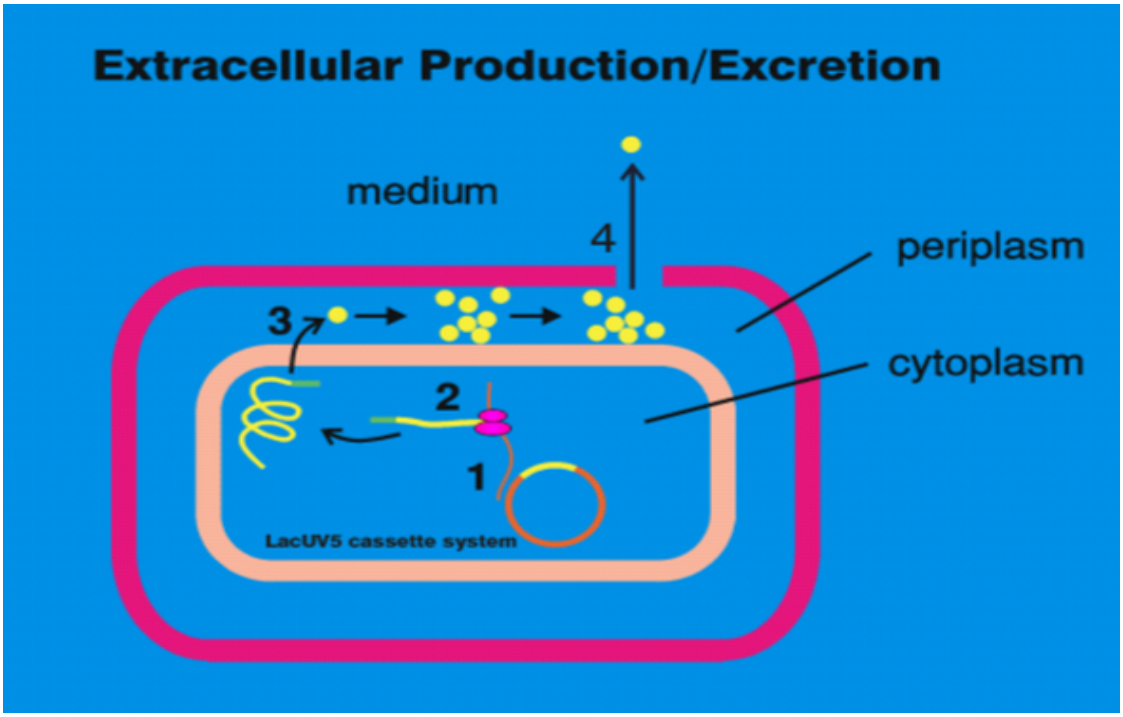
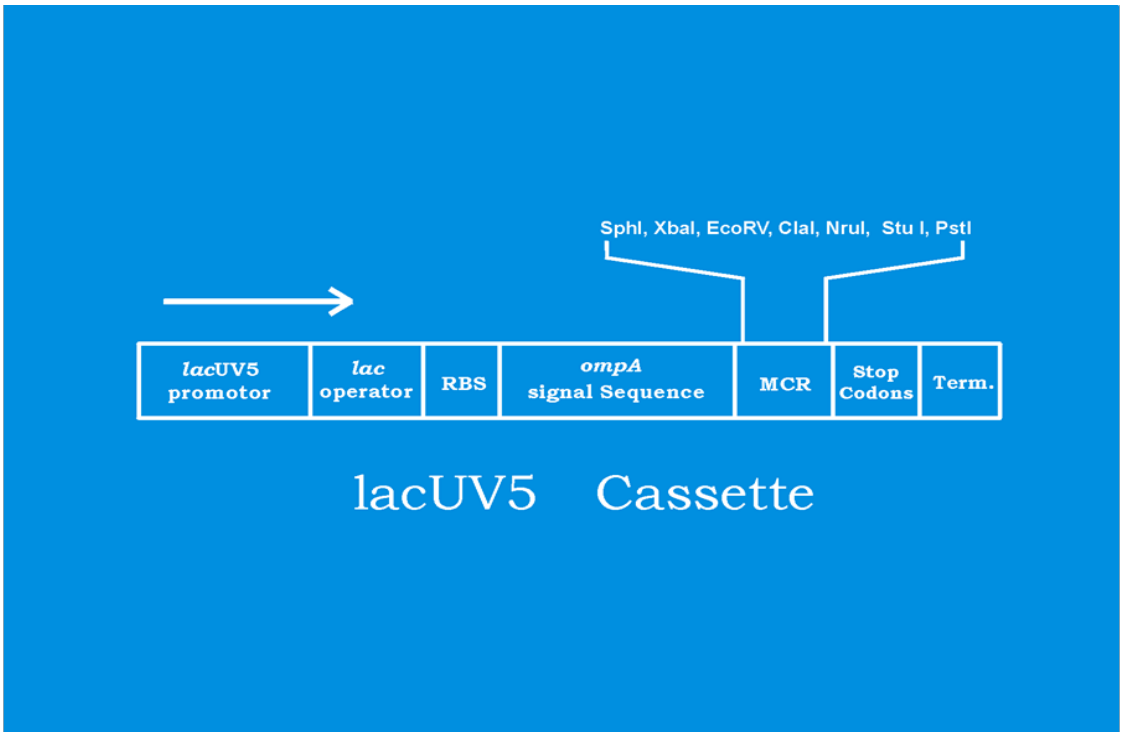
Bacterial Expression Systems

1) *Escherichia coli* Excretion System

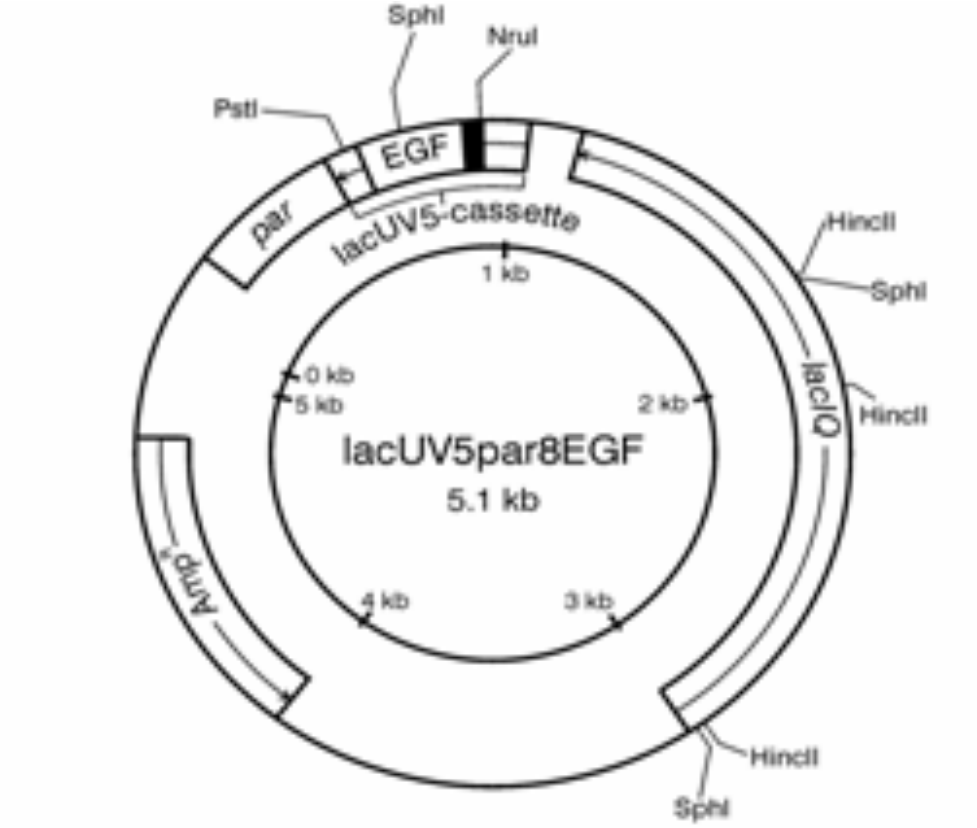
Our scientists have developed unique *E. coli* excretion systems using the Tac and LacUV5 cassettes, in conjunction with plasmid stabilizers for efficient production of recombinant proteins.



E. coli LacUV5-cassette excretion system



LacUV5 Expression Cassette



Plasmid containing hEGF gene

2) *Bacillus subtilis* Secretion System

Another expression & secretion system is engineered in B. subtilis for efficient extracellular production of heterologous proteins. Regulatory cassettes containing transcriptional controls derived from the veg I promoter and the Staphylococcal protein A signal peptide are employed in this system.

There are many advantages of the extracellular approach over the intracellular one for the production of recombinant proteins.

- Correct folding to a functional native form – authentic & bioactive product
- Reduction of proteolysis, and thus higher product yields
- Reduction of contamination from unwanted proteins (e.g. endotoxin), and thus attainment of product with better quality
- Unwanted N-terminal methionine can be avoided
- Easy purification process and reduced production cost
- Suitable for large and industrial scale production
- Applicable for the production of all naturally secretory proteins
- Applicable for the production of mildly toxic proteins
- Continuous production and delivery available