



**PoLiPa**

Accelerating Membrane  
Protein Research

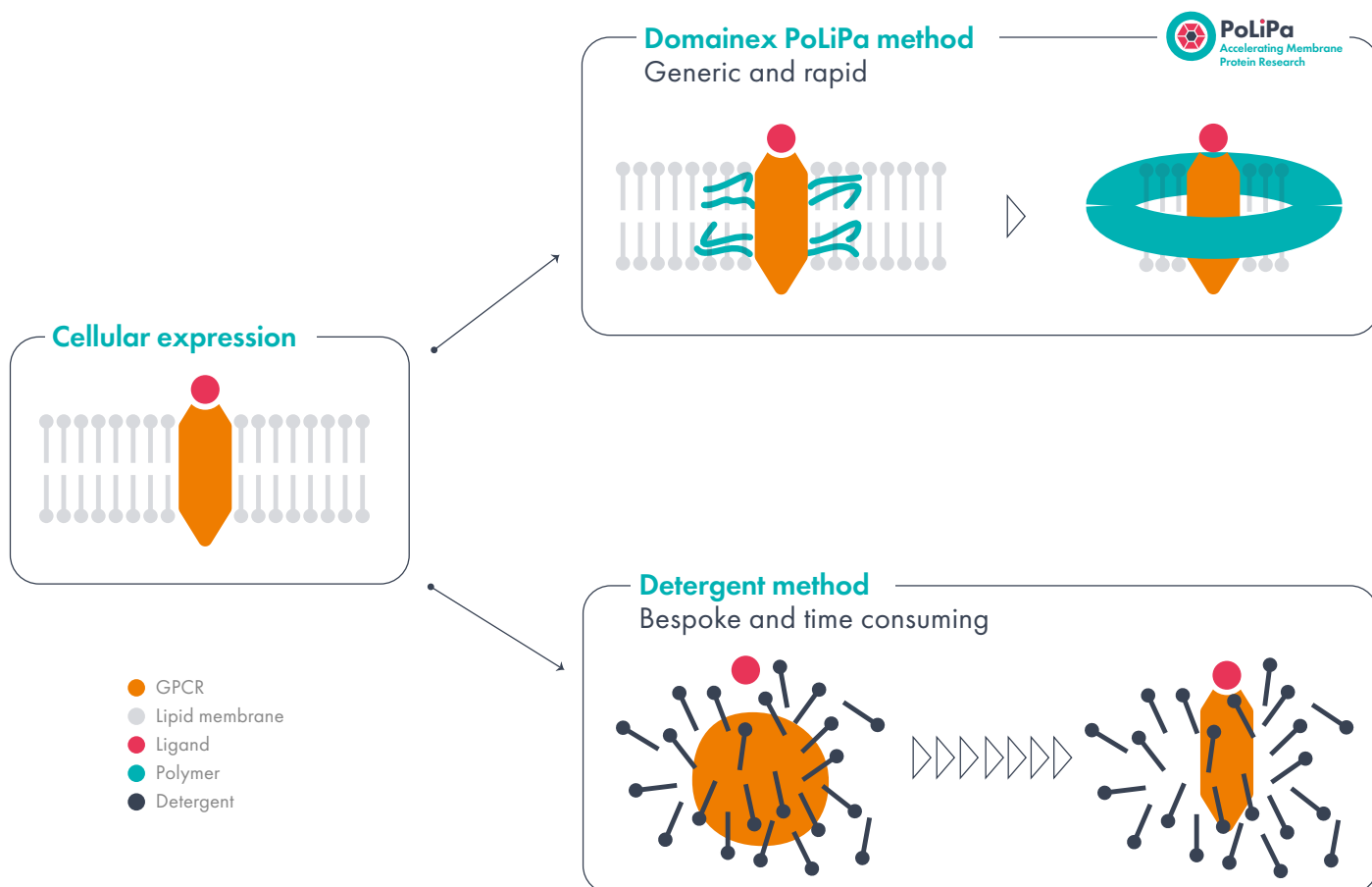
# Innovative Polymer Lipid Particle (PoLiPa) Technology



# Combining High Quality Functional Membrane Protein Preparations with LC-MS Read-outs

Domainex has established a generic platform to generate any purified membrane protein without the need for thermostabilising mutations or detergents. This was achieved using Polymer Lipid Particle (PoLiPa) technology that can stabilise membrane proteins by encapsulating the target

protein in a polymer that encloses a small disc of the native cell membrane lipids. Once isolated, we could use sensitive, label-free LC-MS detection technology to provide full pharmacological characterisation of known ligands and test compounds.



## Advantages of soluble PoLiPa-GPCRs

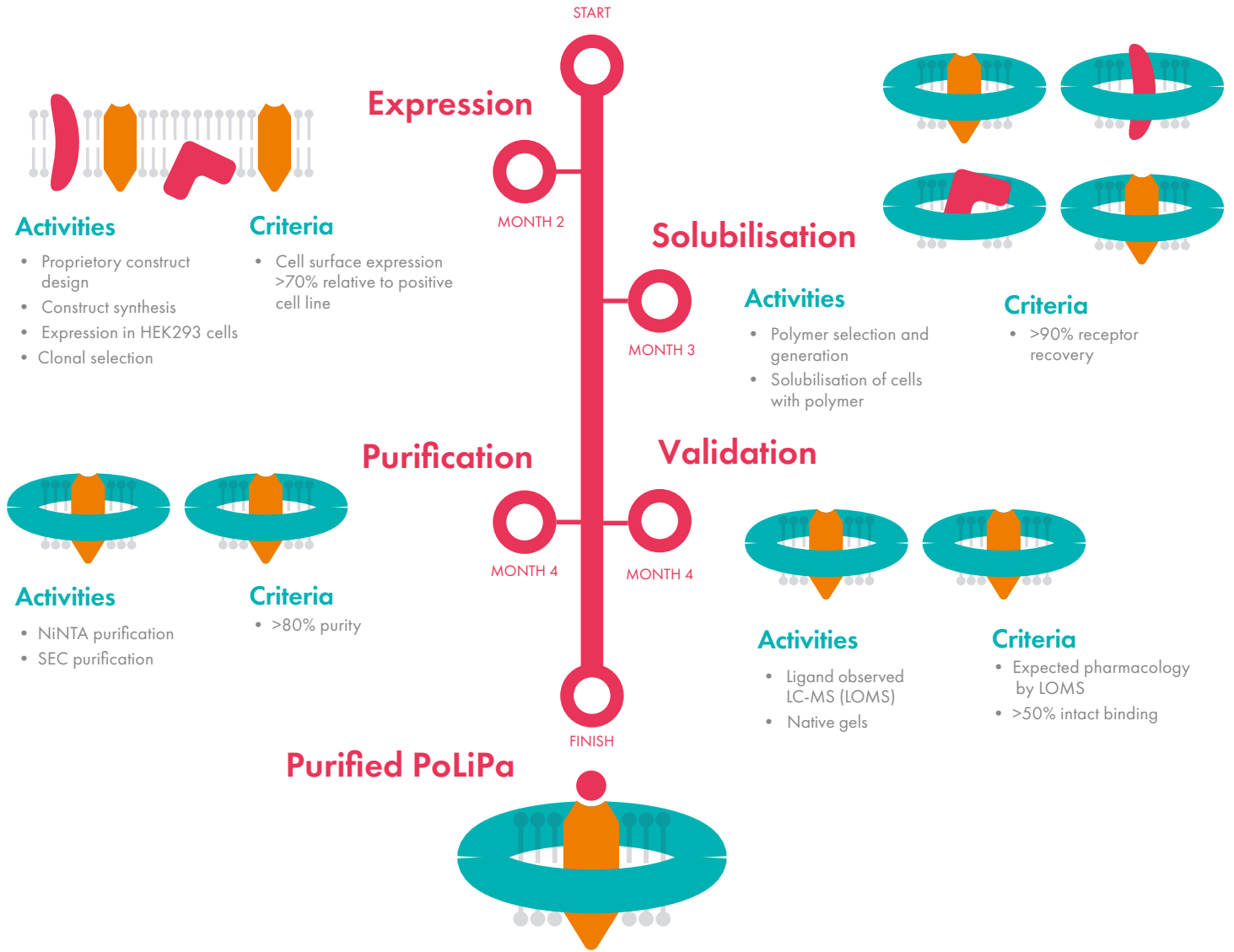
Enables rapid and generic access to pure samples of GPCRs

- ❌ Mutagenesis
- ❌ Detergents
- ✅ Generation of pharmacologically intact membrane targets
- ✅ Preparations stable over several months
- ✅ Versatile applications

## Applications

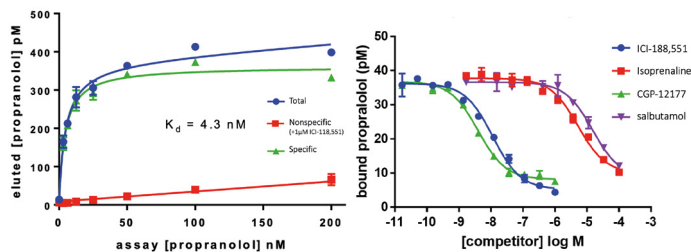
- FBDD
- SBDD
- Biophysical characterisation
- Structural determination
- DNA-encoded library screening
- Biologic hit ID
- Orphan receptor profiling

# Generation of PoLiPa-GPCRs at Domainex



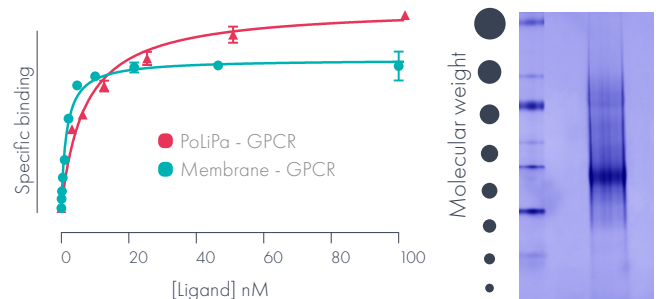
## Example Data

### Example 1: BETA-2-Adrenergic Receptor ( $\beta$ 2AR)



**Left:** PolLiPa- $\beta$ 2AR propranolol saturation binding. **Right:** Competition experiment with four known agonists/antagonist. PolLiPa- $\beta$ 2AR demonstrated expected pharmacology.

### Example 2: Neurotensin Receptor 1 (NTSR1)



**Left:** Saturation binding analysis (LC-MS) of a known NTSR1 antagonist to isolated membranes expressing NTSR1 or PolLiPa-purified NTSR1.  $K_d$  values are comparable between the two preparations suggesting that a similar pharmacologically intact protein is presented in each system. **Right:** Native-PAGE gel with Coomassie staining over PolLiPa-NTSR1.

# About Domainex

Domainex is a fully integrated drug discovery service company based at Cambridge, UK. We serve pharmaceutical, biotechnology, academic organisations and patient foundations globally. With over 60 highly experienced biologists and chemists, we work in partnership with our clients from disease target through to candidate drug nomination. We have built a strong reputation for providing our clients with innovative ideas and undertaking high-quality, breakthrough experimental studies. We strive to build strong, dynamic relationships with our clients. In 2019 we served over 40 clients drawn from the UK, Europe, the United States and Australia and had a project renewal rate of over 70%.

## How Can Domainex Help Your Drug Discovery Project?

Our highly experienced multi-disciplined scientists – molecular biologists, protein biochemists, assay biologists, structural biologists, medicinal, computational and analytical chemists – will support you to advance your drug discovery projects towards drug development effectively and efficiently. We provide customised programmes to address your specific needs at each stage of drug discovery. We draw from a wealth of expertise built up over the last 20 years against a wide range of drug targets and therapeutic areas. Being based at a single location with access to the very latest cutting-edge technologies, we are able to help you realise your goals and enrich your discovery pipeline.

## Contacts

If you would like to know more about Domainex's discovery services, or speak to us regarding your own drug discovery needs, please contact us at: [enquiries@domainex.co.uk](mailto:enquiries@domainex.co.uk)

Alternatively we can be contacted directly as follows:

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