

Creative Biogene

GPCR Stable Cell Line Development

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BIOTECHNOLOGY
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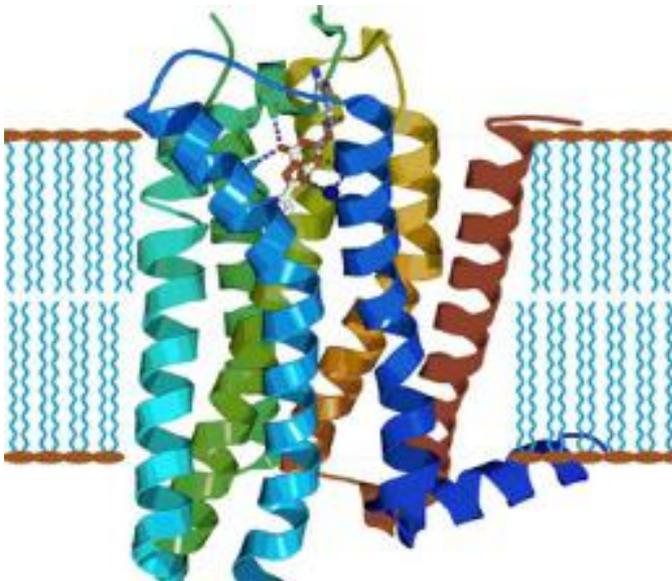
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G protein–coupled receptors (GPCRs) are a large family of seven transmembrane protein receptors found in eukaryotes. Coupling with G proteins, these receptors are activated by binding to diverse extracellular ligands including light-sensitive compounds, odors, pheromones, hormones, and neurotransmitters etc.

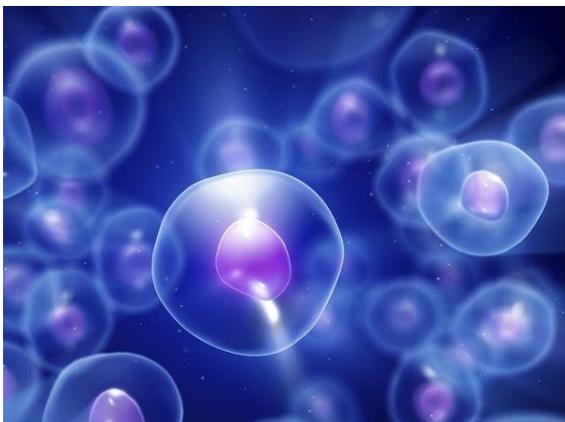


The activated GPCRs further induce intracellular signal transduction pathways and, ultimately, cellular responses. GPCRs are involved in a wide variety of physiological processes and many diseases. To date, many medicinal drugs are GPCR-targeting, and there is an increasing interest in the study of discovering novel GPCR-related drug candidates.

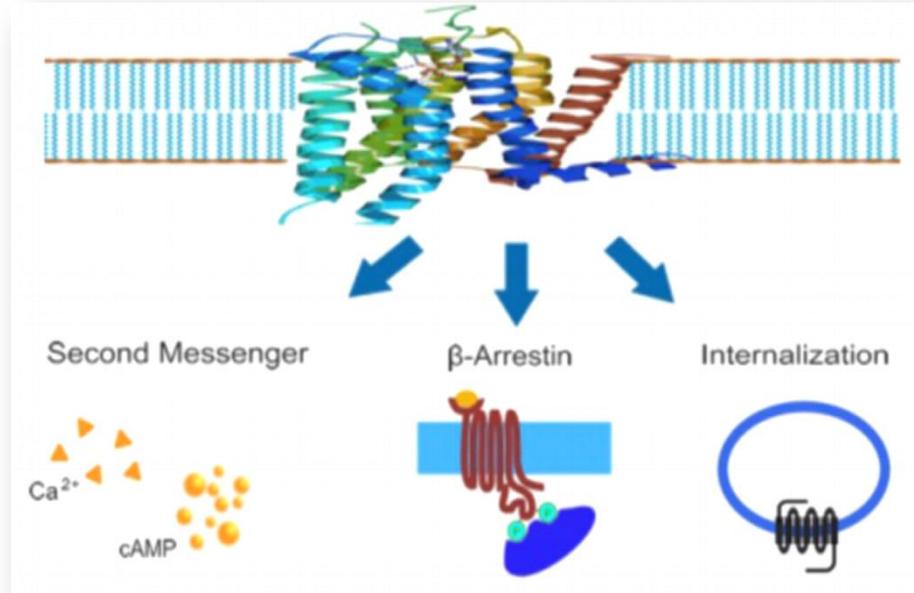
Leading Capability



Engineered cell lines stably overexpressing GPCRs are useful models for detection of GPCR signaling. Creative Biogene owns a team of experienced GPCR biologists working in the area of GPCR biology and drug discovery. We have generated a wide variety of GPCR stable cells with more under development.



With years of experience and thousands of accomplished projects, Creative Biogene offers flexible GPCR detection solutions which can help customers to achieve an ideal GPCR stable cell line suitable for downstream cell-based assay.



01

Second Messenger-Mediated Pathway

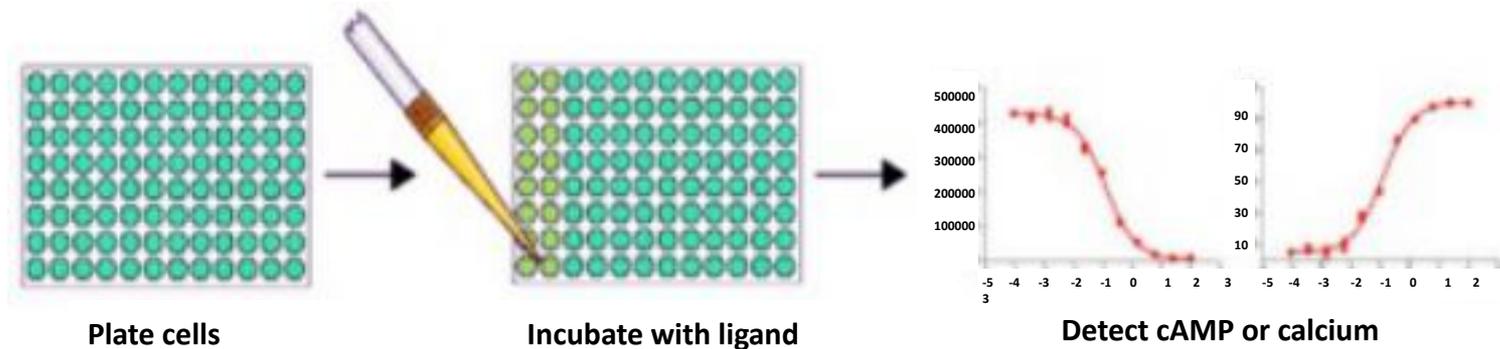
02

β -arrestin Recruitment Pathway

03

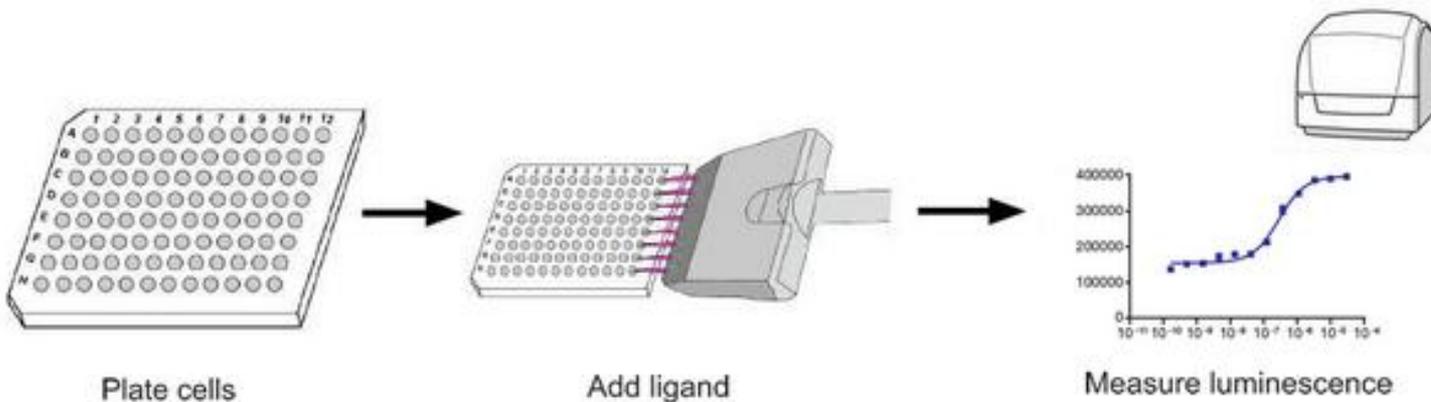
GPCR Internalization

Second Messenger-Mediated Pathway



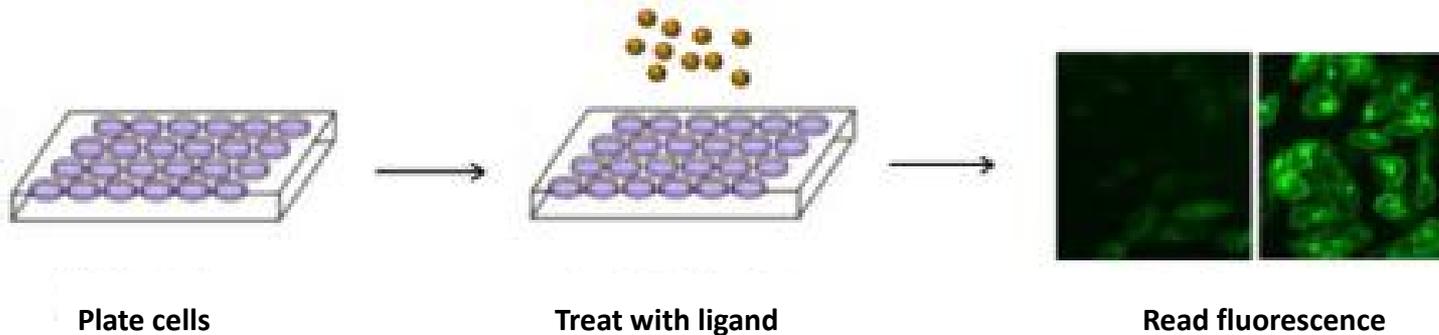
GPCR activation can be monitored by second messengers such as cAMP and calcium. Upon treatment of ligands, the intracellular cAMP or calcium is changed in a GPCR stable cell line which can be detected using cAMP or calcium cell assay kits. To further simplify and visualize the change of second messengers induced by GPCR activities, Creative Biogene has developed a type of stable cell line containing both a GPCR protein and a fluorescent-based reporter system. Ligand induced GPCR modulation can be measured through fluorescence intensity readout.

β -arrestin Recruitment Pathway



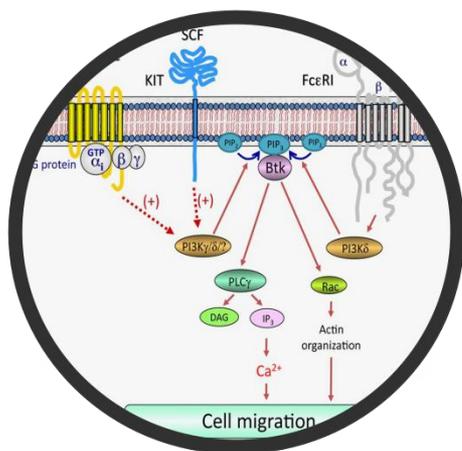
β -arrestin is a key protein involved in GPCR signal transduction as a negative regulator. GPCR activation stimulates the β -arrestin to translocate and interact with the activated receptor. This interaction leads to the attenuation of GPCR signaling. The ligand-induced β -arrestin activities have been utilized by our scientists for GPCR stable cell line development. In these cell lines, ligand binding triggers β -arrestin recruitment which can be measured through fluorescent or chemiluminescent output.

GPCR Internalization

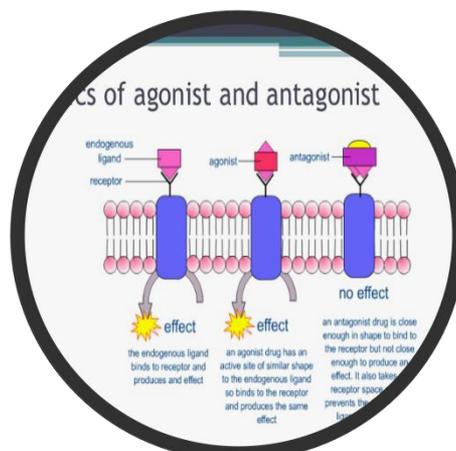


GPCR internalization is a process of endocytosis induced by ligand binding. Creative Biogene can generate stable cell lines for monitoring ligand-induced GPCR internalization. By fusing a fluorescent protein to the GPCR or based on enzyme fragment complementation, the receptor internalization can be detected by fluorescent or chemiluminescent imaging.

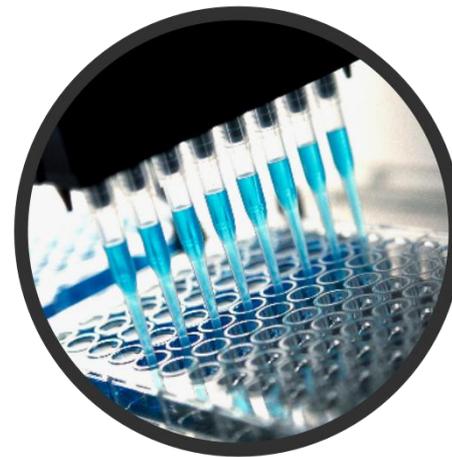
Applications



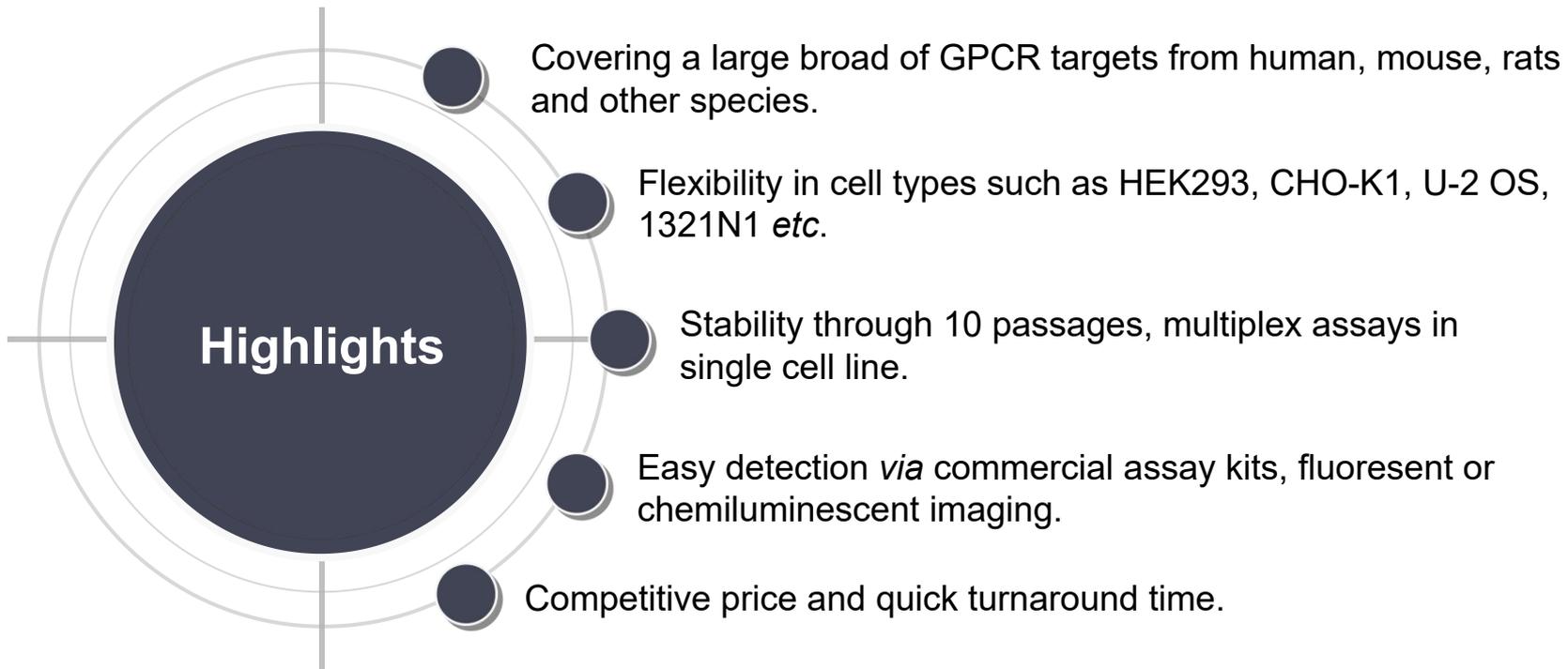
Investigation of GPCR signaling pathways



Screening of GPCR agonists and antagonists



High throughput screening and compound profiling





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Based on many years' experience on cell line development, Creative Biogene's cell culture scientists focus on optimizing all parameters specific to your cell lines to efficiently produce stable cell lines according to your requirements.

Our state-of-the-art labs are staffed by some of the best trained and most experienced subject matter experts in the field. Contact us today for a free consultation with the scientific team and discover how Creative Biogene can be a valuable resource and partner for your organization.





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THANKS!