

Table S5. Parameter estimates and likelihood values for site models across PEBP protein sites. Significant chi-square comparisons were indicated with * (pLRT<0.05), ** (pLRT<0.01), *** (pLRT<0.001). Positive selected sites with its probability were detected with Bayes Empirical Bayes analysis.

Nsite model	LnL	Estimate of parameters	pLRT	Selected sites
M0: one ratio	-4634.412	$\omega=1.15119$		
M1: neutral	-4593.888	$p_1=0.23775, p_2=0.76225$ $\omega_1=0.14634, \omega_2=1.00000$		
M2: selection	-4575.12 ***	$p_1=0.19566, p_2=0.42586,$ $p_3=0.37847$ $\omega_1=0.14968, \omega_2=1.00000,$ $\omega_3=2.10351$	7.07E-09 (M1 vs M2)	37,66,93,10 0,102,104,1 17,123
M7: beta (neutral)	-4595.246	$p=0.10000, 0.10000, 0.10000,$ $0.10000, 0.10000, 0.10000,$ $0.10000, 0.10000, 0.10000,$ 0.10000 $\omega= 0.00000, 0.21609,$ $0.99957, 1.00000, 1.00000,$ $1.00000, 1.00000, 1.00000,$ $1.00000, 1.00000$		
M8: beta (selection)	-4574.797 ***	$p=0.05577, 0.05577, 0.05577,$ $0.05577, 0.05577, 0.05577,$ $0.05577, 0.05577, 0.05577,$ $0.05577, 0.44227$ $\omega=0.01239, 0.11457, 0.29660,$ $0.50895, 0.70252, 0.84742,$ $0.93706, 0.98142, 0.99715,$ $0.99995, 1.97271$	1.32E-09 (M7 vs M8)	13,19,21,34, 37,61,66,69, 73,76,83,89, 90,91,93,94, 96,100,102, 104,105,117 ,121,122,12 3