Activated FGFR3:p-FRS2:p-PPTN11:GRB2:GAB1:PIK3R1 binds PIK3CA

Gotoh, N., Rothfels, K.
Introduction

Reactome is open-source, open access, manually curated and peer-reviewed pathway database. Pathway annotations are authored by expert biologists, in collaboration with Reactome editorial staff and cross-referenced to many bioinformatics databases. A system of evidence tracking ensures that all assertions are backed up by the primary literature. Reactome is used by clinicians, geneticists, genomics researchers, and molecular biologists to interpret the results of high-throughput experimental studies, by bioinformaticians seeking to develop novel algorithms for mining knowledge from genomic studies, and by systems biologists building predictive models of normal and disease variant pathways.

The development of Reactome is supported by grants from the US National Institutes of Health (P41 HG003751), University of Toronto (CFREF Medicine by Design), European Union (EU STRP, EMI-CD), and the European Molecular Biology Laboratory (EBI Industry program).

Literature references


Reactome database release: 83

This document contains 1 reaction (see Table of Contents)
Activated FGFR3:p-FRS2:p-PPTN11:GRB2:GAB1:PIK3R1 binds PIK3CA

**Stable identifier:** R-HSA-5654643

**Type:** binding

**Compartments:** cytosol, extracellular region, plasma membrane

The Src homology 2 (SH2) domain of the phosphatidylinositol 3-kinase (PIK3) regulatory subunit (PIK3R1, i.e. PI3Kp85) binds to GAB1 in a phosphorylation-independent manner. GAB1 serves as a docking protein which recruits a number of downstream signalling proteins. PIK3R1 can bind to either GAB1 or phosphorylated GAB1 (Rodrigues et al. 2000, Onishi-Haraikawa et al. 2001). In unstimulated cells, PI3K class IA exists as an inactive heterodimer of a p85 regulatory subunit (encoded by PIK3R1, PIK3R2 or PIK3R3) and a p110 catalytic subunit (encoded by PIK3CA, PIK3CB or PIK3CD). Binding of the iSH2 domain of the p85 regulatory subunit to the ABD and C2 domains of the p110 catalytic subunit both stabilizes p110 and inhibits its catalytic activity. This inhibition is relieved when the SH2 domains of p85 bind phosphorylated tyrosines on activated RTKs or their adaptor proteins. Binding to membrane-associated receptors brings activated PI3K in proximity to its membrane-localized substrate, PIP2 (Mandelker et al. 2009, Burke et al. 2011).

**Literature references**


**Editions**

<table>
<thead>
<tr>
<th>Date</th>
<th>Action</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011-08-15</td>
<td>Authored</td>
<td>Rothfels, K.</td>
</tr>
<tr>
<td>2011-08-26</td>
<td>Reviewed</td>
<td>Gotoh, N.</td>
</tr>
</tbody>
</table>