

# High efficiency expression system for recombinant protein production in CHO cells

University of Chile has generated an improved expression system that allows recombinant protein/antibody production in CHO cells 4.5 times more efficient than available commercial vectors

## THE TECHNOLOGY

High efficiency expression system for production of recombinant proteins and/or antibodies in CHO cells. To create this system, high activity CHO clones were generated by stably transfecting these cells with a vector containing an optimized CMV promoter (pOpt), which allows to increase and control recombinant protein production. This pOpt vector (See *Intellectual Property*) contains a high activity, stable promoter constituted by a 1147 bp fragment rich in CpG (RegCG) of the  $\beta$ -actin promoter sequence from the genome of *Cricetulus griseus*, which is incorporated upstream of the CMV promoter to avoid its silencing. Additionally, this promoter incorporates a glucocorticoid response element to induce and control production by these cells.

## STAGE OF DEVELOPMENT

- **Validation in lab conditions** – Transcriptional activity, inducibility, enhanced and stabilized promoter activity and enhanced antibody production
- Validated for recombinant antibodies – **Human anti-TNF (Fig. 1) and rituximab**

## COMPETITIVE ADVANTAGES

- 4.5 times more efficient than viral commercial vectors
- Improves yield of recombinant protein production by CHO cells
- High activity, stable and inducible promoter

## APPLICATIONS

- Laboratory use for production of recombinant proteins and/or antibodies
- For industrial production of recombinant proteins and antibodies

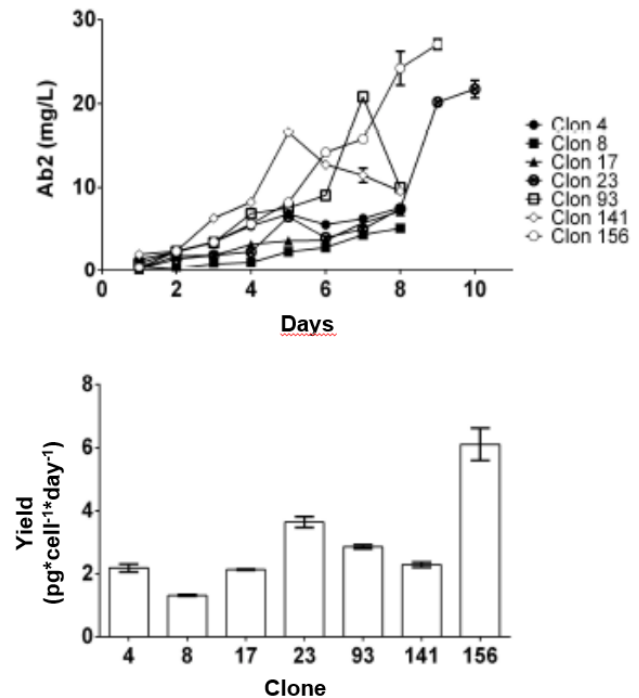


Figure 1. Growth curves and productivity levels of 7 anti-TNF-producing CHO clones.

## OPPORTUNITY

University of Chile is searching for industry partners for **out-licensing and/or collaborating/contract research**.

## INTELLECTUAL PROPERTY

- Patent application CL/201601661; PCT/CL2017/050024
- National phases in US and EPO (December 2018)