

Electronic Supplementary Information

Assembly of a Tile-based Multilayered DNA Nanostructure†

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Table S1 Strand details of the tiles forming a DDX monolayer.

Strand	Base	Sequence (5' to 3')
T0 - Tile		
T0-1	18	GTATGCGAGGACGGATCG
T0-2	29	CATT CTGGACGCCATAAGAT AGCACCTCG
T0-3	63	GTATGGGCAATCCACAACCGCAGTGACAGTAGCCTGCT ATCTTATGGCGTCCAGAATGCTAGT
T0-4	63	CATACCGATCCGTGGCTACTGTCACTGCGGTTGTCCAACTTA CCAGATCCTGTAGAGCACTAG
T0-5	30	GCTCTACAGGATCTGGTAAGTTGGTGTAAC
T0-6	19	TAGCAGTTACAGGATTGCC
L1		
L1-1	26	TGCTA CTACCGCA CCAGAATG CTAGT
L1-2	48	CATTCTGG ACGCCATA AGATAGCA CCTCGACT CATTTGCC TGCGGTAG
L1-3	48	CAGTAGCC TGCTATCT TATGGCGT GGCAAATG AGTCGAGG ACGGATCG
L1-4	26	CATAC CGATCCGT GGCTACTG TCACT
L2		
L2-1	26	GTATG GGCAATCC ACAACCGC AGTGA
L2-2	48	GCGGTTGT CCAACTTA CCAGATCC ACAAGCCG ACGTTACA GGATTGCC
L2-3	48	GCTCTACA GGATCTGG TAAGTTGG TGTAACGT CGGCTTGT CCGTTCGC
L2-4	26	TAGCA GCGAACGG TGTAGAGC ACTAG

Fig. S1 Schematic diagrams for T0, L1 and L2 tiles of the DDX monolayer.

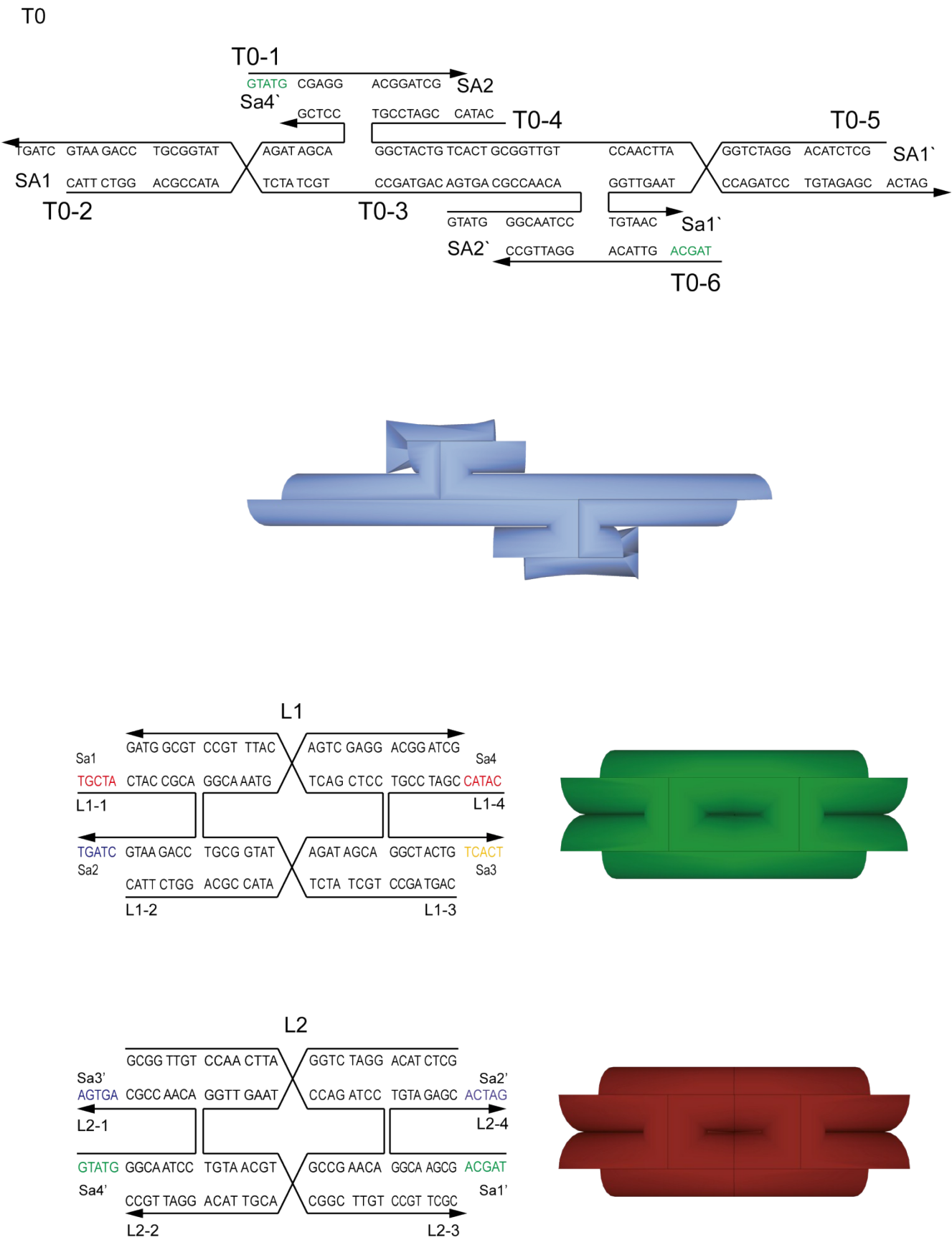


Fig. S2 Image and height profile for fully grown vertical DDX multilayers.

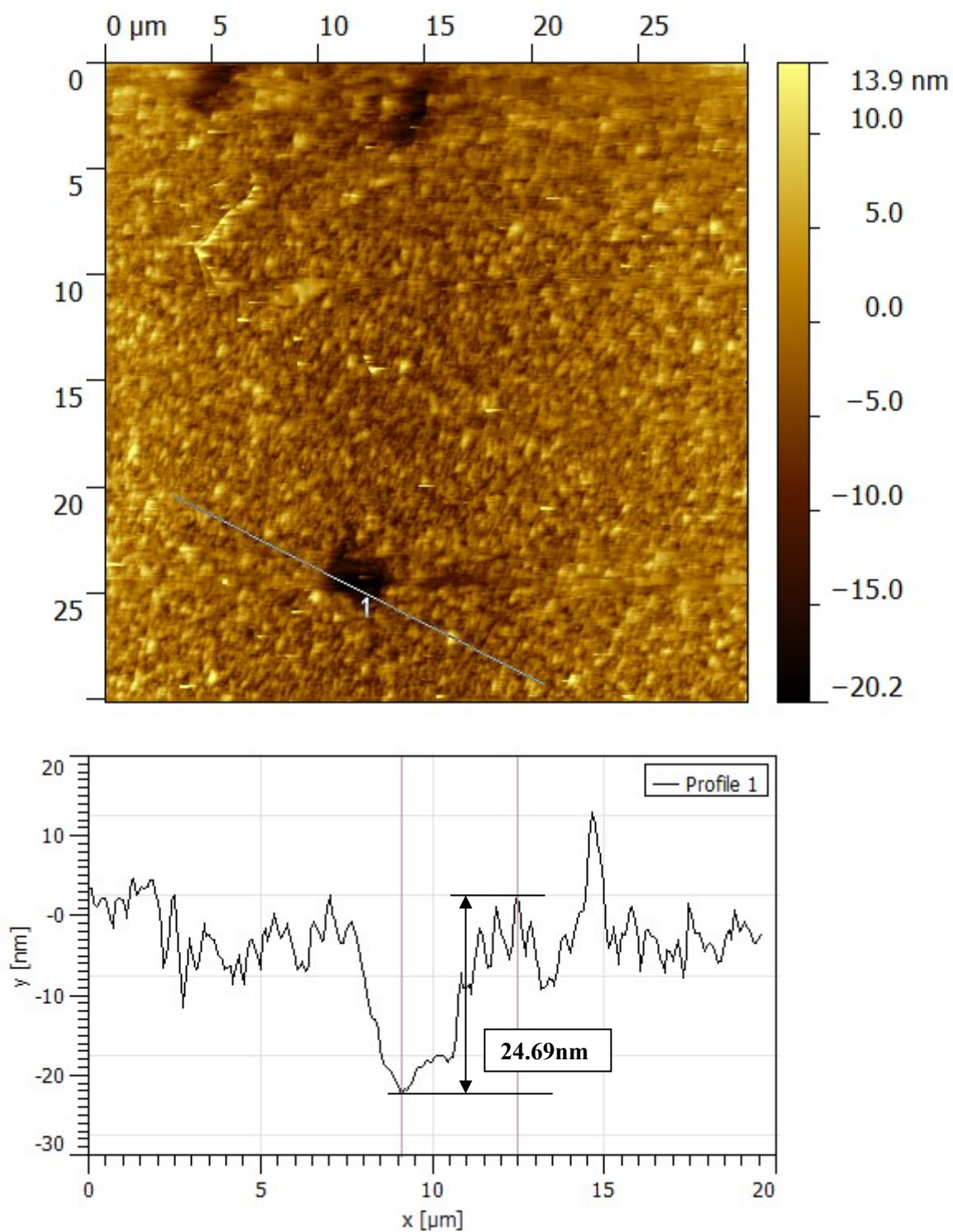


Table S2 Strand details for the tiles forming a DDX bilayer.

Strand	Base	Sequence (5' to 3')
Lb - Tile(=T0)		
T0-1	18	GTATGCGAGGACGGATCG
T0-2	29	CATT CTGGACGCCATAAGAT AGCACCTCG
T0-3	63	GTATGGGCAATCCACAACCGCAGTGACAGTAGCCTGCT ATCTTATGGCGTCCAGAATGCTAGT
T0-4	63	CATACCGATCCGTGGCTACTGTCACTGCGGTTGTCCAACCTTA CCAGATCCTGTAGAGCACTAG
T0-5	30	GCTCTACAGGATCTGGTAAGTTGGTGTAAC
T0-6	19	TAGCAGTTACAGGATTGCC
C1b(=L1)		
C1b-1(=L1-1)	26	TGCTA CTACCGCA CCAGAATG CTAGT
C1b-2(=L1-2)	48	CATTCTGG ACGCCATA AGATAGCA CCTCGACT CATTTGCC TGCGGTAG
C1b-3(=L1-3)	48	CAGTAGCC TGCTATCT TATGGCGT GGCAAATG AGTCGAGG ACGGATCG
C1b-1(=L1-4)	26	CATAC CGATCCGT GGCTACTG TCACT
C2b		
C2b-1(=L2-1)	26	TGCTA GGCAATCC ACAACCGC AGTGA
C2b-2(=L2-2)	48	GCGGTTGT CCAACTTA CCAGATCC ACAAGCCG ACGTTACA GGATTGCC
C2b-3(=L2-3)	48	GCTCTACA GGATCTGG TAAGTTGG TGTAACGT CGGCTTGT CCGTTTCGC
C2b-4	26	CATAC GCGAACGG TGTAGAGC ACTAG

Fig. S3 Schematic diagram for Lb, C1b and C2b tiles of the DDX bilayer
Lb(=T0)

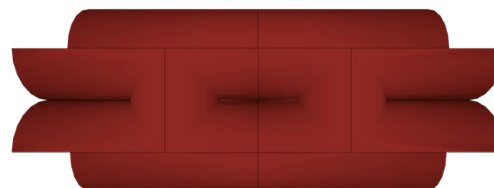
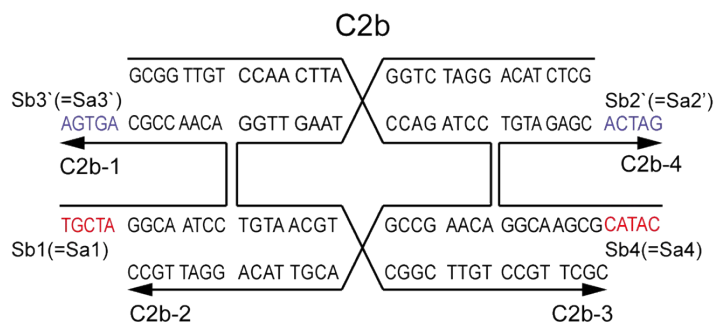
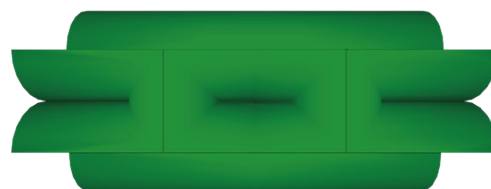
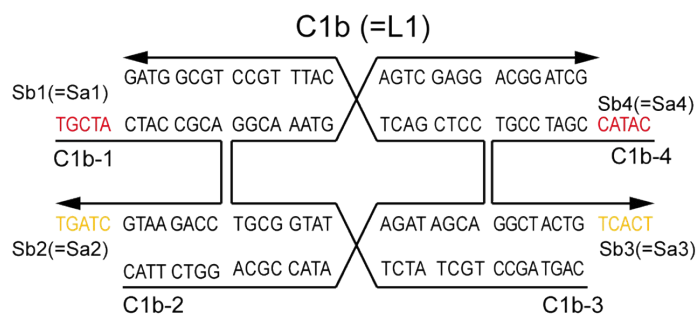
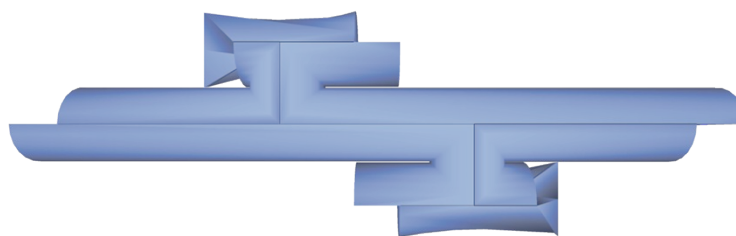
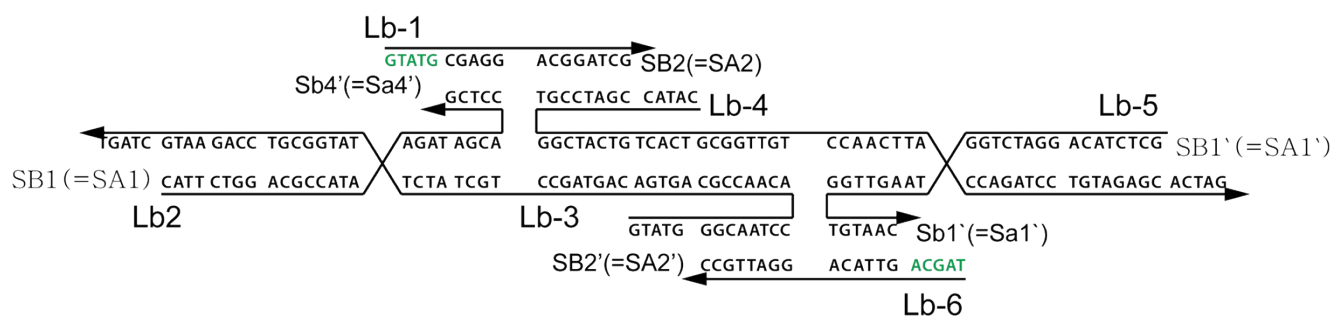
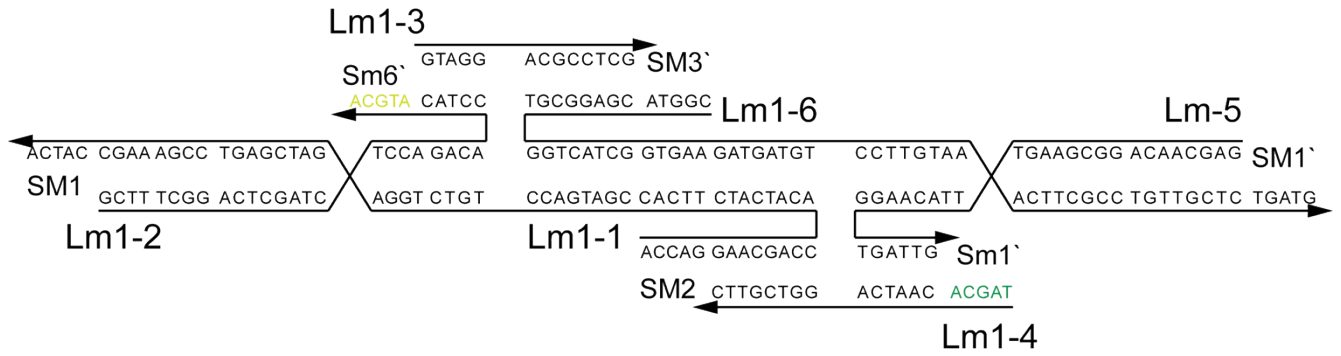


Table S3 Strand details of the tiles forming the DDX multilayer

Strand	Base	Sequence (5' to 3')
Lm1 - Tile		
Lm1-1	63	ACCAG GAAC GACC ACAT CATC TTCAC CGAT GACC TGTC TGGA GATC GAGT CCGA AAGC CATCA
Lm1-2	34	GCTT TCGG ACTC GATC TCCA GACA CCTA C ATGCA
Lm1-3	13	GTAGG ACGC CTCG
Lm1-4	19	TAGCA CA ATCA GGTC GTTC
Lm1-5	30	GAGC AACA GGCG AAGT TTAC AAGG TGAT TG
Lm1-6	63	CGGTA CGAG GCGT GGTC ATCG GTGAA GATG ATGT CCTT GTAA ACTT CGCC TGTT GCTC TGATG
Lm2 - Tile		
Lm2-1	63	TACCG GCTC GGCA CCTC AAAC TTCCA CGAC TTCC TGAT AACA TTTG TAGT CCCT TTAG GACTT
Lm2-2	29	CTAA AGGG ACTA CAAA TGTT ATCA CCGAG
Lm2-3	18	GTATG CTCGG ACTA AGAG
Lm2-4	14	GACACC TGCC GAGC
Lm2-5	35	CGAG TACC TGGA TGTT CATA GCGT GGTGTC ATCAG
Lm2-6	63	CTGGT CTCT TAGT GGAA GTCG TGGAA GTTT GAGG ACGC TATG AACA TCCA GGTA CTCG AAGTC
C1m(=C1b=L1)		
C1m-1(=L1-1)	26	TGCTA CTACCGCA CCAGAATG CTAGT
C1m-2(=L1-2)	48	CATTCTGG ACGCCATA AGATAGCA CCTCGACT CATTTGCC TGCGGTAG
C1m-3(=L1-3)	48	CAGTAGCC TGCTATCT TATGGCGT GGCAAATG AGTCGAGG ACGGATCG
C1m-4(=L1-4)	26	CATAC CGATCCGT GGCTACTG TCACT
C2m(=C2b)		
C2m-1(=L2-1)	26	TGCTA GGCAATCC ACAACCGC AGTGA
C2m-2(=L2-2)	48	GCGGTTGT CCAACTTA CCAGATCC ACAAGCCG ACGTTACA GGATTGCC
C2m-3(=L2-3)	48	GCTCTACA GGATCTGG TAAGTTGG TGTAACGT CGGCTTGT CCGTTCGC
C2m-4(=C2b-4)	26	CATAC GCGAACGG TGTAAGAGC ACTAG
C3m		
C1m-1	26	CTCTT CTAC CGCA CCAG AATG CTGAT
C1m-2(=L1-2)	48	CATTCTGG ACGCCATA AGATAGCA CCTCGACT CATTTGCC TGCGGTAG
C1m-3(=L1-3)	48	CAGTAGCC TGCTATCT TATGGCGT GGCAAATG AGTCGAGG ACGGATCG
C1m-4	26	ATCTC CGAT CCGT GGCT ACTG TGCAT
C4m		
C2b-1	26	GAGAT GGCA ATCC ACAA CCGC CTGAT
C2b-2(=L2-2)	48	GCGGTTGT CCAACTTA CCAGATCC ACAAGCCG ACGTTACA GGATTGCC
C2b-3(=L2-3)	48	GCTCTACA GGATCTGG TAAGTTGG TGTAACGT CGGCTTGT CCGTTCGC
C2b-4	26	AAGAG GCGA ACGG TGTA GAGC TGCAT

Fig. S4 Schematic diagram for Lm1 and Lm2, C1m - C4m tiles of the DDX multilayer

Lm1



Lm2

