

CHO EXPRESSION PLATFORM

●●● Licensing opportunity L-11266, 11992, 12273, 12671

TECHNOLOGY TRANSFER

- Non-exclusive R&D and/or commercial exploitation licence
- R&D agreement for development of custom cell lines

MARKET APPLICATIONS

- Transient expression of recombinant proteins for R&D purposes
- Fully scalable stable expression of recombinant proteins and lead candidates for R&D and commercial purposes

HOW IT WORKS

Transient expression: CHO-3E7

A stable CHO clone expressing a truncated but functional form of EBNA1 (CHO-3E7) was obtained and shown to enhance recombinant protein production when using pTT[®] vectors. The use of an optimized cytomegalovirus (CMV)-based expression cassette on the oriP-bearing pTT[®] vector also increased productivity significantly. Further enhancement was achieved by co-expressing protein kinase B (Akt) and adding valproic acid, followed by a temperature shift.

Stable expression: CHO^{BRI}[™]

This platform uses the cumate-inducible expression platform to generate CHO pools that stably express between 200 and 2000 mg/L in under four weeks post-transfection: two weeks for pool selection and expansion, and two for production. The pools can be maintained for months in culture under selection pressure while

maintaining expression levels. Frozen/thawed pools also retain their productivity.

The use of a Scaffold/Matrix Attachment Region (S/MAR) sequence in the expression vector helps increase the level of expression and prevents silencing of the transgene expression cassette.

The CHO pools can be used to isolate stable clones that express 1-4 g/L of monoclonal antibodies and other recombinant proteins. The clones are stable for over 100 generations and are amenable to GMP manufacturing. There are currently several CHO^{BRI}[™] cell lines under GMP manufacturing to support clinical trials.

BENEFITS

- High yield, low cost protein production for research and biomanufacturing
- Transient or stable expression
- Family of validated pTT[®] vectors
- Choice of proprietary cell lines or custom cell line development to best suit your expression needs
- Cumate switch allows you to turn the expression of a given gene on and off during production
- Serum-free media enables easy recovery of recombinant proteins
- Compatible with commercially available feeds; custom fed-batch development

PATENTS

NRC file 11266 (pTT[®] vector/cassette): Patents granted in the United States, Canada, Europe, and Singapore.

NRC file 11992 (CHO-3E7 cell line): Patents granted in the United States and Europe, pending in Canada.

NRC file 12671 (CHO^{BRI}[™] cell line): Transferred as a trade secret.

NRC file 12273 (S/MAR sequence to increase stability): Patents granted in the United States, Europe, China, and Singapore; pending in Canada and South Korea.

NRC file 11225/11648 (Cumate switch): Patents granted in Canada, the United States, and Europe.

CONTACT

Client Relations

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www.canada.ca/nrc-human-health-therapeutics

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