Eighth Annual

THE BIOPROCESSING SUMMIT

Practical Solutions for Today's Bioprocess Challenges

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SPEAKER Q&A SERIES

Dr. Yashas Rajendra, Research Scientist of Bio-TDR Cell Culture at Eli Lilly and Company, and a speaker at the upcoming "Optimizing Cell Culture Technology Conference" shares insight on streamlining the discovery process by minimizing the risk when molecules move forward in the portfolio.

Q: How do you go about streamlining your processes?

Typically, most companies still rely on HEK293 transient transfection platforms for early phase drug discovery of complex biopharmaceuticals. However, this can greatly increase the risk of surprises when molecules are advanced in the portfolio and are eventually expressed in CHO cells. Our goal from day one has been to develop a transient CHO expression platform that can mimic product quality attributes coming from stable CHO expression platform.

This allows us to streamline the discovery process by minimizing the risk when molecules move forward in the portfolio.

Dr. Rajendra obtained his Bachelor of Engineering in Biotechnology in India and Master of Science in Molecular Biotechnology in Stockholm. His research career started in 2009 with Ph.D. thesis work at EPFL, Switzerland under the expert guidance of Prof. Florian Wurm. He has been working as a Research Scientist at Lilly Research Laboratories, Eli Lilly since 2013. His area of expertise mainly encompasses - mammalian cell culture; transient gene expression in CHO and HEK293 cells; stable CHO pool and cell line generation.

Q: What are the differences you see between your transient and stable expression platforms?

We have been successful in developing a transient CHO platform based on the same cell line, media package, and DNA expression cassette that is used for stable CHO expression platform, which puts us in a unique position.

This has minimized the differences in product quality observed for therapeutics between our transient and stable expression platforms.

However, there are still some unavoidable differences, for ex. the mode of expression (plasmid mediated vs integrated gene), duration of expression (1 week for transient expression vs 2 weeks for stable expression) and the expression levels which can all contribute to molecular attributes.

PRESENTATION ABSTRACT

Tuesday, August 16 | 8:30 am

Harmonizing Transient and Stable CHO Expression Platforms for Early-Phase Drug Discovery

This presentation will describe the development of transient CHO system capable of rapidly (7 days) generating high titers, scalable up to 6L. Additionally, we describe the use of stable CHO pools (instead of master wells or clones) for generation of gram quantities of therapeutic protein. Using the same CHO cell line and media package for both platforms streamlines expression during early phase biologic drug discovery.

Q: Have you observed product quality surprises when moving a molecule form transient to stable expression?

In the past, our transient platform was based on HEK293 cells and we have had a few cases of product quality surprises when the molecules were expressed in CHO cells, leading to project delays.

Recently, we have developed a transient CHO platform that closely mimics product quality attributes of proteins generated from stable CHO platform, and so we have minimized such surprises.

However, with biopharmaceuticals increasing in complexity with each passing day, we will have to closely monitor and gather further data to elucidate and manage any significant differences.

To learn more about this presentation and The Bioprocessing Summit, visit BioprocessingSummit.com