

PharmaDesign, Inc.(Tokyo,Japan) releases a structure-based focused library targeting chemokine receptor family.

Good news for researchers looking for small molecular antagonists against chemokine receptor family!

Our businesses in genome-based drug discovery based on bioinformatics and rational drug design, including drug discovery research, contract research services, and research tool sales, have been valued among many pharmaceutical companies in Japan as well as overseas.

Now, utilizing our own virtual screening technology for GPCRs (G-protein coupled receptors), we developed PharmaGCHEM-CK, a focused library of small molecular compounds targeting chemokine receptor family (CCR1, CCR2, CCR3, CCR4, CCR5, CCR8, and CX3CR1.)

Screening method and its advantages

In contrast to ligand-based focused libraries, which have been more common, the compounds in PharmaGCHEM-CK were selected in a structure-based method as below.

1. Based on the ligand recognition hypothesis by Ishiguro*, we constructed a 3-D structure model for the receptors' antagonist binding form based on consensus sequences among the same receptor family.
2. Compounds were selected by virtual screening against the 3-D model. First, approx. 1,000,000 compounds were reduced to 300,000 according to drug-likeness. After virtual screening by docking to the receptor model, our experienced specialists made the final selection of compounds by visual inspection based on docking scores and receptor-antagonist interactions.

The average hit rate (with concentration of up to 10 microM) against various GPCRs *in vitro* screening has been as good as 10%.

Thus, PharmaGCHEM-CK is expected to have much higher hit rates than existing high throughput screening. In addition, the library contains wider variety of scaffolds than ligand-based libraries.

Product information

Product name: PharmaGCHEM-CK

Contents: a library of 1,000 compounds (1 mg each) and compound structure

information

Release date: 29th June 2005

Additional information

Contract research service of hit compound optimization will also be available if you find a hit(s) from PharmaGCHEM-CK.

We are currently developing more compound libraries targeting other GPCRs than chemokine receptor family.

* GPCR ligand recognition hypothesis has been proposed by Dr. Masamichi Ishiguro of Suntory Institute for Bioorganic Research. [References] M. Ishiguro *et al.*, *ChemBioChem* 2004, 5, 298-310; M. Ishiguro *et al.*, *ChemBioChem* 2003, 4, 228-31; M. Ishiguro, *J.Am.Chem.Soc.* 2000, 122, 444-451.

About PharmaDesign

PharmaDesign was established in 1999 as a genome-based drug discovery company specialized in structure bioinformatics and drug design. They conduct consulting research business in genome-based drug discovery, and their own researches in which they search novel drug targets by predicting proteins' functions based on 3-D structures, and find lead compounds.

They have also developed PharmaGPEP, a library of peptides designed as intrinsic ligand candidates from human genome sequence using bioinformatics.

Link: <http://www.pharmadesign.co.jp>

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