

# MAF1 binds the PTEN gene promoter

Carracedo, A., Orlic-Milacic, M., Salmena, L.

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](#). For more information see our [license](#).

03/05/2024

## 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

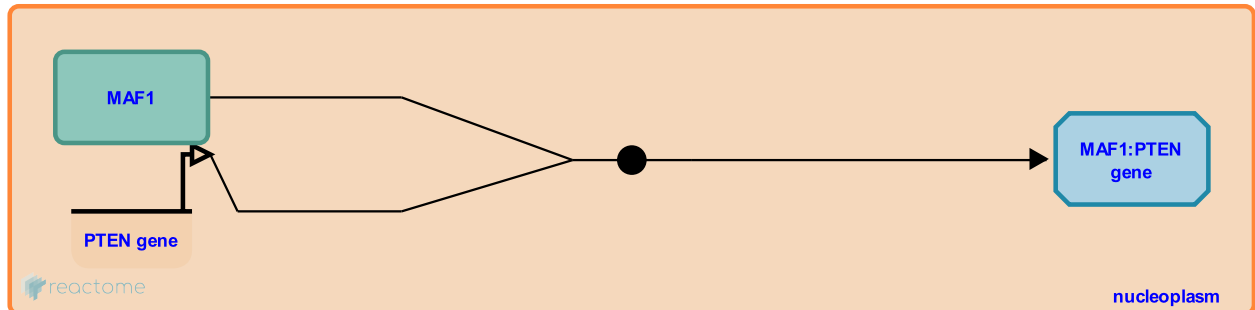
This document contains 1 reaction ([see Table of Contents](#))

## MAF1 binds the PTEN gene promoter [↗](#)

**Stable identifier:** R-HSA-8944420

**Type:** binding

**Compartments:** nucleoplasm



The transcription factor MAF1 binds to the promoter region of the PTEN gene to stimulate PTEN transcription (Li et al. 2016). MAF1 is known as a transcriptional repressor of RNA polymerase III-dependent genes, such as genes encoding transport RNAs (tRNAs). Phosphorylation of MAF1 by the mTORC1 complex inhibits MAF1 translocation to the nucleus and transcriptional activity of MAF1 (Shor et al. 2010, Michels et al. 2010).

### Literature references

Zheng, XF., Huang, W., Li, M., Fu, L., Li, XX., Wang, HY. et al. (2016). MAF1 suppresses AKT-mTOR signaling and liver cancer through activation of PTEN transcription. *Hepatology*, 63, 1928-42. [↗](#)

### Editions

2016-08-11	Authored	Carracedo, A., Salmena, L.
2016-11-03	Authored	Orlic-Milacic, M.
2017-05-09	Edited	Orlic-Milacic, M.