

Why antibodies against GPCRs?

GPCRs are commonly viewed as targets for small molecules and not for antibodies. However, small molecule lead discovery has not always been successful. Failure to identify leads is a common problem for some GPCR classes, such as chemokine receptors and class B GPCRs. Small molecules do not always show the desired specificity due to a high degree of structural homology among different receptor subtypes within the ligand binding site. In some therapeutic approaches, e.g. cancer cell elimination by targeted ADCC response or by targeted toxin delivery, small molecules are not appropriate. In addition to being potentially valuable therapeutics, antibodies can also serve as tools for molecular imaging in early cancer diagnosis.

Raising and developing antibodies against GPCRs is a technical challenge. Common problems are

- Poor immunogenicity of proteins that are largely buried in the membrane.
- Low receptor density of membrane proteins in cell membranes.
- Difficulty to obtain the antigen in a pure form and in sufficient amounts.
- High degree of sequence homology between human and mouse genes.
- Antibodies against GPCR derived peptides rarely recognize native receptors.

Encouraging Results

M-fold Biotech's proprietary M-FOLD™ technology is able to deliver the required amounts of highly pure GPCR antigens. A number of companies and research partners to date have successfully generated GPCR antibodies and Fab fragments by using GPCR protein produced with M-FOLD™ as antigen or panning target in phage selection.

Antibodies were thoroughly characterized and showed desired properties and activities such as:

- Nanomolar affinity
- No cross-reactivity to closely related GPCRs
- Recognize native GPCR on mammalian cell line
- Antagonistic in ligand binding assay
- Block ligand-induced chemotaxis

Opportunities

M-fold Biotech offers GPCR antibody services to interested partners. The following collaboration options are offered:

Option 1. Antigens "For research only", non-exclusive

For antibody generation by customer. Antibodies may not be used commercially. Terms:

- Customers provides GPCR sequence
- M-fold Biotech work includes:
 - Cloning, expression
 - Refolding, purification
 - Reconstitution / formulation of antigen
- Deliverables:
 - Antigen in different formulations (reconstituted, solubilized)
- Optional:
 - Antibody characterization
 - Affinity, Selectivity, Biological Function (cell-based assay)
- Service fee based on FTE will be charged

Option 2. Antigens "For research only", exclusive

M-fold Biotech will not deliver the same GPCR to other customers.

- Conditions as above
- Annual exclusivity fee charged

Option 3. Antigens "For commercial use", exclusive

- Conditions as in Option 2.
- In addition clinical milestone and royalty payments will be charged
- Upgrade from option 2 to Option 3 possible at any time

Please note: we will soon announce custom GPCR antibody generation in collaboration with a partner. If you want to be notified, we will put you on our mailing list. Please let us know by sending an email to the address below!

Contact:

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