

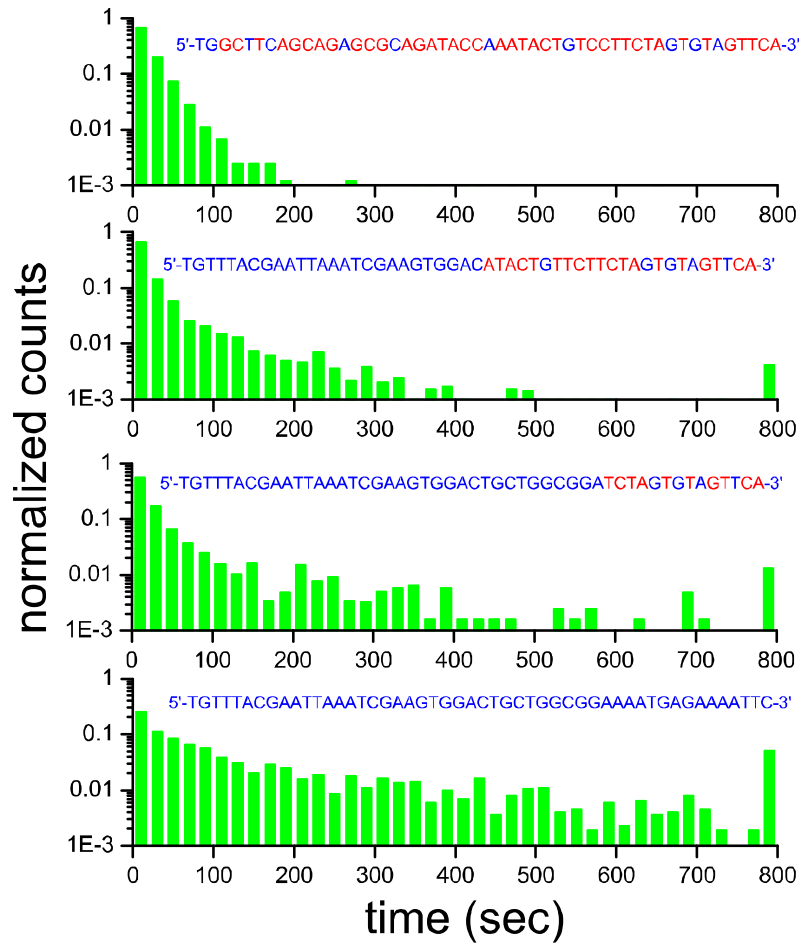
SUPPLEMENTARY MATERIAL

The sequences that were used for single molecule assays are the following: **a1**: biotin-5'-TGGCGAAAGGTCGCAAAGTAAGAGCTTCTCGAGCTGCGCAAGGATAGGTCGAATTTCTCATTTTCCGCCAGCAGTCCACTTCGATTTAATTCGTAAACA-3'; **21a2**: 5'-TGTTTACGAATTAAATCGAAG-3'; **50a2**: 5'-TGTTTACGAATTAAATCGAAGTGGACTGCTGGCGGAAAATGAGAAAATTC-3'; **70a2**: 5'-TGTTTACGAATTAAATCGAAGTGGACTGCTGGCGGAAAATGAGAAAATTCGACCTATCCTTGCGCAGCTC-3'; **21SR**: TAMRA-5'-TGGCTTCAGCAGA GCGCAGAT-3'; **50SR**: TAMRA-5'-TGCTTCAGCAGAGCGCAGATACCAAATACTGTCCTTCTAGTGTAGTTCA-3'; **70SR**: TAMRA-5'-TGGCTTCAGCAGAGCGCAGATACCAAATACTGTCCTTCTAGTGTAGTTCAAGTCATGTGAGTGCCAACCT-3'; **HOM0**: TAMRA-5'-TGTTTACGAATTAAATCGAAGTGGACTGCTGGCGGAAAATGAGAAAATTC-3'; **HOM15**: TAMRA-5'-TGACTTTAACAGAGCGTAGATACCAAATACTGTCCAAAATGAGAAAATTC-3'; **HOM26**: TAMRA-5'-TGACTTTAACAGAGCGTAGATACCACTGCTGGCGGAAAATGAGAAAATTC-3'; **HOM35**: TAMRA-5'-TGACTTTAACAGAGCTCGAAGTGGACTGCTGGCGGAAAATGAGAAAATTC-3'; **HOM50**: TAMRA-5'-TGTTTACGAATTAAATCGAAGTGGACTGCTGGCGGAAAATGAGAAAATTC-3'; **5HOM26**: TAMRA-5'-TGTTTACGAATTAAATCGAAGTGGACATACTGTTCTTCTAGTGTAGTTCA-3'; **5HOM36**: TAMRA-5'-TGTTTACGAATTAAATCGAAGTGGACTGCTGGCGGATCTAGTGTAGTTCA-3'; **MM1**: TAMRA-5'-TGTTTACGAATTAAATCGAAGTGGACTGCTGGCGGAAAATGAGAAAATTC-3'; **MM3**: TAMRA-5'-TGTTTACGAATTAAATCGAAGTGGTCAGGTGGCGGAAAATGAGAAAATTC-3'.

The sequences that were used for FRET experiments are the following:

Phi60: Cy5-5'-AAACTATTATTTCTCATTTTCCGCCAGCAGTCCACTTCGATTTAA

TTCGTAAACAGATCT-3' *Phi50*: 5'-TGTTTACGAATTAAATCGAAGTGGACTGCT
GGCGGAAAATGAGAAAATTA-3'-TAMRA; *PhiH50*: 5'-ATTATTTCTCATTTTCCG
CCAGCAGTCCACTTCGATTTAATTCGTAAACA-3'; *COMS*: 5'-GATTTTGGGGGA
GGCGTTGAAGTCGGGGTTCGTTTTGTGGTTTCGTTTCGGTTCGCGTTTGTTA-3' ;
COMAS: 5'-TAACAAACGCGAACCGAACGAAACCACAAAACGAACCCCGACT
TCAACGCCTCCCCAAAATC-3'.



Supplementary Figure S1. Dependence of synapse lifetime on the length of homologous sequences at the 5' end of incoming DNAs. Normalized histograms of lifetimes for four values of x , the length of homologous tracts (blue) at the 5' end of the incoming strand whose sequence is shown (sequences *HOM0*, *5HOM26*, *5HOM36* and *HOM50*, Materials and Methods). Heterologies are shown in red. The last column in the histogram includes also all events with lifetimes longer than 800 sec.