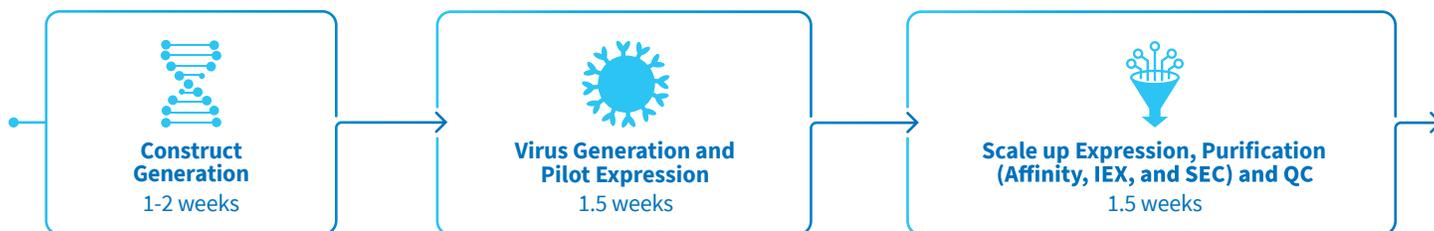




WuXi Biologics provides protein production services utilizing insect cell culture due to its ability to produce proteins that are often difficult to express in prokaryotic or other eukaryotic systems. Insect cell platforms offer protein glycosylation and other post-translational modifications similar to mammalian cells with the added benefit of high productivity, fast turn-around times and cost-effective production.

Insect Cell Culture Platform Features	Protein Types Supported
Cell line screening: Sf9, Sf21, HighFive	G protein-coupled receptors (GPCRs)
Flashbac system to reduce timeline	Ion channel
Optimization of expression conditions at small scale (construct screening, MOI, harvest time...)	Cell surface receptor
High-throughput purification system for purification of many variants	Viral envelope protein
Scale up volumes up to 20 L	Kinases
	Proteases and enzymes
	Protein complex
	Other intracellular proteins

### Routine Soluble Protein Production: 4-5 weeks



Production Platform Activity	Features	Timeline	QC and deliverable
Construct generation and Subcloning	Free cloning into WuXi Biologics vector	2 weeks	4 µg DNA
Baculovirus production	P0, P1, P2	1-2 weeks	10 <sup>8</sup> PFU/mL virus titer
4 x 40 mL	1-step purification	2 weeks	Purified protein or screening report, SDS-PAGE
1 L – 20 L	2-3 step purification	2-4 weeks	Purified protein, SDS-PAGE, LC/MS
Additional QC	RP-HPLC, bioburden, DSF, DSC, SPR, LC/MS, SEC-MALS, peptide mapping, cIEF, residual DNA, ELISA, Western blot, freeze thaw study, micro-developability testing		

## Case Study: GPCR Production

### Aim

- Production of a high-quality GPCR protein in insect cells
- Reconstitution of GPCR into nanodiscs

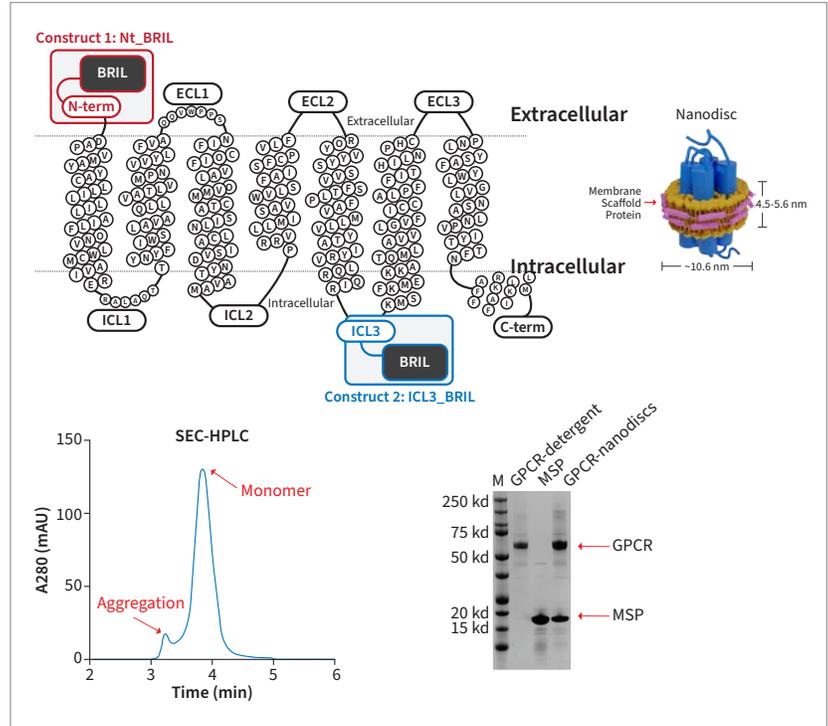
### Key Challenges

- Expression level of GPCR was very low <0.2 mg/L
- The protein was unstable and its conformation was very flexible
- It was hard to reconstitute GPCR into nanodiscs

### Results

- Expression constructs were optimized
- ~1.5 mg/L was achieved after optimizing expression and purification protocol
- Purity >90%
- GPCR's conformation was stabilized by suitable ligand
- Successful assembly of GPCR-nanodiscs

### Purified protein, SDS-PAGE, SEC-HPLC



## Case Study: Automated 2-step Purification of Kinases

### Aim

- Production of 13 of Kinase variants from Baculovirus pellets

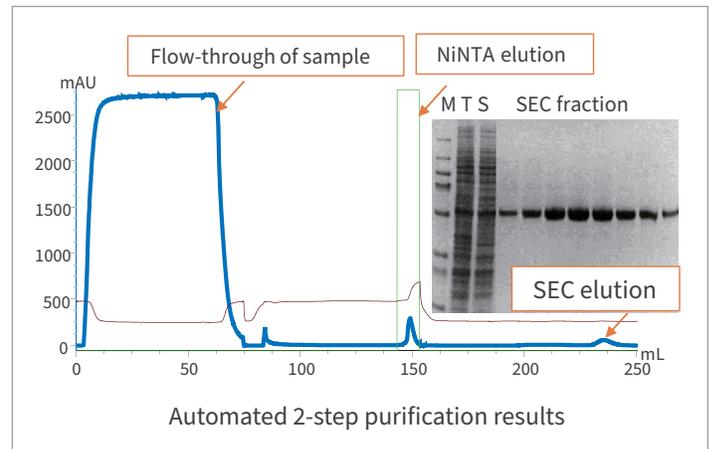
### Key Challenges

- Expression level is different for different variants
- Urgent timeline

### Results

- Successfully delivered >95% purity proteins in 1 week

	Automated 2-step purification
Run time/sample	4 h
Max. sample/week	16
Manual operation during steps	No



## About WuXi Biologics

WuXi Biologics is a leading contract research, development and manufacturing organization (CRDMO) that provides end-to-end capabilities to healthcare organizations worldwide. With operations in China, the United States, Ireland, Germany, and Singapore, we enable our partners to effectively and efficiently bring biologics and vaccines to patients worldwide through our comprehensive and high-quality drug development model.

The world's leading global single-source platform from concept to commercialization.

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**WuXi Biologics**  
Global Solution Provider

### Learn more:

Protein Sciences: Early-Stage R&D  
Insect Platform

