

10	20	30	40	50	60
MTSASAPSFN	PGKGPGSAVG	IALLGFGTVG	TEVMRLMTEY	GDELAHRIGG	PLEVRGIAVS
70	80	90	100	110	120
DISKPREGVA	PELLTEDAFA	LIEREDVDIV	VEVIGGIEYP	REVVLAALKA	GKSVVTANKA
130	140	150	160	170	180
LVAAHSAELA	DAAEAANVDL	YFEAAVAGAI	PVVGPLRRSL	AGDQIQSVMG	IVNGTTNFIL
190	200	210	220	230	240
DAMDSTGADY	ADSLAEATRL	GYAEADPTAD	VEGHDAASKA	AILASIAFHT	RVTADDVYCE
250	260	270	280	290	300
GISNISAADI	EAAQQAGHTI	KLLAICEKFT	NKEGKSAISA	RVHPTLLPVS	HPLASVNKSF
310	320	330	340	350	360
NAIFVEAEAA	GRLMFYNGA	GGAPTASAVL	GDVVGAARNK	VHGGRAPGES	TYANLPIADF
370	380	390	400	410	420
GETTTRYHLD	MHSLNMLHSR	GVLAELASLF	SEQNISVD	TI RTSEVSL	LIVV THSAESDLS
	Site 4		Site 2	Site 3	
430	440				
RTVELLKAK	PVVKAINSVIR	LERD			

Supplementary File 1. The sequence of artificial homoserine dehydrogenase (HSD-S1) transplanting the lysine binding sites from *E. coli* aspartokinase III (AK3). The three loops from the binding sites of AK3 were shown as red.