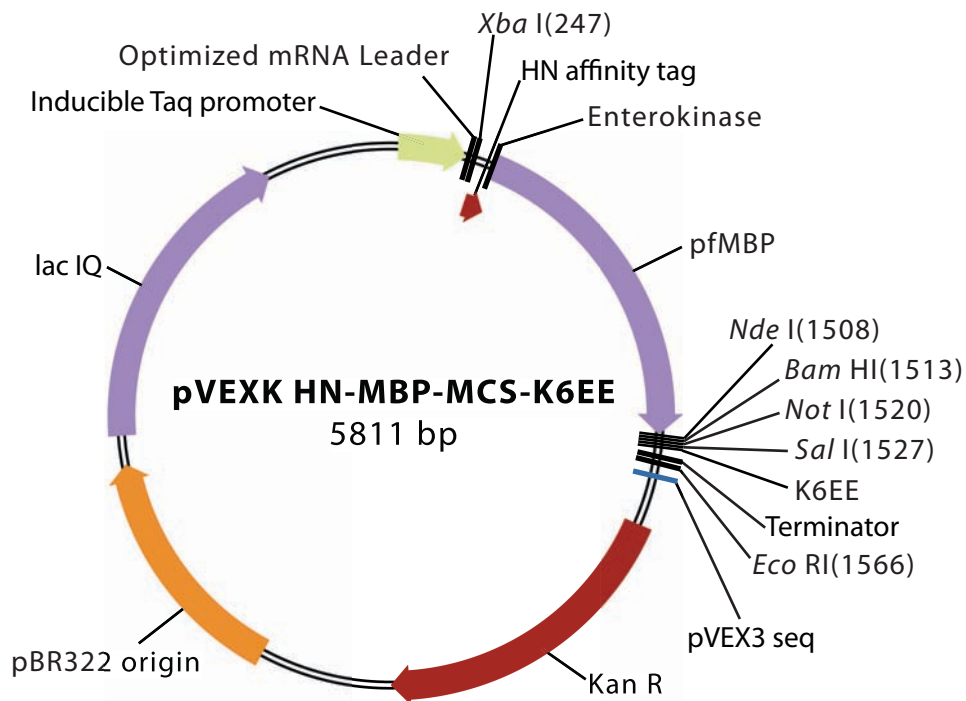
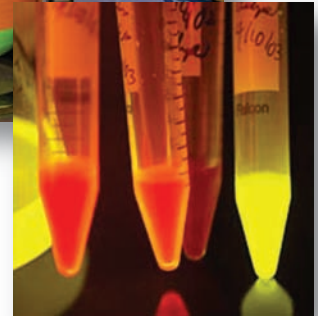


***Escherichia coli* Recombinant Protein Expression Vectors**

NTC pVEX Advantages:

- Highest yield recombinant protein production (up to 20g/L), Defined Media Fermentation
- Vaccine Antigen Production
- Native or Tagged Proteins
- Thermostable Tag (TST)
 - Thermostable Antigen
 - Thermostable Adjuvant
- C-tag Increased Stability/Solubility
- IPTG Inducible Promoter
- Fluorescent Protein Production (Correct Folding)
- KanR or AmpR Selection
- Simultaneous Cloning

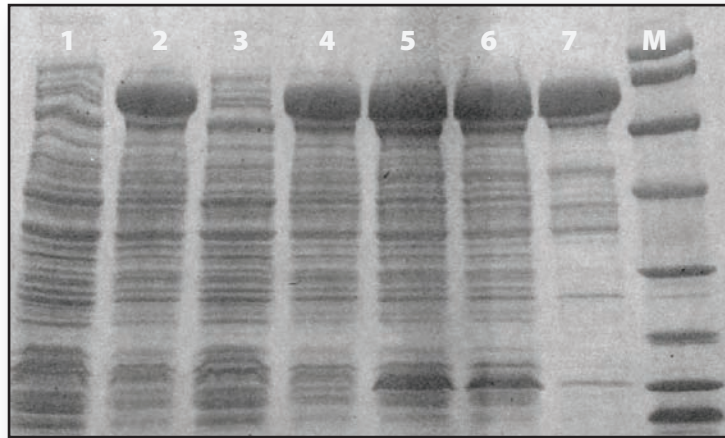


A typical advanced NTC pVEX protein expression vector, pVEXK HN-MBP-MCS-K6EE, with the following features: LacIQ repressor, inducible Tac promoter, optimized mRNA leader, HN affinity tag, thermostable antigen/adjuvant (MBP), and C-terminal tag for increased stability/solubility.

Escherichia coli Recombinant Protein Expression Vectors, cont.

pVEX Application Notes:

Thermostable antigen and thermostable adjuvant: (Top) Thermostable *Pyrococcus furiosus* maltodextrin-binding protein (pfMBP) as a thermo-stabilizing fusion partner to Flagellin, a TLR5 agonist (TST-flagellin). (Bottom) Influenza serotype H5 hemagglutinin C-terminal HA2 domain, fused to pfMBP, is an effective immunogen.



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

***Pyrococcus furiosus* MBP-HA2 is an effective immunogen**

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

^a Absorbance of 1/62,500 dilution.
* P<.05 by two sided student t-test