FKBP4 replaces FKBP5 within HSP90:ATP:FKBP5:unfolded protein

Echeverria, PC., Picard, D., Rothfels, K., Shamovsky, V.

European Bioinformatics Institute, New York University Langone Medical Center, Ontario Institute for Cancer Research, Oregon Health and Science University.

09/08/2021

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

Fabregat, A., Sidiropoulos, K., Viteri, G., Forner, O., Marin-Garcia, P., Arnau, V. et al. (2017). Reactome pathway analysis: a high-performance in-memory approach. *BMC bioinformatics, 18*, 142. ↗

Sidiropoulos, K., Viteri, G., Sevilla, C., Jupe, S., Webber, M., Orlic-Milacic, M. et al. (2017). Reactome enhanced pathway visualization. *Bioinformatics, 33*, 3461-3467. ↗

Fabregat, A., Jupe, S., Matthews, L., Sidiropoulos, K., Gillespie, M., Garapati, P. et al. (2018). The Reactome Pathway Knowledgebase. *Nucleic Acids Res, 46*, D649-D655. ↗

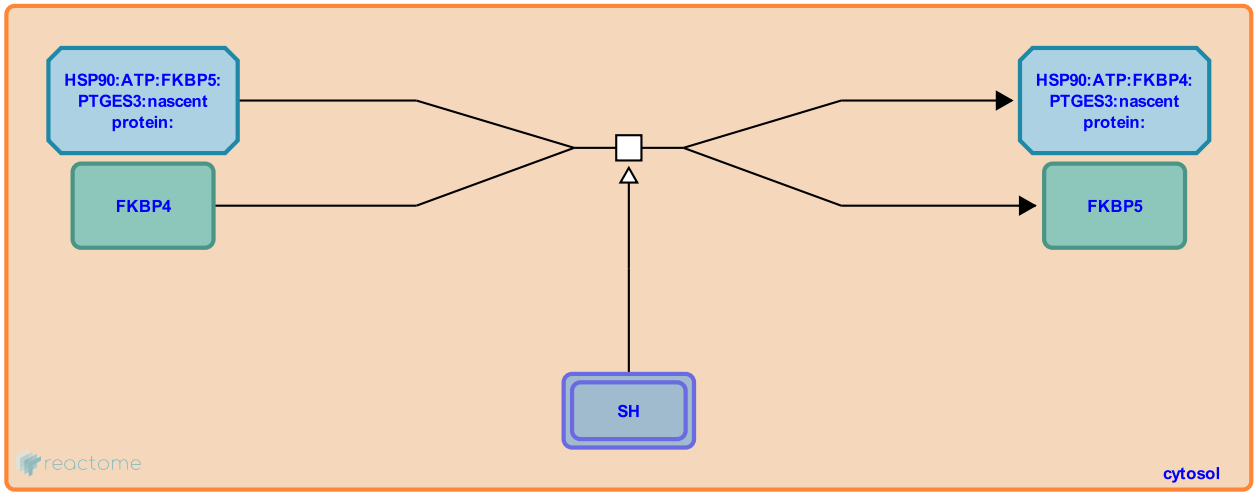
Fabregat, A., Korninger, F., Viteri, G., Sidiropoulos, K., Marin-Garcia, P., Ping, P. et al. (2018). Reactome graph database: Efficient access to complex pathway data. *PLoS computational biology, 14*, e1005968. ↗

FKBP4 replaces FKBP5 within HSP90:ATP:FKBP5:unfolded protein ↗

Stable identifier: R-HSA-5618073

Type: transition

Compartments: cytosol



Mass spectrometry analysis showed that FKBP51 (FKBP5) and FKBP52 (FKBP4) form analogous complexes with GR:HSP90:STIP1:HSP70:ATP (Ebong IO et al. 2016). Without hormone, FKBP51 is the major immunophilin in GR:HSP90 complexes, whereas after hormone treatment, FKBP52 rapidly replaces FKBP51 (Davies et al., 2002).

Literature references

Ebong, IO., Beilsten-Edmands, V., Patel, NA., Morgner, N., Robinson, CV. (2016). The interchange of immunophilins leads to parallel pathways and different intermediates in the assembly of Hsp90 glucocorticoid receptor complexes. *Cell Discov, 2*, 16002. ↗

Davies, TH., Ning, YM., Sánchez, ER. (2002). A new first step in activation of steroid receptors: hormone-induced switching of FKBP51 and FKBP52 immunophilins. *J. Biol. Chem., 277*, 4597-600. ↗

Editions

2016-09-17	Reviewed	Rothfels, K.
2016-11-19	Authored	Shamovsky, V.
2017-02-22	Reviewed	Picard, D., Echeverria, PC.
2017-02-25	Edited	Shamovsky, V.