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Details of the Collaborative Activity

2020-21

Name of the Collaborating Institute: Department of Biochemistry and Molecular Biology, Department of Chemistry, and School of Biomedical Engineering, Dalhousie University, Canada.

Name of the Collaborating Department with YDU: Yenepoya Research Center.

Joint Research and Publication

1. Dagamajalu S, Rex DAB, Philem PD, Rainey JK, Prasad TSK. A network map of apelin-mediated signaling. *Journal of Cell Communication and Signaling*. 2021. doi: 10.1007/s12079-021-00614-6.

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A network map of apelin-mediated signaling

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Abstract

The apelin receptor (APLNR) is a class A (rhodopsin-like) G-protein coupled receptor with a wide distribution throughout the human body. Activation of the apelin/APLNR system regulates AMPK/PI3K/AKT/mTOR and RAF/ERK1/2 mediated signaling pathways. APLNR activation orchestrates several downstream signaling cascades, which play diverse roles in physiological effects, including effects upon vasoconstriction, heart muscle contractility, energy metabolism regulation, and fluid homeostasis angiogenesis. We consolidated a network map of the APLNR signaling map owing to its biomedical importance. The curation of literature data pertaining to the APLNR system was performed manually by the NetPath criteria. The described apelin receptor signaling map comprises 35 activation/inhibition events, 38 catalysis events, 4 molecular associations, 62 gene regulation events, 113 protein expression types, and 4 protein translocation events. The APLNR signaling pathway map data is made freely accessible through the WikiPathways Database (https://www.wikipathways.org/index.php/Pathway:WP5067).

Keywords: Cardiovascular disease; Inflammation; Post-translational modifications; Protein–protein interactions; Signaling pathways; WikiPathways.

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