**Supplementary File 2. DNA oligonucleotides used in this work**

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| **Fragment** | **Oligonucleotide** | **Sequence** |
| Annealed oligonucleotides with 2 *parS* sites | 30.P-up 2ParS XbaI-BsrGI | [Pho]CTAGCTGTACATTAATCAGAATGTTCCACGTGAAACAAAGAAAAAAGAACCTGTTCTAGACCTAGTCCAGGCTCAGTGTTCCACGTGAAACAGGTCCGAGTCCAATATGG |
| 31.P-down 2ParS XbaI-BsrGI | [Pho]CTAGCCATATTGGACTCGGACCTGTTTCACGTGGAACACTGAGCCTGGACTAGGTCTAGAACAGGTTCTTTTTTCTTTGTTTCACGTGGAACATTCTGATTAATGTACAG |
| 6 *parS* PCR fragment | 32.F pET28 PCR NdeI | GCGTAAGTCATATGCCGAAACAAGCGCTCATG |
| 33.R pET28 PCR NdeI | GCGTAAGTCATATGCGCATTAATCCCTTTTCC |
| 13 *parS* PCR fragment | 50.F pET28 37 SphI-BglI | GCGTAAGTGCATGCGCCATGCCGGCGCCTGCCACCATACCCAC |
| 51.R pET28 BglI-SphI | GCGTAAGTGCATGCGCCGGCATGGCGAACCGCATCTTTCACAGG |
| Lambda C1 fragment | 20Lambda\_F\_NotI | GCGTAAGTGCGGCCGCGGTGTGCTCCTTATTTATACATAACG |
| 21Lambda\_R\_SalI | GCGTAAGTGTCGACGCGACTTATCAACGCCCACAG |
| Lambda C2 fragment | 22Lambda\_F\_BamHI | CGGTTGCGGCAGAAAACAGCCGC |
| 23Lambda\_R\_NotI | GCGTAAGTGCGGCCGCCCGGAACAGTGTGTAACAGTC |
| Lambda C1-EcoRI fragment | 20Lambda\_F\_NotI | GCGTAAGTGCGGCCGCGGTGTGCTCCTTATTTATACATAACG |
| 176.Lambda\_R\_5Eco Sal | TAAGTGTCGACGAATTCATCCGAGAATTCCGATAGGAATTCCACGTTGAATTCTACGACGAATTCGCGACTTATCAACGCCCACAGC |
| Lambda C2-EcoRI fragment | 177.Lambda\_F\_5Eco BamHI | TAAGTGGATCCGAATTCATCCGAGAATTCCGATAGGAATTCCACGTTGAATTCTACGACGAATTCTCAACTGTGAGGAGGCTCACGG |
| 23Lambda\_R\_NotI | GCGTAAGTGCGGCCGCCCGGAACAGTGTGTAACAGTC |
| Central part of MT substrates | FMH\_F\_NotI\_pET28-SpoOJ | GCGTAAGTGCGGCCGCCTGCATGTGTCAGAGGTTTTCAC |
| FMH\_R\_XhoI\_pET28-SpoOJ | GCGTAAGTCTCGAGCAGATTGTACTGAGAGTGCACCA |
| Central part of MT EcoRI 7x *parS* DNA | 197.F-7parS-5EcoRI XhoI | GCGTAAGTCTCGAGCAGCGCCATCTGATCGTTG |
| 198.R-7parS-5EcoRI NotI | GGCGTAAGTGCGGCCGCTACCGATACTGCTGACCCAGC |
| MT handles | FMH\_F2\_NotI | GCGTAAGTGCGGCCGCGACTCACTATAGGGAGACCGGC |
| JOE\_R1 | AGTAAGCGCCGTCAGACCAG |
| 1x *parS* PCR fragment and ‘scrambled’ PCR fragment for TPM DNA substrates | 73.R-TPM control XhoI | GCGTAAGTCTCGAGACCGAGATAGGGTTGAGTG |
| 74.F-TPM OK NotI | GCGTAAGTGCGGCCGCGCCTGCCACCATACCCAC |
| Bio tailed oligonucleotides | 27-P-XhoI-A | [pho]tcgagCCCGGGCCATGGGATCCCC |
| 26-XhoI-B | GGGGATCCCATGGCCCGGGc |
| Dig tailed oligonucleotides | 24P-NotI-A | [pho]ggccgcCCCGGGCTCGAGGATCCCC |
| 25-NotI-B | GGGGATCCTCGAGCCCGGGgc |
| AFM 1x *parS* PCR fragment | 74.F-TPM OK NotI | GCGTAAGTGCGGCCGCGCCTGCCACCATACCCAC |
| 46.R post SalI pET | CTCGACTGCGGCCGGAAG |
| *Scrambled parS* for NTP hydrolysis assay | parS-Scrambled-1 | CAGCAGTTGAATCAGAACGTGCCCAGGGAGACAAAGAAAAAAGAACCTGT |
| parS-Scrambled-2 | ACAGGTTCTTTTTTCTTTGTCTCCCTGGGCACGTTCTGATTCAACTGCTG |
| *1x parS* for NTP hydrolysis assay | parS-1 | CAGCAGTTGAATCAGAATGTTCCACGTGAAACAAAGAAAAAAGAACCTGT |
| parS-2 | ACAGGTTCTTTTTTCTTTGTTTCACGTGGAACATTCTGATTCAACTGCTG |
| *2x parS* for NTP hydrolysis assay | 28.2ParS XbaI up | CTAGCCTCGAGTTAATCAGAATGTTCCACGTGAAACAAAGAAAAAAGAACCTGTTCTAGACCTAGTCCAGGCTCAGTGTTCCACGTGAAACAGGTCCGAGTCCAATATGG |
| 29.2Pars XbaI down | CTAGCCATATTGGACTCGGACCTGTTTCACGTGGAACACTGAGCCTGGACTAGGTCTAGAACAGGTTCTTTTTTCTTTGTTTCACGTGGAACATTCTGATTAACTCGAGG |