

Interactions between G-protein Coupled Receptors and Ligand Gated Ion Channels

Fact Sheet

Project Information

GPCR-LGIC COUPLING

Grant agreement ID: 268336

Status
Closed project

Start date
1 October 2010


End date
30 September 2014



Funded under
FP7-PEOPLE

Overall budget
€ 100 000

EU contribution
€ 100 000

Coordinated by
MIDDLE EAST TECHNICAL
UNIVERSITY
 Turkey

Objective

Dopamine receptors are members of G-protein coupled receptor superfamily. These receptors are the key point of dopaminergic system, which controls the regulation of memory, attention, food intake, endocrine regulation, psychomotor activity and positive reinforcement. To regulate so many critically important neurological events, dopamine receptors have complex interactions with other receptors and ion channels. In this study, a trimeric complex comprising D2 receptor -which is a subtype of dopamine receptors- , A2A adenosine receptor being another G-protein coupled receptor and a ligand gated ion channel N-methyl-D-aspartate (NMDA) receptor will be investigated. The aim of this project will be the application of a novel technique we refer as SplitGFP-FRET for the first time. For this study, “Fluorescence Resonance Energy Transfer” and “Split GFP” methods will be combined so as to reveal the trimeric D2 dopamine receptor- A2A adenosine receptor-NMDA receptor interactions. With the proposed study, a fluorescence technique to analyze live cell

interactions. With the proposed study, a fluorescence technique to analyze live cell culture will be developed. This model will potentially lead to understanding of molecular mechanisms of many neuropathological conditions like schizophrenia and Parkinson's disease because these disorders have already been shown to be associated with dysregulations in dopaminergic systems. Therefore, this project aims to reveal detailed links between schizophrenia and interactions of D2 dopamine receptor with other receptors and ion channels. The developed live cell model will also be useful for testing anti-psychotic drugs whether they have effects on disruption of protein-protein interactions, which will, in turn, ease screening of newly designed drugs.

Field of science

/medical and health sciences/clinical medicine/psychiatry/schizophrenia

/natural sciences/biological sciences/biochemistry/biomolecules/proteins/proteomics

Programme(s)

Topic(s)

Call for proposal

FP7-PEOPLE-2010-RG

Funding Scheme

MC-IRG - International Re-integration Grants (IRG)

Coordinator



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Activity type

**Higher or Secondary
Education Establishments**

[Contact the organisation](#) 

EU contribution

€ 100 000

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