

# ACE:Zn<sup>2+</sup> hydrolyzes Angiotensin-(1-10) to Angiotensin-(1-8)

Joseph, J., May, B.

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

The contents of this document may be freely copied and distributed in any media, provided the authors, plus the institutions, are credited, as stated under the terms of [Creative Commons Attribution 4.0 International \(CC BY 4.0\) License](https://creativecommons.org/licenses/by/4.0/). For more information see our [license](https://reactome.org/licenses/).

18/05/2024

## 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. [↗](#)

Reactome database release: 88

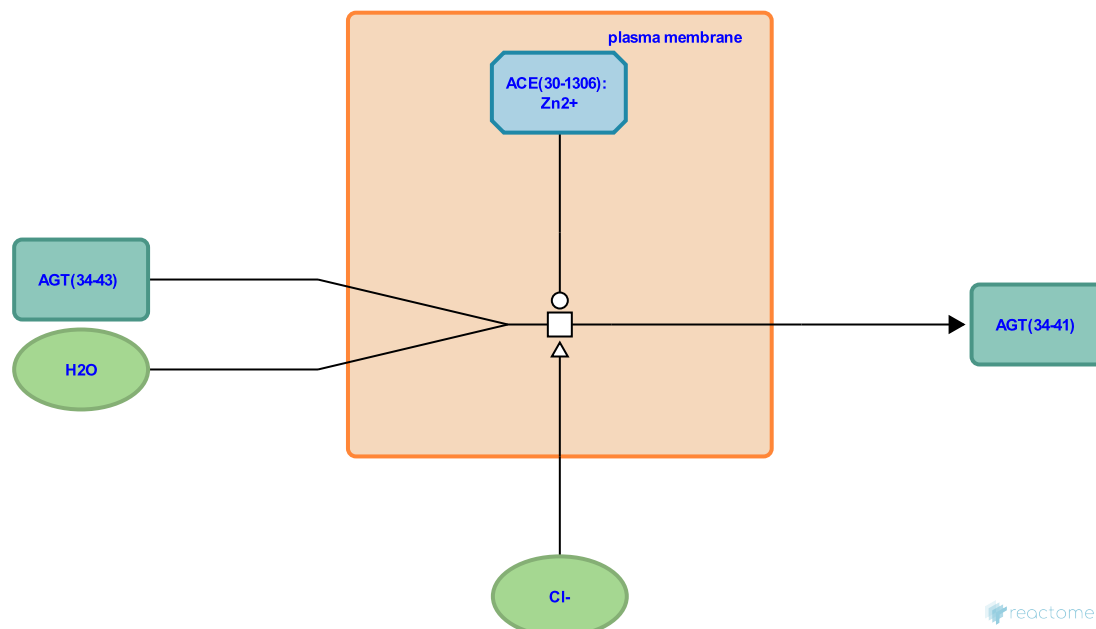
This document contains 1 reaction ([see Table of Contents](#))

## ACE:Zn<sup>2+</sup> hydrolyzes Angiotensin-(1-10) to Angiotensin-(1-8) ↗

**Stable identifier:** R-HSA-2022405

**Type:** transition

**Compartments:** extracellular region, plasma membrane



Angiotensin-converting enzyme (ACE) hydrolyzes angiotensin-(1-10) (angiotensin I) to yield angiotensin-(1-8) (angiotensin II) (Ehlers and Kirsch 1988). ACE is found at the plasma membrane of endothelial cells. This reaction is inhibited by drugs used to treat hypertension (angiotensin converting enzyme inhibitors, ACEI) including captopril (Gronhagen-Riska and Fyhrquist 1980, Stewart et al. 1981, Ehlers et al. 1986, Hayakari et al. 1989, Wei et al. 1991, Baudin and Beneteau-Burnat 1999), enalaprilat (metabolized from the prodrug enalapril, Wei et al. 1991, Baudin and Beneteau-Burnat 1999), lisinopril (Ehlers et al. 1991, Natesh et al. 2003), and ramiprilat (metabolized from the prodrug ramipril, Baudin and Beneteau-Burnat 1999).

### Literature references

- Wei, L., Clauser, E., Corvol, P., Soubrier, F., Michaud, A., Alhenc-Gelas, F. (1991). Expression and characterization of recombinant human angiotensin I-converting enzyme. Evidence for a C-terminal transmembrane anchor and for a proteolytic processing of the secreted recombinant and plasma enzymes. *J Biol Chem*, 266, 5540-6. ↗
- Amano, K., Hayakari, M., Murakami, S., Izumi, H. (1989). Purification of angiotensin-converting enzyme from human intestine. *Adv Exp Med Biol*, 247, 365-70. ↗
- Weare, JA., Erdös, EG., Stewart, TA. (1981). Purification and characterization of human converting enzyme (kininase II). *Peptides*, 2, 145-52. ↗
- Fyhrquist, F., Grönhagen-Riska, C. (1980). Purification of human lung angiotensin-converting enzyme. *Scand J Clin Lab Invest*, 40, 711-9. ↗
- Chen, YN., Ehlers, MR., Riordan, JF. (1991). Purification and characterization of recombinant human testis angiotensin-converting enzyme expressed in Chinese hamster ovary cells. *Protein Expr Purif*, 2, 1-9. ↗

### Editions

2011-11-19	Authored, Edited	May, B.
2012-08-06	Reviewed	Joseph, J.