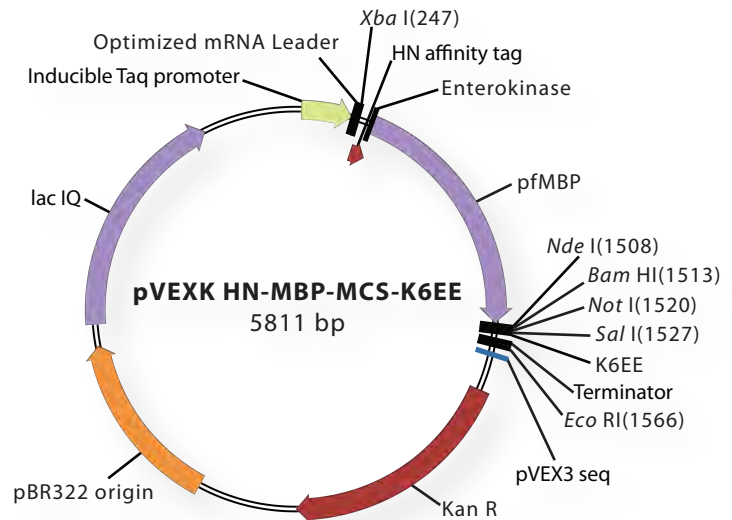


Vaccines and Adjuvants

Thermostable Protein Expression: Antigen/Adjuvant¹

Advantages:

- Thermostable TAG (TST) (maltodextrin binding protein, MBP)
- N-terminal HN affinity tag
- C-terminal K6EE stability/solubility tag
- Inducible *Tac* promoter
- Optimized mRNA leader
- LacIQ repressor
- Thermostable vaccine components
 - Flagellin Adjuvant
 - Influenza Antigen



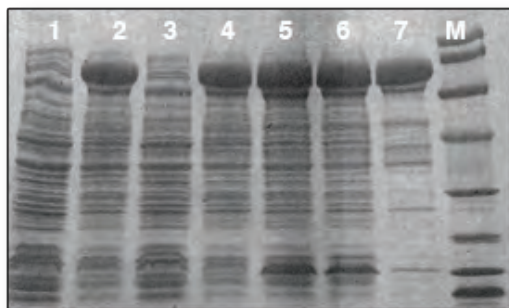
Thermostable Vaccine Components (larger quantities available by quotation):

HN-flagellin	1mg protein	\$335
HN-TST-flagellin	1mg protein	\$335
HN-TST-HA2	1mg protein	\$335

Pyrococcus furiosus MBP-HA2 is an Effective Immunogen

Immunogen	56 day anti-HA2 IgG (total) (Abs) ^a
pfMBP-HA2	0.615 +/- 0.245 ^o
HA plasmid	0.190 +/- 0.138 ^o
Control	0.056 +/- 0.002

^aAbsorbance of 1/62,500 dilution
^oP<.05 by two sided Student t-test



Gel : NTC developed TLR5 receptor agonist TST-Flagellin.

- lane 1 = uninduced total protein
- lane 2 = induced total protein
- lane 3 = uninduced soluble protein,
- lane 4 = induced soluble protein
- lane 5 = induced total protein (large scale fermentation harvest)
- lane 6 = induced soluble protein (large scale fermentation harvest)
- lane 7 = induced soluble protein after 75°C 40 min heat treatment (large scale fermentation harvest)
- M= Marker

Flagellin, a TLR5 agonist, was fused to TST MBP from *Pyrococcus furiosus* (TST-flagellin).

1) Luke, J., Carnes, A.E., Sun, P., Hodgson, C.P., Waugh, D.S., and Williams, J.A (2011), Thermostable Tag (TST) protein expression system: engineering thermotolerant recombinant proteins and vaccines, *J. Biotechnol.*, 151:242-50.