

# HEKPLUS PROTEIN EXPRESSION SYSTEM

## Summary

*In vitro* protein expression systems are integral to biomedical research and to the development of therapeutic modalities. Building on the strength of our reliable, authenticated cell lines, ATCC has developed an easy-to-use, mammalian protein expression system that rapidly and reproducibly generates an exceptional yield of high-quality product.

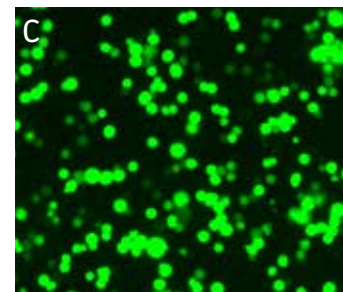
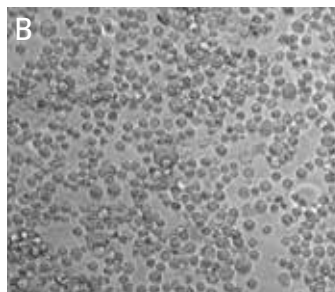
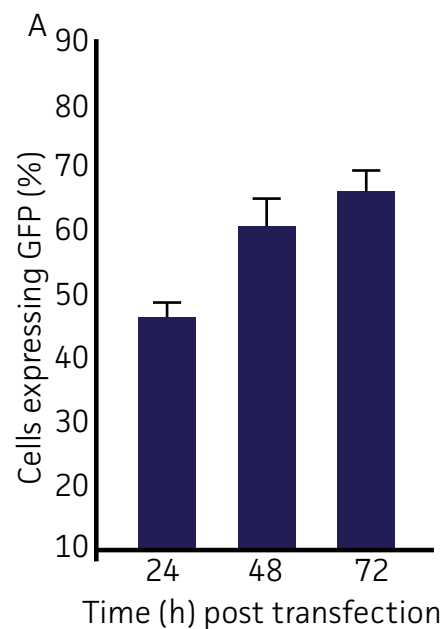
## Introduction

The HEKPlus Expression System is:

- 1. Versatile and easy to use:** The HEKPlus Expression System utilizes the HEK 293T cell line, which has several advantages. First, the cells express the SV40 large T-antigen, and are therefore able to episomally express any plasmid carrying an SV40 origin of replication, making the system extremely versatile. Second, the cells are adapted to grow in suspension, which makes them easy to subculture, and grow in large volumes. Third, they are also adapted to grow in a serum-free, xeno-free\* media, which simplifies downstream processing of the product. Lastly, the cells are adapted to grow in the same media as they are transfected, so there is no need to change media during the experiment.
- 2. Efficient and produces a properly folded, functional protein at high-yield:** The HEKPlus Expression system consistently achieves high transfection efficiency, with 65 to 70% of cells expressing the construct 48 to 72 hours after transfection (Fig. 1A-C). Further, we have demonstrated that transfection with the HEKPlus system results in protein yields higher than the expression systems of our major competitors. This is true for several secreted proteins, including Immunoglobulin G1 (IgG1) (Fig. 2A), Antithrombin III (ATIII) (Fig. 2B), and Secreted Embryonic Alkaline Phosphatase (SEAP) (Fig. 2C). Furthermore, SEAP was assayed using a phosphatase reaction, which suggests that the expressed protein is properly folded and functional.
- 3. Cost effective and scalable:** The kit components have been optimized to work together seamlessly, and they are offered as a complete system at considerable cost savings. Conveniently, each kit component is also available individually, so the system can be customized to the individual needs of the investigator. Additionally, the kit is scalable and can support applications that require a larger yield. In fact, ATCC has tested the kit to ensure a comparable yield of SEAP when either 2 mL of cells or 200 mL of cells ( $1 \times 10^6$  cells/mL) are transfected. Thus, the kit is suitable for smaller proof-of-concept experiments, as well as large experiments, and drug discovery applications.

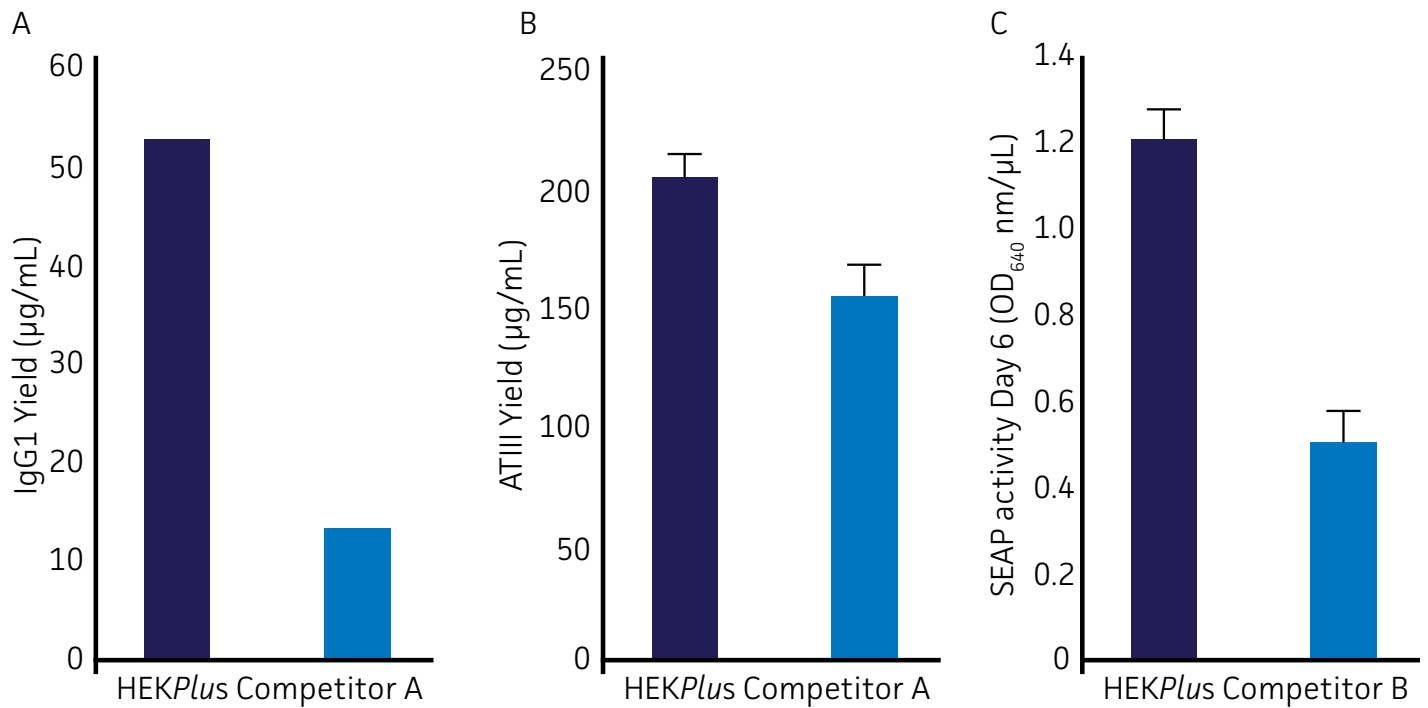
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**Figure 1.** The transfection efficiency of the HEKPlus Expression System is ~70% (A). Phase image (B) and fluorescent images (C) were taken 48 hours after transfection

\*The optional boost reagents, used during the transfection protocol, is not xeno-free..



**Figure 2.** The yield of various secreted proteins using the HEKPlus Expression System versus competitors' expression systems.

## Conclusion

The HEKPlus Expression kit is a complete system that is versatile, easy-to-use, and provides maximum production of high-quality, functional protein. As such, it is ideally suited to help investigators move their research forward faster than ever before. Contact Customer Service to order your kit today.

## Kit components:

HEK293T/17 SF Suspension Cells (ATCC® No. ACS-4500™)  
 HEKPlus SFM (ATCC® No. ACS-4002)  
 L-alanyl glutamine, 200 mM (ATCC® No. 30-2115)  
 HEKPlus Boost Solution (ATCC® No. ACS-4003)  
 GeneXPlus Transfection Reagent (ATCC® No. ACS-4004)

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