

**Table S1.** Physiochemical properties of the vaccine protein sequence.

<b>Number of amino acids</b>	248			
<b>Molecular weight</b>	26962.50			
<b>Theoretical pI</b>	5.94			
<b>Amino acid composition</b>	Ala (A) 61	24.60%	Ser (S) 9	3.60%
	Arg (R) 2	0.80%	Thr (T) 21	8.50%
	Asn (N) 4	1.60%	Trp (W) 0	0.00%
	Asp (D) 9	3.60%	Tyr (Y) 31	12.50%
	Cys (C) 0	0.00%	Val (V) 21	8.50%
	Gln (Q) 9	3.60%	Pyl (O) 0	0.00%
	Glu (E) 8	3.20%	Sec (U) 0	0.00%
	Gly (G)10	4.00%	(B) 0	0.00%
	His (H) 7	2.80%	(Z) 0	0.00%
	Ile (I) 6	2.40%	(X) 0	0.00%
	Leu (L) 13	5.20%		
	Lys (K) 11	4.40%		
	Met (M) 6	2.40%		
	Phe (F) 15	6.00%		
	Pro (P) 5	2.00%		
<b>Total number of negatively charged residues (Asp + Glu)</b>	17			
<b>Total number of positively charged residues (Arg + Lys)</b>	13			
<b>Atomic composition</b>	Carbon C	1259		
	Hydrogen H	1832		
	Nitrogen N	292		
	Oxygen O	357		
	Sulfur S	6		
<b>Formula</b>	$C_{1259}H_{1832}N_{292}O_{357}S_6$			
<b>Total number of atoms</b>	3746			
<b>Extinction Coefficients (M-1 cm-1, at 280 nm)</b>	46190			
<b>Abs 0.1% (=1 g/l)</b>	1.71			
<b>Estimated half-life</b>	4.4 hours (mammalian reticulocytes, in vitro) >20 hours (yeast, in vivo) >10 hours (Escherichia coli, in vivo)			
<b>Instability index</b>	27.30 (This classifies the protein as stable)			
<b>Aliphatic index</b>	79.03			
<b>Grand average of hydropathicity (GRAVY)</b>	0.30			