Improving the secretory capacity of Chinese hamster ovary cells by ectopic expression of effector genes: Lessons learned and future directions

Chinese hamster ovary (CHO) cells are the preferred cell factory for the production of therapeutic glycoproteins. Although efforts primarily within bioprocess optimization have led to increased product titers of recombinant proteins (r-proteins) expressed in CHO cells, post-transcriptional bottlenecks in the biosynthetic pathway of r-proteins remain to be solved. To this end, the ectopic expression of transgenes (effector genes) offers great engineering potential. However, studies on effector genes have in some cases led to inconsistent results. Whereas this can in part be attributed to product specificity, other experimental and cellular factors are likely important contributors to these conflicting results. Here, these factors are reviewed and discussed with the objective of guiding future studies on effector genes.

General information
State: Published
Organisations: Novo Nordisk Foundation Center for Biosustainability, CHO Cell Line Engineering and Design
Authors: Hansen, H. G. (Intern), Pristovsek, N. (Intern), Kildegaard, H. F. (Intern), Min Lee, G. (Intern)
Number of pages: 35
Pages: 64–76
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Biotechnology Advances
Volume: 35
Issue number: 1
ISSN (Print): 0734-9750
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 11.05 SJR 2.681 SNIP 3.146
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.919 SNIP 3.432 CiteScore 10.56
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.922 SNIP 3.757 CiteScore 10.24
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.936 SNIP 4.028 CiteScore 10.71
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 3.552 SNIP 5.178 CiteScore 11.65
ISI indexed (2012): ISI indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 3.126 SNIP 4.726 CiteScore 10.75
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.928 SNIP 3.953
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 2
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 2.248 SNIP 3.162