Therapeutic Proteins

Therapeutic Protein Engineering

Native Protein

$t\frac{1}{2}$ = 2 hrs

AI Optimization

PEGylation

Glycosylation

Fc Fusion

Point mutations: +15°C Tm

Optimized

$t\frac{1}{2}$ = 48 hrs

Manufacturing & Formulation

CHO cells — Purification — Formulation

Shelf life: 2 years at 2-8°C

Aggregation: <2%

Purity: >99%

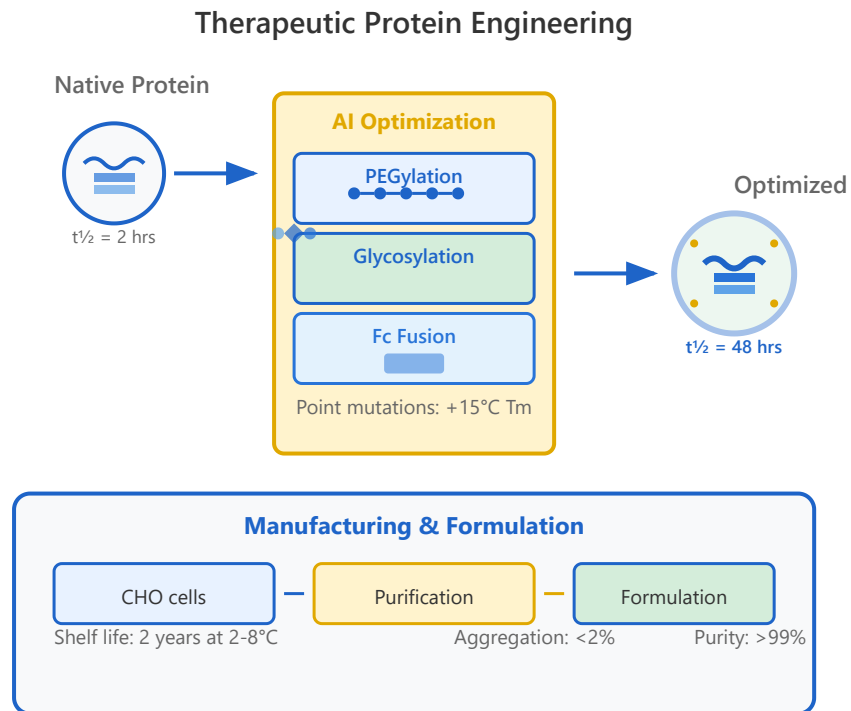**Stability engineering**
Thermal & chemical stability

Half-life extension
PEGylation, Fc fusion

Immunogenicity reduction
T-cell epitope removal

Formulation prediction
Aggregation prevention

Manufacturing optimization
Yield & quality improvement