**Supplementary Table 5:** Oligonucleotides used for synthesizing DNA substrates for optical tweezers experiments.

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| --- | --- |
| **Construct Name** | **Oligonucleotide sequence (5’→3’)** |
| Biotin 600 bp track | /5’Biotin/-GCTTTAATGCGGTAGTTTATCA |
| GCAGCATTAGGAAGCAGCCCAGGCATTAGGAAGCAGCCCAG |
| Dig 600 bp track | /5’Phosphate/-GCATTAGGAAGCAGCCCAGGCTTTATTGCGGTAG TTTATCA |
| /5’digoxigenin/-GCATTAGGAAGCAGCCCAG |
| Biotin 4000 bp track | /5’Biotin/-GCTTTAATGCGGTAGTTTATCA |
| GCACTACGCCTCAGCTTGCCCCTCAGCGATGACCTCAGCATTCCCTTTTTTGCGGCATT |
| Dig 4000 bp track | /5’Phosphate/-CTACGCCTCAGCTTGCCCCTCAGCGATGACCTCAGCGTCACTGGTCCCG |
| /5’digoxigenin/-GCATTAGGAAGCAGCCCAG |
| Biotin short track | /5’Biotin/AACCACCAACCAACAACCACCCAAACCCAAACCCAAGGTCATCGCTGAGGGGC AAGCTGAGGCGTAGTGC |
| Dig short track | /5’Phasphate/CTACGCCTCAGCTTGCCCCTCAGCGATGACCAAACCACCAACCAACAACCACCCAAACCCAAACCCACAC/3’digoxigenin / |