

HGF dimer binds MET

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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 database: Efficient access to complex pathway data. *PLoS computational biology*, 14, e1005968. [↗](#)

Reactome database release: 88

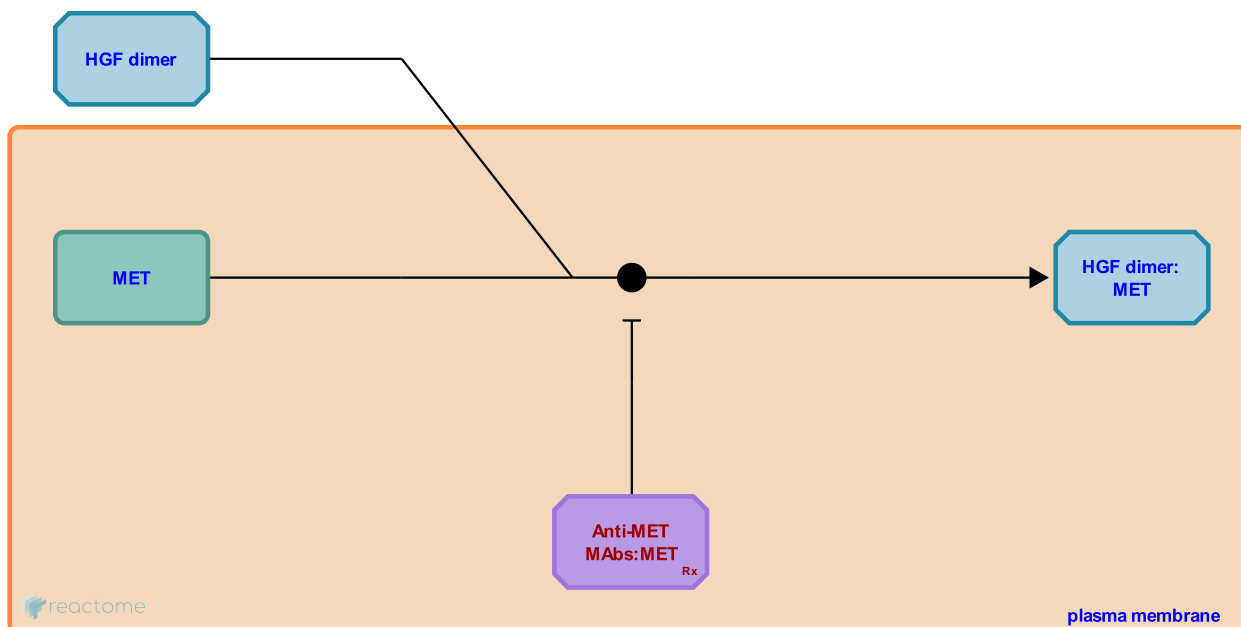
This document contains 1 reaction ([see Table of Contents](#))

HGF dimer binds MET [↗](#)

Stable identifier: R-HSA-6800298

Type: binding

Compartments: extracellular region, plasma membrane



Hepatocyte growth factor (HGF) is a pleiotropic factor and activates hepatocyte growth factor receptor (MET). HGF is secreted into the extracellular matrix as an inactive single chain precursor (pro-HGF (32-728)) and requires cleavage to form the biologically active alpha-beta heterodimer. HGF/MET signalling plays an important role in normal development and in tumor growth and metastasis (Rong et al. 1994, Schmidt et al. 1995, Uehara et al. 1995, Bladt et al. 1995, Schmidt et al. 1997, Pennacchietti et al. 2003, Stamos et al. 2004). HGF binds the SEMA and PSI domain of the MET receptor (Kirchhofer et al. 2004).

Literature references

- Schmidt, L., Bernues, M., Slife, L., Chen, F., Stackhouse, T., Brauch, H. et al. (1997). Germline and somatic mutations in the tyrosine kinase domain of the MET proto-oncogene in papillary renal carcinomas. *Nat. Genet.*, 16, 68-73. [↗](#)
- Segal, S., Rong, S., Resau, JH., Vande Woude, GF., Anver, M. (1994). Invasiveness and metastasis of NIH 3T3 cells induced by Met-hepatocyte growth factor/scatter factor autocrine stimulation. *Proc. Natl. Acad. Sci. U.S.A.*, 91, 4731-5. [↗](#)
- Mazzone, M., Giordano, S., Galluzzo, M., Comoglio, PM., Pennacchietti, S., Michieli, P. (2003). Hypoxia promotes invasive growth by transcriptional activation of the met protooncogene. *Cancer Cell*, 3, 347-61. [↗](#)
- Birchmeier, C., Riethmacher, D., Bladt, F., Aguzzi, A., Isenmann, S. (1995). Essential role for the c-met receptor in the migration of myogenic precursor cells into the limb bud. *Nature*, 376, 768-71. [↗](#)
- Kirchhofer, D., Wiesmann, C., Stamos, J., Yao, X., Lazarus, RA. (2004). Crystal structure of the HGF beta-chain in complex with the Sema domain of the Met receptor. *EMBO J.*, 23, 2325-35. [↗](#)

Editions

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