTTGTTGTTGTTGTAGCGCCATTAAATTGGGAA
TTAGAGCGCAAGGCGCACCGTAATCAGTAGCGA
R_oct_inner_6
ATCCATCACTTCATACTCTACGTTGTTGTTGTTGTTGTTAGCCGAAAGTCTCTCTTTTGA
TGATACAAGTGCCTTAAGAGCAAGAAACAATGA
R_oct_inner_7
ATCCATCACTTCATACTCTACGTTGTTGTTGTTGTTGTTGTGGGAAATCATATAAATATTT
AAATTGAATTTTTGTCTGGCCTTCCTGTAGCC
R_oct_inner_8
ATCCATCACTTCATACTCTACGTTGTTGTTGTTGTTGTTCCCACGCGCAAAATGGTTGAG
TGTTGTTCGTGGACTTGCTTTCGAGGTGAATTT

e. Inner strands of elongated octahedron

E_oct_inner_1
ATCCATCACTTCATACTCTACGTTGTTGTTGTTGTTGTTAGCCTAAAGCAAGCAAGAAC
GCGAGGCGTGAAGCCGCTACAATTTTATCCTGAA
E_oct_inner_2
ATCCATCACTTCATACTCTACGTTGTTGTTGTTGTTGTTTCGTAAATAAAAATAGATTCA
AAAGGGTATATGATGAGATCTACAAAGGCTATC
E_oct_inner_3
ATCCATCACTTCATACTCTACGTTGTTGTTGTTGTTGTTATATGCGCAAACGTAAAGAAA
CGCAAAGAATAGAATGATAAATAAGGCGTTAAA
E_oct_inner_4
ATCCATCACTTCATACTCTACGTTGTTGTTGTTGTTGTTCCGACTTTGGGTTAATCGCAA
GACAAAGTTAATTTTCAACCGATTGAGGGAGGG
E_oct_inner_5
ATCCATCACTTCATACTCTACGTTGTTGTTGTTGTTGTTAGTTAATGCAAAATGGTTGAG
TGTTGTTCGTGGACTGATACAGGAGTGTACTGG
E_oct_inner_6
ATCCATCACTTCATACTCTACGTTGTTGTTGTTGTTGTTTGGCAAGGCATTGATGATATTC
ACAAACCGCAGTCGACGGGGAAAGCCGGCGAA
E_oct_inner_7
ATCCATCACTTCATACTCTACGTTGTTGTTGTTGTTGTTCTCTAGAGGATTGCTCAAATAT
CGCGTTAGCAAACGCCAGGGTTTTCCCAGTCA

E_oct_inner_8
ATCCATCACTTCATACTCTACGTTGTTGTTGTTGTTGTTTTAAATGCCGGAACGCAACT
GTTGGGAGCCAGCTTGATAAGAGGTCATTTTTG

f. Inner strands of partially elongated octahedron

P_oct_inner_1
ATCCATCACTTCATACTCTACGTTGTTGTTGTTGTTGTTATGGTTTCGAGGAAGCATGAT
TAAGACTAATACATAAGACACCACGGAATAAGT
P_oct_inner_2
ATCCATCACTTCATACTCTACGTTGTTGTTGTTGTTGTTTCGTAAATAAAAATAGATTCA
AAAGGGTATATGATGAGATCTACAAAGGCTATC
P_oct_inner_3
ATCCATCACTTCATACTCTACGTTGTTGTTGTTGTTGTTAAGATTATCATAGCCAAAATCA
CCGGAAGCCGCCACGGTATTCTAAGAACGCGA
P_oct_inner_4
ATCCATCACTTCATACTCTACGTTGTTGTTGTTGTTGTTTGATATTCTTTCCTCCGCACTC
ATCGAGAATCATTCCACCAGAACCACCACCAG
P_oct_inner_5
ATCCATCACTTCATACTCTACGTTGTTGTTGTTGTTGTTGTCTTTCGCAAAATGGTTGAG
TGTTGTTCGTGGACACAAACTACAACGCCTGTA
P_oct_inner_6
ATCCATCACTTCATACTCTACGTTGTTGTTGTTGTTGTTGAAAGCGTCAGGAGTCAGAA
CCGCCACCCAAGCCCGATTCACCAGTCACACGAC
P_oct_inner_7
ATCCATCACTTCATACTCTACGTTGTTGTTGTTGTTGTTCTCTAGAGGATTGCTCAAATAT
CGCGTTAGCAAACGCCAGGGTTTTCCCAGTCA
P_oct_inner_8
ATCCATCACTTCATACTCTACGTTGTTGTTGTTGTTGTTTTAAATGCCGGAACGCAACT
GTTGGGAGCCAGCTTGATAAGAGGTCATTTTTG

g. Sticky ends for DNA origami octahedral 'homologs'

R_oct_1

R_oct_1_SE_1
AAAGATTCATCAGGAATTACGAGGCATGCTCATCCTTATGCGTTTTTTTTTTTTTTTTTT
TTTTGAGTCTA
R_oct_1_SE_2
CTTCATCAAGAGAAATCAACGTAACAGAGATTTGTCAATCATTTTTTTTTTTTTTTTTTT
TTTTTGAGTCTA
R_oct_1_SE_3
CAAATGCTTTAAAAAATCAGGTCTTTAAGAGCAGCCAGAGGGTTTTTTTTTTTTTTTT
TTTTTTGAGTCTA
R_oct_1_SE_4

AAACGAAAGAGGGCGAAACAAAGTACTGACTATATTCGAGCTTTTTTTTTTTTTTTTTT
TTTTTTGAGTCTA
R_oct_1_SE_5
GGTAGCTATTTTAGAGAATCGATGAAAACATTAAATGTGTAGTTTTTTTTTTTTTTTTTT
TTTTCTACCTT
R_oct_1_SE_6
ATAAATCATACATAAATCGGTTGTACTGTGCTGGCATGCCTGTTTTTTTTTTTTTTTTTT
TTTTAGTTCTC
R_oct_1_SE_7
ACTGTTGGGAAGCAGCTGGCGAAAGGATAGGTCAAGATCGCATTTTTTTTTTTTTTTTT
TTTTTACTCCTAA
R_oct_1_SE_8
AGCTTTCATCAACGGATTGACCGTAAAATCGTATAATATTTTTTTTTTTTTTTTTTTTTTT
TTTTCAAGCA
R_oct_1_SE_9
TTTGCGGATGGCCAACTAAAGTACGGGCTTGCAGCTACAGAGTTTTTTTTTTTTTTTTTT
TTTTTCTACCTT
R_oct_1_SE_10
CTTAAACAGCTTATATATTCGGTCGCTTGATGGGGAACAAGATTTTTTTTTTTTTTTTTT
TTTTAGTTCTC
R_oct_1_SE_11
GGCCCTGAGAGAAGCAGGCGAAAATCATTGCGTAGAGGCGGTTTTTTTTTTTTTTTTTT
TTTTTACTCCTAA
R_oct_1_SE_12
GCTCACAATTCCGTGAGCTAACTCACTGGAAGTAATGGTCAATTTTTTTTTTTTTTTTT
TTTTTTCAAGCA
R_oct_1_SE_13
TGTAGCATTCCAACGTTAGTAAATGAAGTGCCGCGCCACCCTTTTTTTTTTTTTTTTTTT
TTTTTCTACCTT
R_oct_1_SE_14
GAAACATGAAAGCTCAGTACCAGGCGAAAAATGCTGAACAAATTTTTTTTTTTTTTTTT
TTTTTTAGTTCTC
R_oct_1_SE_15
AGAGCCTAATTTGATTTTTTGTTTAAATCCTGAAATAAAGAATTTTTTTTTTTTTTTTT
TTTACTCCTAA
R_oct_1_SE_16
TTTGCGGAACAATGGCAATTCATCAATCTGTATAATAATTTTTTTTTTTTTTTTTTTTTTT
TTTTCAAGCA
R_oct_1_SE_17
GACAGGAGGTTGAAACAAATAAATCCGCCCCCTCCGCCACCCTTTTTTTTTTTTTTTTT
TTTTTTCTACCTT
R_oct_1_SE_18
CAGAATCAAGTTTCGGCATTTTCGGTTAAATATATCACCAGTTTTTTTTTTTTTTTTTTTT
TTTTAGTTCTC

R_oct_1_SE_19
TCATATGGTTTACGATTGAGGGAGGGAAACGCAATACATACATTTTTTTTTTTTTTTTT
TTTACTCCTAA
R_oct_1_SE_20
AATAGCAATAGCACCAGAAGGAAACCTAAAGCCACTGGTAATTTTTTTTTTTTTTTTTT
TTTTTTCAAGCA
R_oct_1_SE_21
CAACGCTCAACAGCAGAGGCATTTTCAATCCAATGATAAATATTTTTTTTTTTTTTTTT
TTTTTAACGGAT
R_oct_1_SE_22
ATCAAAATCATATATGTAAATGCTGAACAAACACTTGCTTCTTTTTTTTTTTTTTTTTTT
TTTTAACGGAT
R_oct_1_SE_23
TGATTGCTTTGAGCAAAAGAAGATGAAATAGCAGAGGTTTTGTTTTTTTTTTTTTTTTT
TTTTTAACGGAT
R_oct_1_SE_24
AACGGGTATTAAGGAATCATTACCGCCAGTAATTCAACAATATTTTTTTTTTTTTTTTTT
TTTTAACGGAT

R_oct_2

R_oct_2_SE_1
AAAGATTCATCAGGAATTACGAGGCATGCTCATCCTTATGCGTTTTTTTTTTTTTTTTT
TTTGTCATTGA
R_oct_2_SE_2
CTTCATCAAGAGAAATCAACGTAACAGAGATTTGTCAATCATTTTTTTTTTTTTTTTTT
TTTTGTCATTGA
R_oct_2_SE_3
CAAATGCTTTAAAAAATCAGGTCTTTAAGAGCAGCCAGAGGGTTTTTTTTTTTTTTTT
TTTTTGTCATTGA
R_oct_2_SE_4
AAACGAAAGAGGGCGAAACAAAGTACTGACTATATTCGAGCTTTTTTTTTTTTTTTTT
TTTTTGTCATTGA
R_oct_2_SE_5
GGTAGCTATTTTAGAGAATCGATGAAAACATTAAATGTGTAGTTTTTTTTTTTTTTTTTT
TTTAAGGTAGA
R_oct_2_SE_6
ATAAATCATACATAAATCGGTTGTACTGTGCTGGCATGCCTGTTTTTTTTTTTTTTTTTT
TTTTGCTTGAA
R_oct_2_SE_7
ACTGTTGGGAAGCAGCTGGCGAAAGGATAGGTCAAGATCGCATTTTTTTTTTTTTTTTT
TTTTTTTAGGAGT
R_oct_2_SE_8
AGCTTTCATCAACGGATTGACCGTAAAATCGTATAATATTTTTTTTTTTTTTTTTTTTTT

TTGAGAACTA
R_oct_2_SE_9
TTTGCGGATGGCCAACTAAAGTACGGGCTTGCAGCTACAGAGTTTTTTTTTTTTTTTTTT
TTTTAAGGTAGA
R_oct_2_SE_10
CTTAAACAGCTTATATATTCGGTCGCTTGATGGGGAACAAGATTTTTTTTTTTTTTTTTT
TTTTGCTTGAA
R_oct_2_SE_11
GGCCCTGAGAGAAGCAGGCGAAAATCATTGCGTAGAGGCGGTTTTTTTTTTTTTTTTT
TTTTTTTAGGAGT
R_oct_2_SE_12
GCTCACAATTCCGTGAGCTAACTCACTGGAAGTAATGGTCAATTTTTTTTTTTTTTTTTT
TTTTGAGAACTA
R_oct_2_SE_13
TGTAGCATTCCAACGTTAGTAAATGAAGTGCCGCGCCACCCTTTTTTTTTTTTTTTTTT
TTTTAAGGTAGA
R_oct_2_SE_14
GAAACATGAAAGCTCAGTACCAGGCGAAAAATGCTGAACAAATTTTTTTTTTTTTTTTT
TTTTTTGCTTGAA
R_oct_2_SE_15
AGAGCCTAATTTGATTTTTTGTTTAAATCCTGAAATAAAGAATTTTTTTTTTTTTTTTT
TTTTTAGGAGT
R_oct_2_SE_16
TTTGCGGAACAATGGCAATTCATCAATCTGTATAATAATTTTTTTTTTTTTTTTTTTTTT
TTGAGAACTA
R_oct_2_SE_17
GACAGGAGGTTGAAACAAATAAATCCGCCCCCTCCGCCACCCTTTTTTTTTTTTTTTT
TTTTTAAGGTAGA
R_oct_2_SE_18
CAGAATCAAGTTTCGGCATTTTCGGTTAAATATATCACCAGTTTTTTTTTTTTTTTTTT
TTTTGCTTGAA
R_oct_2_SE_19
TCATATGGTTTACGATTGAGGGAGGGAAACGCAATACATACATTTTTTTTTTTTTTTTT
TTTTTAGGAGT
R_oct_2_SE_20
AATAGCAATAGCACCAGAAGGAAACCTAAAGCCACTGGTAATTTTTTTTTTTTTTTTTT
TTTTGAGAACTA
R_oct_2_SE_21
CAACGCTCAACAGCAGAGGCATTTTCAATCCAATGATAAATATTTTTTTTTTTTTTTTT
TTTTCTCACTAT
R_oct_2_SE_22
ATCAAAATCATATATGTAAATGCTGAACAAACACTTGCTTCTTTTTTTTTTTTTTTTTT
TTTCTCACTAT
R_oct_2_SE_23

TGATTGCTTTGAGCAAAAGAAGATGAAATAGCAGAGGTTTTGTTTTTTTTTTTTTTTTT
TTTTCTCACTAT
R_oct_2_SE_24
AACGGGTATTAAGGAATCATTACCGCCAGTAATTCAACAATATTTTTTTTTTTTTTTTTT
TTTCTCACTAT

R_oct_3

R_oct_3_SE_1
AAAGATTCATCAGGAATTACGAGGCATGCTCATCCTTATGCGTTTTTTTTTTTTTTTTTT
TTTTGAGTCTA
R_oct_3_SE_2
CTTCATCAAGAGAAATCAACGTAACAGAGATTTGTCAATCATTTTTTTTTTTTTTTTTT
TTTTTGAGTCTA
R_oct_3_SE_3
CAAATGCTTTAAAAAATCAGGTCTTTAAGAGCAGCCAGAGGGTTTTTTTTTTTTTTTTT
TTTTTTGAGTCTA
R_oct_3_SE_4
AAACGAAAGAGGGCGAAACAAAGTACTGACTATATTCGAGCTTTTTTTTTTTTTTTTT
TTTTTTGAGTCTA
R_oct_3_SE_5
GGTAGCTATTTAGAGAATCGATGAAAACATTAAATGTGTAGTTTTTTTTTTTTTTTTTT
TTTTTCAAGCA
R_oct_3_SE_6
ATAAATCATACATAAATCGGTTGTACTGTGCTGGCATGCCTGTTTTTTTTTTTTTTTTTT
TTTTTCAAGCA
R_oct_3_SE_7
ACTGTTGGGAAGCAGCTGGCGAAAGGATAGGTCAAGATCGCATTTTTTTTTTTTTTTTT
TTTTTTTCAAGCA
R_oct_3_SE_8
AGCTTTCATCAACGGATTGACCGTAAAATCGTATAATATTTTTTTTTTTTTTTTTTTTTT
TTTTCAAGCA
R_oct_3_SE_9
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TTTTTTCAAGCA
R_oct_3_SE_10
CTTAAACAGCTTATATATTCGGTCGCTTGATGGGGAACAAGATTTTTTTTTTTTTTTTTT
TTTTTCAAGCA
R_oct_3_SE_11
GGCCCTGAGAGAAGCAGGCGAAAATCATTGCGTAGAGGCGGTTTTTTTTTTTTTTTTT
TTTTTTTCAAGCA
R_oct_3_SE_12
GCTCACAATTCCGTGAGCTAACTCACTGGAAGTAATGGTCAATTTTTTTTTTTTTTTTTT
TTTTTTCAAGCA

R_oct_3_SE_13
TGTAGCATTCCAACGTTAGTAAATGAAGTGCCGCGCCACCCTTTTTTTTTTTTTTTTTT
TTTTTTCAAGCA
R_oct_3_SE_14
GAAACATGAAAGCTCAGTACCAGGCGAAAAATGCTGAACAAATTTTTTTTTTTTTTTT
TTTTTTTCAAGCA
R_oct_3_SE_15
AGAGCCTAATTTGATTTTTTGTTTAAATCCTGAAATAAAGAATTTTTTTTTTTTTTTTTT
TTTTTCAAGCA
R_oct_3_SE_16
TTTGCGGAACAATGGCAATTCATCAATCTGTATAATAATTTTTTTTTTTTTTTTTTTT
TTTTCAAGCA
R_oct_3_SE_17
GACAGGAGGTTGAAACAAATAAATCCGCCCCCTCCGCCACCCTTTTTTTTTTTTTTTT
TTTTTTTCAAGCA
R_oct_3_SE_18
CAGAATCAAGTTTCGGCATTTTCGGTTAAATATATCACCAGTTTTTTTTTTTTTTTTTTT
TTTTTCAAGCA
R_oct_3_SE_19
TCATATGGTTTACGATTGAGGGAGGGAAACGCAATACATACATTTTTTTTTTTTTTTTTT
TTTTTCAAGCA
R_oct_3_SE_20
AATAGCAATAGCACCAGAAGGAAACCTAAAGCCACTGGTAATTTTTTTTTTTTTTTTTT
TTTTTTCAAGCA
R_oct_3_SE_21
CAACGCTCAACAGCAGAGGCATTTTCAATCCAATGATAAATATTTTTTTTTTTTTTTTT
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R_oct_3_SE_22
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TTTTAACGGAT
R_oct_3_SE_23
TGATTGCTTTGAGCAAAAGAAGATGAAATAGCAGAGGTTTTGTTTTTTTTTTTTTTTTT
TTTTTAACGGAT
R_oct_3_SE_24
AACGGGTATTAAGGAATCATTACCGCCAGTAATTCAACAATATTTTTTTTTTTTTTTTTT
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R_oct_4
R_oct_4_SE_1
AAAGATTCATCAGGAATTACGAGGCATGCTCATCCTTATGCGTTTTTTTTTTTTTTTTTT
TTTTGAGTCTA
R_oct_4_SE_2
CTTCATCAAGAGAAATCAACGTAACAGAGATTTGTCAATCATTTTTTTTTTTTTTTTTT

TTTTTGAGTCTA
R_oct_4_SE_3
CAAATGCTTTAAAAAATCAGGTCTTAAGAGCAGCCAGAGGTTTTTTTTTTTTTTTTT
TTTTTTGAGTCTA
R_oct_4_SE_4
AAACGAAAGAGGGCGAAACAAAGTACTGACTATATTCGAGCTTTTTTTTTTTTTTTTTT
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R_oct_4_SE_5
GGTAGCTATTTAGAGAATCGATGAAAACATTAAATGTGTAGTTTTTTTTTTTTTTTTTTT
TTTTCTACCTT
R_oct_4_SE_6
ATAAATCATACATAAATCGGTTGTACTGTGCTGGCATGCCTGTTTTTTTTTTTTTTTTTTT
TTTTCTACCTT
R_oct_4_SE_7
ACTGTTGGGAAGCAGCTGGCGAAAGGATAGGTCAAGATCGCATTTTTTTTTTTTTTTTT
TTTTTTTCAAGCA
R_oct_4_SE_8
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R_oct_4_SE_9
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R_oct_4_SE_10
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R_oct_4_SE_11
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R_oct_4_SE_12
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R_oct_4_SE_13
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TTTTTCTACCTT
R_oct_4_SE_14
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R_oct_4_SE_15
AGAGCCTAATTTGATTTTTTGTTTAAATCCTGAAATAAAGAATTTTTTTTTTTTTTTTTTT
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R_oct_4_SE_16
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R_oct_4_SE_17

GACAGGAGGTTGAAACAAATAAATCCGCCCCCTCCGCCACCCTTTTTTTTTTTTTTTT
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R_oct_4_SE_18
CAGAATCAAGTTTCGGCATTTTCGGTTAAATATATCACCAGTTTTTTTTTTTTTTTTTT
TTTTCTACCTT
R_oct_4_SE_19
TCATATGGTTTACGATTGAGGGAGGGAAACGCAATACATACATTTTTTTTTTTTTTTTT
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R_oct_4_SE_20
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R_oct_4_SE_21
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R_oct_4_SE_22
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TTTTAACGGAT
R_oct_4_SE_23
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TTTTTAACGGAT
R_oct_4_SE_24
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TTTTAACGGAT

R_oct_5
R_oct_5_SE_1
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R_oct_5_SE_2
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TTTTTCTACCTT
R_oct_5_SE_3
CAAATGCTTTAAAAAATCAGGTCTTTAAGAGCAGCCAGAGGGTTTTTTTTTTTTTTTT
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R_oct_5_SE_4
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R_oct_5_SE_5
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R_oct_5_SE_6
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TTTTTCAAGCA

R_oct_5_SE_7
ACTGTTGGGAAGCAGCTGGCGAAAGGATAGGTCAAGATCGCATTTTTTTTTTTTTTTT
TTTTTTTCAAGCA
R_oct_5_SE_8
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R_oct_5_SE_9
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R_oct_5_SE_10
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R_oct_5_SE_11
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R_oct_5_SE_12
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R_oct_5_SE_13
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R_oct_5_SE_15
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R_oct_5_SE_16
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R_oct_5_SE_17
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R_oct_5_SE_18
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R_oct_5_SE_20
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R_oct_5_SE_22
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R_oct_5_SE_23
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TTTTCAACTGTA
R_oct_5_SE_24
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R_oct_6
R_oct_6_SE_1
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R_oct_6_SE_2
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TTTTACTCCTAA
R_oct_6_SE_3
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R_oct_6_SE_4
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R_oct_6_SE_5
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R_oct_6_SE_6
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R_oct_6_SE_7
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R_oct_6_SE_8
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R_oct_6_SE_9
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R_oct_6_SE_10
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R_oct_6_SE_11

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R_oct_6_SE_13
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R_oct_6_SE_14
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R_oct_6_SE_15
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R_oct_6_SE_16
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TTTAACGGAT
R_oct_6_SE_17
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R_oct_6_SE_18
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R_oct_6_SE_19
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TTTTTCAAGCA
R_oct_6_SE_20
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R_oct_6_SE_22
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R_oct_6_SE_23
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TTTTCTCACTAT
R_oct_6_SE_24
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TTTTAGTTCTC

E_oct_1

E_oct_1_SE_1
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E_oct_1_SE_2
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TTTTATCCGTTA
E_oct_1_SE_5
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E_oct_1_SE_6
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E_oct_1_SE_7
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TTTGTTGTTCT
E_oct_1_SE_10
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E_oct_1_SE_12
CGACGTTGTAAACGGGTACCGAGCTCTATTATAGAGCTTCAATTTTTTTTTTTTTTTTTT
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E_oct_1_SE_13
ACCACCGGAACCTCAGAGCCGCCACCAAAATCACTTTAGCGTTTTTTTTTTTTTTTTT
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E_oct_1_SE_14
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E_oct_1_SE_15
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E_oct_1_SE_16
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E_oct_1_SE_17
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E_oct_1_SE_18
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E_oct_1_SE_20
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TTTTAGACTCA
E_oct_1_SE_22
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TTTTTAGACTCA
E_oct_1_SE_23
TAACCGTTGTAGTCCAGAACAATATTTCGCCTGAACAAAATTTTTTTTTTTTTTTTTTTT
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E_oct_1_SE_24
GAAATTGCGTAGGGAGAAACAATAACGTTATTAGCAATTCATTTTTTTTTTTTTTTTTTT
TTTTTAGACTCA

E_oct_2
E_oct_2_SE_1
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E_oct_2_SE_2
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E_oct_2_SE_3
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E_oct_2_SE_4
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E_oct_2_SE_5

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E_oct_2_SE_22
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E_oct_2_SE_23
TAACCGTTGTAGTCCAGAACAATATTTCGCCTGAACAAAATTTTTTTTTTTTTTTTTTTT
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E_oct_2_SE_24
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E_oct_3
E_oct_3_SE_1
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E_oct_3_SE_2
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E_oct_3_SE_12
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TTTCAGTCATA
E_oct_3_SE_13
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E_oct_3_SE_14
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E_oct_3_SE_15
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E_oct_3_SE_16
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E_oct_3_SE_17
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E_oct_3_SE_18
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E_oct_3_SE_19
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E_oct_3_SE_23
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E_oct_3_SE_24

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E_oct_4

E_oct_4_SE_1
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TTTTATCCGTTA
E_oct_4_SE_3
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E_oct_4_SE_5
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TTTCGTATCA
E_oct_4_SE_6
CGGATGGCTTAGTAAAGTACGGTGTCCTTTCCGTCGGTGCGGTTTTTTTTTTTTTTTTT
TTTTTCGTATCA
E_oct_4_SE_7
TGGGATAGGTCAAGATCGCACTCCAGCGGTTGAAATAGGAACTTTTTTTTTTTTTTTTT
TTTTTCGTATCA
E_oct_4_SE_8
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TTTTCGTATCA
E_oct_4_SE_9
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E_oct_4_SE_10
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TTTTCGTATCA
E_oct_4_SE_11
TCACCAGTGAGAAGCAGGCGAAAATCTCGTAATTTAATTGCGTTTTTTTTTTTTTTTTT
TTTTTCGTATCA
E_oct_4_SE_12
CGACGTTGTAAACGGGTACCGAGCTCTATTATAGAGCTTCAATTTTTTTTTTTTTTTTTT
TTTTCGTATCA
E_oct_4_SE_13
ACCACCGGAACCTCAGAGCCGCCACCAAAATCACTTTAGCGTTTTTTTTTTTTTTTTT
TTTTTTCGTATCA

E_oct_4_SE_14
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E_oct_4_SE_15
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E_oct_4_SE_16
CGTGGCGAGAAAGTCACGCTGCGCGTCCACCACTCCTCATTATTTTTTTTTTTTTTTTTT
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E_oct_4_SE_17
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E_oct_4_SE_18
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E_oct_4_SE_19
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E_oct_4_SE_20
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E_oct_4_SE_21
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E_oct_4_SE_22
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E_oct_4_SE_23
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E_oct_4_SE_24
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TTTTTAGACTCA

E_oct_5
E_oct_5_SE_1
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E_oct_5_SE_2
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E_oct_5_SE_3
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E_oct_5_SE_4
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E_oct_5_SE_5
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E_oct_5_SE_6
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E_oct_5_SE_7
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E_oct_5_SE_9
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E_oct_5_SE_18

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E_oct_5_SE_21
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E_oct_5_SE_22
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E_oct_5_SE_23
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E_oct_5_SE_24
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TTTTTAGACTCA

E_oct_6

E_oct_6_SE_1
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E_oct_6_SE_3
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E_oct_6_SE_4
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E_oct_6_SE_5
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E_oct_7_SE_24
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TTTTGAGAACTA

P_oct_1

P_oct_1_SE_1
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P_oct_1_SE_2
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P_oct_1_SE_23
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P_oct_1_SE_24
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P_oct_2

P_oct_2_SE_1
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P_oct_2_SE_23
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P_oct_2_SE_24
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P_oct_3

P_oct_3_SE_1
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P_oct_3_SE_18
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P_oct_3_SE_21
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P_oct_4

P_oct_4_SE_1
ATCTTGACAAGAAAGGCTTGCCCTGATACCAAGCAGACGGTCTTTTTTTTTTTTTTTTT
TTTTATGTGTGT

P_oct_4_SE_2
AACCTAAAACGATTTGACCCCCAGCGGCAGGGACAGAGGCTTTTTTTTTTTTTTTTTT
TTTTTATGTGTGT

P_oct_4_SE_3
AGGTAGAAAGATACTAATGCAGATACAAACACCAAGAACTGGTTTTTTTTTTTTTTT
TTTTTATGTGTGT

P_oct_4_SE_4
AACAGCTTGATAATTCGGTCGCTGAGCGCCAAACGAGAGGCTTTTTTTTTTTTTTTTT
TTTTTATGTGTGT

P_oct_4_SE_5
ATTAAGCAATAAAATACTTTTGCGGGAGTTTCATATTTTCATTTTTTTTTTTTTTTTTT
TTACTTGATG

P_oct_4_SE_6
CGGATGGCTTAGTAAAGTACGGTGTCCTTTCCGTCGGTGCGGTTTTTTTTTTTTTTTTT
TTTTGTGTAGAT

P_oct_4_SE_7
TGGGATAGGTCAAGATCGCACTCCAGCGGTTGAAATAGGAACTTTTTTTTTTTTTTT
TTTTAGTATGGA

P_oct_4_SE_8
AGGTCATTGCCTTGTCAATCATATGTGCCTTTAGCCGGAGACTTTTTTTTTTTTTTTTTT
TTTATGGATGT

P_oct_4_SE_9
TTCATTGAATCCTCAGGTCTTTACCCTATGGGAATTTTTTCATTTTTTTTTTTTTTTTTT
TTACTTGATG

P_oct_4_SE_10
GCATTCCACAGATAGTAAATGAATTTTTGATGGGGAACAAGATTTTTTTTTTTTTTTTT
TTTTGTGTAGAT

P_oct_4_SE_11
TCACCAGTGAGAAGCAGGCGAAAATCTCGTAATTTAATTGCGTTTTTTTTTTTTTTTTT
TTTTAGTATGGA

P_oct_4_SE_12
CGACGTTGTAAACGGGTACCGAGCTCTATTATAGAGCTTCAATTTTTTTTTTTTTTTTT
TTTATGGATGT

P_oct_4_SE_13
AAGAGAAGGATTTTGATATAAGTATAGCCAGAACAGTGCCTTTTTTTTTTTTTTTTTTT
TTTTACTTGATG

P_oct_4_SE_14
AGCCGCCGCCAGAAATAAATCCTCATAACCAATAAGCCGTTTTTTTTTTTTTTTTTTTT
TTTTGTGTAGAT

P_oct_4_SE_15
AATAAACAACATAATTTACGAGCATGTTTTGAAGGCGGTCAGTTTTTTTTTTTTTTTTT
TTTTAGTATGGA
P_oct_4_SE_16
CAGTAATAAAAGACGTGGCACAGACAGGAATAGCCACCACCCTTTTTTTTTTTTTTTT
TTTTTATGGATGT
P_oct_4_SE_17
GATAGCAGCACCTAGCGTCAGACTGTCATTCAAGCCATTTGGTTTTTTTTTTTTTTTTT
TTTTACTTGATG
P_oct_4_SE_18
TTATTTTGTCACCCAAAGACAAAAGGACAAAGTACGCAGTATTTTTTTTTTTTTTTTTT
TTTTGTGTAGAT
P_oct_4_SE_19
ACCCACAAGAATAAGTAAGCAGATAGTTTTATCAAAATGAAATTTTTTTTTTTTTTTTT
TTTTAGTATGGA
P_oct_4_SE_20
GGCGTTTTAGCGTTTTGCACCCAGCTCGTTTTCCACCACCGGTTTTTTTTTTTTTTTTT
TTTTATGGATGT
P_oct_4_SE_21
TTACCTTTTTTAAATCGTCGCTATTATTTCAGGTCGCGCAGATTTTTTTTTTTTTTTTTT
TTATAGTGAG
P_oct_4_SE_22
TACTTCTGAATATAAAGAAATTGCGTTTTGAGGATTTTGCGGTTTTTTTTTTTTTTTTTT
TTTATAGTGAG
P_oct_4_SE_23
GGTCAGTTGGCACCGTCAATAGATAAACCGGAAAATCGCCATTTTTTTTTTTTTTTTTT
TTTTATAGTGAG
P_oct_4_SE_24
TAGTTAATTTCACGTTAAATAAGAATATTTTCCTTTTTAACCTTTTTTTTTTTTTTTTTT
TTATAGTGAG

P_oct_5
P_oct_5_SE_1
ATCTTGACAAGAAAGGCTTGCCCTGATACCAAGCAGACGGTCTTTTTTTTTTTTTTTTT
TTTTATCCGTTA
P_oct_5_SE_2
AACCTAAAACGATTTGACCCCCAGCGGCAGGGACAGAGGCTTTTTTTTTTTTTTTTTT
TTTTTATCCGTTA
P_oct_5_SE_3
AGGTAGAAAGATACTAATGCAGATACAAACACCAAGAACTGGTTTTTTTTTTTTTTTT
TTTTTATCCGTTA
P_oct_5_SE_4
AACAGCTTGATAATTCGGTCGCTGAGCGCCAAACGAGAGGCTTTTTTTTTTTTTTTTT

TTTTTATCCGTTA
P_oct_5_SE_5
ATTAAGCAATAAAATACTTTTGCGGGAGTTTCATATTTCATTTTTTTTTTTTTTTTTTT
TTCATCAAGT
P_oct_5_SE_6
CGGATGGCTTAGTAAAGTACGGTGTCCTTTCCGTCGGTGCGGTTTTTTTTTTTTTTTTT
TTTTACATCCAT
P_oct_5_SE_7
TGGGATAGGTCAAGATCGCACTCCAGCGGTTGAAATAGGAACTTTTTTTTTTTTTTTTT
TTTTTCCATACT
P_oct_5_SE_8
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TTTATCTACAC
P_oct_5_SE_9
TTCATTGAATCCTCAGGTCTTTACCCTATGGGAATTTTTCATTTTTTTTTTTTTTTTTT
TTCATCAAGT
P_oct_5_SE_10
GCATTCCACAGATAGTAAATGAATTTTTGATGGGGAACAAGATTTTTTTTTTTTTTTTT
TTTTACATCCAT
P_oct_5_SE_11
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TTTTTCCATACT
P_oct_5_SE_12
CGACGTTGTAAACGGGTACCGAGCTCTATTATAGAGCTTCAATTTTTTTTTTTTTTTTTT
TTTATCTACAC
P_oct_5_SE_13
AAGAGAAGGATTTTGATATAAGTATAGCCAGAACAGTGCCTTTTTTTTTTTTTTTTTT
TTTTCATCAAGT
P_oct_5_SE_14
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TTTTACATCCAT
P_oct_5_SE_15
AATAAACAACATAATTTACGAGCATGTTTTGAAGGCGGTCAGTTTTTTTTTTTTTTTTT
TTTTTCCATACT
P_oct_5_SE_16
CAGTAATAAAAGACGTGGCACAGACAGGAATAGCCACCACCCTTTTTTTTTTTTTTTT
TTTTTATCTACAC
P_oct_5_SE_17
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TTTTCATCAAGT
P_oct_5_SE_18
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TTTTACATCCAT
P_oct_5_SE_19

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TTTTTCCATACT
P_oct_5_SE_20
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TTTTATCTACAC
P_oct_5_SE_21
TTACCTTTTTAAATCGTCGCTATTATTTCAGGTCGCGCAGATTTTTTTTTTTTTTTTTTTTTT
TTCAACTGTA
P_oct_5_SE_22
TACTTCTGAATATAAAGAAATTGCGTTTTGAGGATTTTGCGGTTTTTTTTTTTTTTTTTTTT
TTTCAACTGTA
P_oct_5_SE_23
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TTTTCAACTGTA
P_oct_5_SE_24
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TTCAACTGTA

P_oct_6

P_oct_6_SE_1
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TTTTATAGTGAG
P_oct_6_SE_2
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TTTTTATAGTGAG
P_oct_6_SE_3
AGGTAGAAAGATACTAATGCAGATACAAACACCAAGAACTGGTTTTTTTTTTTTTTTTTTT
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P_oct_6_SE_4
AACAGCTTGATAATTCGGTCGCTGAGCGCCAAACGAGAGGCTTTTTTTTTTTTTTTTTTTT
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P_oct_6_SE_5
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P_oct_6_SE_6
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TTTTAGTATGGA
P_oct_6_SE_8
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TTTATGGATGT

P_oct_6_SE_9
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TTACTTGATG
P_oct_6_SE_10
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TTTTGTGTAGAT
P_oct_6_SE_11
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TTTTAGTATGGA
P_oct_6_SE_12
CGACGTTGTAAACGGGTACCGAGCTCTATTATAGAGCTTCAATTTTTTTTTTTTTTTTTTT
TTTATGGATGT
P_oct_6_SE_13
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TTTTACTTGATG
P_oct_6_SE_14
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P_oct_6_SE_15
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TTTTAGTATGGA
P_oct_6_SE_16
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P_oct_6_SE_17
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P_oct_6_SE_18
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P_oct_6_SE_19
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P_oct_6_SE_20
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P_oct_6_SE_21
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TTATGTGTGT
P_oct_6_SE_22
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TTTATGTGTGT
P_oct_6_SE_23
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TTTTATGTGTGT
P_oct_6_SE_24
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TTATGTGTGT

P_oct_7
P_oct_7_SE_1
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P_oct_7_SE_2
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P_oct_7_SE_3
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P_oct_7_SE_4
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P_oct_7_SE_5
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TTTGCTTGAA
P_oct_7_SE_6
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P_oct_7_SE_7
TGGGATAGGTCAAGATCGCACTCCAGCGGTTGAAATAGGAACTTTTTTTTTTTTTTTTT
TTTTTGCTTGAA
P_oct_7_SE_8
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TTTTGCTTGAA
P_oct_7_SE_9
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TTTGCTTGAA
P_oct_7_SE_10
GCATTCCACAGATAGTAAATGAATTTTTGATGGGGAACAAGATTTTTTTTTTTTTTTTT
TTTTTGCTTGAA
P_oct_7_SE_11
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TTTTTGCTTGAA
P_oct_7_SE_12
CGACGTTGTAAACGGGTACCGAGCTCTATTATAGAGCTTCAATTTTTTTTTTTTTTTTTT
TTTTGCTTGAA
P_oct_7_SE_13

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TTTTTGCTTGAA
P_oct_7_SE_14
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TTTTTGCTTGAA
P_oct_7_SE_15
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TTTTTGCTTGAA
P_oct_7_SE_16
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TTTTTTGCTTGAA
P_oct_7_SE_17
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TTTTTGCTTGAA
P_oct_7_SE_18
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TTTTTGCTTGAA
P_oct_7_SE_19
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TTTTTGCTTGAA
P_oct_7_SE_20
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TTTTTGCTTGAA
P_oct_7_SE_21
TTACCTTTTTAAATCGTCGCTATTATTTCAGGTCGCGCAGATTTTTTTTTTTTTTTTTTTT
TTATCTACAC
P_oct_7_SE_22
TACTTCTGAATATAAAGAAATTGCGTTTTGAGGATTTTGCGGTTTTTTTTTTTTTTTTTT
TTTATCTACAC
P_oct_7_SE_23
GGTCAGTTGGCACCGTCAATAGATAAACCGGAAAATCGCCATTTTTTTTTTTTTTTTTT
TTTTATCTACAC
P_oct_7_SE_24
TAGTTAATTTCACGTTAAATAAGAATATTTTCCTTTTAACCTTTTTTTTTTTTTTTTTTTT
TTATCTACAC

P_oct_8

P_oct_8_SE_1
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TTTTGTGTAGAT
P_oct_8_SE_2
AACCTAAAACGATTTGACCCCCAGCGGCAGGACAGAGGCTTTTTTTTTTTTTTTTTTT
TTTTTGTGTAGAT

P_oct_8_SE_3
AGGTAGAAAGATACTAATGCAGATACAAACACCAAGAACTGGTTTTTTTTTTTTTTTTT
TTTTTGTGTAGAT
P_oct_8_SE_4
AACAGCTTGATAATTCGGTCGCTGAGCGCCAAACGAGAGGCTTTTTTTTTTTTTTTTTT
TTTTTGTGTAGAT
P_oct_8_SE_5
ATTAAGCAATAAAATACTTTTGCGGGAGTTTCATATTTCATTTTTTTTTTTTTTTTTTTTT
TTTGATACGA
P_oct_8_SE_6
CGGATGGCTTAGTAAAGTACGGTGTCCTTTCCGTCGGTGCGGTTTTTTTTTTTTTTTTTT
TTTTTGATACGA
P_oct_8_SE_7
TGGGATAGGTCAAGATCGCACTCCAGCGGTTGAAATAGGAACTTTTTTTTTTTTTTTTTT
TTTTTGATACGA
P_oct_8_SE_8
AGGTCATTGCCTTGTCAATCATATGTGCCTTTAGCCGGAGACTTTTTTTTTTTTTTTTTTT
TTTTGATACGA
P_oct_8_SE_9
TTCATTGAATCCTCAGGTCTTTACCCTATGGGAATTTTTCATTTTTTTTTTTTTTTTTTTT
TTTGATACGA
P_oct_8_SE_10
GCATTCCACAGATAGTAAATGAATTTTGATGGGGAACAAGATTTTTTTTTTTTTTTTTT
TTTTTGATACGA
P_oct_8_SE_11
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TTTTTGATACGA
P_oct_8_SE_12
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TTTTGATACGA
P_oct_8_SE_13
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P_oct_8_SE_14
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TTTTTGATACGA
P_oct_8_SE_15
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TTTTTGATACGA
P_oct_8_SE_16
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TTTTTTGATACGA
P_oct_8_SE_17
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TTTTTGATACGA
P_oct_8_SE_18
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TTTTTGATACGA
P_oct_8_SE_19
ACCCACAAGAATAAGTAAGCAGATAGTTTATCAAAATGAAATTTTTTTTTTTTTTTTT
TTTTTGATACGA
P_oct_8_SE_20
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TTTTTGATACGA
P_oct_8_SE_21
TTACCTTTTTTAAATCGTCGCTATTATTTCAGGTCGCGCAGATTTTTTTTTTTTTTTTTT
TTCTCACTAT
P_oct_8_SE_22
TACTTCTGAATATAAAGAAATTGCGTTTTGAGGATTTTGCGGTTTTTTTTTTTTTTTTT
TTTCTCACTAT
P_oct_8_SE_23
GGTCAGTTGGCACCGTCAATAGATAAACCGGAAAATCGCCATTTTTTTTTTTTTTTTT
TTTTCTCACTAT
P_oct_8_SE_24
TAGTTAATTTCACGTTAAATAAGAATATTTTCCTTTTTAACCTTTTTTTTTTTTTTTTT
TTCTCACTAT

P_oct_9

P_oct_9_SE_1
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P_oct_9_SE_2
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P_oct_9_SE_3
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P_oct_9_SE_4
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P_oct_9_SE_5
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TTAAGGTAGA
P_oct_9_SE_6
CGGATGGCTTAGTAAAGTACGGTGTCCTTTCCGTCGGTGCGGTTTTTTTTTTTTTTTT
TTTTTGCTTGAA
P_oct_9_SE_7

TGGGATAGGTCAAGATCGCACTCCAGCGGTTGAAATAGGAACTTTTTTTTTTTTTTTTTT
TTTTTGCTTGAA
P_oct_9_SE_8
AGGTCATTGCCTTGTCAATCATATGTGCCTTTAGCCGGAGACTTTTTTTTTTTTTTTTTTT
TTTAAGGTAGA
P_oct_9_SE_9
TTCATTGAATCCTCAGGTCTTTACCCTATGGGAATTTTTTCATTTTTTTTTTTTTTTTTTTT
TTAAGGTAGA
P_oct_9_SE_10
GCATTCCACAGATAGTAAATGAATTTTTGATGGGGAACAAGATTTTTTTTTTTTTTTTTT
TTTTTGCTTGAA
P_oct_9_SE_11
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TTTTTGCTTGAA
P_oct_9_SE_12
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TTTAAGGTAGA
P_oct_9_SE_13
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P_oct_9_SE_14
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P_oct_9_SE_15
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TTTTTGCTTGAA
P_oct_9_SE_16
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P_oct_9_SE_17
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TTTTAAGGTAGA
P_oct_9_SE_18
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TTTTTGCTTGAA
P_oct_9_SE_19
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TTTTTGCTTGAA
P_oct_9_SE_20
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TTTTAAGGTAGA
P_oct_9_SE_21
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TTATGTGTGT

P_oct_9_SE_22
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TTTATGTGTGT
P_oct_9_SE_23
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TTTTATGTGTGT
P_oct_9_SE_24
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TTATGTGTGT

P_oct_10
P_oct_10_SE_1
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TTTTACACACAT
P_oct_10_SE_2
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TTTTTACACACAT
P_oct_10_SE_3
AACAGCTTGATAATTCGGTCGCTGAGCGCCAAACGAGAGGCTTTTTTTTTTTTTTTTT
TTTTTACACACAT
P_oct_10_SE_4
AGGTAGAAAGATACTAATGCAGATACAAACACCAAGAACTGGTTTTTTTTTTTTTTTT
TTTTTACACACAT
P_oct_10_SE_5
ATTAAGCAATAAAATACTTTTGCGGGAGTTTCATATTTTCATTTTTTTTTTTTTTTTTTT
TTCAGTCATA
P_oct_10_SE_6
CGGATGGCTTAGTAAAGTACGGTGTCCTTTCCGTCGGTGCGGTTTTTTTTTTTTTTTTT
TTTTTGATACGA
P_oct_10_SE_7
TGGGATAGGTCAAGATCGCACTCCAGCGGTTGAAATAGGAACTTTTTTTTTTTTTTTTT
TTTTTGATACGA
P_oct_10_SE_8
AGGTCATTGCCTTGTCAATCATATGTGCCTTTAGCCGGAGACTTTTTTTTTTTTTTTTTT
TTTCAGTCATA
P_oct_10_SE_9
TTCATTGAATCCTCAGGTCTTTACCCTATGGGAATTTTTTCATTTTTTTTTTTTTTTTTTT
TTCAGTCATA
P_oct_10_SE_10
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P_oct_10_SE_11
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TTTTTGATACGA
P_oct_10_SE_12
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TTTCAGTCATA
P_oct_10_SE_13
AAGAGAAGGATTTTGATATAAGTATAGCCAGAACAGTGCCTTTTTTTTTTTTTTTTTTTT
TTTTCAGTCATA
P_oct_10_SE_14
AGCCGCCGCCAGAAATAAATCCTCATAACCAATAAGCCGTTTTTTTTTTTTTTTTTTTTT
TTTTTGATACGA
P_oct_10_SE_15
AATAAACAACATAATTTACGAGCATGTTTTGAAGGCGGTCAGTTTTTTTTTTTTTTTTTT
TTTTTGATACGA
P_oct_10_SE_16
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TTTTTCAGTCATA
P_oct_10_SE_17
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TTTTCAGTCATA
P_oct_10_SE_18
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TTTTTGATACGA
P_oct_10_SE_19
ACCCACAAGAATAAGTAAGCAGATAGTTTTATCAAAATGAAATTTTTTTTTTTTTTTTTT
TTTTTGATACGA
P_oct_10_SE_20
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TTTTCAGTCATA
P_oct_10_SE_21
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h. Modified DNA sequence attached on gold nanoparticles

5’-GAAGTGATGGATGAT-SH-3’

II. Supplementary Figures

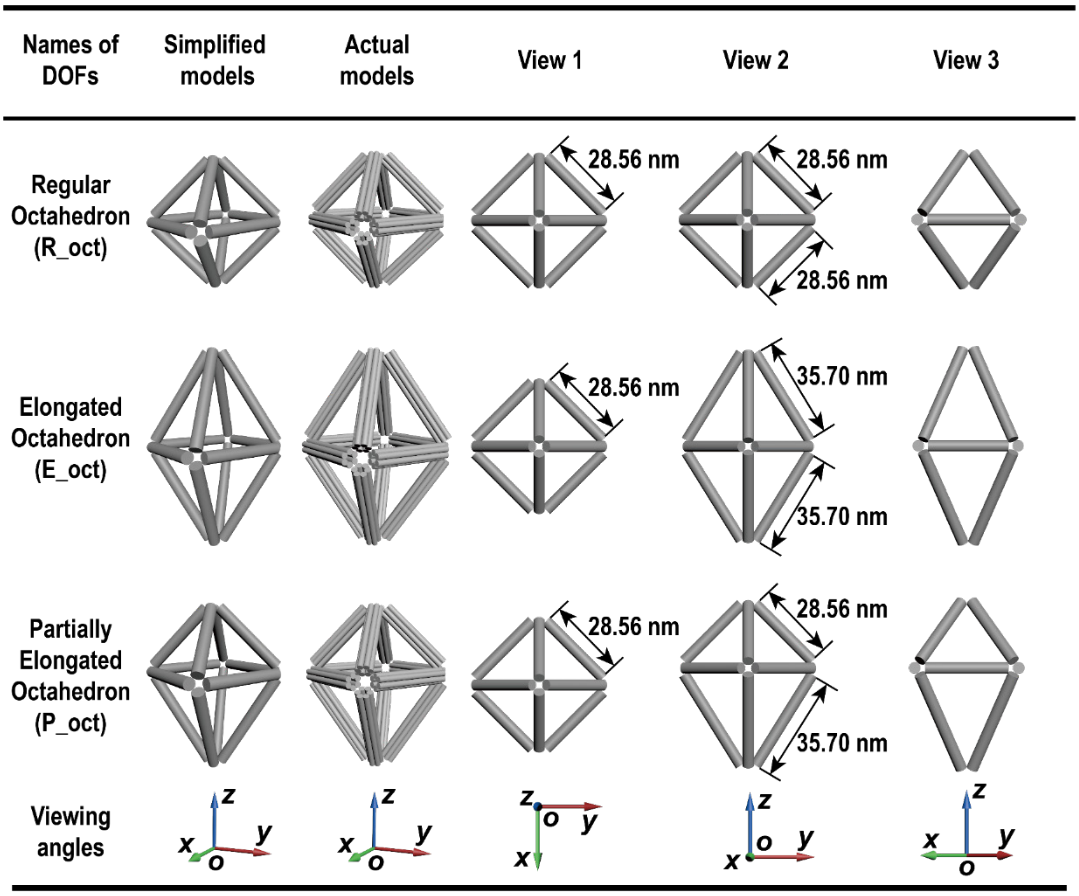

Figure S1. Schematic illustration of DNA Origami frames (DOFs). From top to bottom are regular octahedron (R_oct), elongated octahedron (E_oct) and partially elongated octahedron (P_oct) in sequence. From left to right are names of DOFs, simplified models (shown as single-helix bundles), actual models (shown as six-helix bundles) and views of DOFs from three different viewing angles.

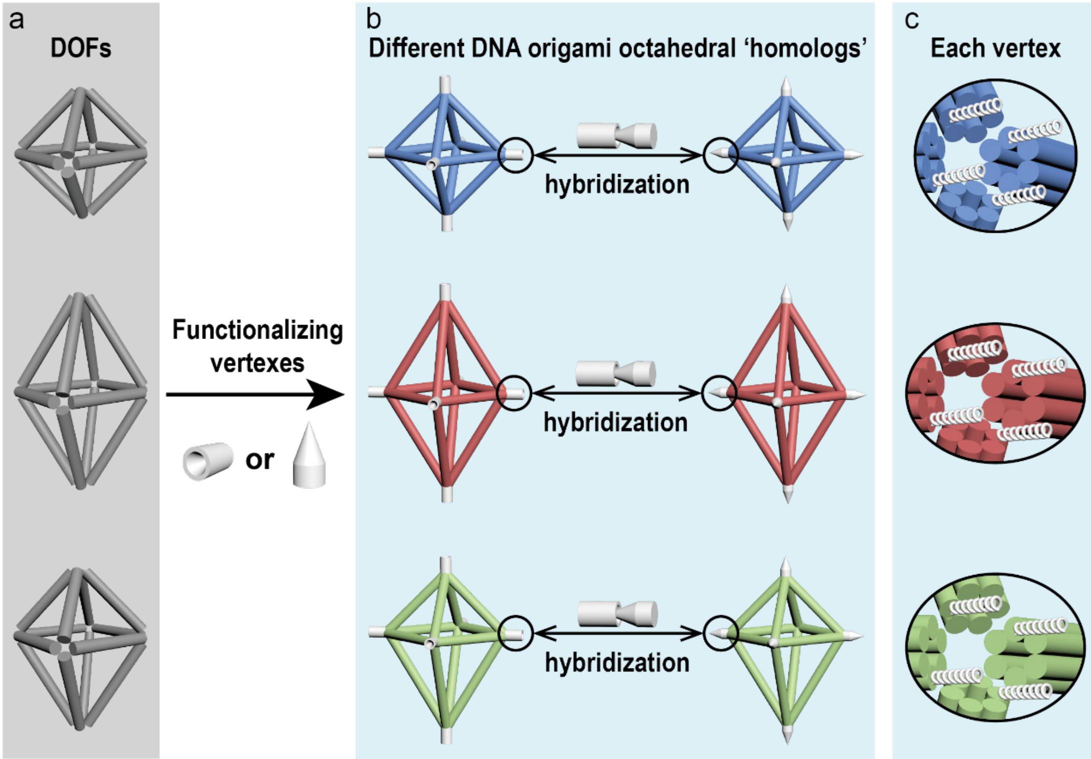

Figure S2. Schematic diagram of the transformation from DOF monomers to different DNA origami octahedral ‘homologs’. (a) Simplified models of R_oct, E_oct and P_oct DOF monomers. (b) Encoding sticky ends (SEs; indicated by white cylinders and cones) at vertexes of DOFs to form different DNA origami octahedral ‘homologs’, where SEs are indicated by the cylinders and cones which can hybridize with each other when possessing the same color. (c) Corresponding detailed diagrams of each vertex of DNA origami octahedral ‘homologs’.

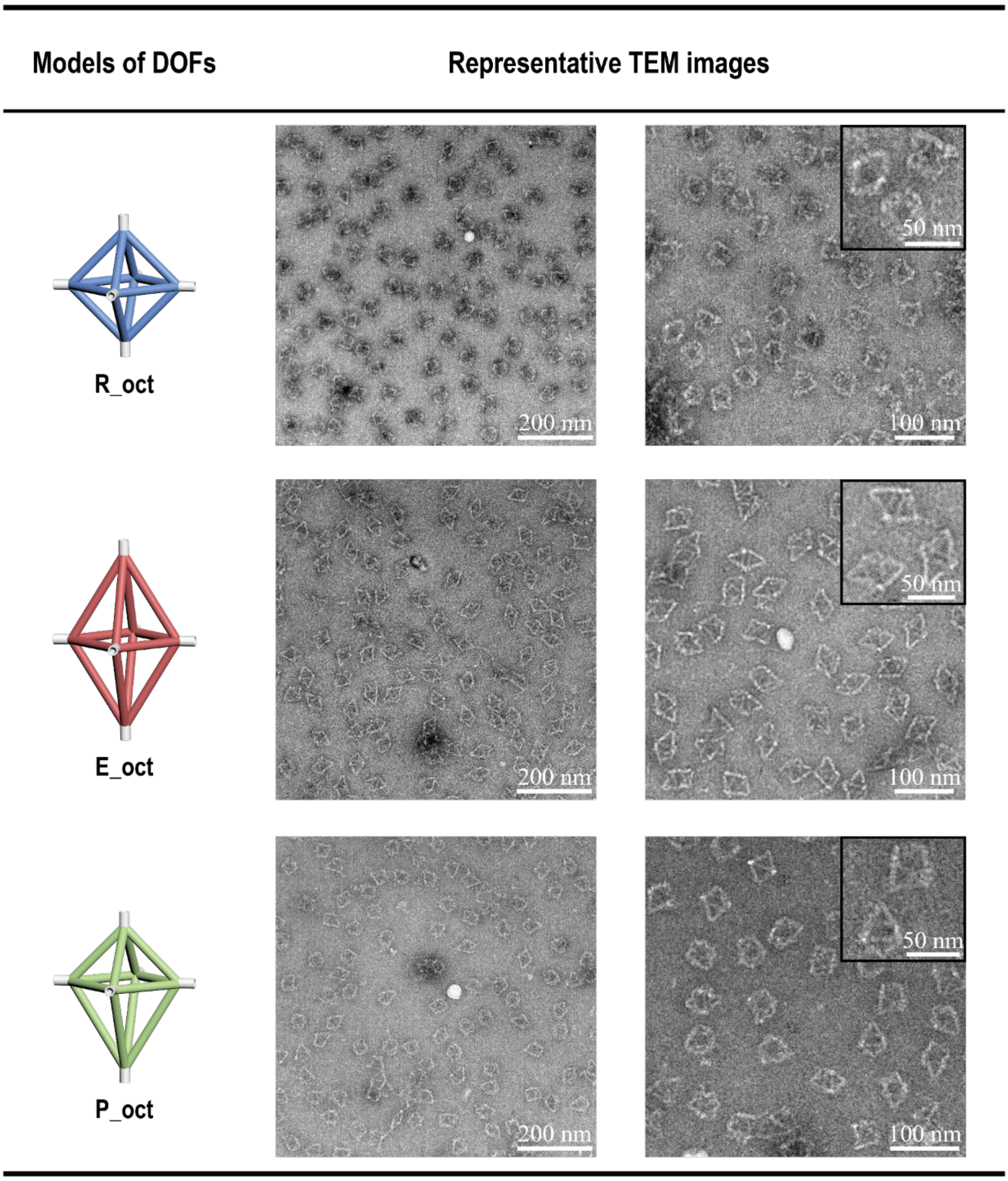

Figure S3. Representative transmission electron microscopy (TEM) images of the three types of DOFs encoded with SEs. Models of DOFs encoded with SEs (the first column) with corresponding lower magnification TEM images (the second column) and higher magnification TEM images (the third column). Scale bars, 200 nm (lower), 100 nm and 50 nm (higher).

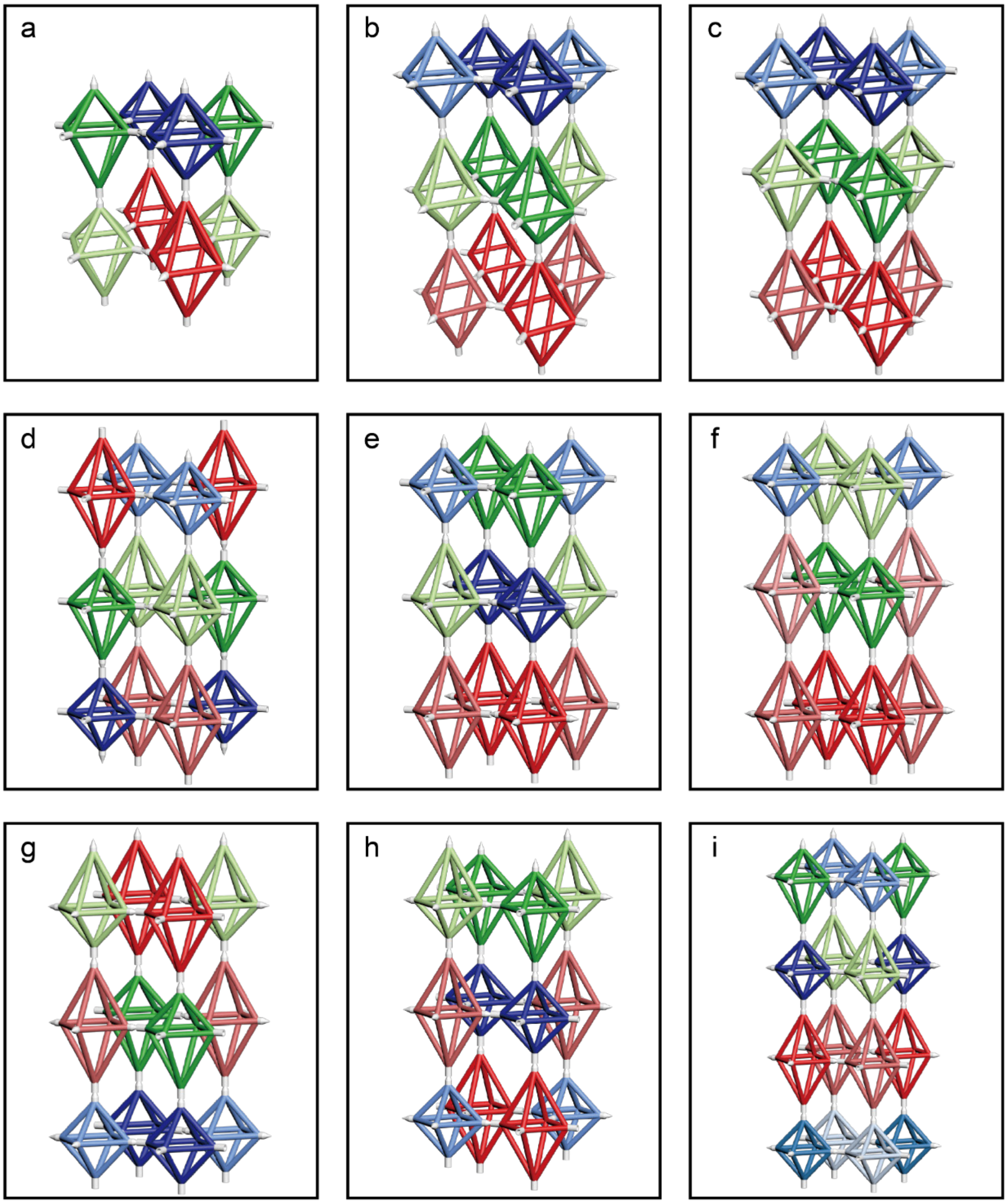

Figure S4. Examples of various different DOF platforms assembled by R_oct, E_oct and P_oct DOFs. Taking advantage of the structural complementarity of the three types of DOFs and the specificity of SEs installed at vertexes, diverse DOF platforms containing different numbers of DNA origami octahedral ‘homologs’ can be realized, such as four ‘homologs’ (a), six ‘homologs’ (b to h) and eight ‘homologs’ (i). The DOF platforms shown in (a to c) are achieved in this work, which are termed M_1, M_2 and M_3 platforms respectively.

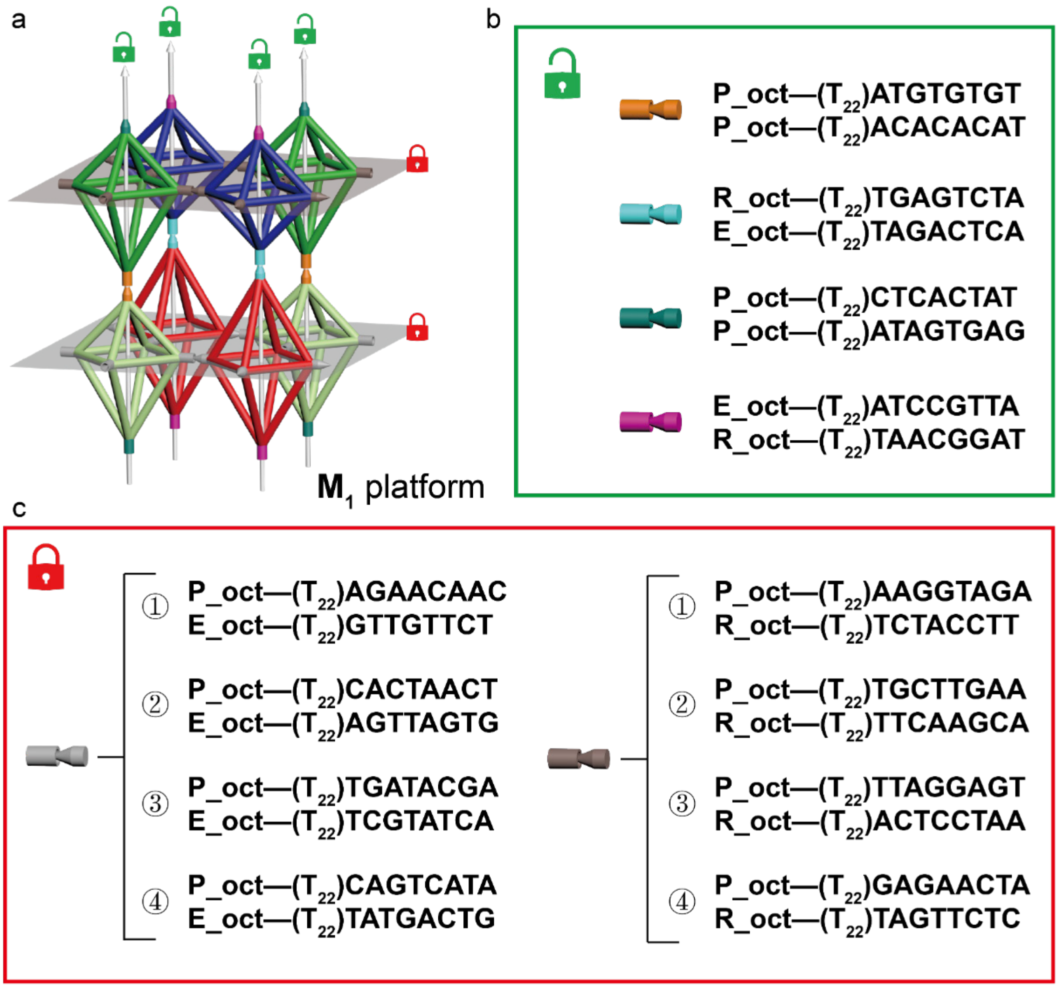

Figure S5. M1 platform constructed by applying 'unlocked mode' and 'locked mode' along the vertical and horizontal directions, respectively. (a) Enlarged model of M1 platform. (b) Detailed sequences of SEs used in the 'unlocked mode'. (c) Detailed sequences of SEs used in the 'locked mode'.

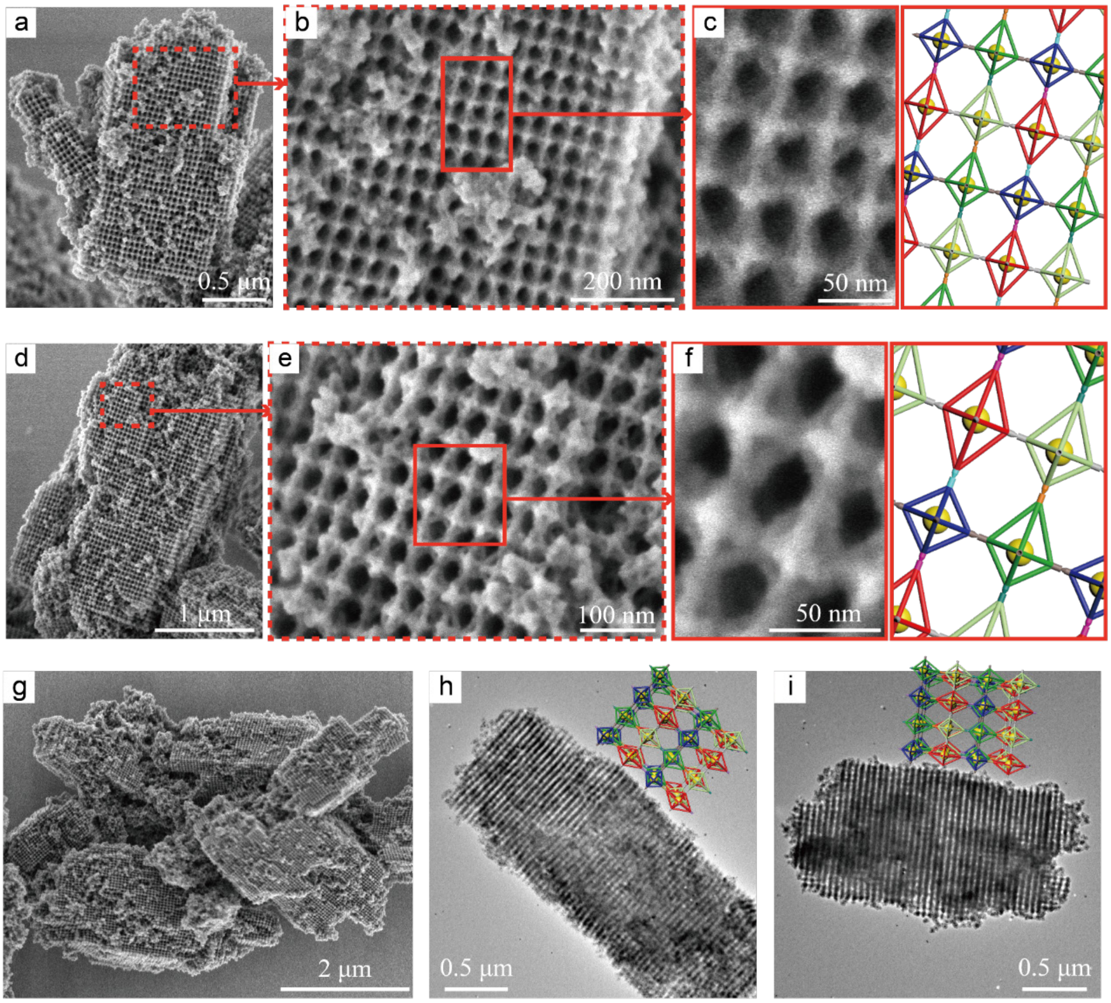

Figure S6. Representative scanning electron microscopy (SEM) and TEM images of superlattice M_1_4Au after coated with a thin layer of silica. (a) SEM image of superlattice M_1_4Au. Scale bar, 0.5 µm. (b) Close-up view of the region framed in the red dotted box in Figure S6a. Scale bar, 200 nm. (c) Close-up view of the region framed in the red box in Figure S6b with corresponding model shown beside. Scale bar, 50 nm. (d) Another SEM image of superlattice M_1_4Au. Scale bar, 1 µm. (e) Close-up view of the region framed in the red dotted box in Figure S6d. Scale bar, 100 nm. (f) Close-up view of the region framed in the red box in Figure S6e with corresponding model shown beside. Scale bar, 50 nm. (g) Large-scaled SEM image of superlattice M_1_4Au. Scale bar, 2 µm. (h, i) TEM images of superlattice M_1_4Au with corresponding models shown beside. Scale bars, 0.5 µm.

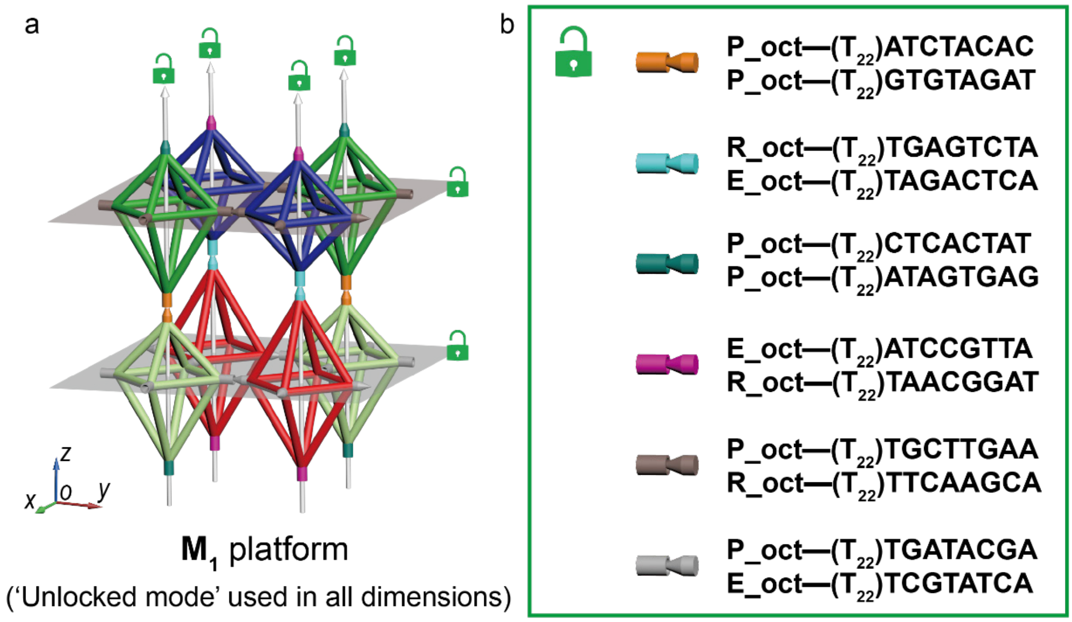

Figure S7. M$_1$ platform constructed by applying 'unlocked mode' in all dimensions. (a) Different from the SE design in Fig. S5, M$_1$ platform here is constructed by applying 'unlocked mode' in all dimensions. (b) Detailed sequences of SEs used in the 'unlocked mode'.

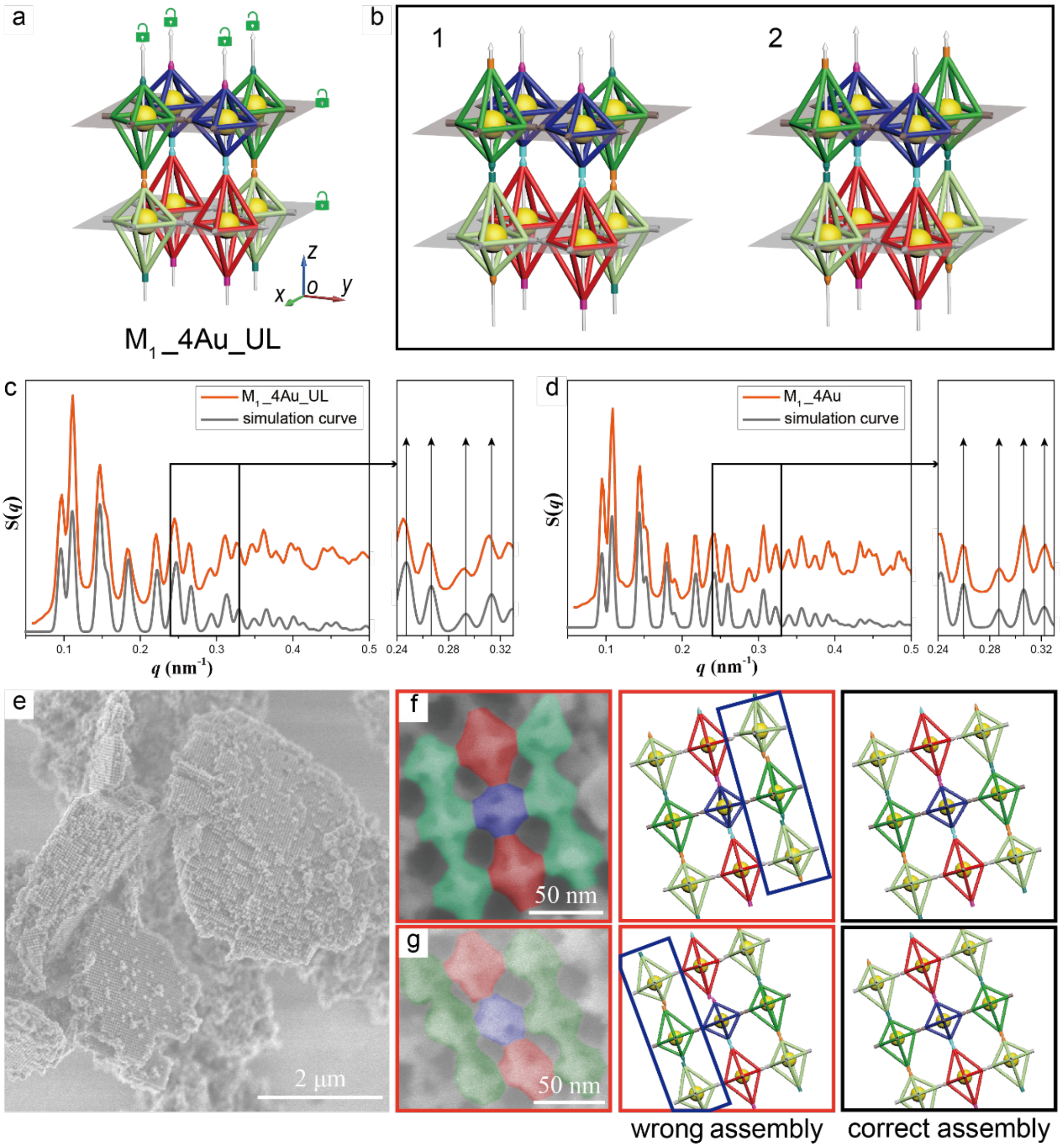

Figure S8. Nanoparticle superlattice M₁_4Au_UL which was assembled by applying 'unlocked mode' in all dimensions. (a) Simple model of nanoparticle superlattice M_1_4Au_UL. (b) Two possible packing modes under the 'unlocked mode'. (c) Experimental SAXS result (orange) of M_1_4Au_UL and the simulation curve (grey). As the value of q increases, the peak positions of the experimental scattering peaks slightly shift. The region in the black box is magnified on the right for a clearer view. (d) Experimental SAXS result (orange) of M_1_4Au and the simulation curve (grey). The experimental result matches well with the simulation. (e) SEM image of the nanoparticle superlattice M_1_4Au_UL at low magnification. Scale bar, 2 μm. (f and g) From left to the right: SEM images of the nanoparticle superlattice M_1_4Au_UL at high magnification; corresponding model framed in the red box with the incorrect assembly parts framed in blue boxes; corresponding correct assembly model framed in the black box. For clear observation, R_oct, E_oct and P_oct ‘homologs’ are falsely colored in blue, red and green, respectively. Scale bars, 50 nm.

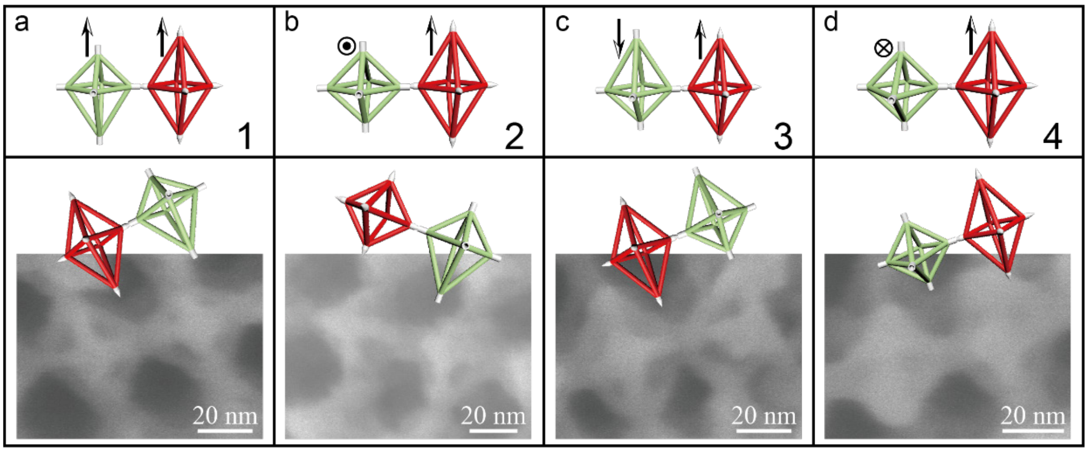

Figure S9. Four different binding modes (numbered from 1 to 4) between E_oct and P_oct found in the nanoparticle superlattice M_1_4Au_UL, of which three types are unnecessary (2 to 4). From left to right, each panel contains the standard model of the binding mode (up) and corresponding experimental results with actual model shown beside (bottom). Scale bars, 20 nm.

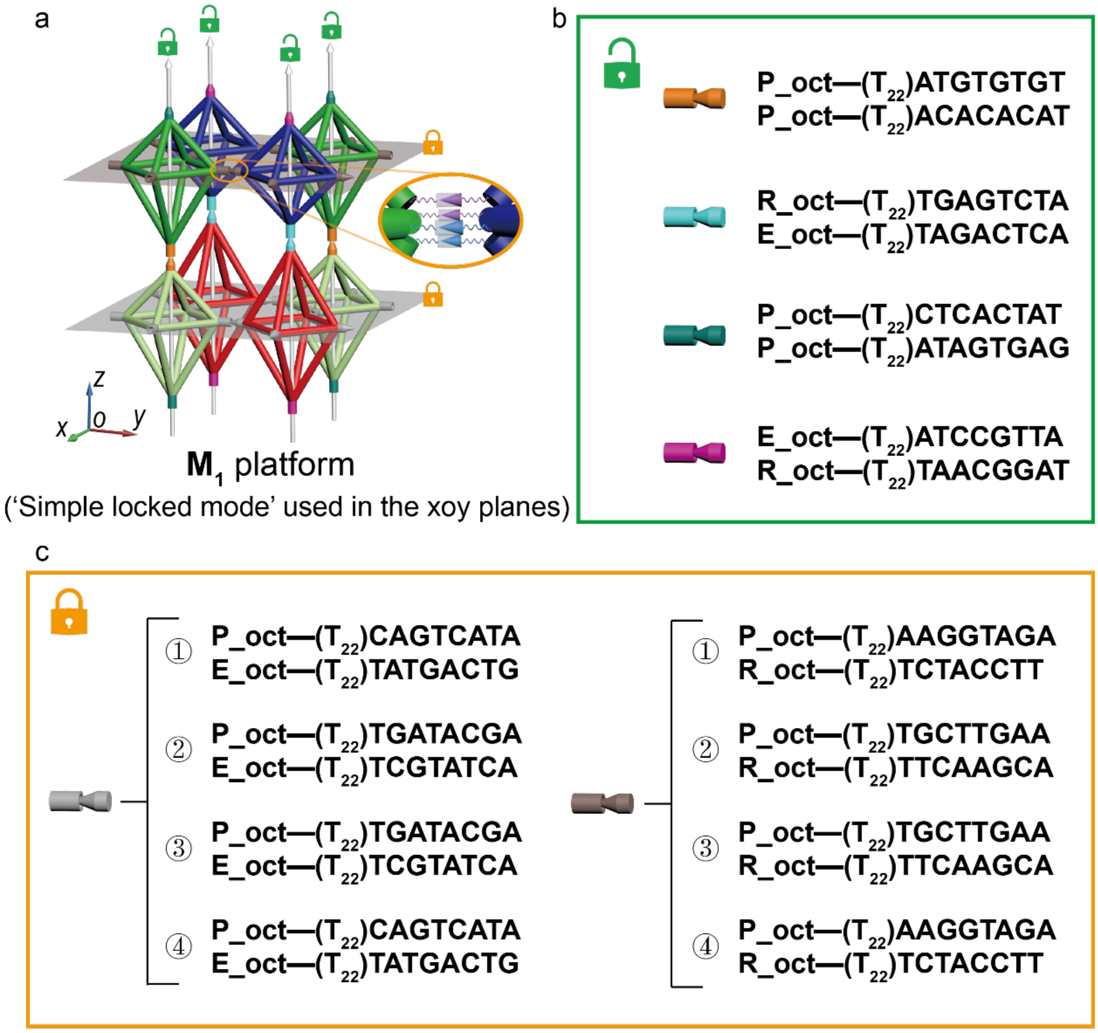

Figure S10. M_1 platform constructed by applying 'unlocked mode' and 'simple locked mode' along the z-axis and in the xoy plane, respectively. (a) Different from the SE design in Fig. S5, M_1 platform here is constructed by applying 'simple locked mode' (orange closed lock) in the xoy plane. The 'simple locked mode' (orange closed lock) means only two kinds of SEs are stretched out from the vertex in a specific arrangement (framed in the orange ellipse). (b) Detailed sequences of SEs used in the 'unlocked mode' along the z-axis. (c) Detailed sequences of SEs used in the 'simple locked mode' in the xoy plane.

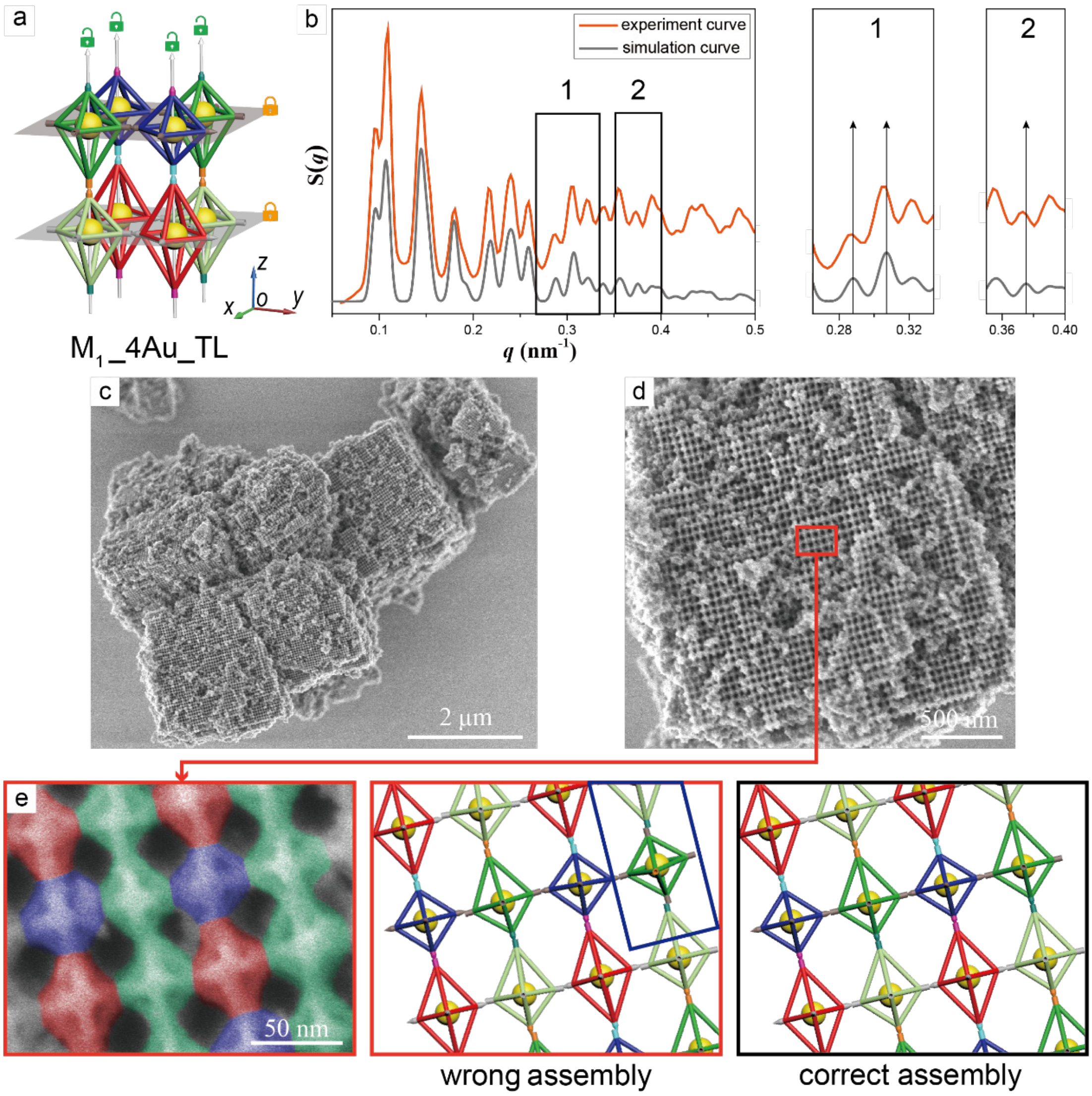

Figure S11. Nanoparticle superlattice M_1_4Au_TL which was assembled by applying 'unlocked mode' and 'simple locked mode' (see Fig. S10 for details) along the z-axis and in the xoy plane, respectively. (a) Simple model of nanoparticle superlattice M_1_4Au_TL. (b) Experimental SAXS result (orange) of M_1_4Au_TL and the simulation curve (grey). The peaks framed in black boxes exhibit very slightly deviation with the simulated curve. (c) SEM image of the nanoparticle superlattice M_1_4Au_TL at low magnification. Scale bar, 2 μm. (d) SEM image of the nanoparticle superlattice M_1_4Au_TL at high magnification. Scale bar, 500 nm. (e) From left to the right: close-up view of the region framed in the red box in Figure S11d; corresponding model framed in the red box with the incorrect assembly parts framed in the blue box; corresponding correct assembly model framed in the black box. For clear observation, R_oct, E_oct and P_oct 'homologs' are falsely colored in blue, red and green, respectively. Scale bar, 50 nm.

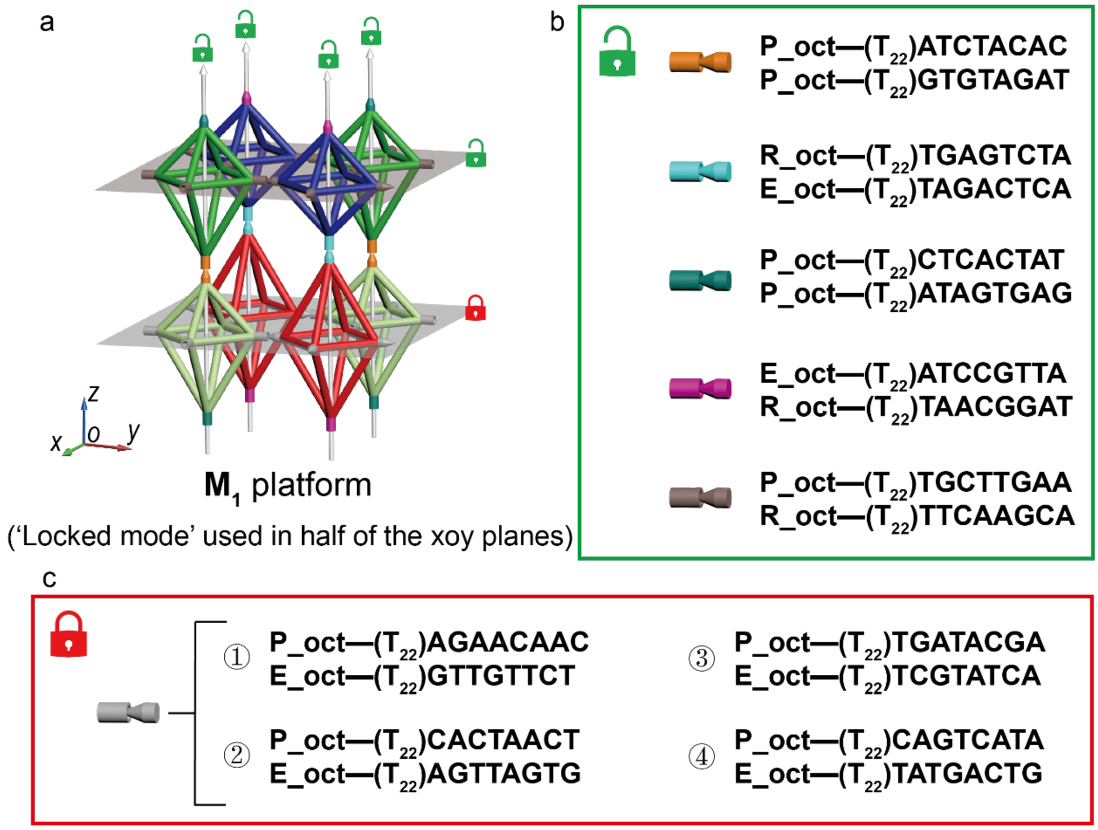

Figure S12. M_1 platform constructed by applying 'unlocked mode' along the z-axis and in half of the xoy planes, and applying 'locked mode' in the other half of the xoy planes. (a) Different from the SE design in Fig. S5, M_1 platform here is constructed by applying 'locked mode' in half of the xoy planes. (b) Detailed sequences of SEs used in the 'unlocked mode'. (c) Detailed sequences of SEs used in the 'locked mode'.

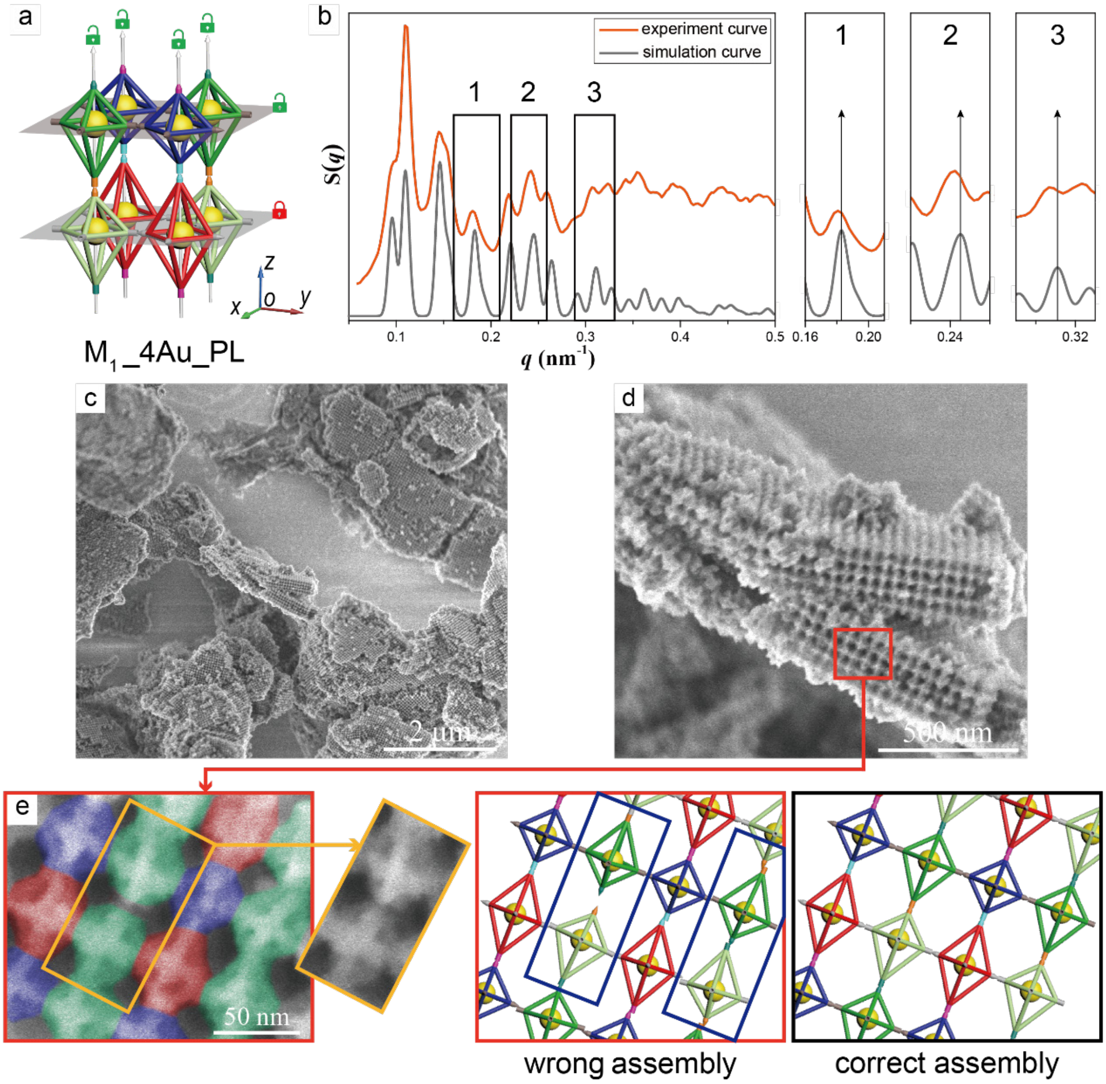

Figure S13. Nanoparticle superlattice M_1_4Au_PL which was assembled by applying 'locked mode' in half of the xoy planes. (a) Simple model of nanoparticle superlattice M_1_4Au_PL. (b) Experimental SAXS result (orange) of M_1_4Au_PL and the simulation curve (grey). The peaks framed in black boxes exhibit obvious deviation with the simulated curve. (c) SEM image of the nanoparticle superlattice M_1_4Au_PL at low magnification. Scale bar, 2 μm. (d) SEM image of the nanoparticle superlattice M_1_4Au_PL at high magnification. Scale bar, 500 nm. (e) From left to the right: close-up view of the region framed in the red box in Figure S13d; raw SEM image of the region framed in the orange box showing two unconnected monomers; corresponding model framed in the red box with the incorrect assembly parts framed in blue boxes; corresponding correct assembly model framed in the black box. For clear observation, R_oct, E_oct and P_oct 'homologs' are falsely colored in blue, red and green, respectively. Scale bar, 50 nm.

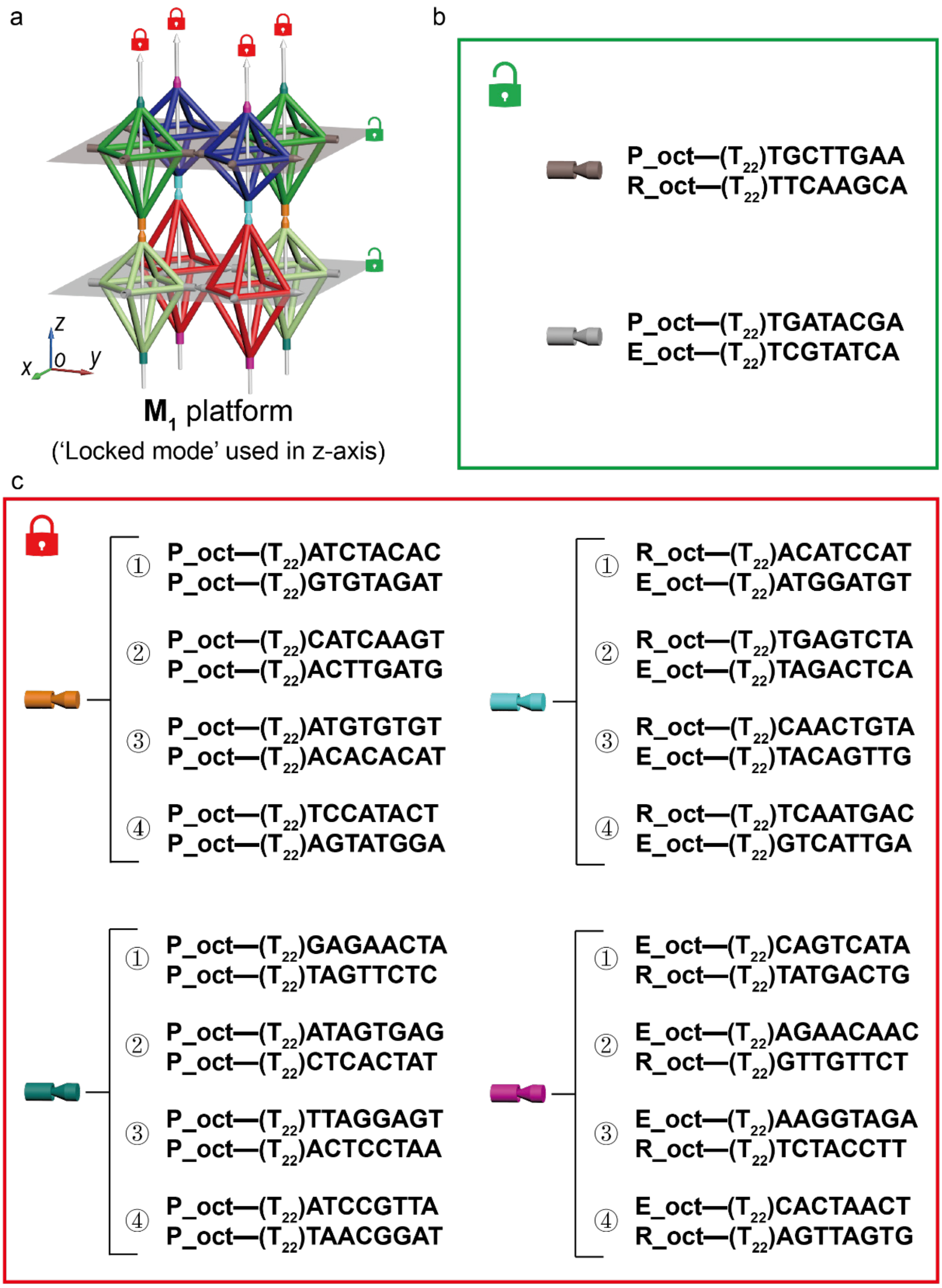

Figure S14. M_1 platform constructed by applying 'unlocked mode' and 'locked mode' in the xoy plane and along the z-axis, respectively. (a) Different from the SE design in Fig. S5, M_1 platform here is constructed by applying 'unlocked mode' and 'locked mode' in the xoy plane and along the z-axis, respectively. (b) Detailed sequences of SEs used in the 'unlocked mode'. (c) Detailed sequences of SEs used in the ‘locked mode’.

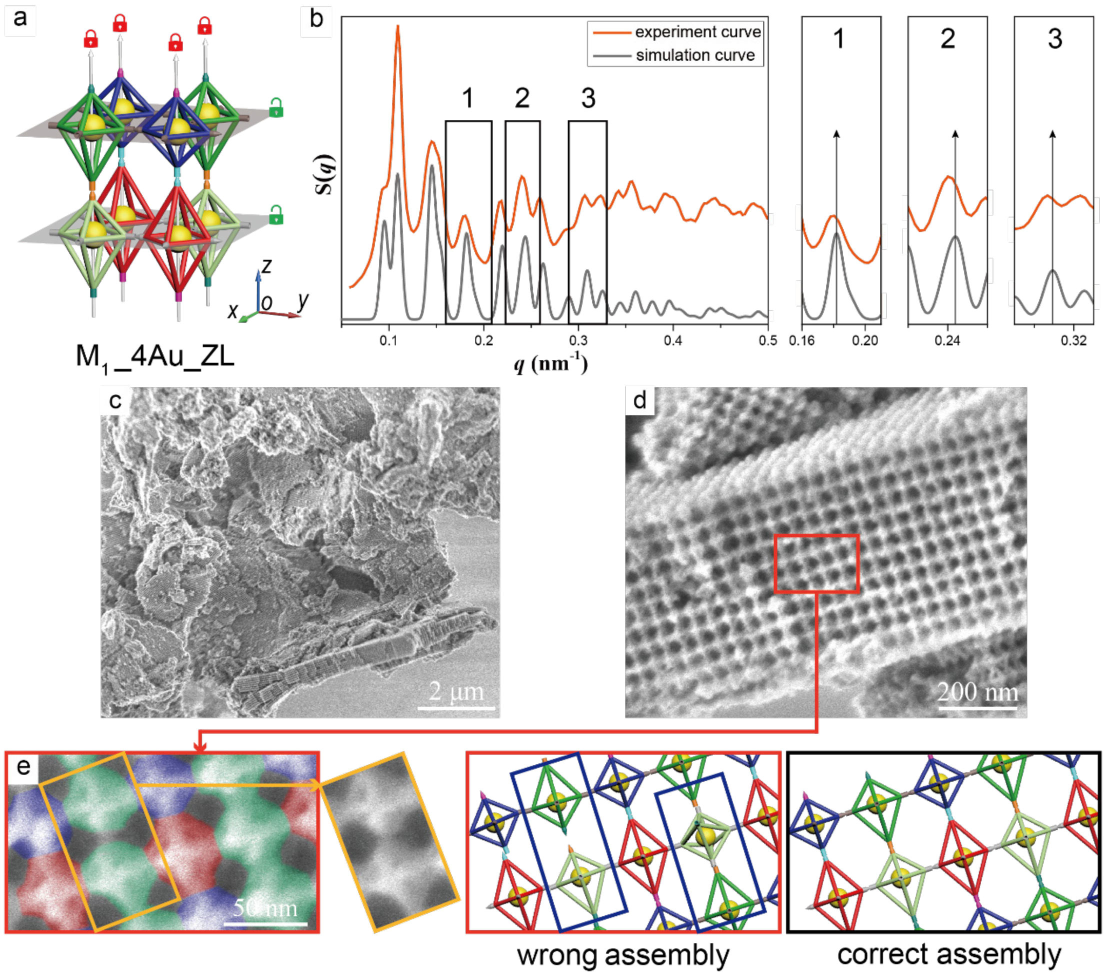

Figure S15. Nanoparticle superlattice M_1_4Au_ZL which was assembled by applying ‘unlocked mode’ and ‘locked mode’ in the xoy plane and along the z-axis, respectively. (a) Simple model of nanoparticle superlattice M_1_4Au_ZL. (b) Experimental SAXS result (orange) of M_1_4Au_ZL and the simulation curve (grey). The peaks framed in black boxes exhibit obvious deviation with the simulated curve. (c) SEM image of the nanoparticle superlattice M_1_4Au_ZL at low magnification. Scale bar, 2 μm. (d) SEM image of the nanoparticle superlattice M_1_4Au_ZL at high magnification. Scale bar, 200 nm. (e) From left to the right: close-up view of the region framed in the red box in Figure S15d; raw SEM image of the region framed in the orange box showing two unconnected monomers; corresponding model framed in the red box with the incorrect assembly parts framed in blue boxes; corresponding correct assembly model framed in the black box. For clear observation, R_oct, E_oct and P_oct ‘homologs’ are falsely colored in blue, red and green, respectively. Scale bar, 50 nm.

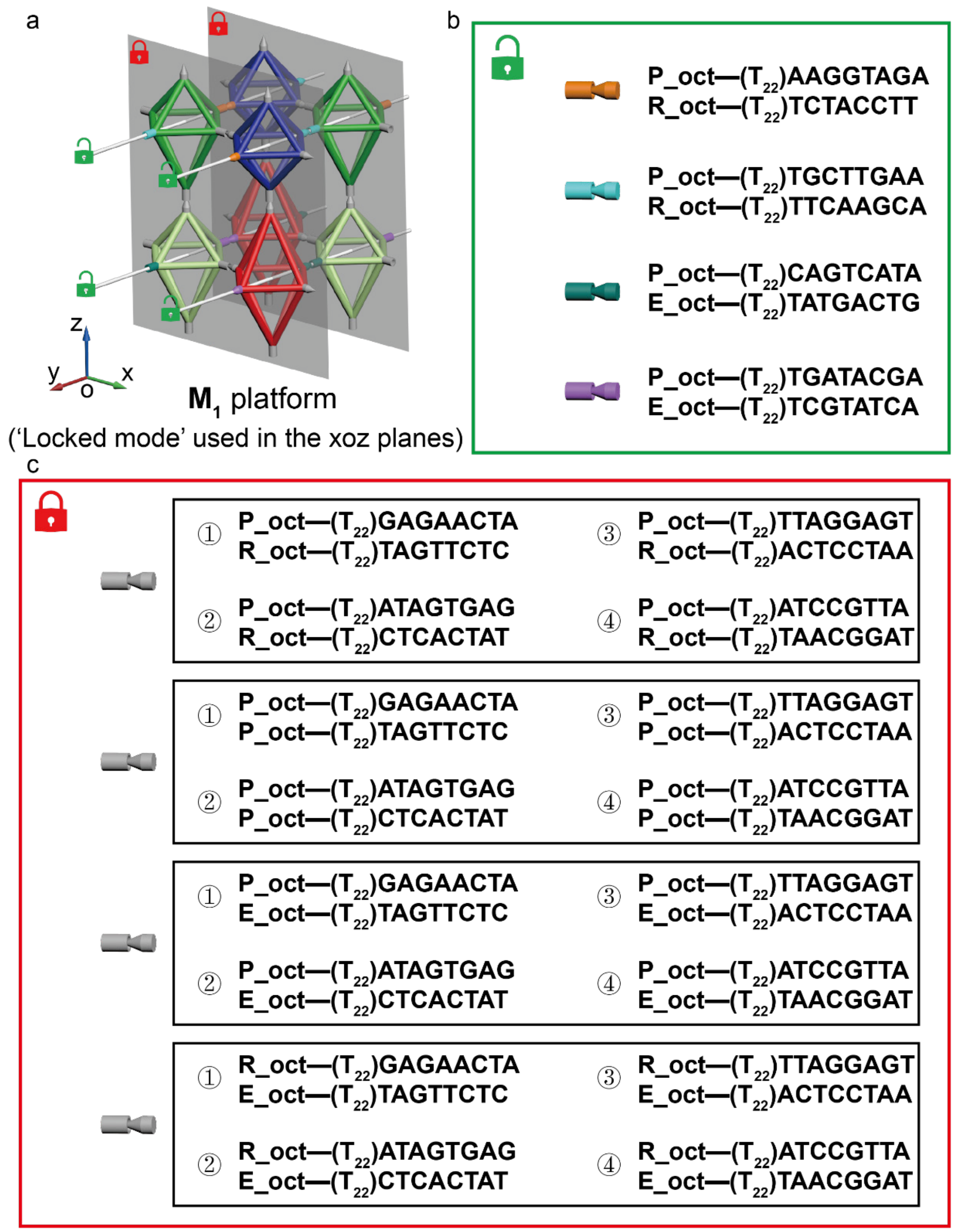

Figure S16. M_1 platform constructed by applying 'unlocked mode' and 'locked mode' along the y-axis and in the xoz plane, respectively. (a) Different from the SE design in Fig. S5, M_1 platform here is constructed by applying the 'unlocked mode' along the y-axis and the 'locked mode' in the xoz plane. (b) Detailed sequences of SEs used in the 'unlocked mode'. (c) Detailed sequences of SEs used in the 'locked mode'.

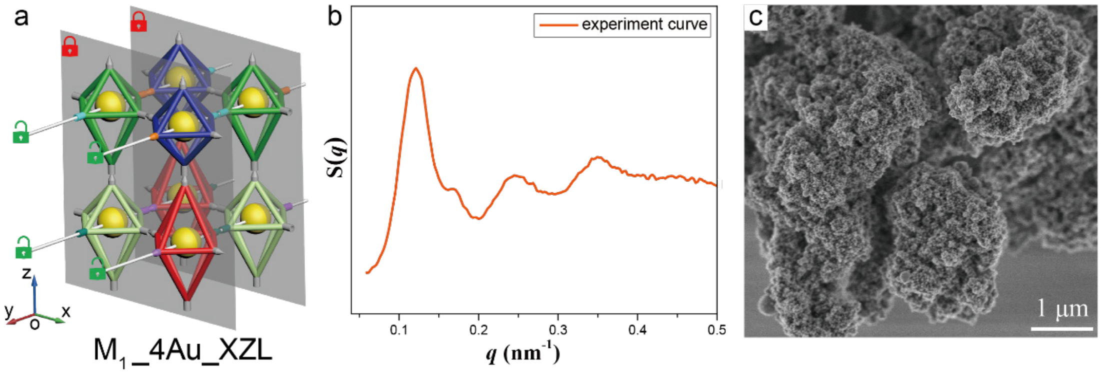

Figure S17. Nanoparticle superlattice M_1_4Au_XZL which was assembled by applying the 'unlocked mode' in the y-axis and the 'locked mode' in the xoz plane. (a) Simple model of nanoparticle superlattice M_1_4Au_XZL. (b) Experimental SAXS result of M_1_4Au_XZL. (c) SEM image of the nanoparticle superlattice M_1_4Au_XZL at low magnification. Scale bar, 1 μm.

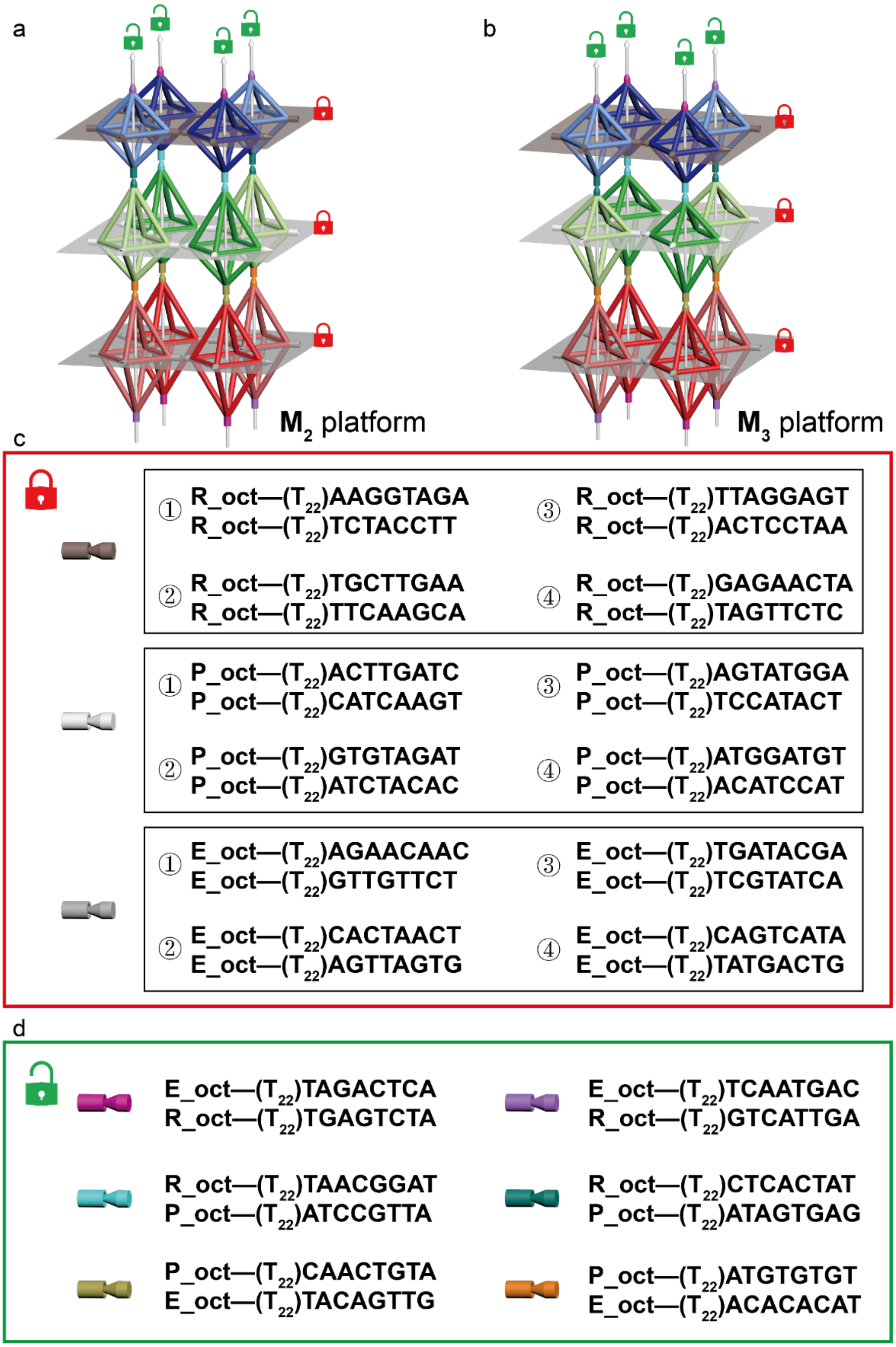

Figure S18. M_2 and M_3 platform both constructed by applying 'unlocked mode' and 'locked mode' along the z-axis and in the xoy plane, respectively. (a) Enlarged model of M_2 platform. (b) Enlarged model of M_3 platform. (c) Detailed sequences of SEs used in the 'locked mode' in both platforms. (d) Detailed sequences of SEs used in the ‘unlocked mode’ in both platforms.

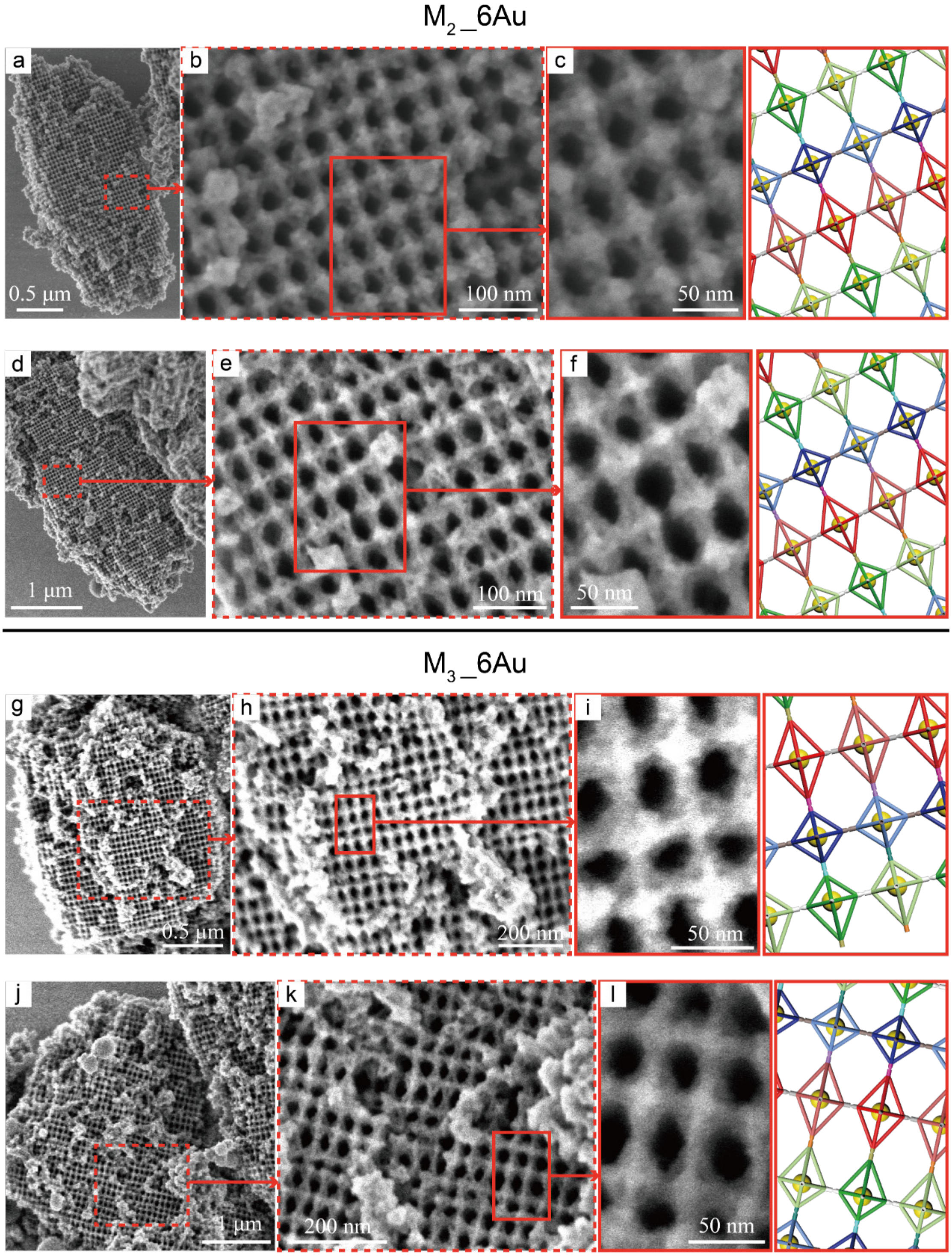

Figure S19. Representative SEM images of superlattices M_2_6Au and M_3_6Au after coated with a thin layer of silica. (a) SEM image of superlattice M_2_6Au. Scale bar, 0.5 μm. (b) Close-up view of the region framed in the red dotted box in Figure S19a. Scale bar, 100 nm. (c) Close-up view of the region framed in the red box in Figure

S19b with corresponding model shown beside. Scale bar, 50 nm. (d) Another SEM image of superlattice M_2_6Au. Scale bar, 1 μm. (e) Close-up view of the region framed in the red dotted box in Figure S19d. Scale bar, 100 nm. (f) Close-up view of the region framed in the red box in Figure S19e with corresponding model shown beside. Scale bar, 50 nm. (g) SEM image of superlattice M_3_6Au. Scale bar, 0.5 μm. (h) Close-up view of the region framed in the red dotted box in Figure S19g. Scale bar, 200 nm. (i) Close-up view of the region framed in the red box in Figure S19h with corresponding model shown beside. Scale bar, 50 nm. (j) Another SEM image of superlattice M_3_6Au. Scale bar, 1 μm. (k) Close-up view of the region framed in the red dotted box in Figure S19j. Scale bar, 200 nm. (l) Close-up view of the region framed in the red box in Figure S19k with corresponding model shown beside. Scale bar, 50 nm.

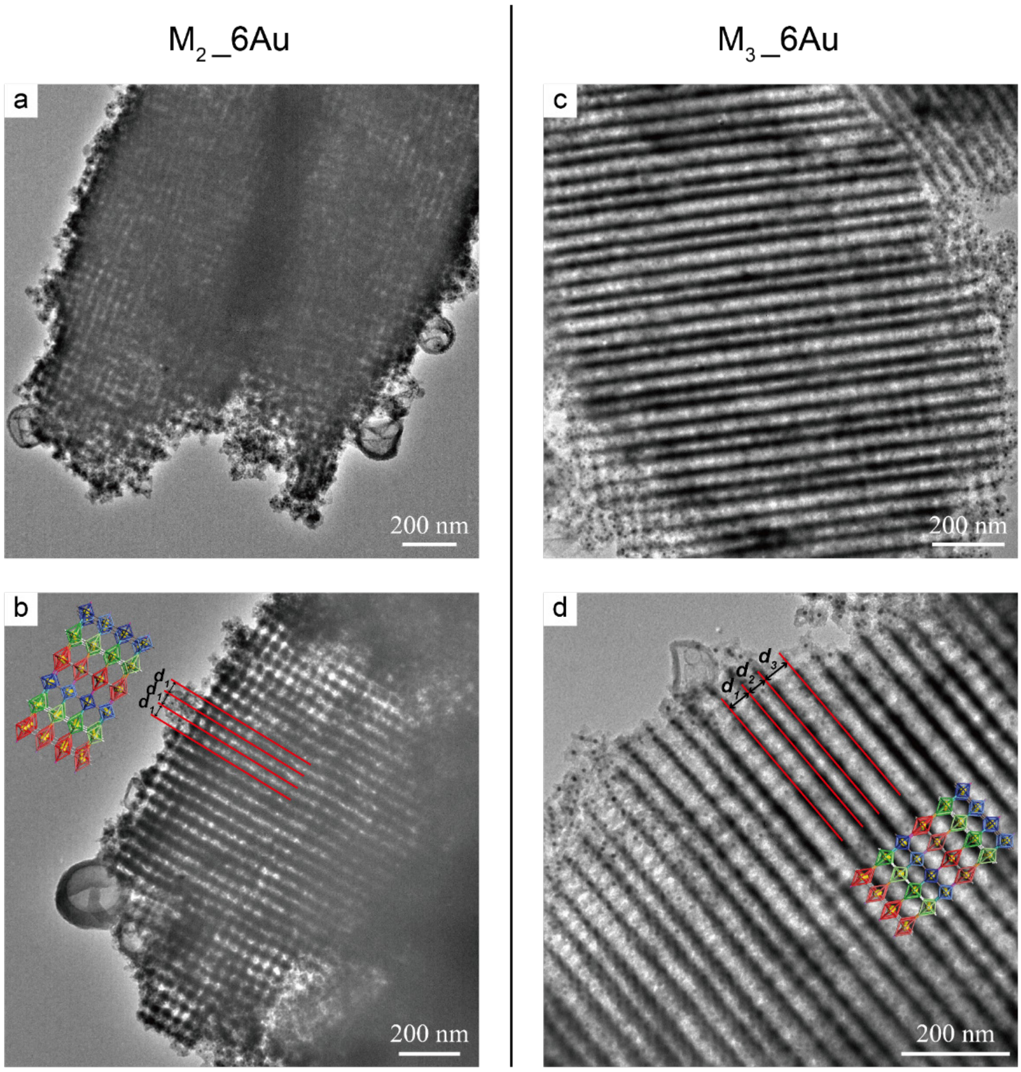

Figure S20. Representative TEM images of superlattices M_2_6Au and M_3_6Au after coated with a thin layer of silica. (a, b) TEM images of superlattice M_2_6Au. The layer spacing is measured to be the same (equal to d_1) corresponding to the model shown beside (b). Scale bars, 200 nm. (c, d) TEM images of superlattice M_3_6Au. The layer spacing is measured to be different (respectively equal to d_1, d_2 and d_3) corresponding to the model shown beside (d). Scale bars, 200 nm.

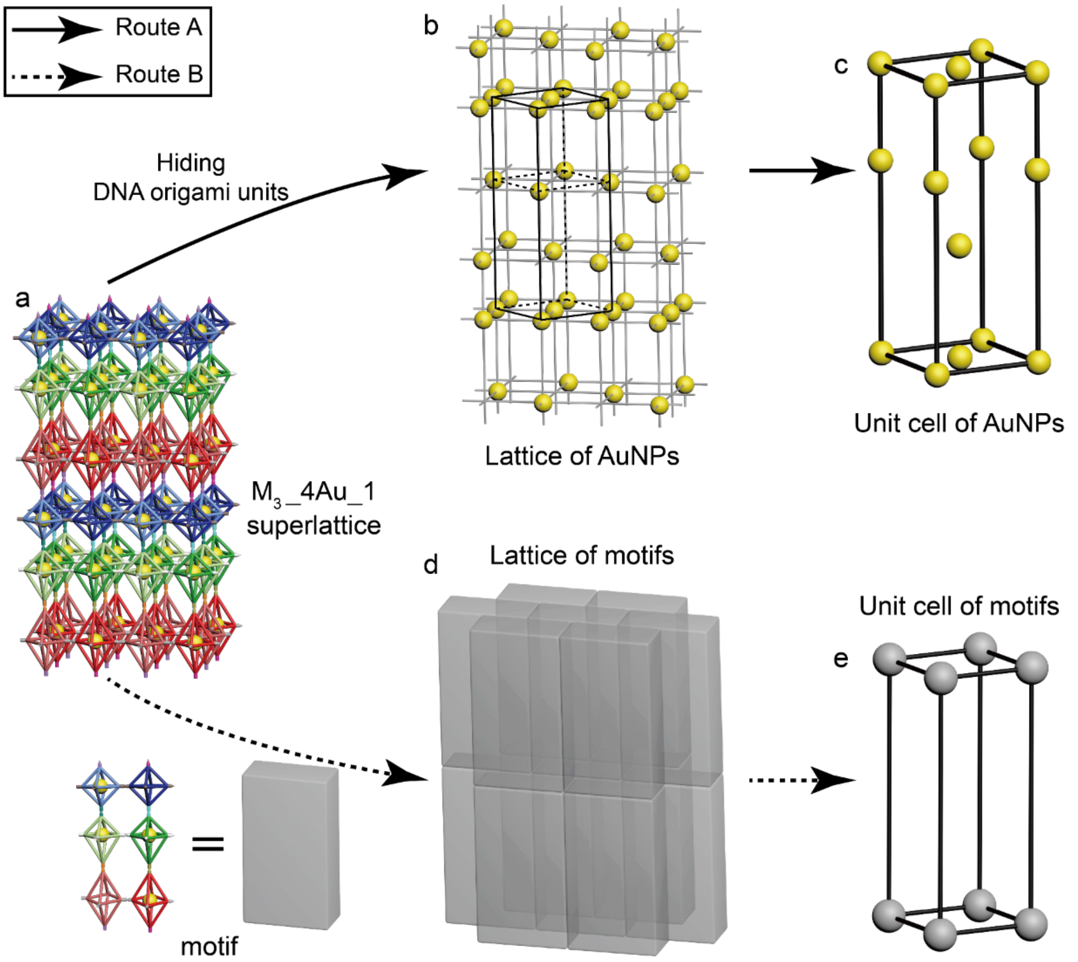

Figure S21. Two different routes can be adopted to understand the structure of DOF/NP complex crystals by taking superlattice M_3_4Au_1 as an example.

Route A: a-b-c. Superlattice M_3_4Au_1 (a) can be understood as a nanoparticle superlattice (b) through ignoring the DOF platforms, of which the unit cell is composed of gold nanoparticles (AuNPs) (c).

Route B: a-d-e. Superlattice M_3_4Au_1 (a) can be understood by simultaneously considering DOFs and AuNPs, where the six-unit cluster could be considered as the basic motif. Hence, superlattice can be exhibited in the form of the basic motifs stacking (d), of which the unit cell is a simple tetragonal structure (e).

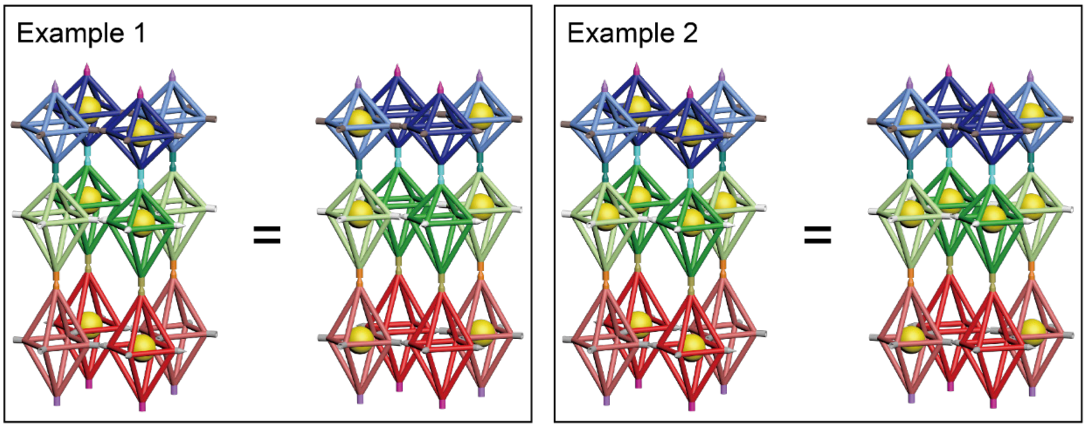

Figure S22. Two groups of superlattices based on M_3 platform are selected as examples to illustrate the concept of equivalence of crystal structures. M_3 platform is constructed by six types of DNA origami octahedral ‘homologs’ consisting of two R_oct, two E_oct and two P_oct DNA origami octahedral ‘homologs’. Interestingly, the M_3 platform can be logically considered as a binary system, where the three light colored building blocks and the three dark building blocks respectively act as one of the units. Therefore, the DOF/NP superlattices fabricated based on exchanging the positions of inserting AuNPs between the two units is logically equivalent.

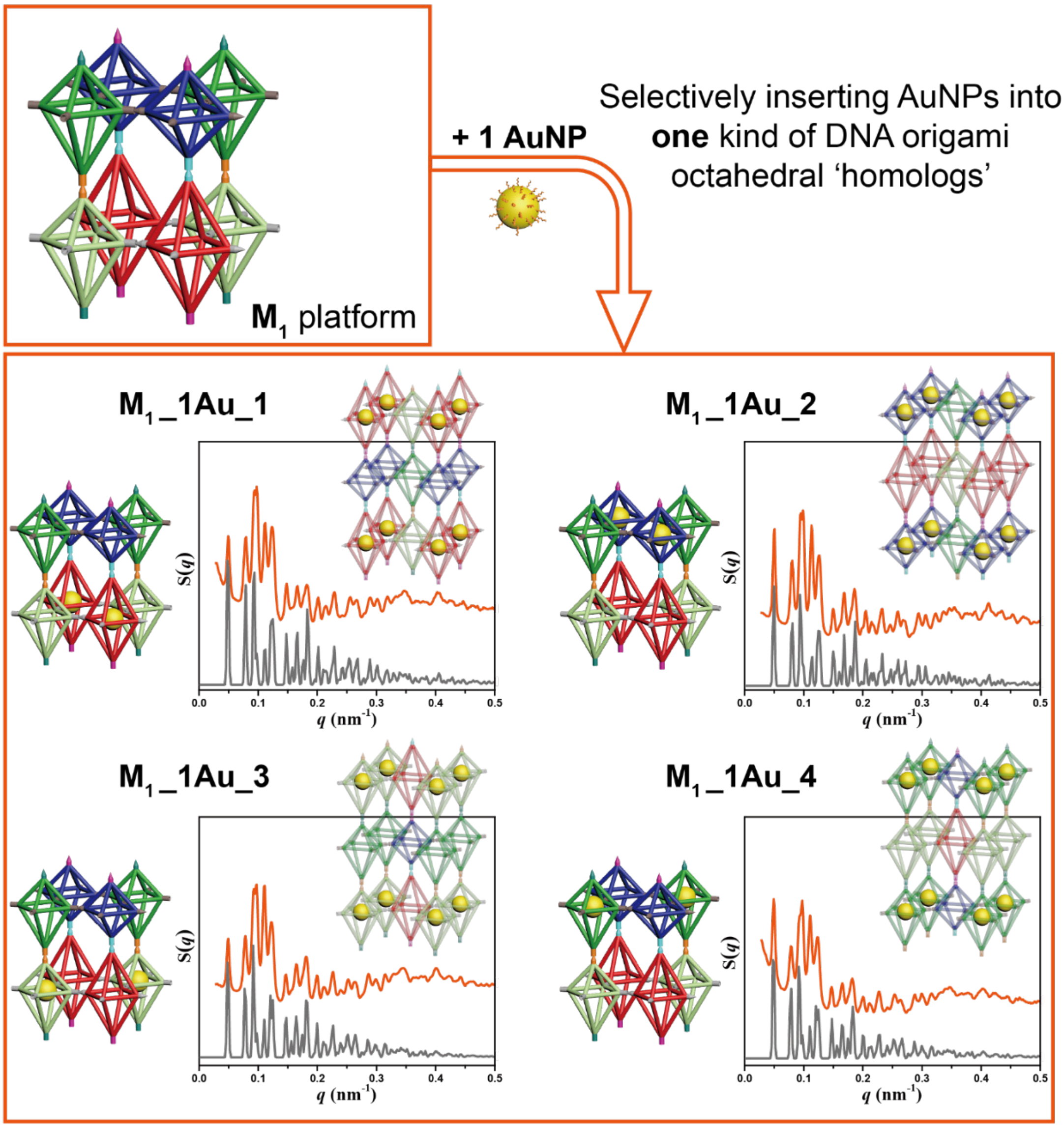

Figure S23. SAXS characterization of superlattices M_1_1Au_1, M_1_1Au_2, M_1_1Au_3 and M_1_1Au_4 constructed on the basis of M_1 platform by selectively inserting AuNPs into one kind of DNA origami octahedral 'homolog'. From left to right, each panel contains M_1 platform where AuNPs are selectively inserted into one kind of DNA origami octahedral 'homolog', experimental SAXS data (orange) compared against simulation curve (grey) and corresponding unit cell of AuNPs with external DOFs.

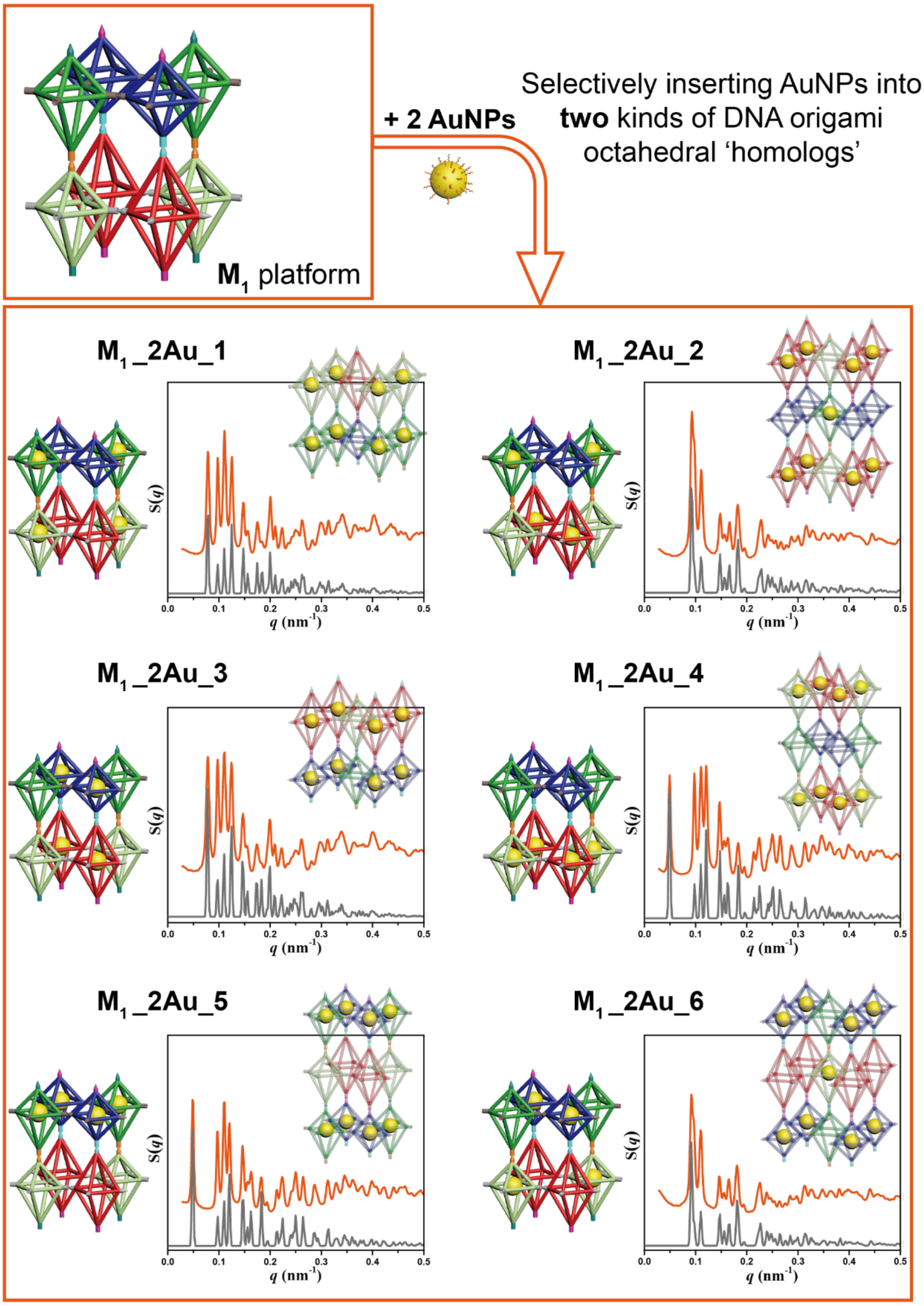

Figure S24. SAXS characterization of superlattices M₁_2Au_1, M₁_2Au_2, M₁_2Au_3, M₁_2Au_4, M₁_2Au_5 and M₁_2Au_6 constructed on the basis of M₁ platform by selectively inserting AuNPs into two kinds of DNA origami octahedral 'homologs'. From left to right, each panel contains M₁ platform where AuNPs are selectively inserted into two kinds of DNA origami octahedral ‘homologs’, experimental SAXS data (orange) compared against simulation curve (grey) and corresponding unit cell of AuNPs with external DOFs.

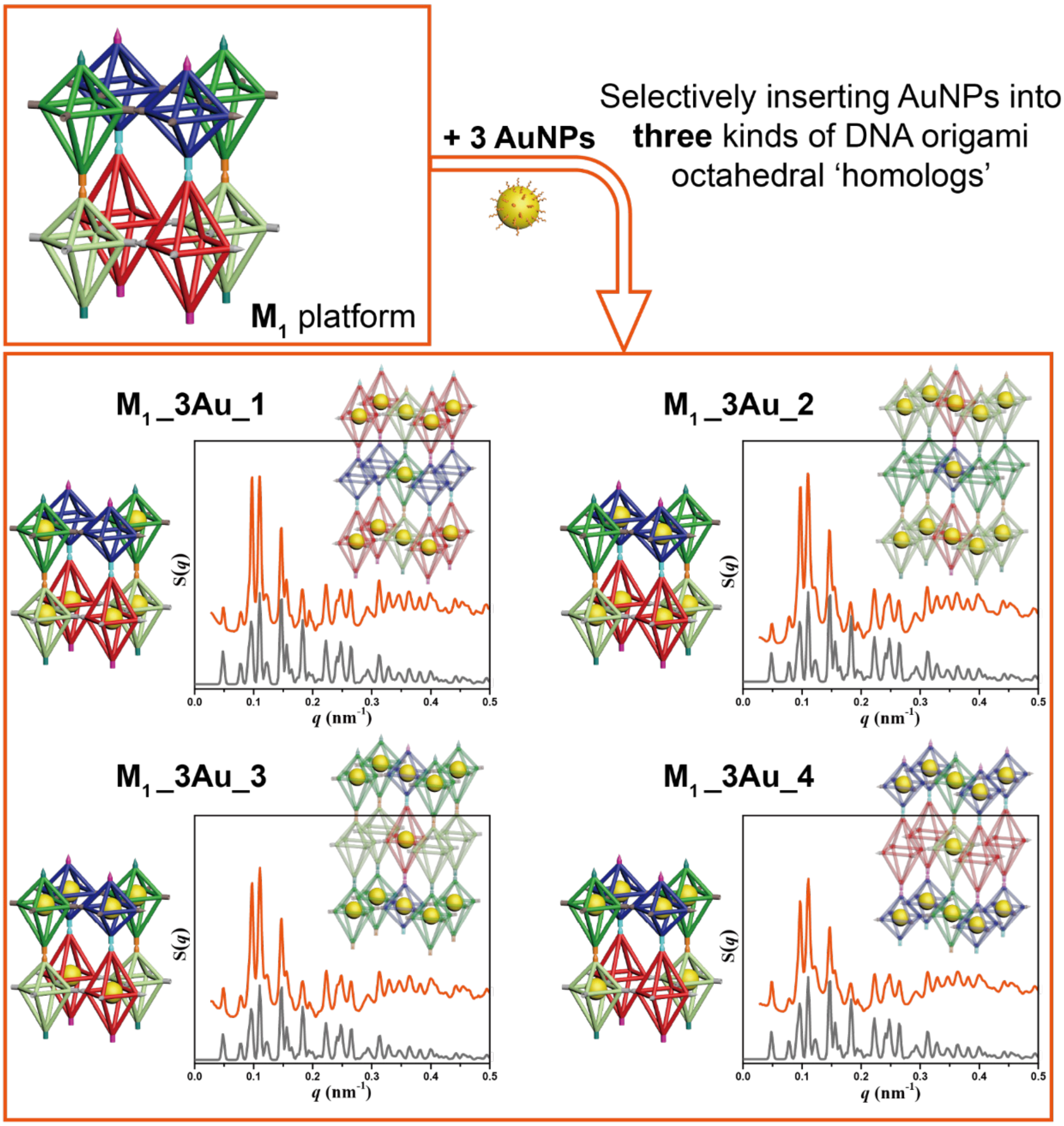

Figure S25. SAXS characterization of superlattices M1_3Au_1, M1_3Au_2, M1_3Au_3 and M1_3Au_4 constructed on the basis of M1 platform by selectively inserting AuNPs into three kinds of DNA origami octahedral 'homologs'. From left to right, each panel contains M1 platform where AuNPs are selectively inserted into three kinds of DNA origami octahedral 'homologs', experimental SAXS data (orange) compared against simulation curve (grey) and corresponding unit cell of AuNPs with external DOFs.

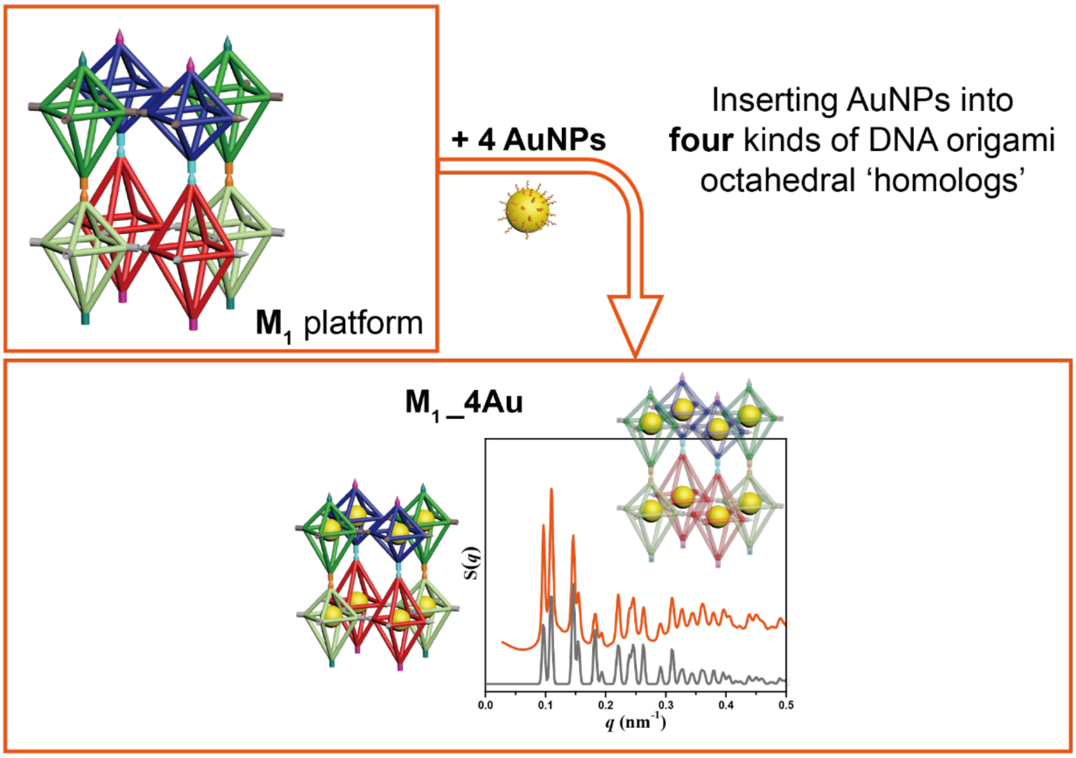

Figure S26. SAXS characterization of superlattice M_1_4Au constructed on the basis of M_1 platform by inserting AuNPs into all four kinds of DNA origami octahedral 'homologs'. From left to right, the panel contains M_1 platform where AuNPs are inserted into all four kinds of DNA origami octahedral 'homologs', experimental SAXS data (orange) compared against simulation curve (grey) and corresponding unit cell of AuNPs with external DOFs.

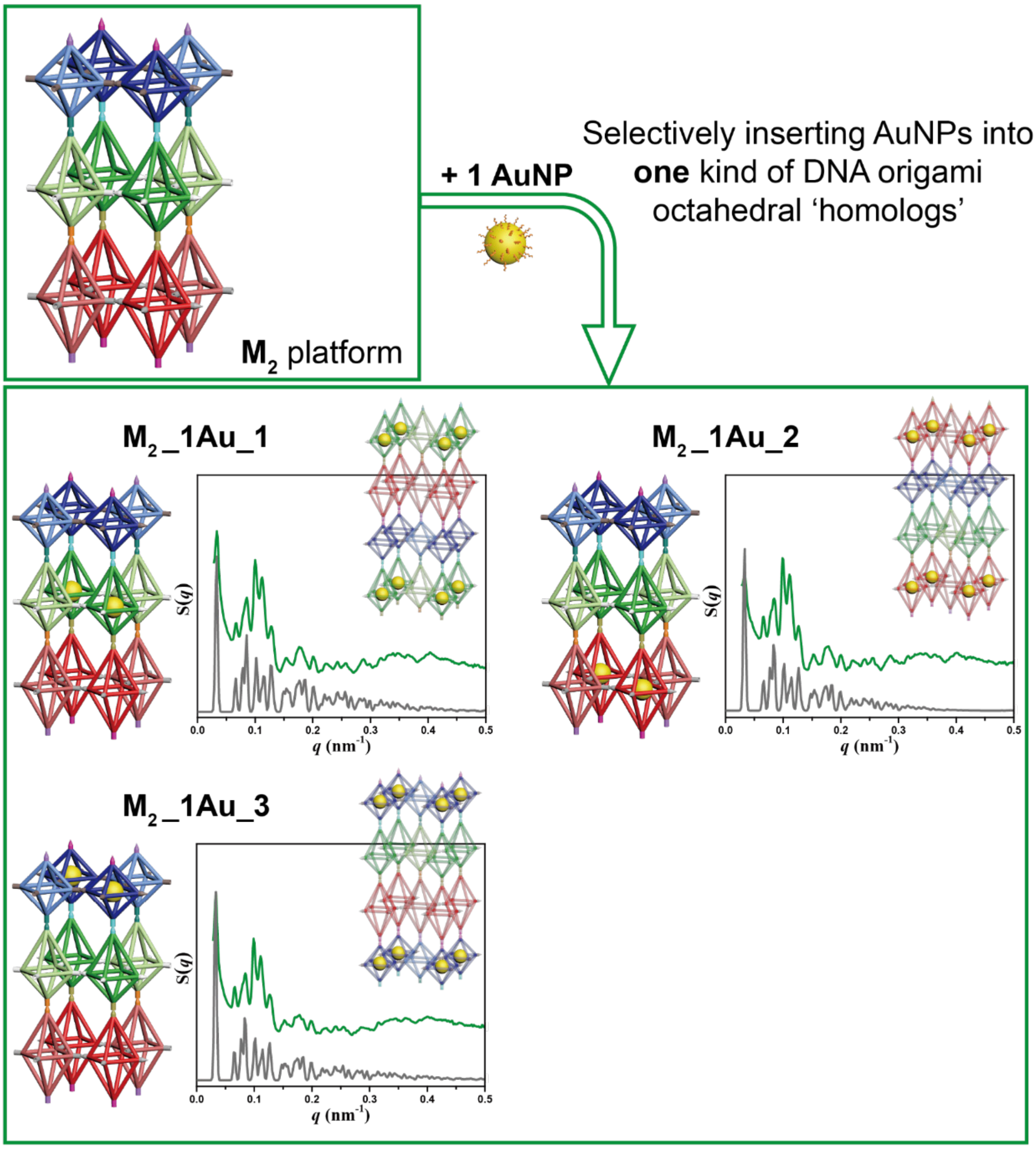

Figure S27. SAXS characterization of superlattices M_2_1Au_1, M_2_1Au_2 and M_2_1Au_3 constructed on the basis of M_2 platform by selectively inserting AuNPs into one kind of DNA origami octahedral 'homolog'. From left to right, each panel contains M_2 platform where AuNPs are selectively inserted into one kind of DNA origami octahedral 'homolog', experimental SAXS data (green) compared against simulation curve (grey) and corresponding unit cell of AuNPs with external DOFs.

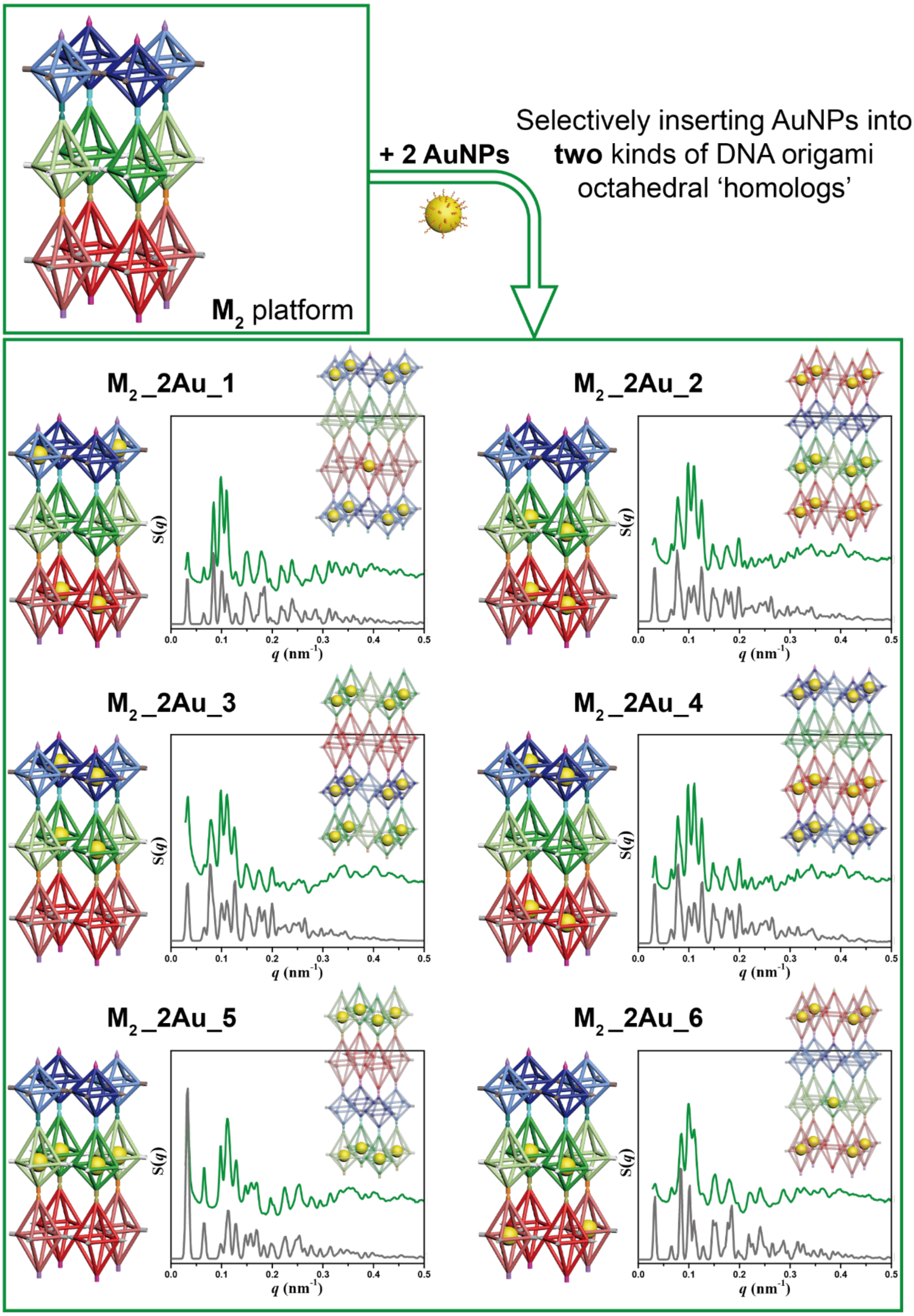

Figure S28. SAXS characterization of superlattices M₂_2Au_1, M₂_2Au_2, M₂_2Au_3, M₂_2Au_4, M₂_2Au_5 and M₂_2Au_6 constructed on the basis of M₂ platform by selectively inserting AuNPs into two kinds of DNA origami octahedral 'homologs'. From left to right, each panel contains M₂ platform where AuNPs are selectively inserted into two kinds of DNA origami octahedral 'homologs', experimental SAXS data (green) compared against simulation curve (grey) and corresponding unit cell of AuNPs with external DOFs.

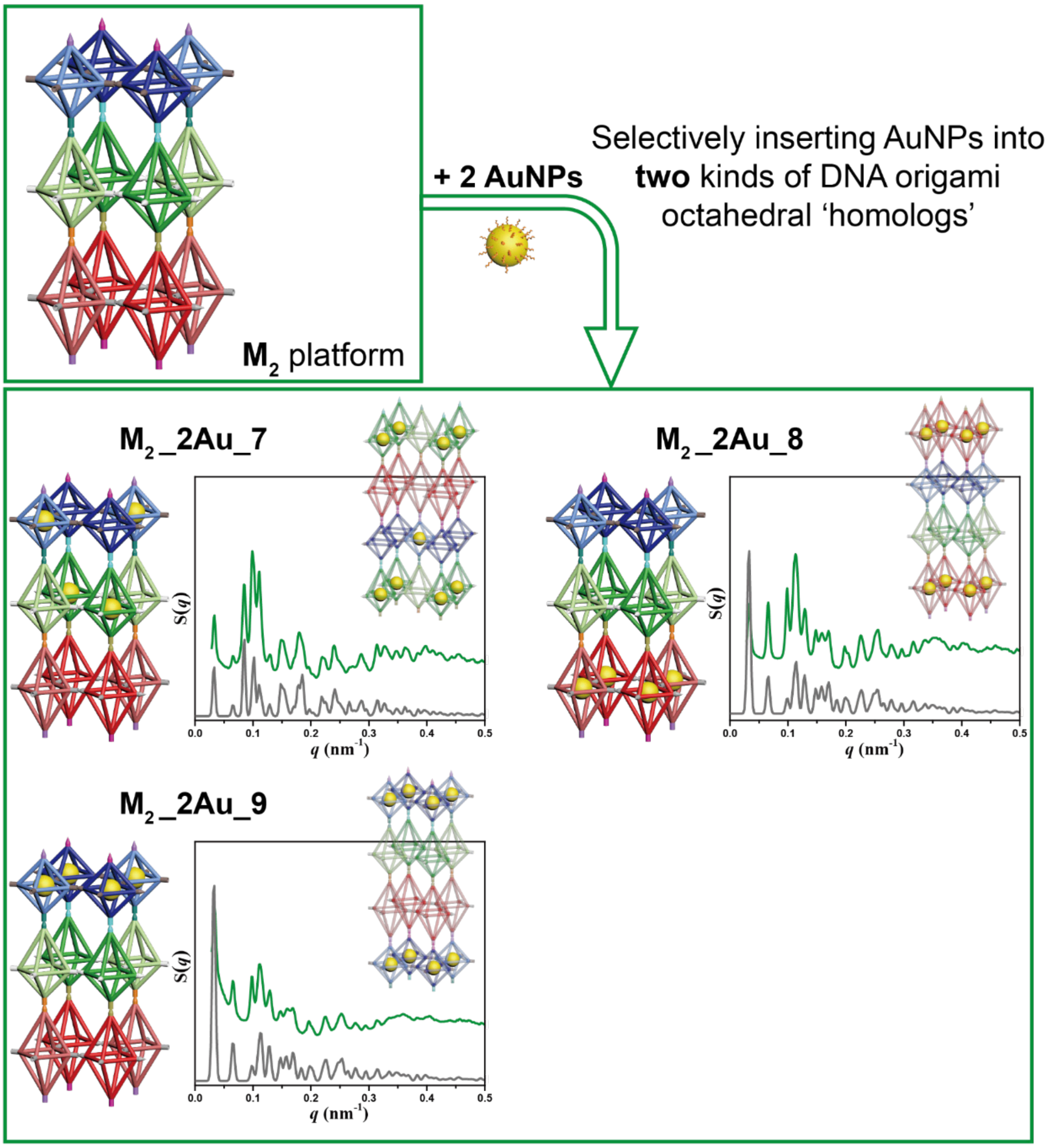

Figure S29. SAXS characterization of superlattices M_2_2Au_7, M_2_2Au_8 and M_2_2Au_9 constructed on the basis of M_2 platform by selectively inserting AuNPs into two kinds of DNA origami octahedral 'homologs'. From left to right, each panel contains M_2 platform where AuNPs are selectively inserted into two kinds of DNA origami octahedral 'homologs', experimental SAXS data (green) compared against simulation curve (grey) and corresponding unit cell of AuNPs with external DOFs.

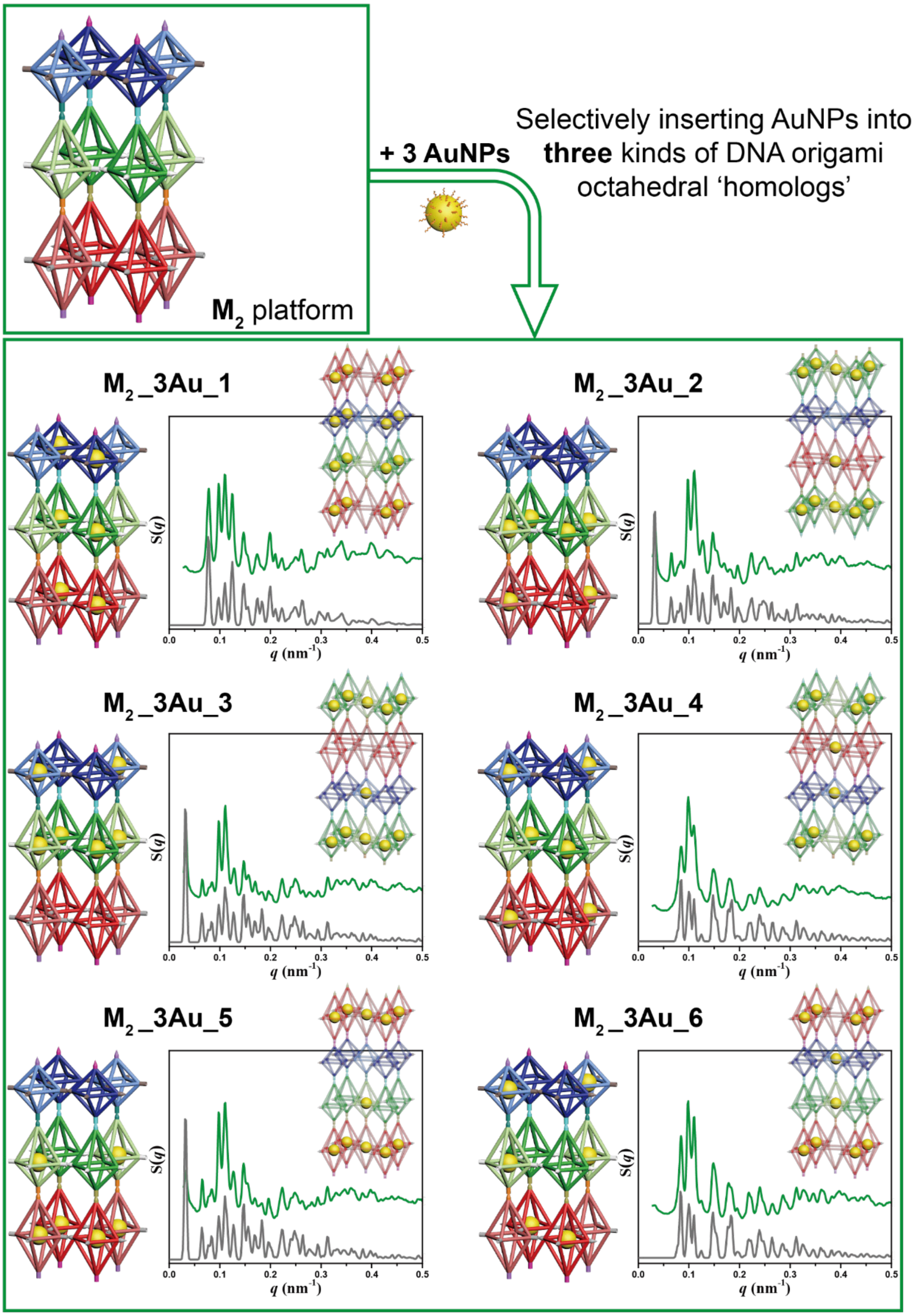

Figure S30. SAXS characterization of superlattices M_2_3Au_1, M_2_3Au_2, M_2_3Au_3, M_2_3Au_4, M_2_3Au_5 and M_2_3Au_6 constructed on the basis of M_2 platform by selectively inserting AuNPs into three kinds of DNA origami octahedral 'homologs'. From left to right, each panel contains M_2 platform where

AuNPs are selectively inserted into three kinds of DNA origami octahedral ‘homologs’, experimental SAXS data (green) compared against simulation curve (grey) and corresponding unit cell of AuNPs with external DOFs.

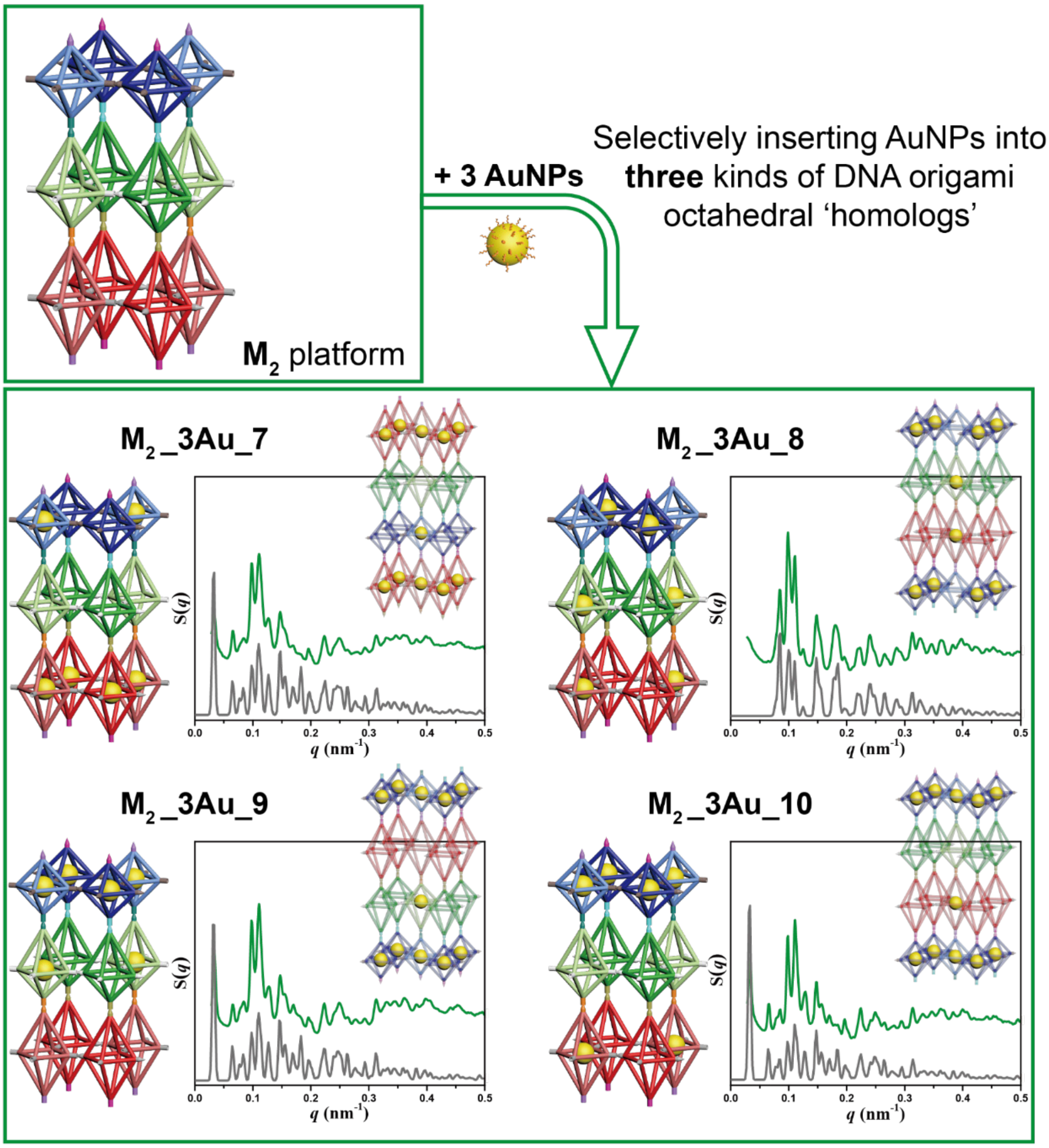

Figure S31. SAXS characterization of superlattices M$_2$_3Au_7, M$_2$_3Au_8, M$_2$_3Au_9 and M$_2$_3Au_10 constructed on the basis of M$_2$ platform by selectively inserting AuNPs into three kinds of DNA origami octahedral 'homologs'. From left to right, each panel contains M$_2$ platform where AuNPs are selectively inserted into three kinds of DNA origami octahedral 'homologs', experimental SAXS data (green) compared against simulation curve (grey) and corresponding unit cell of AuNPs with external DOFs.

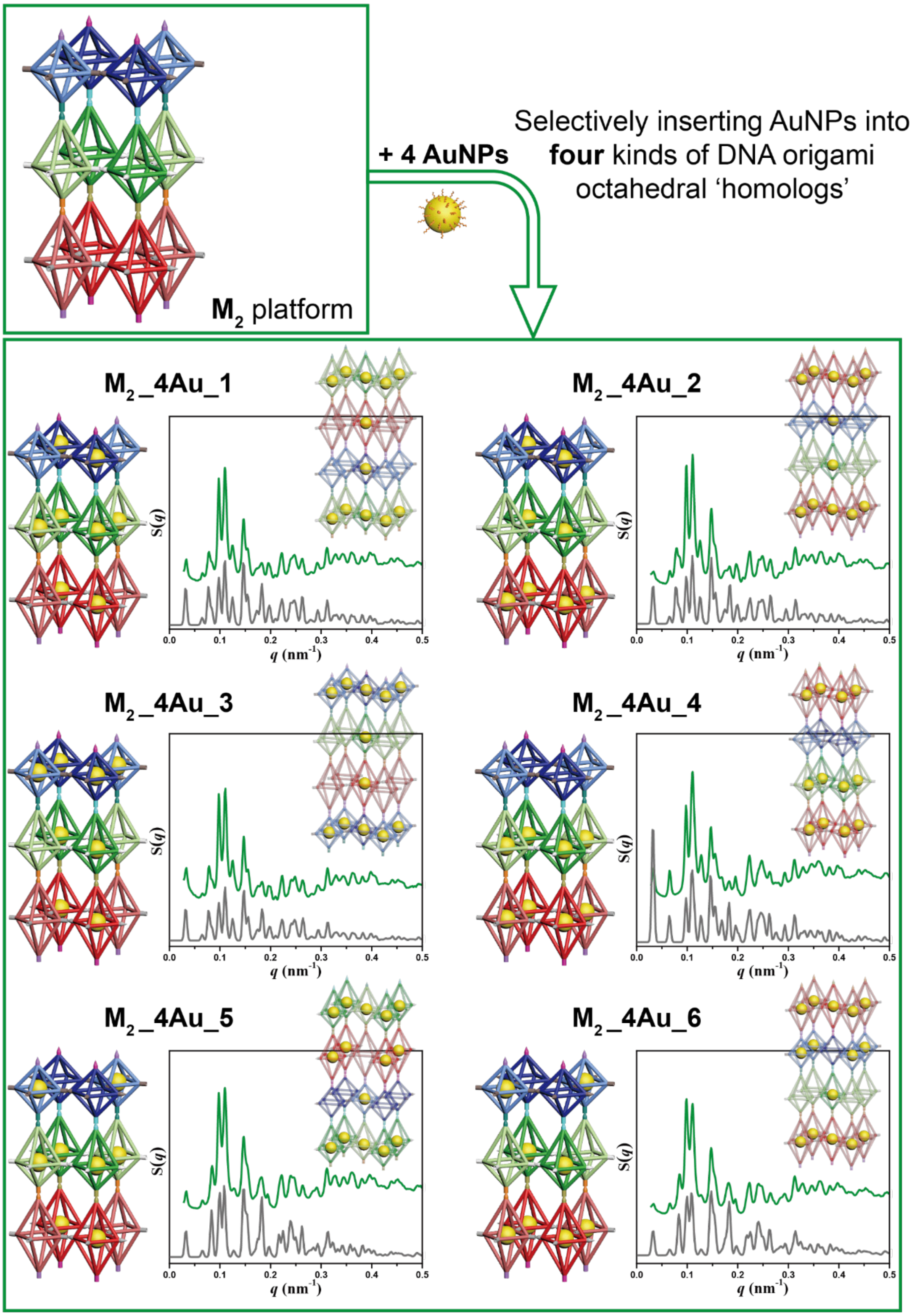

Figure S32. SAXS characterization of superlattices M_2_4Au_1, M_2_4Au_2, M_2_4Au_3, M_2_4Au_4, M_2_4Au_5 and M_2_4Au_6 constructed on the basis of M_2 platform by selectively inserting AuNPs into four kinds of DNA origami octahedral 'homologs'. From left to right, each panel contains M_2 platform where

AuNPs are selectively inserted into four kinds of DNA origami octahedral ‘homologs’, experimental SAXS data (green) compared against simulation curve (grey) and corresponding unit cell of AuNPs with external DOFs.

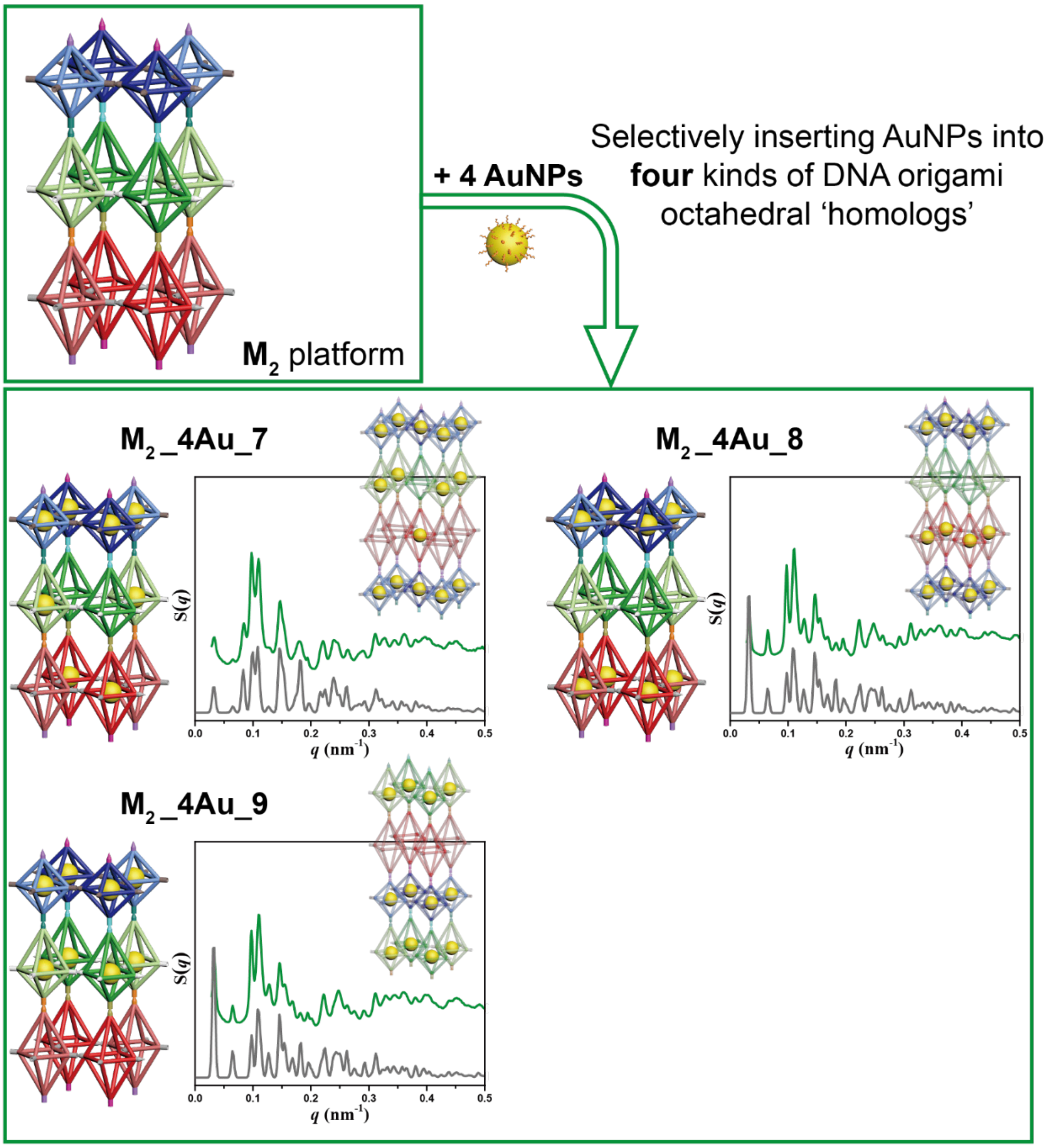

Figure S33. SAXS characterization of superlattices M₂_4Au_7, M₂_4Au_8, and M₂_4Au_9 constructed on the basis of M₂ platform by selectively inserting AuNPs into four kinds of DNA origami octahedral 'homologs'. From left to right, each panel contains M₂ platform where AuNPs are selectively inserted into four kinds of DNA origami octahedral 'homologs', experimental SAXS data (green) compared against simulation curve (grey) and corresponding unit cell of AuNPs with external DOFs.

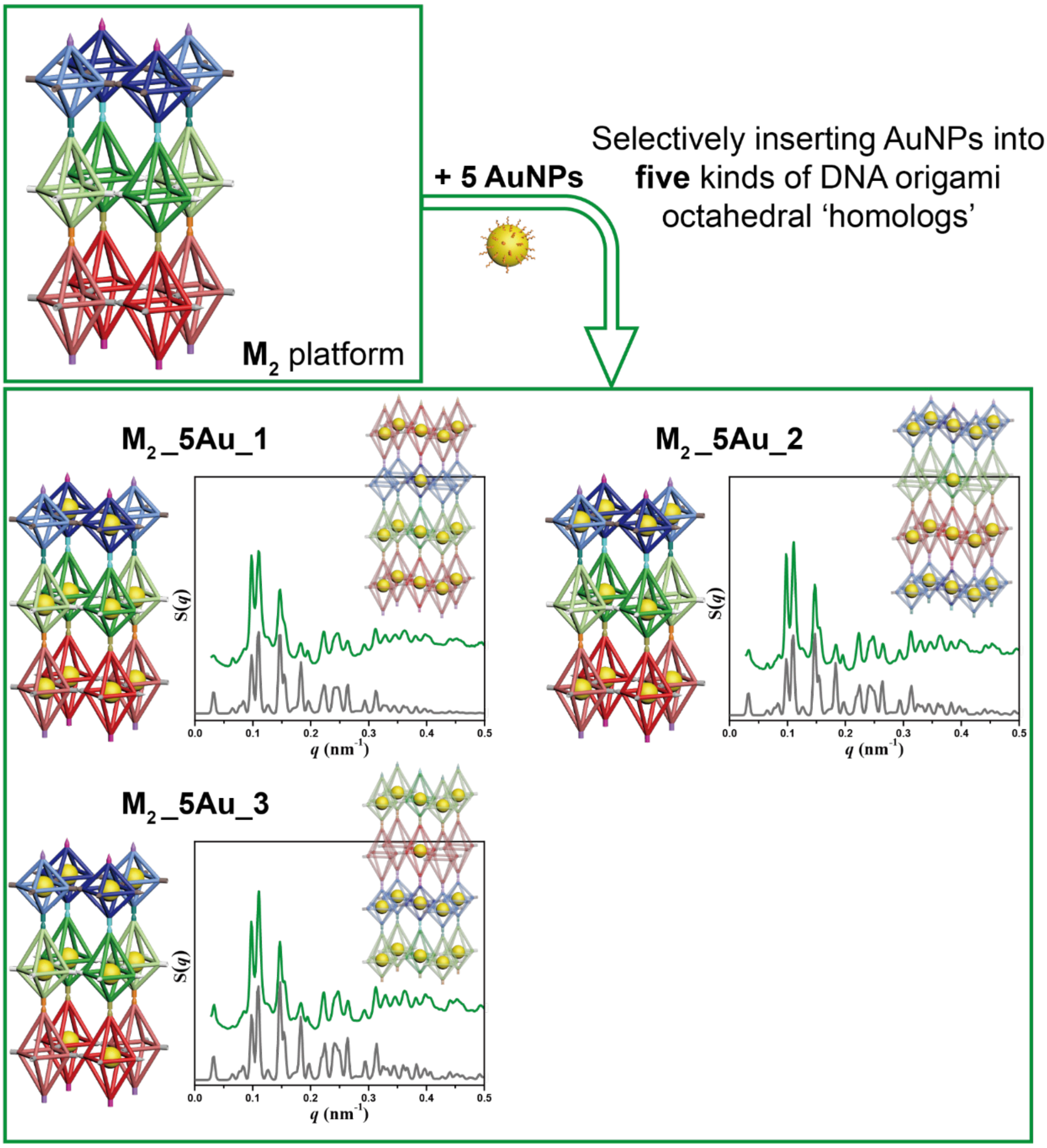

Figure S34. SAXS characterization of superlattices M_2_5Au_1, M_2_5Au_2, and M_2_5Au_3 constructed on the basis of M_2 platform by selectively inserting AuNPs into five kinds of DNA origami octahedral 'homologs'. From left to right, each panel contains M_2 platform where AuNPs are selectively inserted into five kinds of DNA origami octahedral 'homologs', experimental SAXS data (green) compared against simulation curve (grey) and corresponding unit cell of AuNPs with external DOFs.

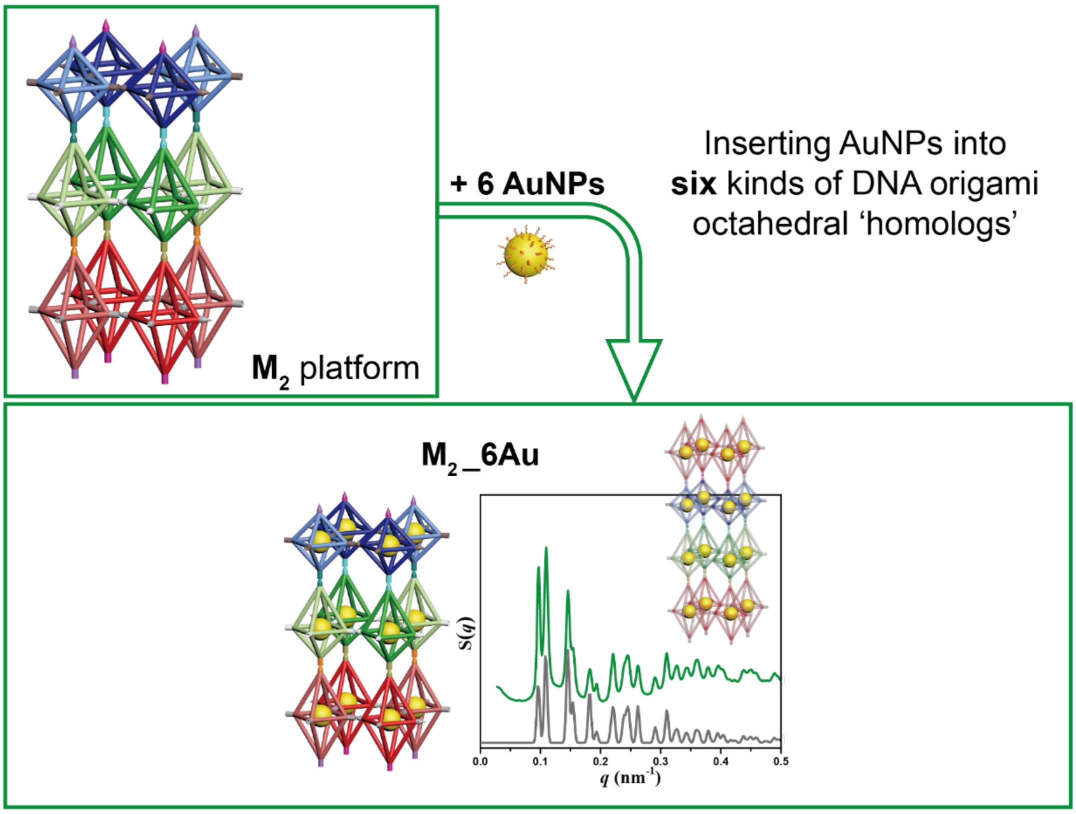

Figure S35. SAXS characterization of superlattice M_2_6Au constructed on the basis of M_2 platform by inserting AuNPs into all six kinds of DNA origami octahedral 'homologs'. From left to right, the panel contains M_2 platform where AuNPs are inserted into all six kinds of DNA origami octahedral 'homologs', experimental SAXS data (green) compared against simulation curve (grey) and corresponding unit cell of AuNPs with external DOFs.

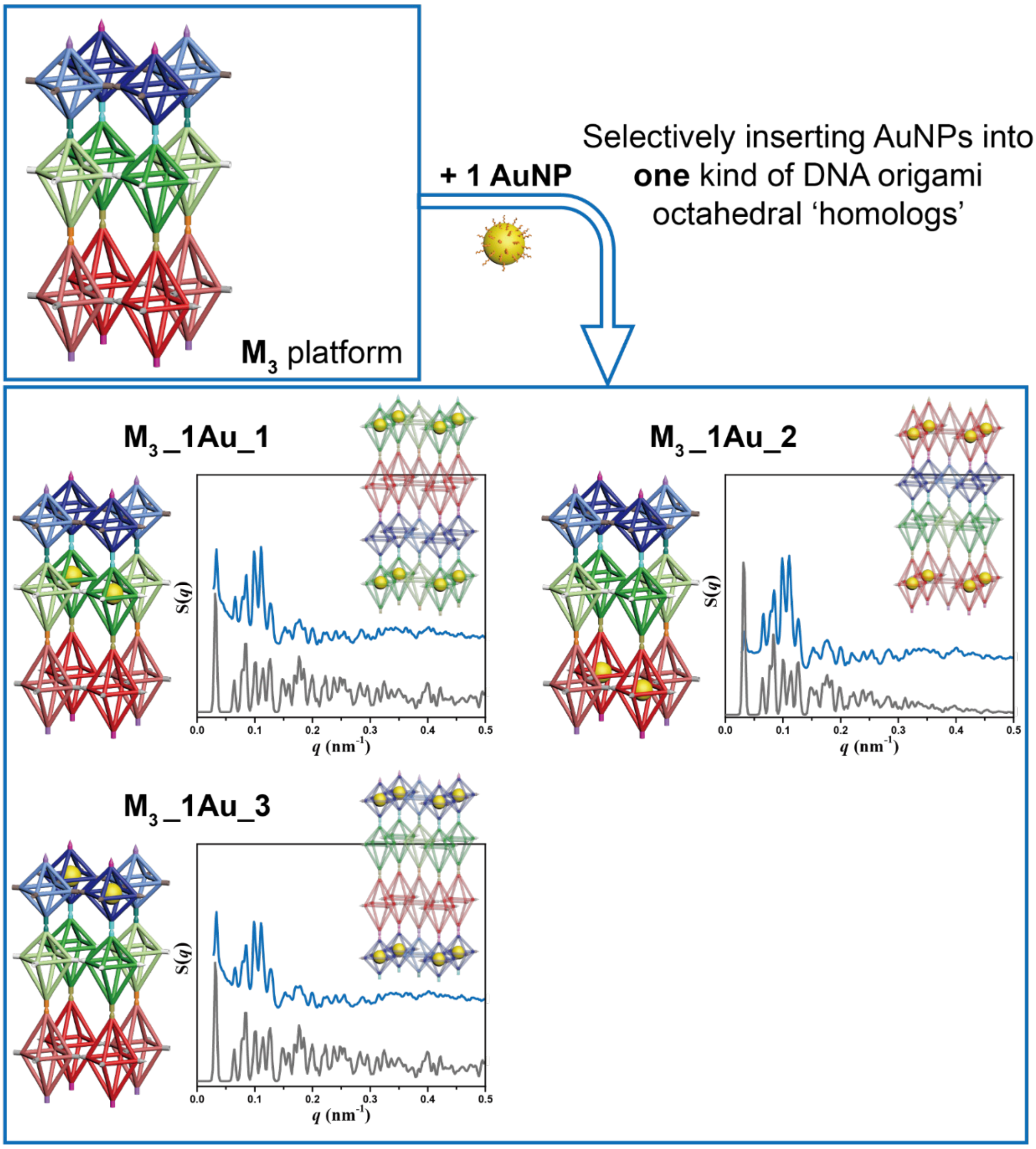

Figure S36. SAXS characterization of superlattices M_3_1Au_1, M_3_1Au_2, and M_3_1Au_3 constructed on the basis of M_3 platform by selectively inserting AuNPs into one kind of DNA origami octahedral 'homolog'. From left to right, each panel contains M_3 platform where AuNPs are selectively inserted into one kind of DNA origami octahedral 'homolog', experimental SAXS data (blue) compared against simulation curve (grey) and corresponding unit cell of AuNPs with external DOFs.

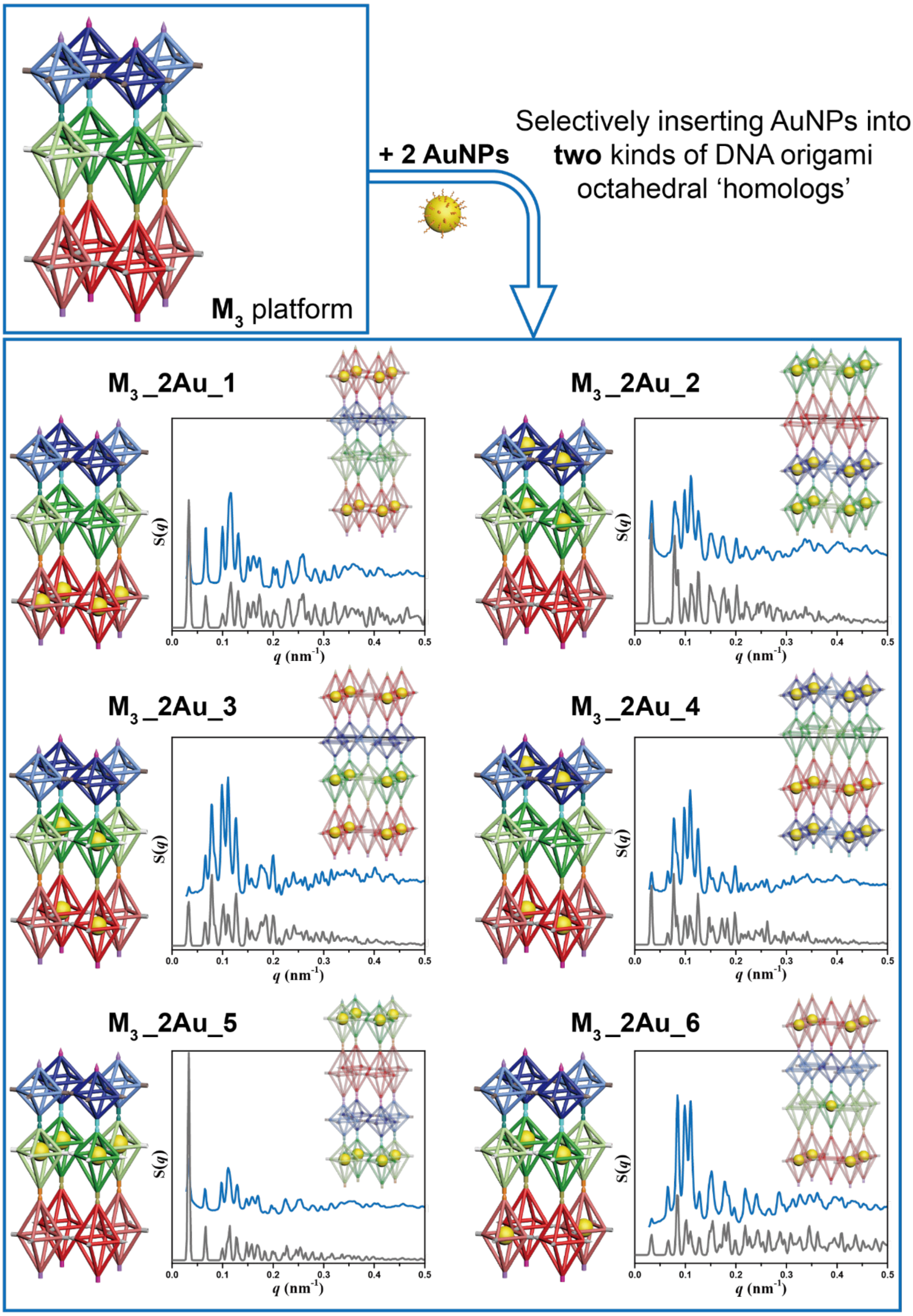

Figure S37. SAXS characterization of superlattices M3_2Au_1, M3_2Au_2, M3_2Au_3, M3_2Au_4, M3_2Au_5, and M3_2Au_6 constructed on the basis of M3 platform by selectively inserting AuNPs into two kinds of DNA origami octahedral 'homologs'. From left to right, each panel contains M3 platform where AuNPs are selectively inserted into two kinds of DNA origami octahedral ‘homologs’, experimental SAXS data (blue) compared against simulation curve (grey) and corresponding unit cell of AuNPs with external DOFs.

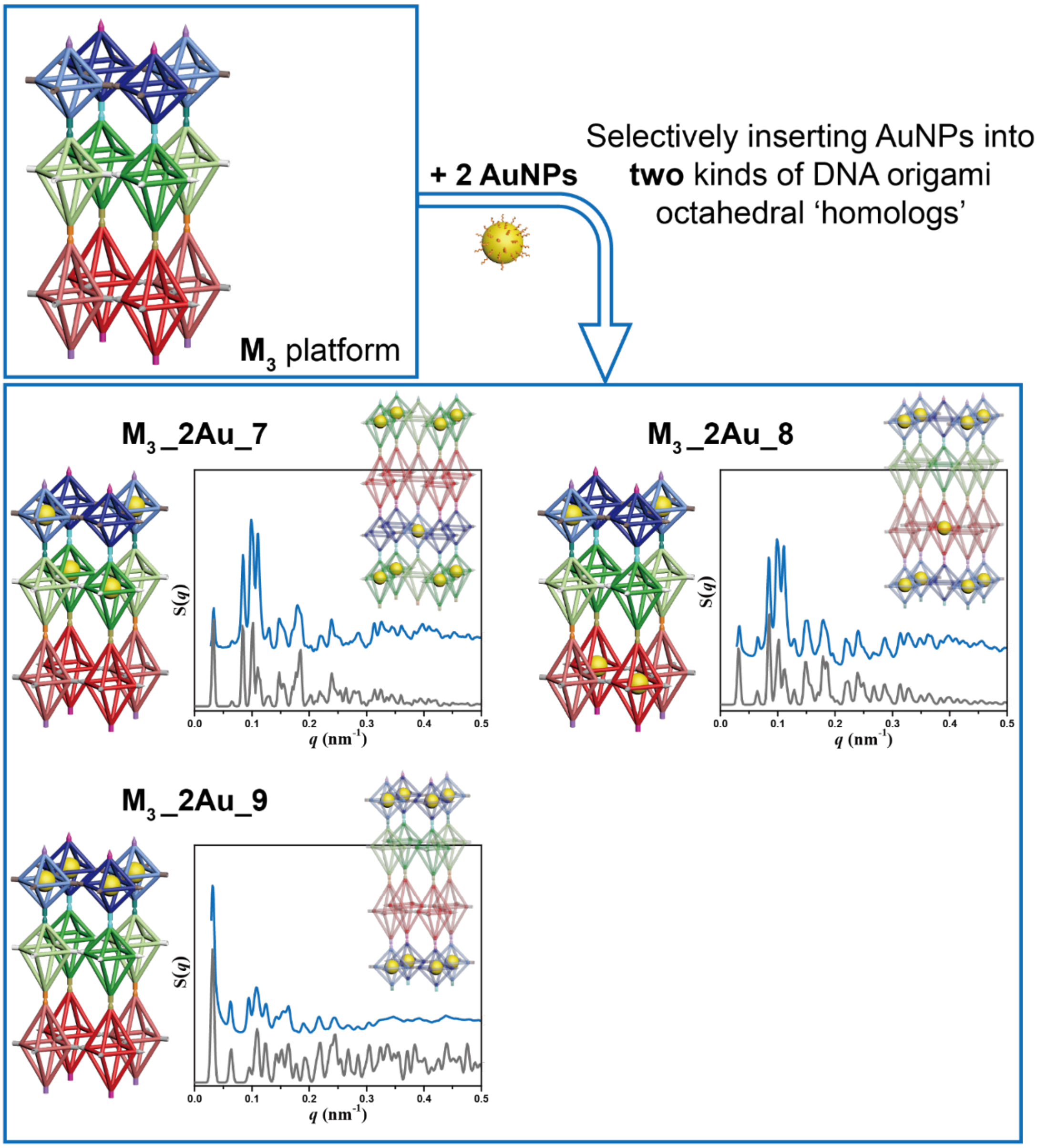

Figure S38. SAXS characterization of superlattices M_3_2Au_7, M_3_2Au_8, and M_3_2Au_9 constructed on the basis of M_3 platform by selectively inserting AuNPs into two kinds of DNA origami octahedral 'homologs'. From left to right, each panel contains M_3 platform where AuNPs are selectively inserted into two kinds of DNA origami octahedral 'homologs', experimental SAXS data (blue) compared against simulation curve (grey) and corresponding unit cell of AuNPs with external DOFs.

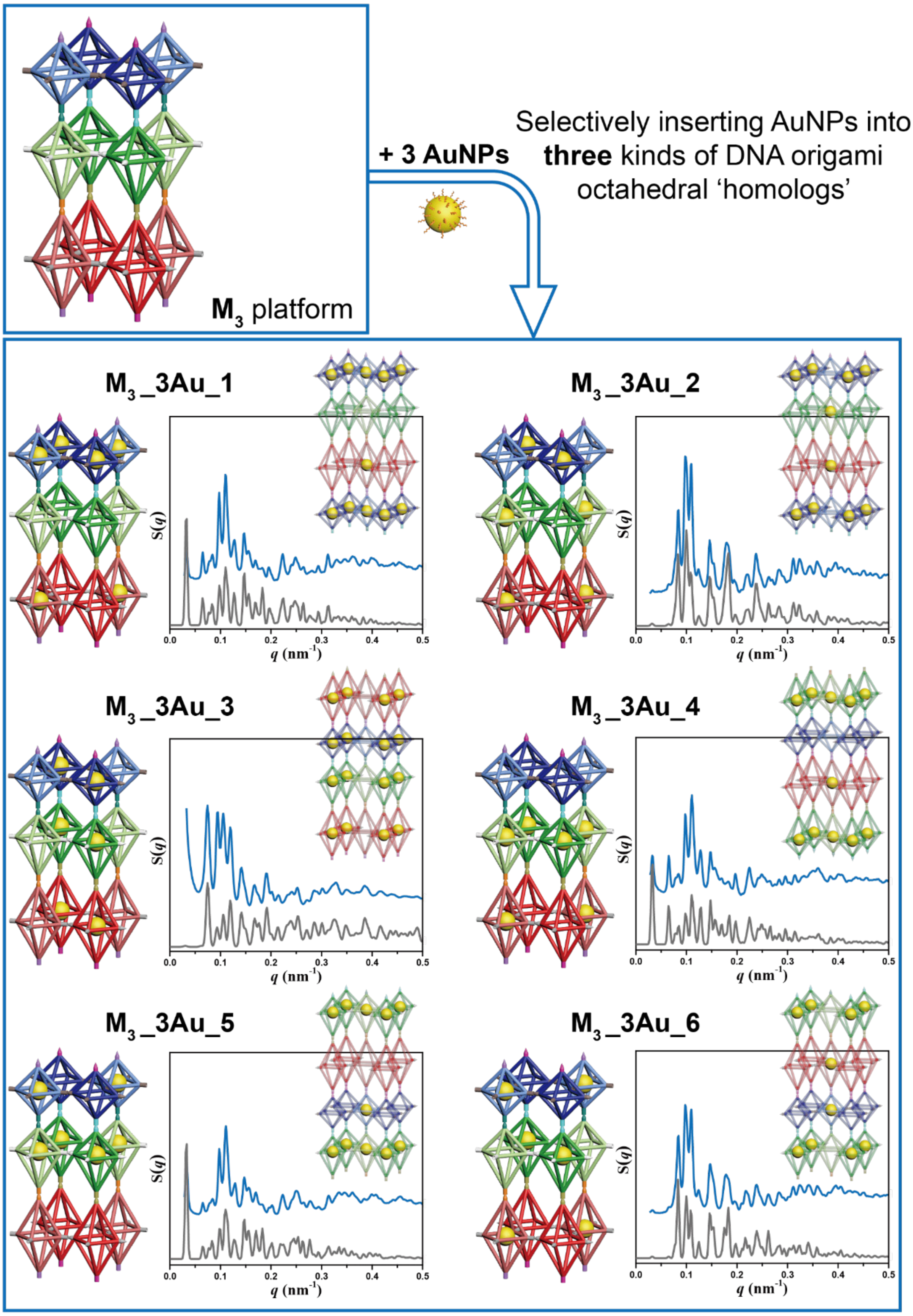

Figure S39. SAXS characterization of superlattices M_3_3Au_1, M_3_3Au_2, M_3_3Au_3, M_3_3Au_4, M_3_3Au_5, and M_3_3Au_6 constructed on the basis of M_3 platform by selectively inserting AuNPs into three kinds of DNA origami octahedral 'homologs'. From left to right, each panel contains M_3 platform where

AuNPs are selectively inserted into three kinds of DNA origami octahedral ‘homologs’, experimental SAXS data (blue) compared against simulation curve (grey) and corresponding unit cell of AuNPs with external DOFs.

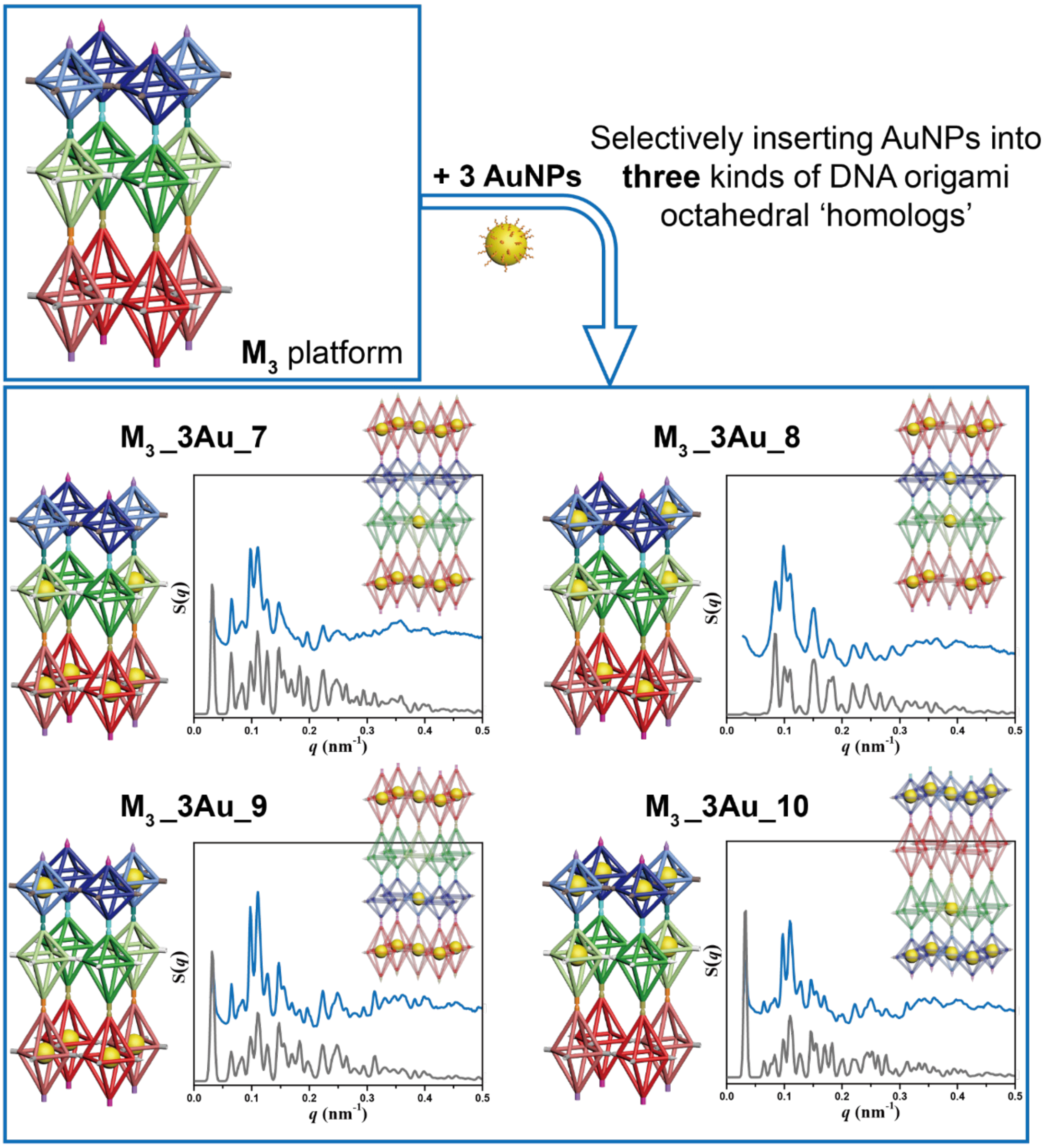

Figure S40. SAXS characterization of superlattices M_3_3Au_7, M_3_3Au_8, M_3_3Au_9 and M_3_3Au_10 constructed on the basis of M_3 platform by selectively inserting AuNPs into three kinds of DNA origami octahedral 'homologs'. From left to right, each panel contains M_3 platform where AuNPs are selectively inserted into three kinds of DNA origami octahedral 'homologs', experimental SAXS data (blue) compared against simulation curve (grey) and corresponding unit cell of AuNPs with external DOFs.

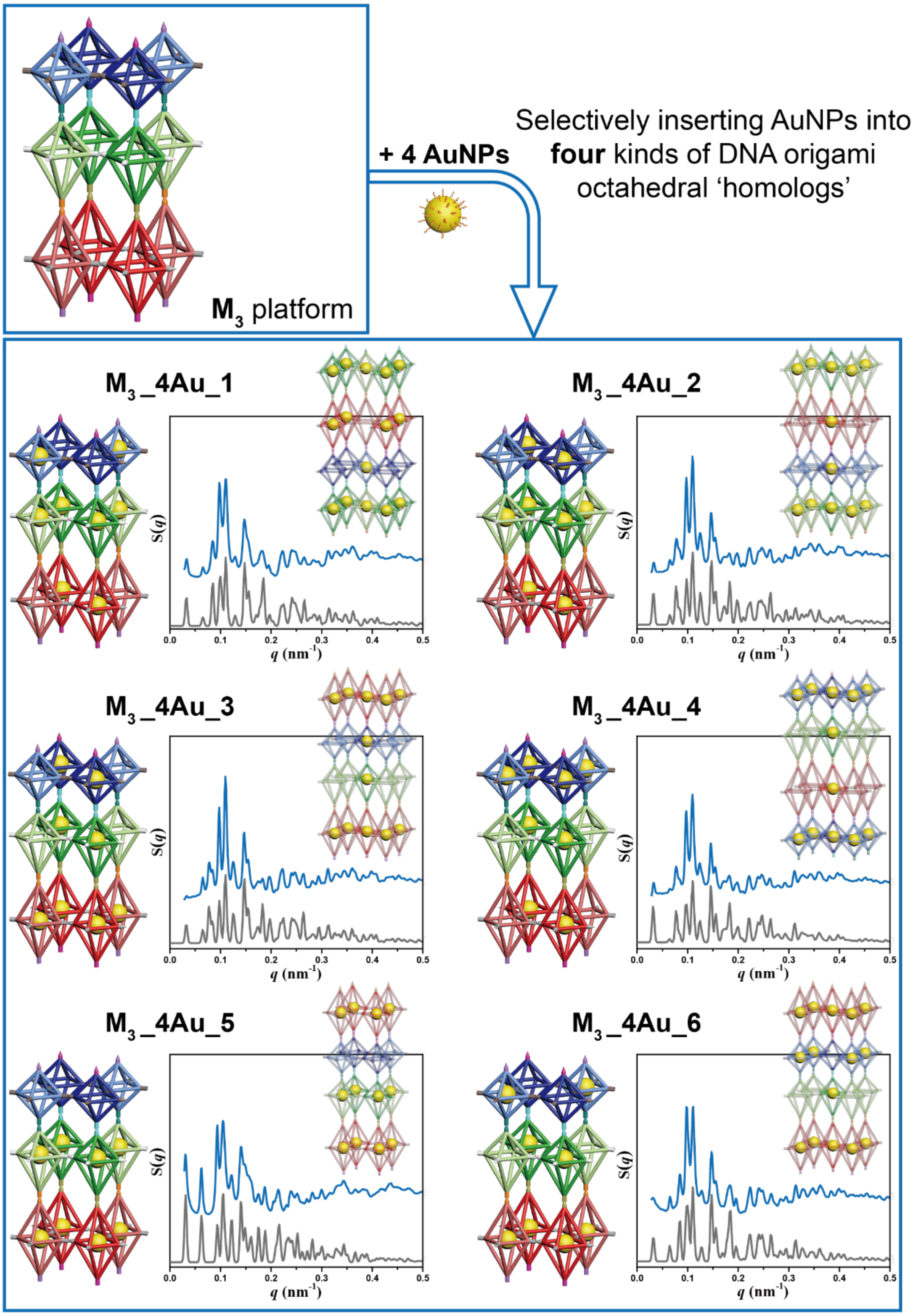

Figure S41. SAXS characterization of superlattices M_3_4Au_1, M_3_4Au_2, M_3_4Au_3, M_3_4Au_4, M_3_4Au_5 and M_3_4Au_6 constructed on the basis of M_3 platform by selectively inserting AuNPs into four kinds of DNA origami octahedral 'homologs'. From left to right, each panel contains M_3 platform where

AuNPs are selectively inserted into four kinds of DNA origami octahedral ‘homologs’, experimental SAXS data (blue) compared against simulation curve (grey) and corresponding unit cell of AuNPs with external DOFs.

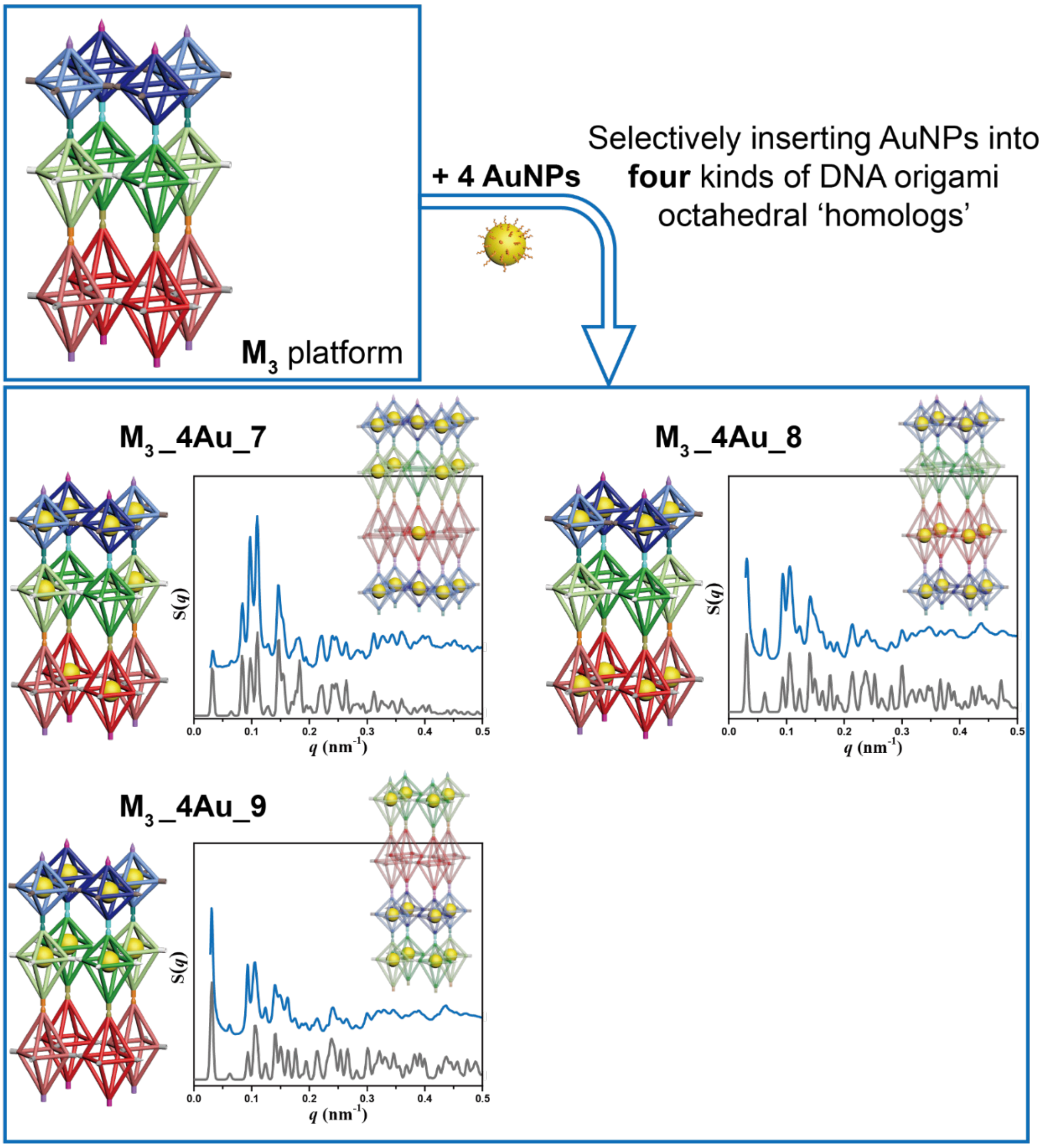

Figure S42. SAXS characterization of superlattices M3_4Au_7, M3_4Au_8 and M3_4Au_9 constructed on the basis of M3 platform by selectively inserting AuNPs into four kinds of DNA origami octahedral 'homologs'. From left to right, each panel contains M3 platform where AuNPs are selectively inserted into four kinds of DNA origami octahedral 'homologs', experimental SAXS data (blue) compared against simulation curve (grey) and corresponding unit cell of AuNPs with external DOFs.

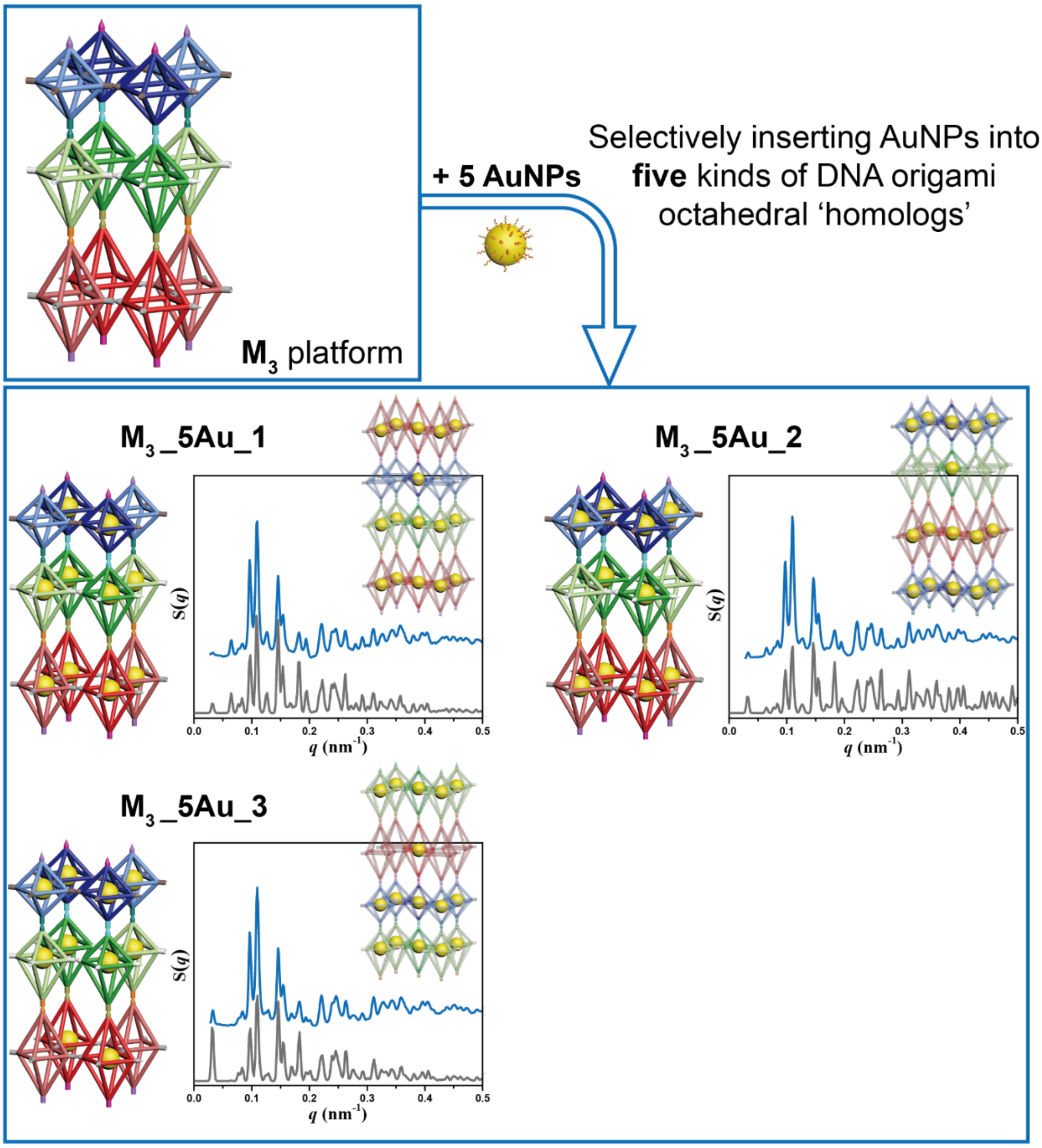

Figure S43. SAXS characterization of superlattices M_3_5Au_1, M_3_5Au_2 and M_3_5Au_3 constructed on the basis of M_3 platform by selectively inserting AuNPs into five kinds of DNA origami octahedral 'homologs'. From left to right, each panel contains M_3 platform where AuNPs are selectively inserted into five kinds of DNA origami octahedral 'homologs', experimental SAXS data (blue) compared against simulation curve (grey) and corresponding unit cell of AuNPs with external DOFs.

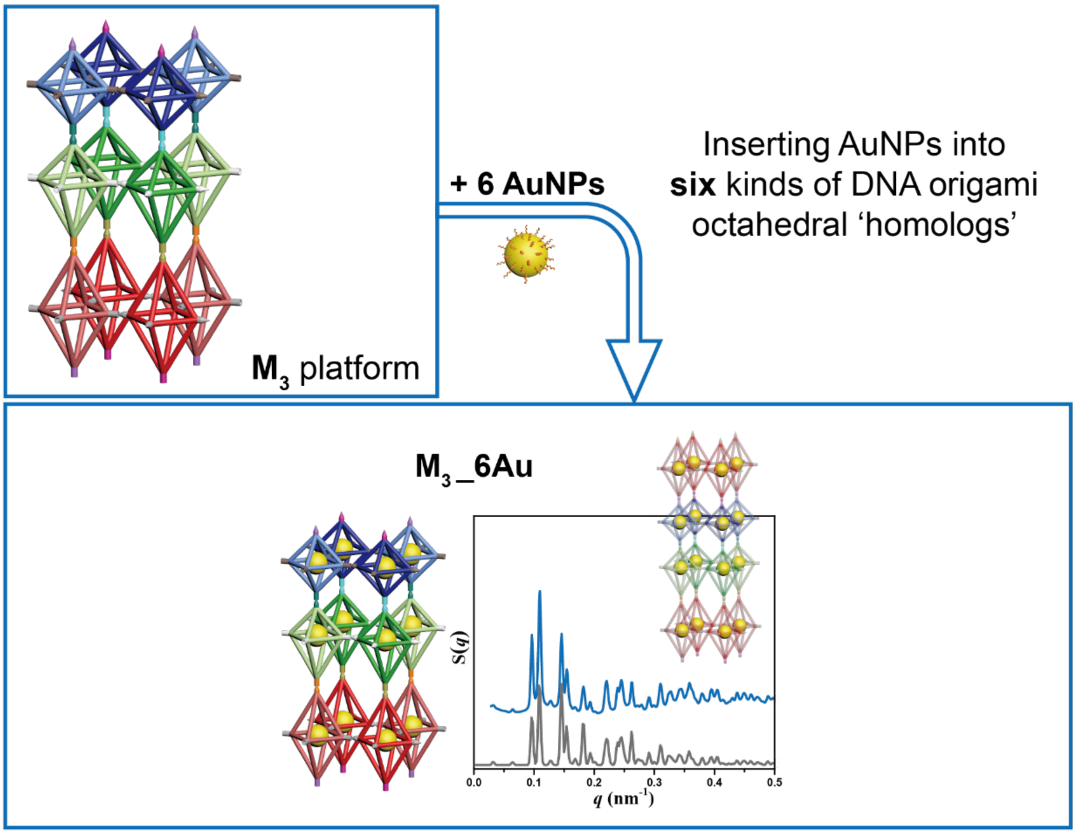

Figure S44. SAXS characterization of superlattice M₃_6Au constructed on the basis of M₃ platform by inserting AuNPs into all six kinds of DNA origami octahedral 'homologs'. From left to right, the panel contains M₃ platform where AuNPs are inserted into all six kinds of DNA origami octahedral 'homologs', experimental SAXS data (blue) compared against simulation curve (grey) and corresponding unit cell of AuNPs with external DOFs.

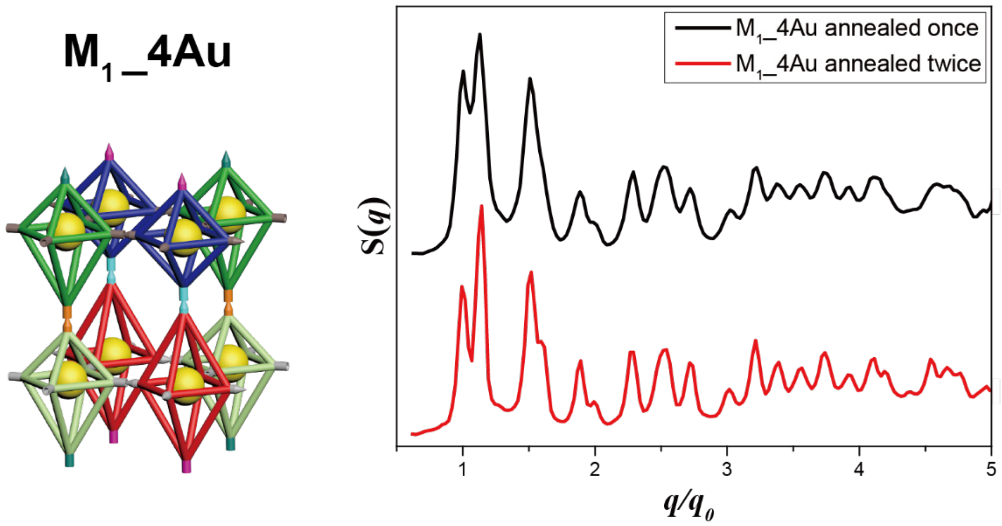

Figure S45. SAXS results of M_1_4Au with one cycle of the annealing process (black curve) and two cycles of the annealing process (red curve).

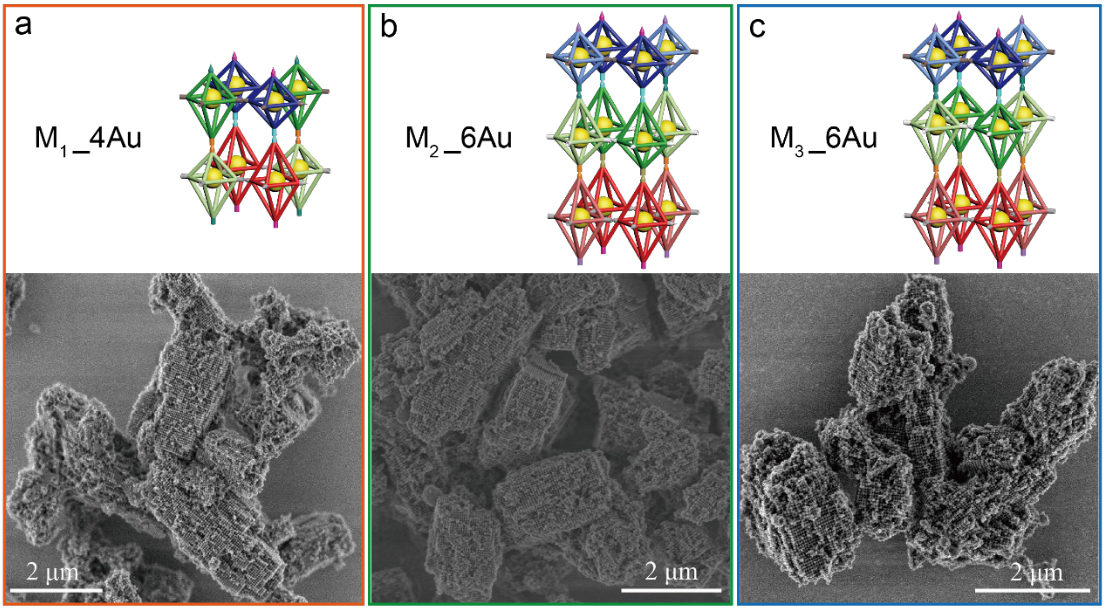

Figure S46. SEM characterization of nanoparticle superlattices M_1_4Au (a), M_2_6Au (b) and M_3_6Au (c) at low magnification. Each panel contains the model of nanoparticle superlattice (up) and corresponding SEM image at low magnification (bottom). Scale bars, 2 μm.

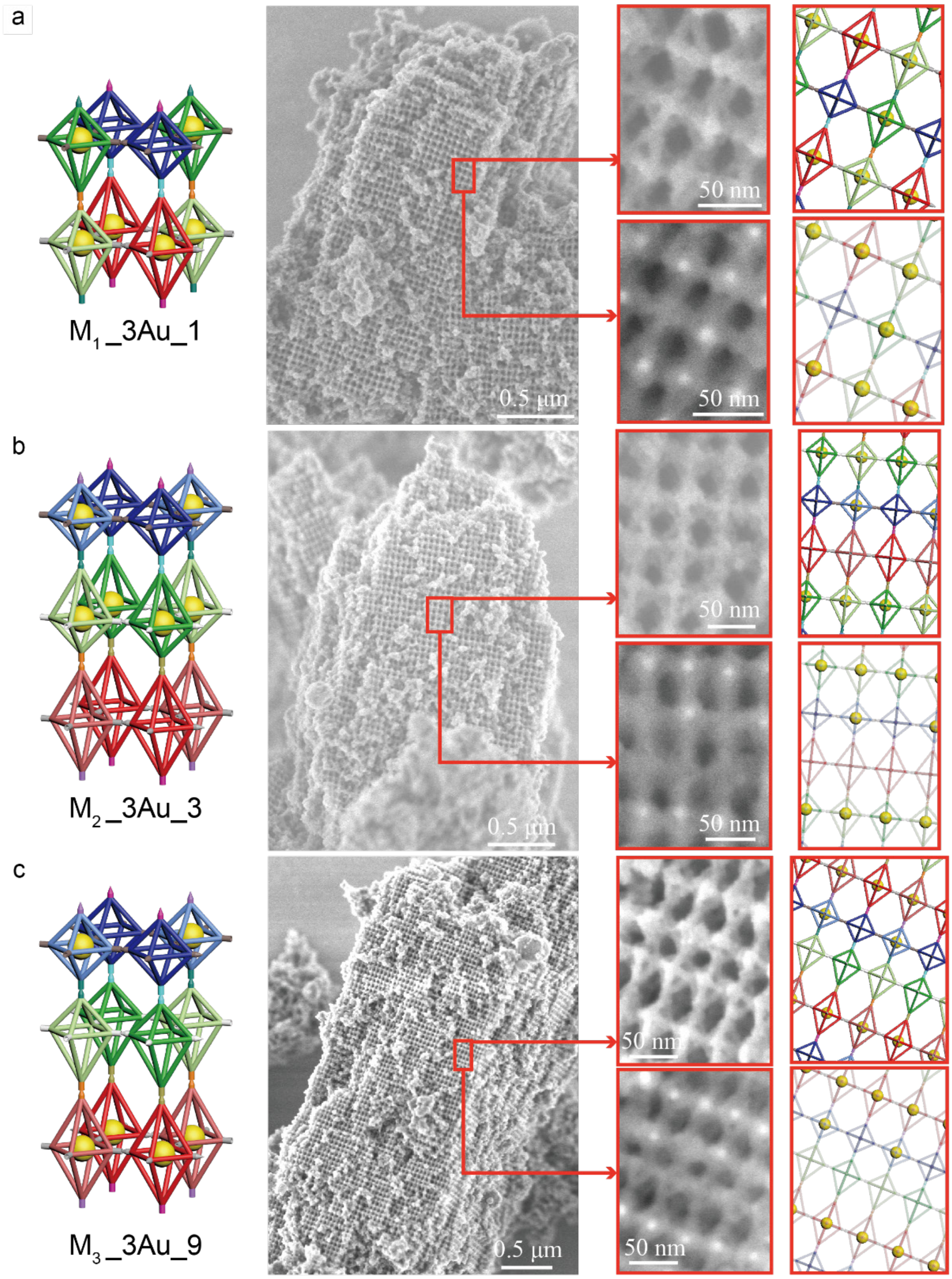

Figure S47. SEM characterization of nanoparticle superlattices M_1_3Au_1 (a), M_2_3Au_3 (b) and M_3_3Au_9 (c). From left to right: each panel contains the model of nanoparticle superlattice; SEM image at low magnification; two close-up views of the same region framed in red boxes acquired by different probes with corresponding models shown on the right. The signals of AuNPs were found to be only in specific DNA origami octahedral 'homologs' consistent with the expected, which provide better identification of the DNA origami octahedral 'homologs'. Scale bars, 0.5 µm (low) and

50 nm (high).

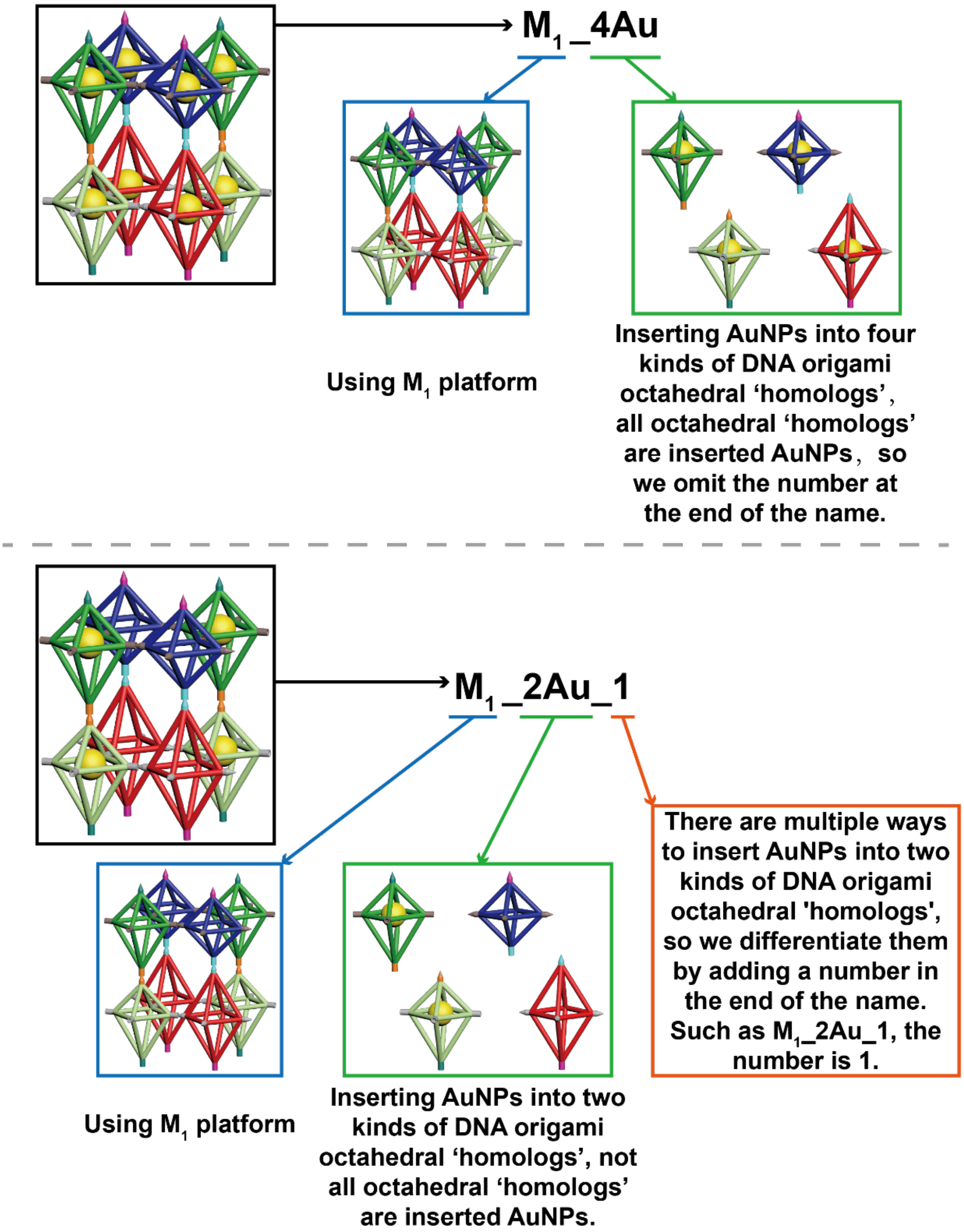

Figure S48. Schematic of the detailed definition of the nanoparticle superlattice name in the main text.

III. Supplementary Tables

DNA origami platforms	**Type of AuNPs superlattices**	**Total type of AuNPs superlattices**
M_1	6	38
M_2	12	
M_3	28	

Table S1. Type of the AuNP superlattices fabricated respectively based on M_1, M_2 and M_3 platforms. The total type of AuNPs superlattices is 38 instead of 46 (6+12+28) due to the repeating types of lattices fabricated based on the three different DNA origami platforms.

<table>
<tr><th>DNA origami platforms</th><th>Number of DOF/NP complex superlattices (considering the equivalence of crystal structures*)</th><th>Total</th><th>Number of DOF/NP complex superlattices (ignoring the equivalence of crystal structures)</th><th>Total</th></tr>
<tr><td>M_1</td><td>15</td><td rowspan="3">85</td><td>15</td><td rowspan="3">141</td></tr>
<tr><td>M_2</td><td>35</td><td>63</td></tr>
<tr><td>M_3</td><td>35</td><td>63</td></tr>
</table>

Table S2. Number of the DOF/NP complex superlattices fabricated respectively based on M_1, M_2 and M_3 platforms under different classification criteria.

* See Figure S22 for details.

Superlattices	Parameters of unit cell	Coordinates of AuNPs
M_1_1Au_1	α = β = γ = 90° a = b = 79.80 nm, c = 128.50 nm	(0, 0, 0)
M_1_1Au_2	α = β = γ = 90° a = b = 78.20 nm, c = 127.00 nm	(0, 0, 0)
M_1_1Au_3	α = β = γ = 90° a = b = 80.70 nm, c = 129.00 nm	(0, 0, 0)
M_1_1Au_4	α = β = γ = 90° a = b = 80.20 nm, c = 128.40 nm	(0, 0, 0)
M_1_2Au_1	α = β = γ = 90° a = b = 80.40 nm, c = 64.50 nm	(0, 0, 0)
M_1_2Au_2	α = β = γ = 90° a = b = 80.10 nm, c = 128.70 nm	(0, 0, 0) (0.5, 0.5, 0.5)
M_1_2Au_3	α = β = γ = 90° a = b = 80.90 nm, c = 64.80 nm	(0, 0, 0)
M_1_2Au_4	α = β = γ = 90° a = b = 57.10 nm, c = 128.00 nm	(0, 0, 0)
M_1_2Au_5	α = β = γ = 90° a = b = 57.20 nm, c = 129.00 nm	(0, 0, 0)
M_1_2Au_6	α = β = γ = 90° a = b = 80.60 nm, c = 129.20 nm	(0, 0, 0) (0.5, 0.5, 0.5)
M_1_3Au_1	α = β = γ = 90° a = b = 80.50 nm, c = 129.90 nm	(0, 0, 0) (0.5, 0.5, 0) (0.5, 0.5, 0.5)
M_1_3Au_2	α = β = γ = 90° a = b = 80.50 nm, c = 129.80 nm	(0, 0, 0) (0.5, 0.5, 0) (0.5, 0.5, 0.5)
M_1_3Au_3	α = β = γ = 90° a = b = 80.40 nm, c = 129.80 nm	(0, 0, 0) (0.5, 0.5, 0) (0.5, 0.5, 0.5)
M_1_3Au_4	α = β = γ = 90° a = b = 80.50 nm, c = 129.90 nm	(0, 0, 0) (0.5, 0.5, 0) (0.5, 0.5, 0.5)
M_1_4Au	α = β = γ = 90° a = b = 57.50 nm, c = 65.00 nm	(0, 0, 0)

Table S3. Parameters of superlattices M_1_1Au_1 to M_1_4Au, including the parameters of unit cells and the coordinates of AuNPs within unit cells.

Superlattices	Parameters of unit cell	Coordinates of AuNPs
M_2_1Au_1	α = β = γ = 90° a = b = 80.20 nm, c = 189.60 nm	(0, 0, 0)
M_2_1Au_2	α = β = γ = 90° a = b = 81.20 nm, c = 190.60 nm	(0, 0, 0)
M_2_1Au_3	α = β = γ = 90° a = b = 81.10 nm, c = 191.60 nm	(0, 0, 0)
M_2_2Au_1	α = β = γ = 90° a = b = 80.90 nm, c = 193.00 nm	(0, 0, 0) (0.5, 0.5, 0.333)
M_2_2Au_2	α = β = γ = 90° a = b = 81.30 nm, c = 191.80 nm	(0, 0, 0) (0, 0, 0.333)
M_2_2Au_3	α = β= γ = 90° a = b = 80.70 nm, c = 190.80 nm	(0, 0, 0) (0, 0, 0.333)
M_2_2Au_4	α = β = γ = 90° a = b = 80.30 nm, c = 191.80 nm	(0, 0, 0) (0, 0, 0.333)
M_2_2Au_5	α = β = γ = 90° a = b = 57.40 nm, c = 191.20 nm	(0, 0, 0)
M_2_2Au_6	α = β = γ = 90° a = b = 80.90 nm, c = 191.10 nm	(0, 0, 0) (0.5, 0.5, 0.333)
M_2_2Au_7	α = β = γ = 90° a = b = 80.50 nm, c = 191.60 nm	(0, 0, 0) (0.5, 0.5, 0.333)
M_2_2Au_8	α = β = γ = 90° a = b = 57.10 nm, c = 190.30 nm	(0, 0, 0)
M_2_2Au_9	α = β = γ = 90° a = b = 57.40 nm, c = 191.30 nm	(0, 0, 0)

Table S4. Parameters of superlattices M_2_1Au_1 to M_2_2Au_9, including the parameters of unit cells and the coordinates of AuNPs within unit cells.

Superlattices	Parameters of unit cell	Coordinates of AuNPs
M_2_3Au_1	α = β = γ = 90° a = b = 80.70 nm, c = 64.50 nm	(0, 0, 0)
M_2_3Au_2	α = β = γ = 90° a = b = 81.20 nm, c = 192.70 nm	(0, 0, 0) (0.5, 0.5, 0) (0.5, 0.5, 0.333)
M_2_3Au_3	α = β = γ = 90° a = b = 80.90 nm, c = 193.50 nm	(0, 0, 0) (0.5, 0.5, 0) (0.5,0.5,0.333)
M_2_3Au_4	α = β = γ = 90° a = b = 80.60 nm, c = 193.80 nm	(0, 0, 0) (0.5, 0.5, 0.333) (0.5, 0.5, 0.666)
M_2_3Au_5	α = β = γ = 90° a = b = 81.00 nm, c = 193.20 nm	(0, 0, 0) (0.5, 0.5, 0) (0.5, 0.5, 0.333)
M_2_3Au_6	α = β = γ = 90° a = b = 80.90 nm, c = 193.80 nm	(0, 0, 0) (0.5, 0.5, 0.333) (0.5, 0.5, 0.666)
M_2_3Au_7	α = β = γ = 90° a = b = 81.30 nm, c = 192.40 nm	(0, 0, 0) (0.5, 0.5, 0) (0.5, 0.5, 0.333)
M_2_3Au_8	α = β = γ = 90° a = b = 80.60 nm, c = 193.30 nm	(0, 0, 0) (0.5, 0.5, 0.333) (0.5, 0.5, 0.666)
M_2_3Au_9	α = β = γ = 90° a = b = 81.30 nm, c = 193.10 nm	(0, 0, 0) (0.5, 0.5, 0) (0.5, 0.5, 0.333)
M_2_3Au_10	α = β = γ = 90° a = b = 80.70 nm, c = 192.50 nm	(0, 0, 0) (0.5, 0.5, 0) (0.5, 0.5, 0.333)

Table S5. Parameters of superlattices M_2_3Au_1 to M_2_3Au_10, including the parameters of unit cells and the coordinates of AuNPs within unit cells.

Superlattices	**Parameters of unit cell**	**Coordinates of AuNPs**
M_2_4Au_1	α = β = γ = 90° a = b = 81.20 nm, c = 193.50 nm	(0, 0, 0) (0.5, 0.5, 0) (0.5, 0.5, 0.333) (0.5, 0.5, 0.666)
M_2_4Au_2	α = β = γ = 90° a = b = 80.60 nm, c = 192.10 nm	(0, 0, 0) (0.5, 0.5, 0) (0.5, 0.5, 0.333) (0.5, 0.5, 0.666)
M_2_4Au_3	α = β = γ = 90° a = b = 80.80 nm, c = 193.30 nm	(0, 0, 0) (0.5, 0.5, 0) (0.5, 0.5, 0.333) (0.5, 0.5, 0.666)
M_2_4Au_4	α = β = γ = 90° a = b = 57.60 nm, c = 192.80 nm	(0, 0, 0) (0, 0, 0.333)
M_2_4Au_5	α = β = γ = 90° a = b = 81.80 nm, c = 191.60 nm	(0, 0, 0) (0.5, 0.5, 0) (0.5, 0.5, 0.333) (0, 0, 0.666)
M_2_4Au_6	α = β = γ = 90° a = b = 81.50 nm, c = 191.30 nm	(0, 0, 0) (0.5, 0.5, 0) (0.5, 0.5, 0.333) (0, 0, 0.666)
M_2_4Au_7	α = β = γ = 90° a = b = 82.10 nm, c = 191.90 nm	(0, 0, 0) (0.5, 0.5, 0) (0.5, 0.5, 0.333) (0, 0, 0.666)
M_2_4Au_8	α = β = γ = 90° a = b = 57.80 nm, c = 192.50 nm	(0, 0, 0) (0, 0, 0.333)
M_2_4Au_9	α = β = γ = 90° a = b = 57.80 nm, c = 192.60 nm	(0, 0, 0) (0, 0, 0.333)
M_2_5Au_1	α = β = γ = 90° a = b = 81.20 nm, c = 193.00 nm	(0, 0, 0) (0.5, 0.5, 0) (0, 0, 0.333) (0.5, 0.5, 0.333) (0.5, 0.5, 0.666)
M_2_5Au_2	α = β = γ = 90° a = b = 81.20 nm, c = 192.00 nm	(0, 0, 0) (0.5, 0.5, 0) (0, 0, 0.333) (0.5, 0.5, 0.333) (0.5, 0.5, 0.666)
M_2_5Au_3	α = β = γ = 90° a = b = 81.20 nm, c = 191.80 nm	(0, 0, 0) (0.5, 0.5, 0) (0, 0, 0.333) (0.5, 0.5, 0.333) (0.5, 0.5, 0.666)
M_2_6Au	α = β = γ = 90° a = b = 57.60 nm, c = 65.00 nm	(0, 0, 0)

Table S6. Parameters of superlattices M_2_4Au_1 to M_2_6Au, including the parameters of unit cells and the coordinates of AuNPs within unit cells.

Superlattices	Parameters of unit cell	Coordinates of AuNPs
M_3_1Au_1	α = β = γ = 90° a = b = 80.50 nm, c = 195.00 nm	(0, 0, 0)
M_3_1Au_2	α = β = γ = 90° a = b = 81.00 nm, c = 194.00 nm	(0, 0, 0)
M_3_1Au_3	α = β = γ = 90° a = b = 80.50 nm, c = 195.00 nm	(0, 0, 0)
M_3_2Au_1	α = β = γ = 90° a = b = 56.10 nm, c = 188.00 nm	(0, 0, 0)
M_3_2Au_2	α = β = γ = 90° a = b = 80.00 nm, c = 192.00 nm	(0, 0, 0) (0, 0, 0.298)
M_3_2Au_3	α = β = γ = 90° a = b = 80.00 nm, c = 191.50 nm	(0, 0, 0) (0, 0, 0.369)
M_3_2Au_4	α = β = γ = 90° a = b = 81.50 nm, c = 192.00 nm	(0, 0, 0) (0, 0, 0.333)
M_3_2Au_5	α = β = γ = 90° a = b = 57.50 nm, c = 189.52 nm	(0, 0, 0)
M_3_2Au_6	α = β = γ = 90° a = b = 81.00 nm, c = 190.00 nm	(0, 0, 0) (0.5, 0.5, 0.369)
M_3_2Au_7	α = β = γ = 90° a = b = 81.00 nm, c = 192.00 nm	(0, 0, 0) (0.5, 0.5, 0.298)
M_3_2Au_8	α = β = γ = 90° a = b = 80.00 nm, c = 194.00 nm	(0, 0, 0) (0.5, 0.5, 0.333)
M_3_2Au_9	α = β = γ = 90° a = b = 59.50 nm, c = 197.00 nm	(0, 0, 0)

Table S7. Parameters of superlattices M_3_1Au_1 to M_3_2Au_9, including the parameters of unit cells and the coordinates of AuNPs within unit cells.

Superlattices	Parameters of unit cell	Coordinates of AuNPs
M_3_3Au_1	α = β = γ = 90° a = b = 81.10 nm, c = 192.80 nm	(0, 0, 0) (0.5, 0.5, 0) (0.5, 0.5, 0.333)
M_3_3Au_2	α = β = γ = 90° a = b = 81.40 nm, c = 193.50 nm	(0, 0, 0) (0.5, 0.5, 0.333) (0.5, 0.5, 0.702)
M_3_3Au_3	α = β = γ = 90° a = b = 83.80 nm, c = 201.90 nm	(0, 0, 0) (0, 0, 0.369) (0, 0, 0.667)
M_3_3Au_4	α = β = γ = 90° a = b = 80.40 nm, c = 192.50 nm	(0, 0, 0) (0.5, 0.5, 0) (0.5, 0.5, 0.369)
M_3_3Au_5	α = β = γ = 90° a = b = 81.40 nm, c = 192.00 nm	(0, 0, 0) (0.5, 0.5, 0) (0.5, 0.5, 0.298)
M_3_3Au_6	α = β = γ = 90° a = b = 81.50 nm, c = 193.02 nm	(0, 0, 0) (0.5, 0.5, 0.298) (0.5, 0.5, 0.631)
M_3_3Au_7	α = β = γ = 90° a = b = 81.00 nm, c = 193.30 nm	(0, 0, 0) (0.5, 0.5, 0) (0.5, 0.5, 0.369)
M_3_3Au_8	α = β = γ = 90° a = b = 80.70 nm, c = 191.00 nm	(0, 0, 0) (0.5, 0.5, 0.369) (0.5, 0.5, 0.667)
M_3_3Au_9	α = β = γ = 90° a = b = 80.80 nm, c = 193.30 nm	(0, 0, 0) (0.5, 0.5, 0) (0.5, 0.5, 0.333)
M_3_3Au_10	α = β = γ = 90° a = b = 81.60 nm, c = 192.50 nm	(0, 0, 0) (0.5, 0.5, 0) (0.5, 0.5, 0.298)

Table S8. Parameters of superlattices M_3_3Au_1 to M_3_3Au_10, including the parameters of unit cells and the coordinates of AuNPs within unit cells.

Superlattices	Parameters of unit cell	Coordinates of AuNPs
M_3_4Au_1	α = β = γ = 90° a = b = 80.50 nm, c = 192.00 nm	(0, 0, 0) (0.5, 0.5, 0) (0.5, 0.5, 0.298) (0, 0, 0.631)
M_3_4Au_2	α = β = γ = 90° a = b = 81.00 nm, c = 192.80 nm	(0, 0, 0) (0.5, 0.5, 0) (0.5, 0.5, 0.298) (0.5, 0.5, 0.631)
M_3_4Au_3	α = β = γ = 90° a = b = 81.00 nm, c = 192.80 nm	(0, 0, 0) (0.5, 0.5, 0) (0.5, 0.5, 0.369) (0.5, 0.5, 0.667)
M_3_4Au_4	α = β = γ = 90° a = b = 80.90 nm, c = 195.30 nm	(0, 0, 0) (0.5, 0.5, 0) (0.5, 0.5, 0.333) (0.5, 0.5, 0.702)
M_3_4Au_5	α = β = γ = 90° a = b = 60.00 nm, c = 200.47 nm	(0, 0, 0) (0, 0, 0.369)
M_3_4Au_6	α = β = γ = 90° a = b = 80.60 nm, c = 193.40 nm	(0, 0, 0) (0.5, 0.5, 0) (0.5, 0.5, 0.369) (0, 0, 0.667)
M_3_4Au_7	α = β = γ = 90° a = b = 81.00 nm, c = 194.00 nm	(0, 0, 0) (0.5, 0.5, 0) (0.5, 0.5, 0.333) (0, 0, 0.702)
M_3_4Au_8	α = β = γ = 90° a = b = 59.80 nm, c = 201.30 nm	(0, 0, 0) (0, 0, 0.333)
M_3_4Au_9	α = β = γ = 90° a = b = 59.50 nm, c = 201.50 nm	(0, 0, 0) (0, 0, 0.298)
M_3_5Au_1	α = β = γ = 90° a = b = 81.60 nm, c = 194.40 nm	(0, 0, 0) (0.5, 0.5, 0) (0, 0, 0.369) (0.5, 0.5, 0.369) (0.5, 0.5, 0.667)
M_3_5Au_2	α = β = γ = 90° a = b = 81.20 nm, c = 193.80 nm	(0, 0, 0) (0.5, 0.5, 0) (0, 0, 0.333) (0.5, 0.5, 0.333) (0.5, 0.5, 0.702)
M_3_5Au_3	α = β = γ = 90° a = b = 81.20 nm, c = 194.40 nm	(0, 0, 0) (0.5, 0.5, 0) (0, 0, 0.298) (0.5, 0.5, 0.298) (0.5, 0.5, 0.631)
M_3_6Au	α = β = γ = 90° a = b = 57.60 nm, c = 195.20 nm	(0, 0, 0) (0, 0, 0.369) (0, 0, 0.667)

Table S9. Parameters of superlattices M_3_4Au_1 to M_3_6Au, including the parameters of unit cells and the coordinates of AuNPs within unit cells.