## Hyperstable Serum Albumin Variants for Microbial Mass Production

(No. T4-2216)

### Principal investigator

**Sarel-Jacob Fleishman**

Faculty of Biochemistry
Department of Biomolecular Sciences

# Overview

Serum albumins are widely used in medicine, biotechnology, and cultivated meat production. However, they are mostly extracted from animal sources, raising ethical, reproducibility, and scalability concerns. This technology introduces computationally designed human and bovine serum albumin variants with exceptional thermal stability. These variants are expressed at high yields in E. coli, enabling cost-effective, large-scale, animal-free production.

# Applications

Applications

- Cultivated meat production
- Cell culture reagents
- Molecular biology assays
- Animal-free biotechnology workflows
- Industrial enzyme reactions involving albumin carriers.
- Extending blood-serum half-life of fusion proteins in therapeutics

# Differentiation

- Fast and economical
- Large-scale production in E. coli (hundreds of mg/L)
- Stable beyond boiling point â€“ enables purification by heat
- Minimized contamination risks and non-toxic
- Maintains functional ligand-binding capacity

# Development Stage

Variants of human and bovine serum albumins (HBA, BSA) were successfully expressed and purified in bacterial systems. Non-toxicity to mammalian cells was validated in HEK293T and hybridoma. Functional performance was validated in both in vitro assays and cell culture models

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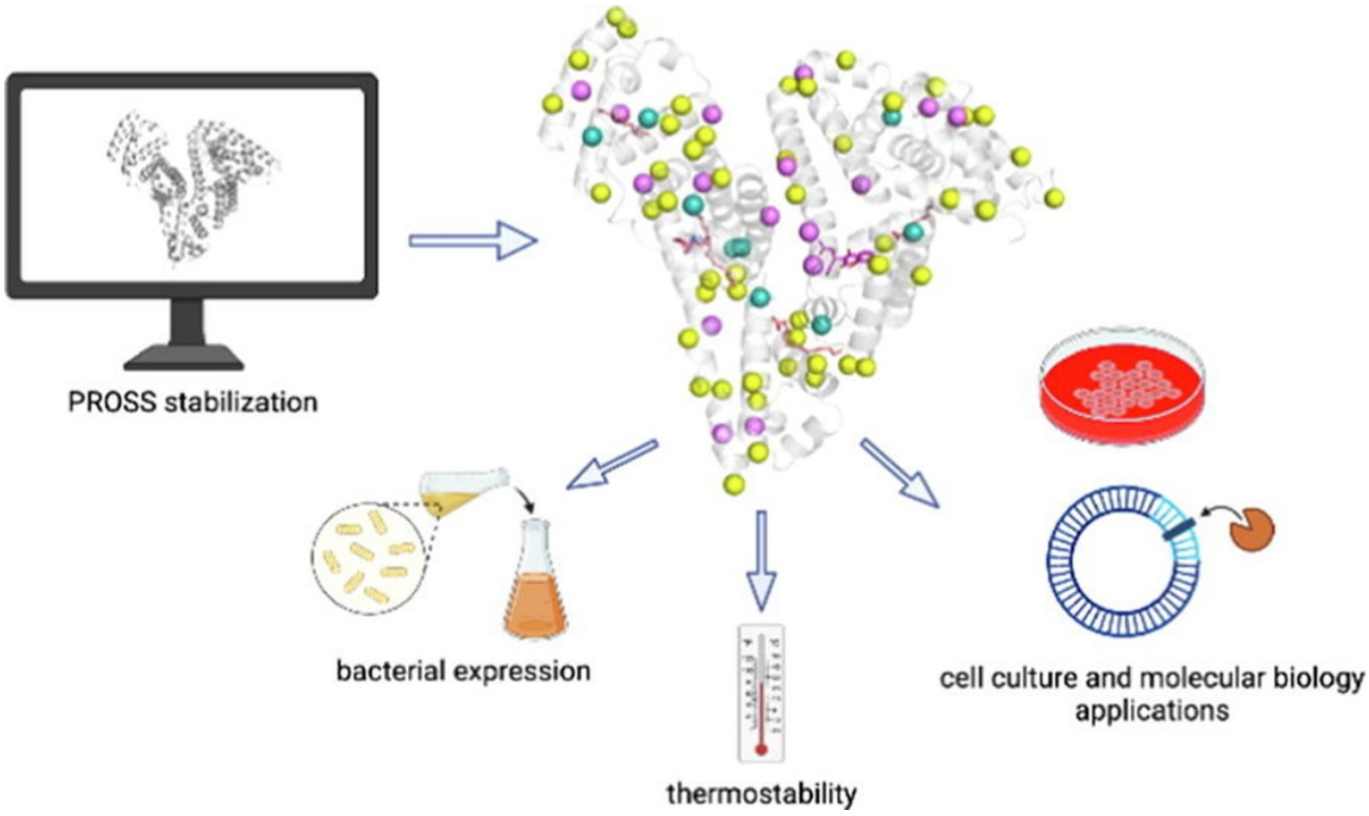


Stabilized HSA and BSA designs with improved thermal properties, generated through computational modeling for cell culture and biotech applications

## References

Khersonsky O et [1]al., J Mol Biol 2023; 435(17):168191.

### Patent Status

PCT Published: Publication Number: WO2024/018452