

# Aquaporin-3 passively transports water out of cell

Beitz, E., Calamita, G., MacIver, B., Mathai, JC., May, B.

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

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https://reactome.org

# 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.

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### 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 data-base: Efficient access to complex pathway data. *PLoS computational biology, 14*, e1005968.

Reactome database release: 88

This document contains 1 reaction (see Table of Contents)

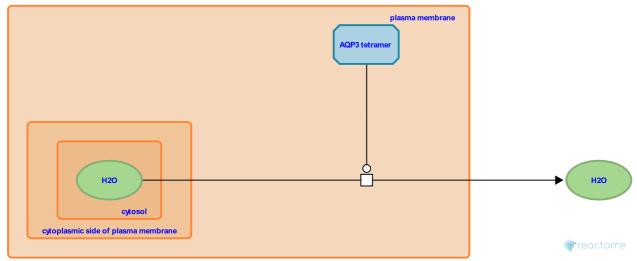
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Stable identifier: R-HSA-445714

**Type:** transition

Compartments: plasma membrane, cytosol, extracellular region



Aquaporin-3 (AQP3) passively transports water and glycerol across the plasma membrane according to the osmotic gradient. AQP3 is expressed in airway epithelia, secretory glands, skin, the collecting ducts of the kidney, and the basolateral surface of intestinal epithelium.

## Literature references

Christensen, BM., Nielsen, S., Agre, P., King, LS. (1997). Aquaporins in complex tissues. II. Subcellular distribution in respiratory and glandular tissues of rat. *Am J Physiol*, *273*, C1549-61.

Isokpehi, R., Rajnarayanan, RV., Cohly, HH. (2008). Compartmentalization of aquaporins in the human intestine. *Int J Environ Res Public Health*, *5*, 115-9.

Marples, D., Echevarria, M., Ecelbarger, CA., Terris, J., Knepper, MA., Frindt, G. et al. (1995). Aquaporin-3 water channel localization and regulation in rat kidney. *Am J Physiol*, 269, F663-72. *¬* 

Echevarria, M., Tate, SS., Frindt, G., Windhager, EE. (1994). Cloning and expression of AQP3, a water channel from the medullary collecting duct of rat kidney. *Proc Natl Acad Sci U S A*, 91, 10997-1001.

Nielsen, S., Agre, P., King, LS. (1997). Aquaporins in complex tissues. I. Developmental patterns in respiratory and glandular tissues of rat. *Am J Physiol*, 273, C1541-8.

# **Editions**

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