

SUPPORTING INFORMATION

Polar Organic Solvents Accelerate the Rate of DNA Strand Replacement Reaction

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Table S1. Replacement ratios of system 1 in different solutions in 60s, 300s, and 600s

Table S2. Replacement ratios of system 2 in different solutions in 60s, 300s, and 600s

Table S3. DNA Sequences

Table S1. Replacement ratios of system 1 in different solutions in 60s, 300s, and 600s

	DSRR time	aqueous buffer	70% buffer & 30% glycerin	70% buffer & 30% glucose	70% buffer & 30% acetone	70% buffer & 30% DMSO
Replacement ratio	60s	9%	44%	57%	59%	63%
	300s	22%	69%	65%	74%	75%
	600s	31%	73%	70%	76%	77%

Table S1. Replacement ratios of the simple system in aqueous buffer and some polar organic solvents mixed buffer solutions. All of these polar organic solvents promote the replacement ratios, especially in the beginning of reaction.

Table S2. Replacement ratios of system 2 in different solutions in 60s, 300s, and 600s

	DSRR time	aqueous buffer	70% buffer & 30% ethanol	70% buffer & 30% glycerin
Replacement ratio	60s	6%	17%	7%
	300s	11%	39%	20%
	600s	15%	52%	29%

Table S2. Polar organic solvents also have promotion in replacement ratios of complicated system, although the effect is not as obvious as that of system 1.

Table S3. DNA Sequences

Name	Sequences (5'-3')
A	CTGGAATCGTCGTTTACGGTCCACACAGTAGATCAGAATTGGCACGTTTCGCTCGCTAGGTTGAAGTCACCCTCATT- <u>Iowa black</u>
B	<u>TAMRA</u> -AATGAGGGTGACTTC GACCGTAAACGACGA
A'	AATGAGGGTGACTTCAACCTAGCGAGCGAACGTGCCAATTCTGATCTACTGTGTG GACCGTAAACGACGA
B'	TCGTCGTTTACGGTC GAAGTCACCCTCATT

Table S3. Strand B is modified with TAMRA (red-fluorescent tetramethylrhodamine) at 5' terminus while strand A is modified with Iowa Black (quencher of TAMRA) at 3' terminus.