Vmax™ X2 chemically competent cells

2–4x higher protein yield

Express difficult proteins

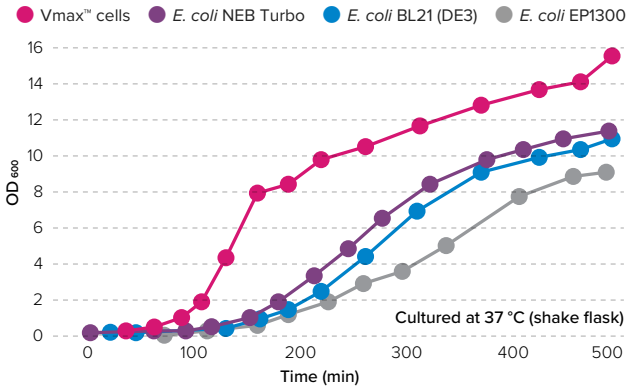
Induce expression early

100x lower endotoxin

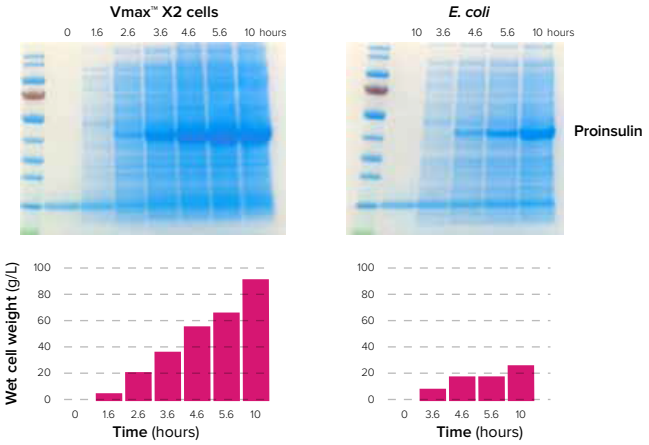
Easier cell lysis

With an accelerated doubling time and higher density growth, Vmax™ X2 chemically competent cells shorten protein expression workflows by one day and generate more soluble protein in less time than *E. coli*. Codex's Vmax™ competent cells naturally have low immunogenicity with endotoxin levels 100 times lower than *E. coli*, making it an ideal host system for protein purification. For applications with expensive media, like NMR, the benefit of using half the media for an equivalent protein yield results in a significant cost reduction as well.

Vmax™ X2 cells' robust growth and expression generate more protein, faster, for a more efficient expression system



Vmax™ X2 cells outpace the fastest-growing *E. coli*.



Vmax™ X2 cells outperform *E. coli* in fermenter production of intracellular recombinant protein.

Vmax™ cells are derived from the fastest-growing, gram-negative, non-pathogenic marine bacterium, Vibrio natriegens, which doubles two times faster than *E. coli.* Vmax™ X2 cells generate significantly greater amounts of biomass per volume of cells, saving valuable research time, media cost, and incubator space.

Vmax™ X2 cells provide time savings over *E. coli* while also improving yield for easy and rapid screening

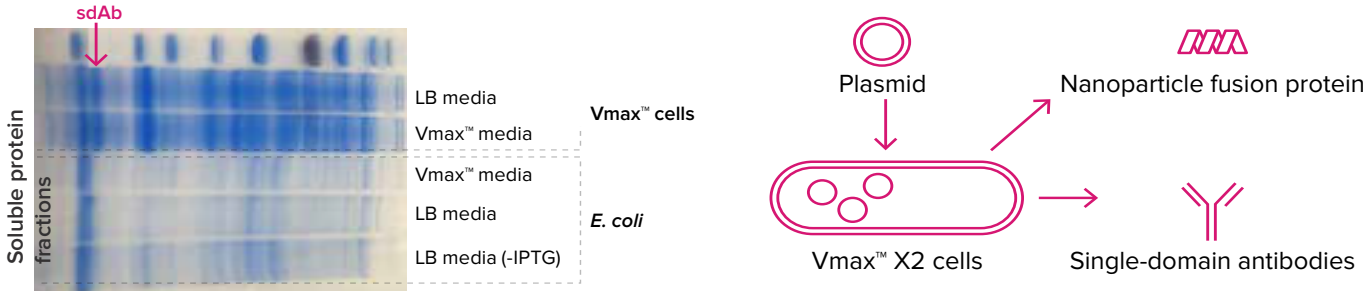
Easily save a day to reach protein purification and analysis:

	Day 1	Day 1	Day 3	Day 4
E. coli	Transformation + plating	Seed culture	Expression culture + harvest	Analyze results
Vmax™ cells	Transformation + plating	Expression culture + harvest	Analyze results	

codex

Achieve higher biomass and protein yield with Vmax™ cells:

Vmax™ X2 cells are ideal for expressing soluble small molecules for immunotherapy research



Vmax™ cells have been shown to express soluble nanoparticles, single-domain antibodies (sdAb), and many other recombinant fusion proteins in properly folded form often when *E. coli* BL21 (DE3) is unable to do so. Successful purification of high-yield protein allows for expanded experimentation and faster advancements towards vaccines, cancer treatments, and other immunotherapies.

A new host system with advantages over *E. coli* without the drawbacks of switching strains

Protein expression strain performance attribute	*E. coli*	Vmax™ cells
Compatible with standard plasmid origins of replication (e.g. pMB1, ColE1, pUC, p15A)	✓	✓
Able to use common, inexpensive growth media	✓	✓
Transformation efficiency of 1– 5 x 10^7	✓	✓
Plasmid selection uses common antibiotic resistance markets (Amp, Tet, Kan, Cm)	✓	✓
Tightly controlled IPTG inducible T7 transcription system	✓	✓
Doubling time of < 15 minutes	✗	✓
Biomass > 14 OD_{600} after 24 hours growth	✗	✓
Flexibility to induce expression early	✗	✓
Rapid growth at both 30° and 37 °C	✗	✓
Ready for protein purification and analysis in as little as three days	✗	✓
Naturally low endotoxin levels (100x below *E. coli*)	✗	✓

Vmax™ X2 chemically competent cells retain the benefits of traditional bacterial protein expression systems, with the added benefits of being low cost, easy to grow, high transformation efficiency, and compatible with plasmids and antibiotics already in widespread use. Seamlessly integrate Vmax™ X2 cells into your existing workflows.

Référence	Désignation	Conditionnement
CL1300-05	Vmax X2 chemically competent cells	5 rxns
CL1300-10	Vmax X2 chemically competent cells	10 rxns
CL1300-20	Vmax X2 chemically competent cells	20 rxns
CL1500-1000	Vmax enriched growth media	1 L