

**Table S3.** Top15 MEME motifs found in the negative dataset

MEME ID	Number of hits in the negative database	Width	E-value	Best possible match
MEME-1	2148	21	$5.3 \times 10^{-405}$	VKPGEKTAIMGPNCGCKSTLL
MEME-2	2165	21	$5.9 \times 10^{-327}$	NGRGLSGGQKQRVSIARALYS
MEME-3	2137	29	$2.0 \times 10^{-402}$	PKILFLDEPTSGLDSETEWNIQRFLRKEF
MEME-4	579	50	$2.3 \times 10^{-362}$	YCPQTPWIQNM TIRDNILFGSPYDEEWYWQVIHACCLEPDLEML PHGDQT
MEME-5	938	39	$1.10 \times 10^{-244}$	FRFYEPTSGHITIDGHDISKIPRHDLRSRIGIVPQDPVL
MEME-6	1337	22	$4.20 \times 10^{-210}$	LCVPPGEMTVVVGPNCGCKSTL
MEME-7	1690	21	$6.60 \times 10^{-182}$	FDKICVMDEGKVVEYGPHKEL
MEME-8	643	41	$2.50 \times 10^{-217}$	ASKKLHQDLLRTVMHAPMRFFDTTPTGRIMNRFSDMDLID
MEME-9	841	21	$1.10 \times 10^{-132}$	GKNLSQGQRQLLCLARAMVRR
MEME-10	885	29	$7.00 \times 10^{-140}$	RPDICCLDDPFSALDHHTERHIWDNCF CG
MEME-11	533	29	$5.50 \times 10^{-131}$	PGTVRSNLDPFHEHTDEECWDALRRVHLW
MEME-12	373	32	$1.90 \times 10^{-108}$	PDDHSFQRKTGYCEQEDVHLPTLTVRETLEFS
MEME-13	69	50	$3.20 \times 10^{-100}$	WWGRMKEAQDRQKAHMEATIRNNMKAGKKNNDDNKL RQAK SRQKKLDDR W
MEME-14	580	21	$2.60 \times 10^{-85}$	KSPLYSHFGETLSGLTTIRAF
MEME-15	851	15	$1.80 \times 10^{-79}$	RTIICIAHRLSTIMD

Negative dataset was taken from Carreón-Anguiano et al. (2020). It comprises 4528 protein sequences with different length, presence/absence of signal peptide and TMDs