

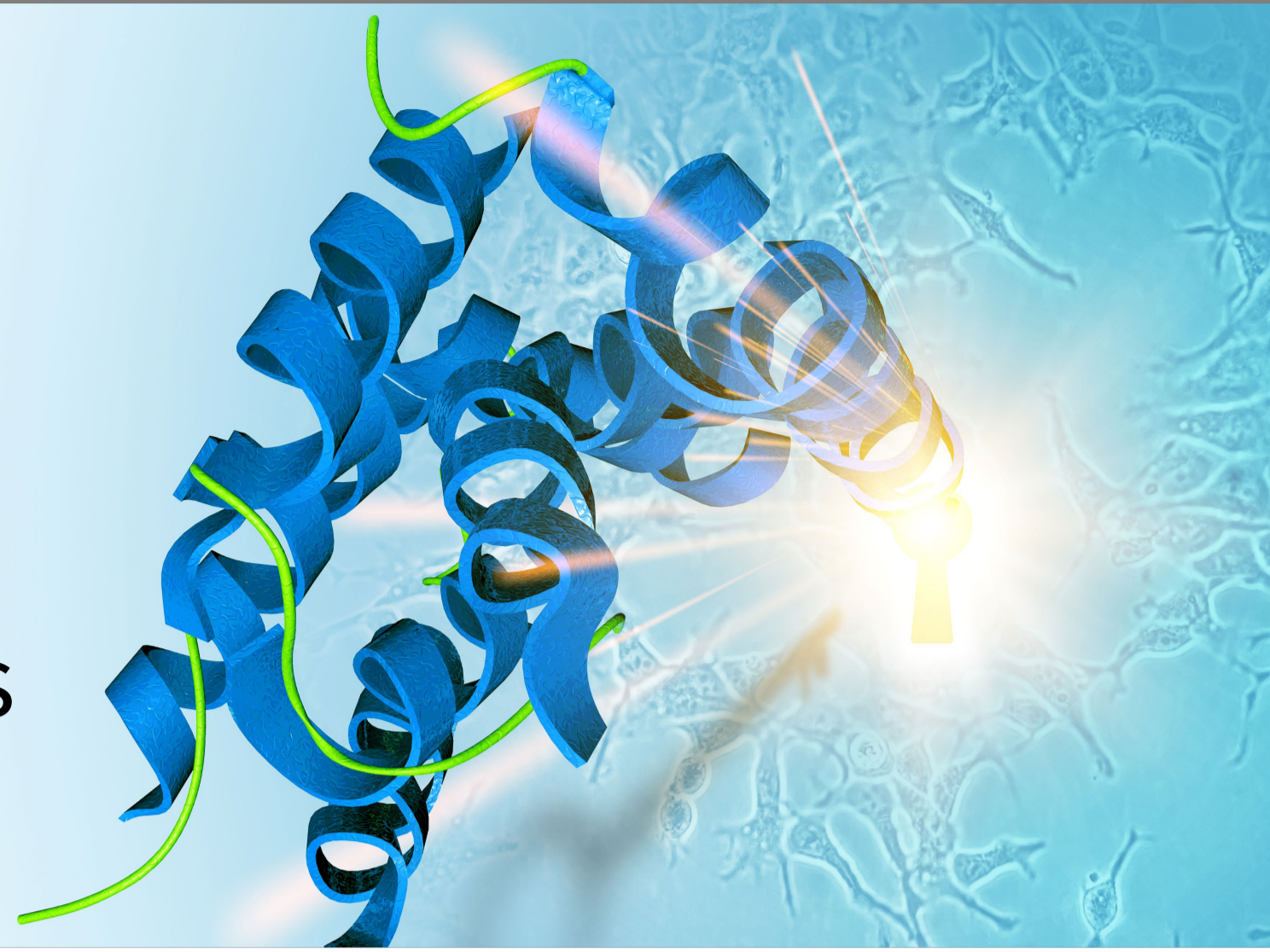
A Novel HEK293 Stable Cell Line Platform for Development and Manufacturing of Difficult-to-Express Proteins

Zhaopeng Li, Shuo Wang, Qiao Gao, Wenqing Ye, Sam Zhang
WuXi Biologics

Introduction

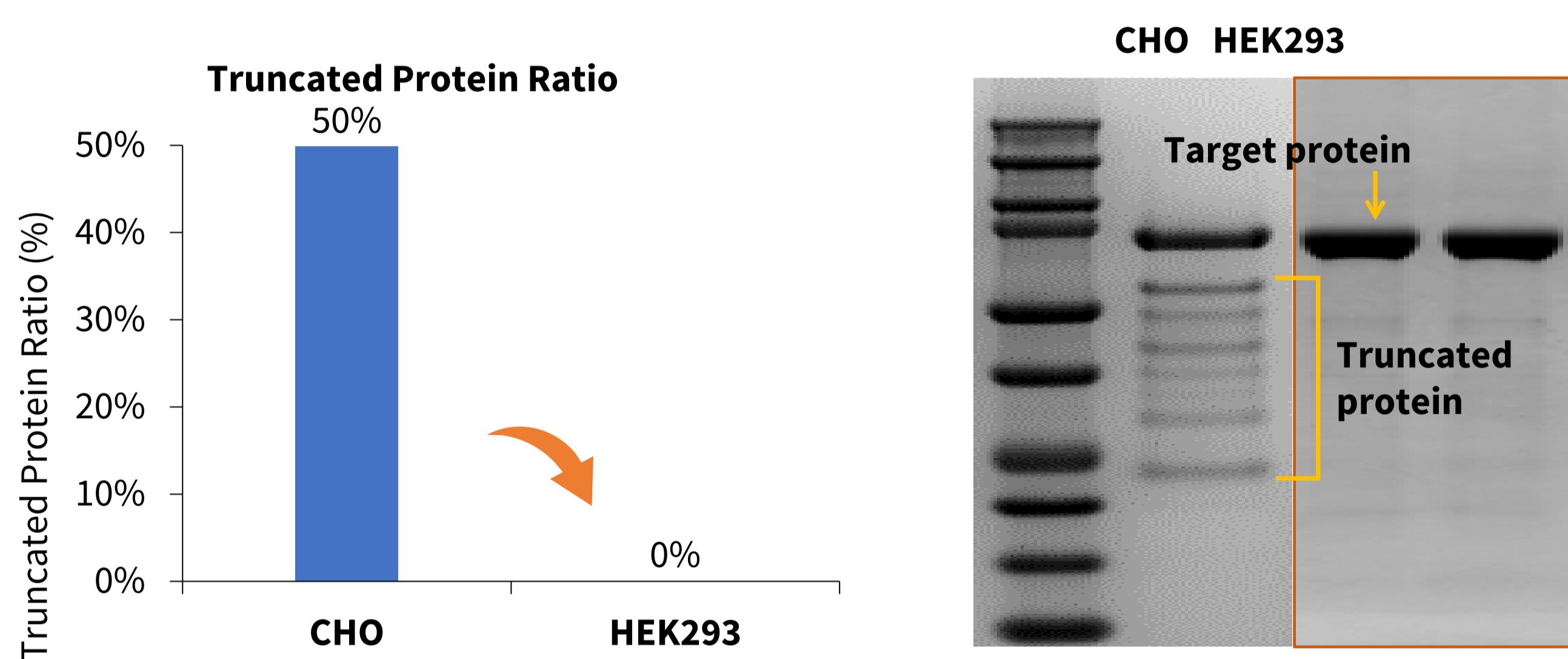
Express What CHO Can't

Unlock complex biologics with **WuXia293^{Stable}**

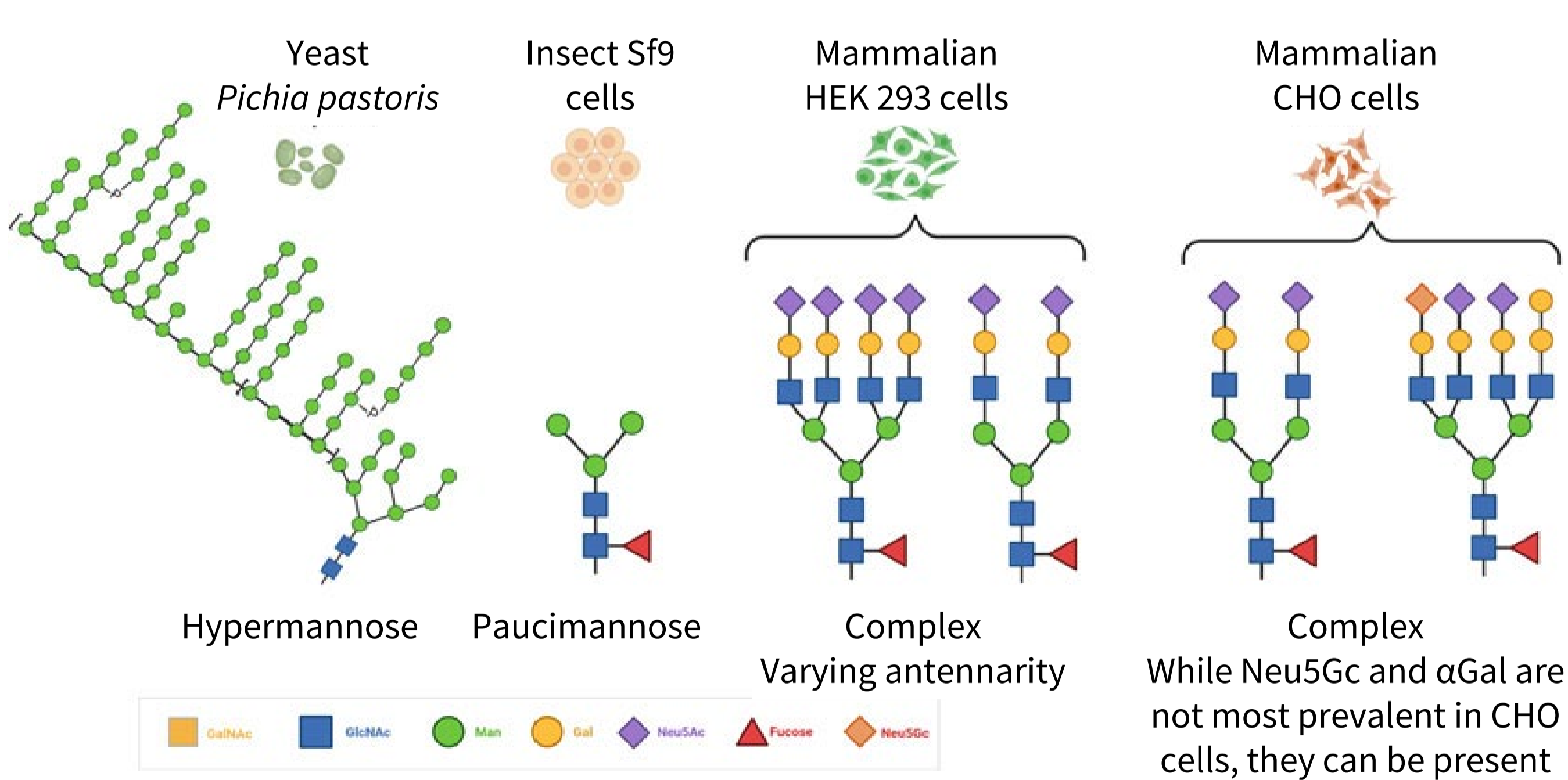


CHO cells have been widely utilized for recombinant protein expression with proven track record. However, complex modalities may encounter difficulties when expressing in CHO cells, resulting in low titer levels and truncation issues, most likely due to the impact of some CHO-specific host cell proteins, that compromise the quality and functionality of the protein products. We have developed a new HEK293 stable expression platform, which can eliminate or significantly alleviate truncation issues in expressing complex molecules while maintaining high titer levels. In addition, the corresponding human glycosylation and other humanized PTMs may drastically lower the risk of immunogenicity, elicited by Neu5Gc or alpha gal etc. This novel platform will enable more complex, difficult-to-express, emerging biotherapeutics to the clinical and commercial stages.

High-quality proteins without truncation



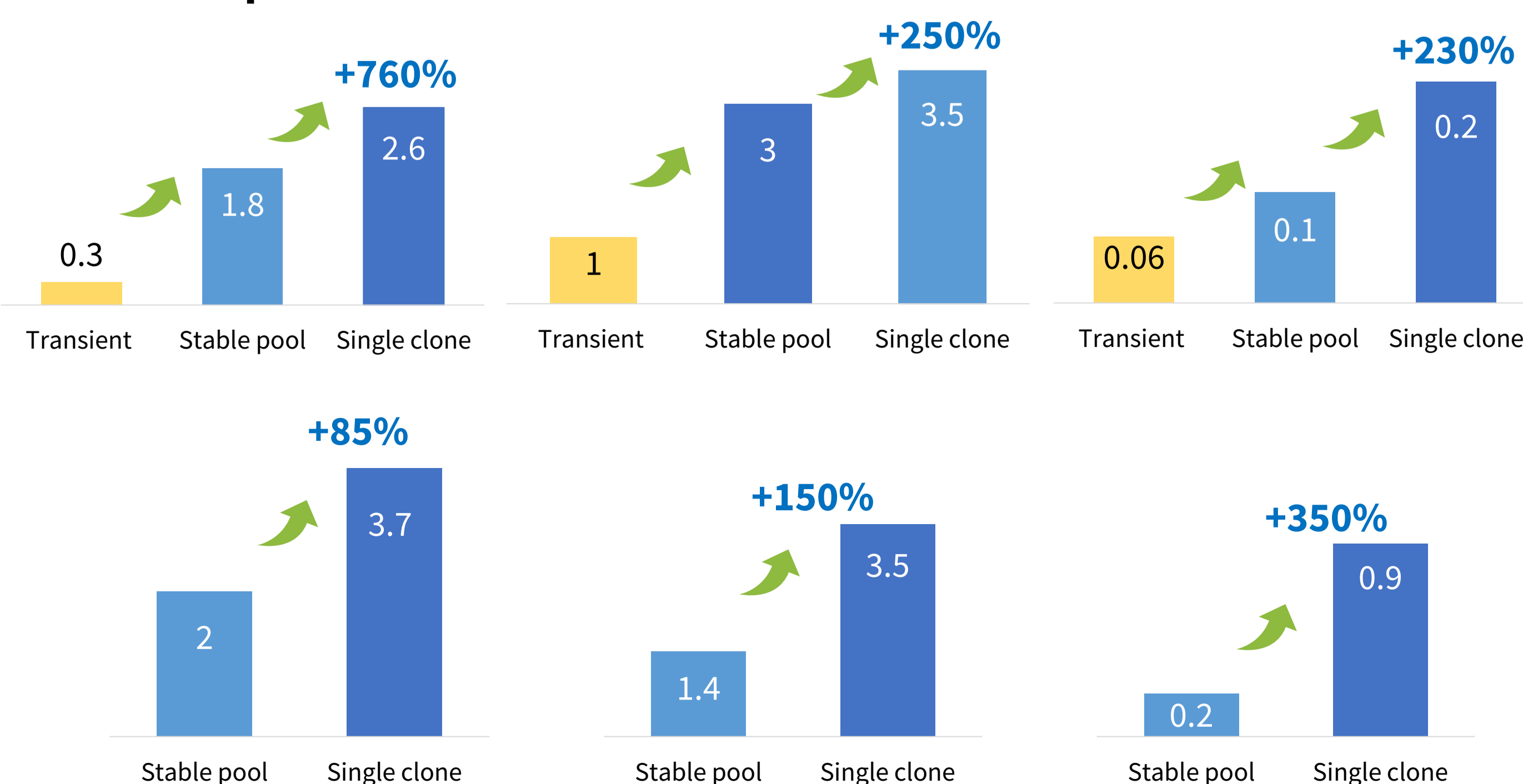
Humanized PTMs to reduce immunogenicity



HEK293 human cell lines produce primarily complex glycans with terminal sialylation that differ in their number of antennae. CHO cells generally produce similar glycans to humans but can carry the immunogenic αGal sugars and the terminal Neu5Gc.

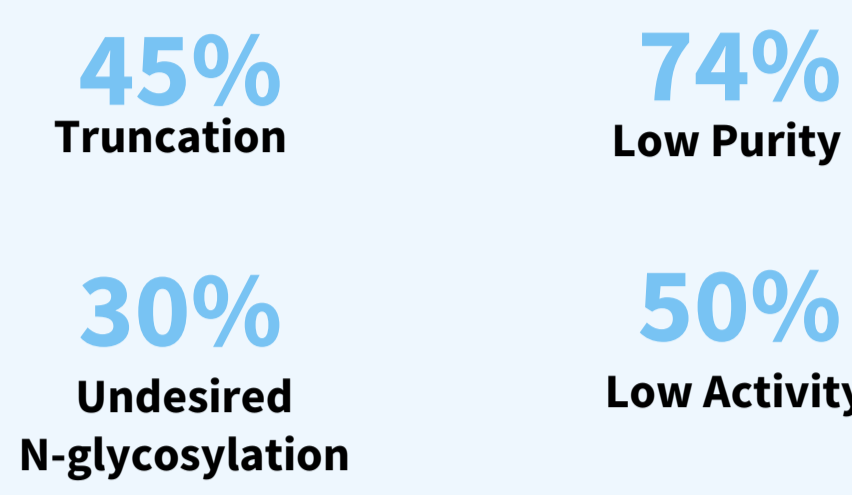
Stone clone – Better productivity

Clones demonstrate better productivity compared to transient and stable pools

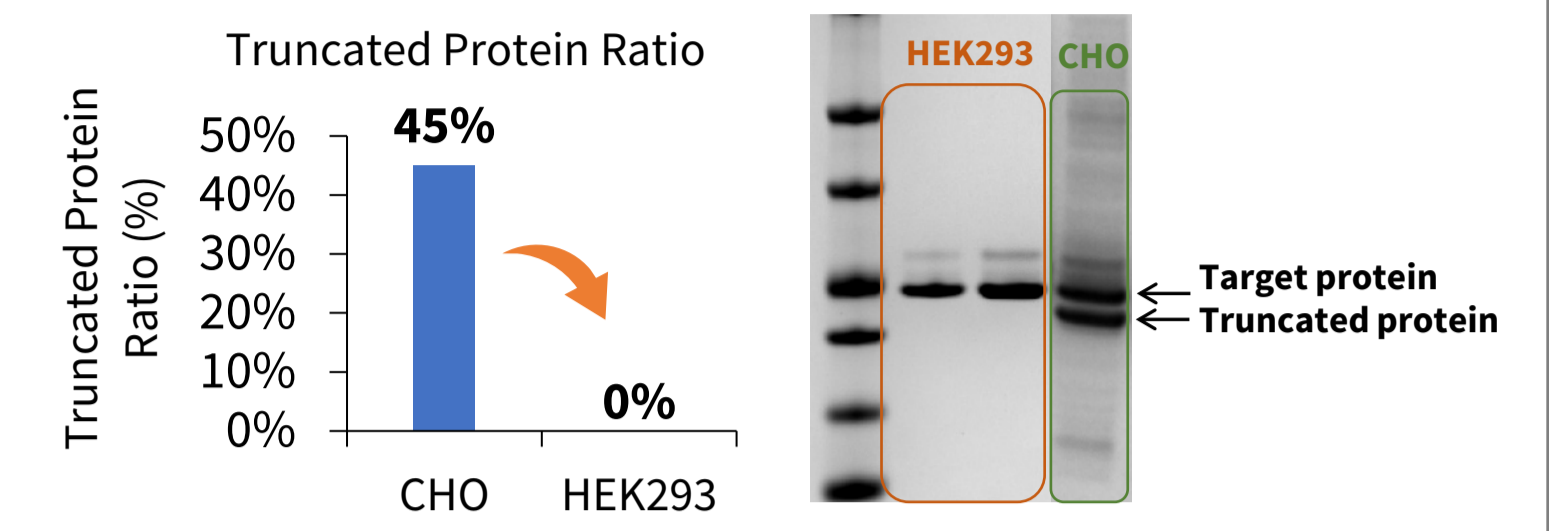


CASE STUDY: WuXia293^{Stable} – Makes the impossible possible

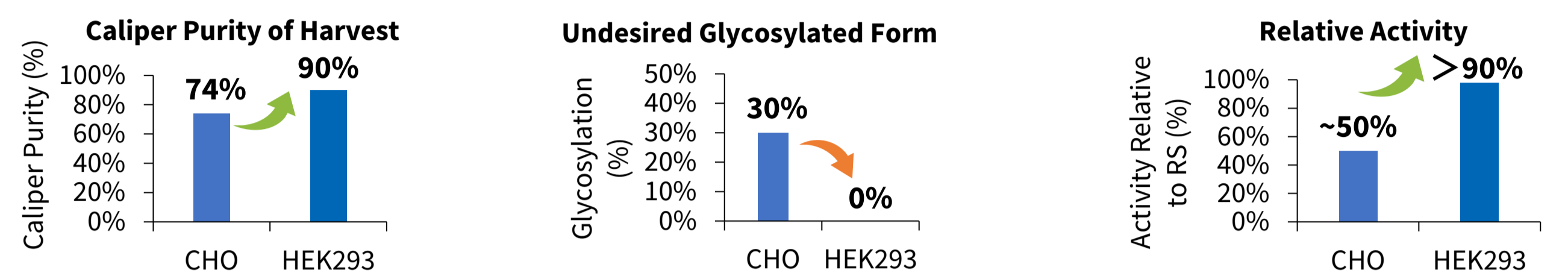
Challenges in CHO System



Mitigated Truncation

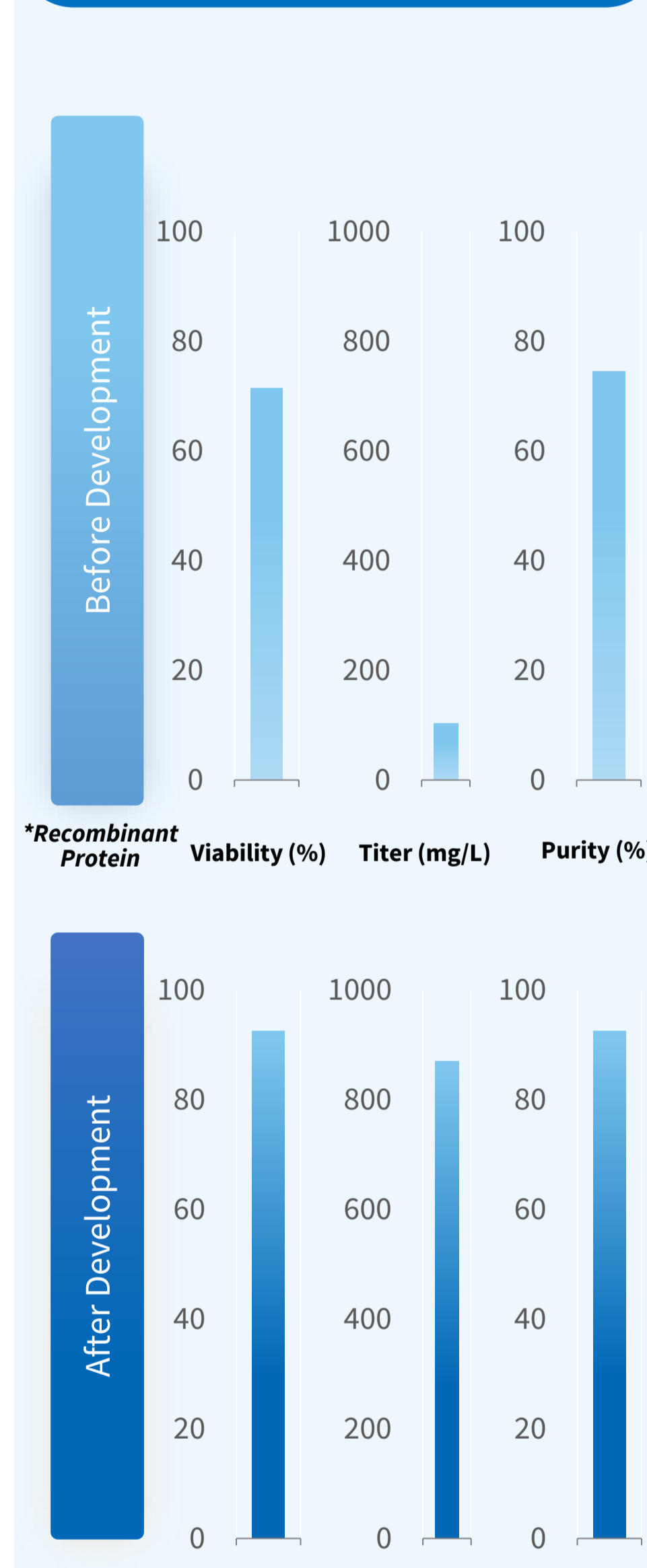


Purity and Activity Improvement

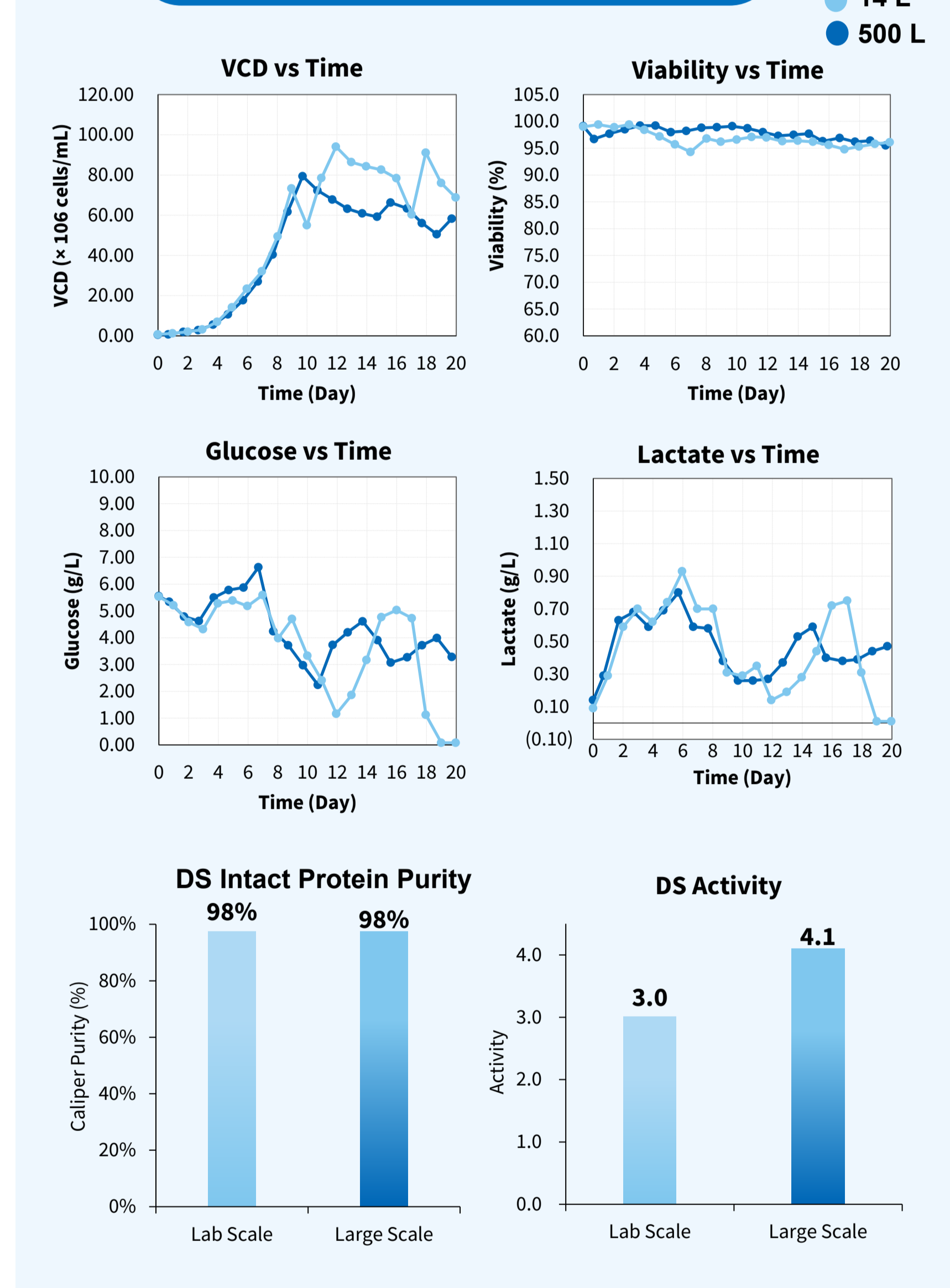


WuXia293^{Stable} – Robust scale-up with consistent and stable performance

Process Development



Successful Scaleup



WuXia293^{Stable}

- Proprietary expression system for complex and difficult-to-express proteins**
Humanized PTMs, eliminate truncations, and enhance productivity (> 5 g/L in fed-batch)
- Robust, scalable, and efficient process for clinical and commercial manufacturing**
Maintain stable expression and consistent quality during long-term cell passages
- Fully compliant with regulatory and commercialization requirements**
Fully characterized and traceable cell line with a comprehensive biosafety testing package

References

- Magdalena Malm, et al. *Metabolic Engineering*, Volume 72, 2022, Pages 171-187.
- Clarke EC. *Considerations for Glycoprotein Production*. *Methods Mol Biol.* 2024;2762:329-351.

About WuXi Biologics

WuXi Biologics is a global leading CRDMO offering end-to-end solutions to enable partners to discover, develop, and manufacture biologics from concept to commercialization.

For more information, visit us at wuxibiologics.com.

Poster modified on 9/18/2025