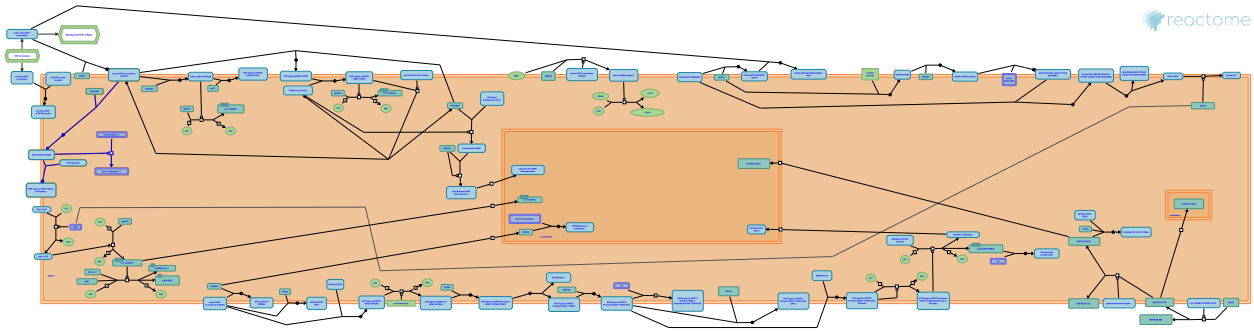
NADE modulates death signalling



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09/05/2024

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. ↗

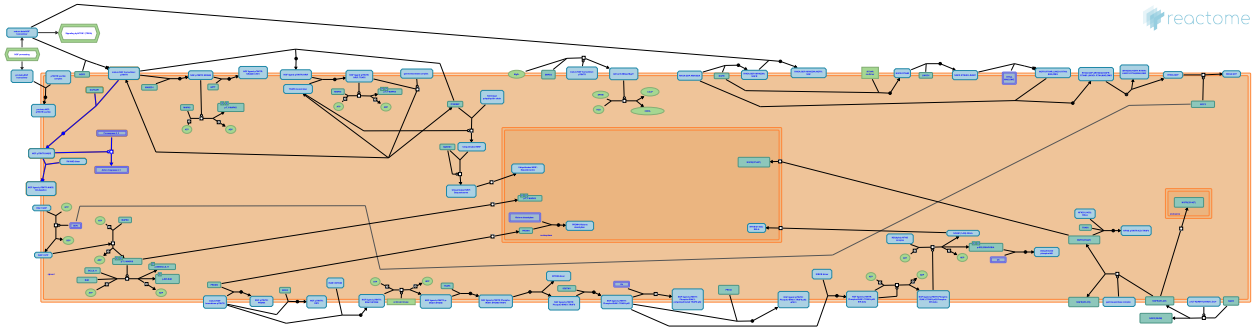
Sidiropoulos, K., Viteri, G., Sevilla, C., Jupe, S., Webber, M., Orlic-Milacic, M. et al. (2017). Reactome enhanced pathway visualization. *Bioinformatics, 33*, 3461-3467. ↗

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. ↗

NADE modulates death signalling ↗

Stable identifier: R-HSA-205025



NADE protein (p75NTR-associated cell death executor) may induce cell death upon NGF binding, but not BDNF, NT3, or NT4/5 binding, to p75NTR. The NADE-dependent apoptosis is modulated by the 14-3-3-epsilon protein (Kimura MT et al, 2001).

Literature references

Irie, S., Sato, TA., Mukai, J., Shoji-Hoshino, S., Oshimura, M., Nadano, D. et al. (2001). 14-3-3 is involved in p75 neurotrophin receptor-mediated signal transduction. *J Biol Chem, 276*, 17291-300. ↗

Editions

2006-10-10	Authored	Annibali, D., Nasi, S.
2008-05-20	Reviewed	Friedman, WJ.
2008-05-20	Edited	Jassal, B.
2008-05-28	Reviewed	Chao, MV.

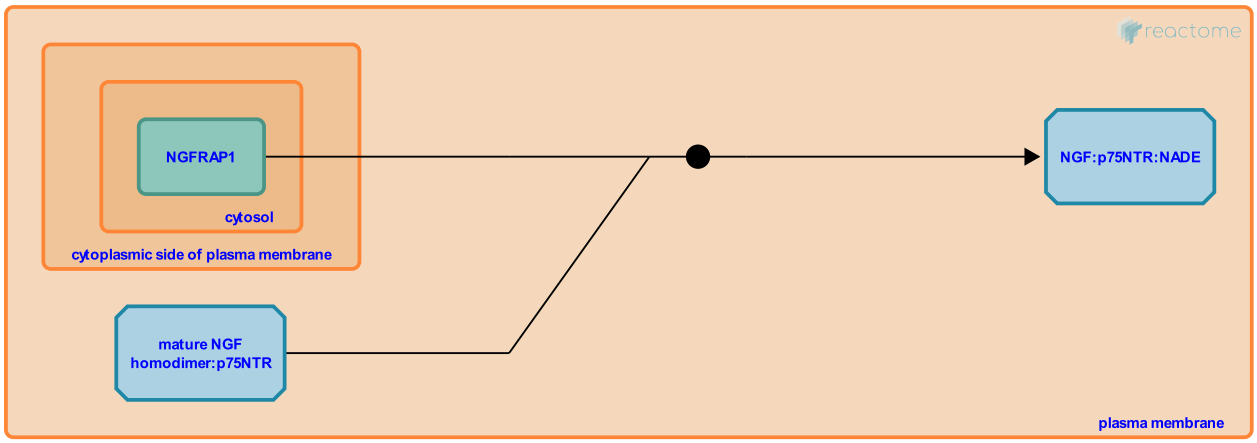
p75NTR binds to NADE ↗

Location: NADE modulates death signalling

Stable identifier: R-HSA-193650

Type: binding

Compartments: plasma membrane, cytosol



The NADE protein interacts with p75NTR to mediate cell death. The interaction is mediated by NADE NES (nuclear export signal), also responsible for self-association of NADE (Mukai J et al, 2002).

Followed by: p75NTR:NADE promotes caspase2/3 activation

Literature references

Irie, S., Shoji-Hoshino, S., Li, Y., Hanaoka, T., Greene, LA., Suvanto, P. et al. (2000). NADE, a p75NTR-associated cell death executor, is involved in signal transduction mediated by the common neurotrophin receptor p75NTR. *J Biol Chem, 275*, 17566-70. ↗

Editions

2006-10-10	Authored	Annibali, D., Nasi, S.
2008-05-20	Reviewed	Friedman, WJ.
2008-05-20	Edited	Jassal, B.
2008-05-28	Reviewed	Chao, MV.

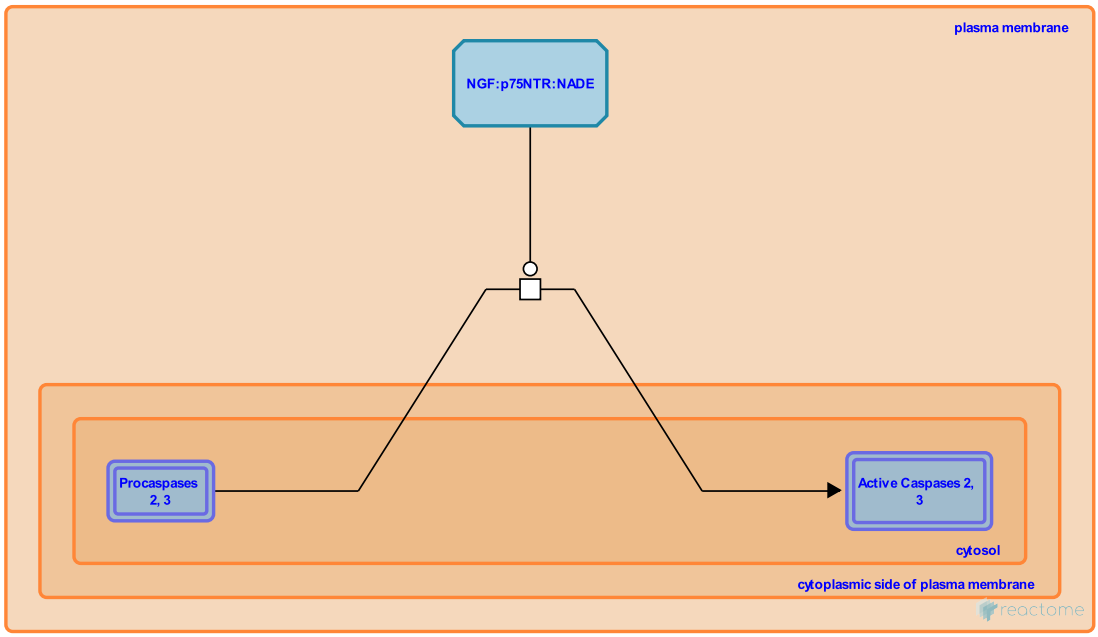
p75NTR:NADE promotes caspase2/3 activation ↗

Location: NADE modulates death signalling

Stable identifier: R-HSA-205117

Type: transition

Compartments: plasma membrane, cytosol



Once bound to the NGF:p75NTR complex, NADE contributes to cell death signalling by promoting activation of caspases 2 and 3. It is unclear whether JNK activation is involved. The apoptotic function of NADE was observed in oligodendrocytes (Mukai et al. 2002).

Preceded by: p75NTR binds to NADE

Followed by: 14-3-3epsilon attentuates NADE-related apoptosis

Literature references

Suvanto, P., Irie, S., Sato, TA., Li, Y., Okubo, S., Mukai, J. et al. (2002). Structure-function analysis of NADE: identification of regions that mediate nerve growth factor-induced apoptosis. *J Biol Chem, 277*, 13973-82. ↗

Editions

2006-10-10	Authored	Annibali, D., Nasi, S.
2008-05-20	Reviewed	Friedman, WJ.
2008-05-20	Edited	Jassal, B.
2008-05-28	Reviewed	Chao, MV.

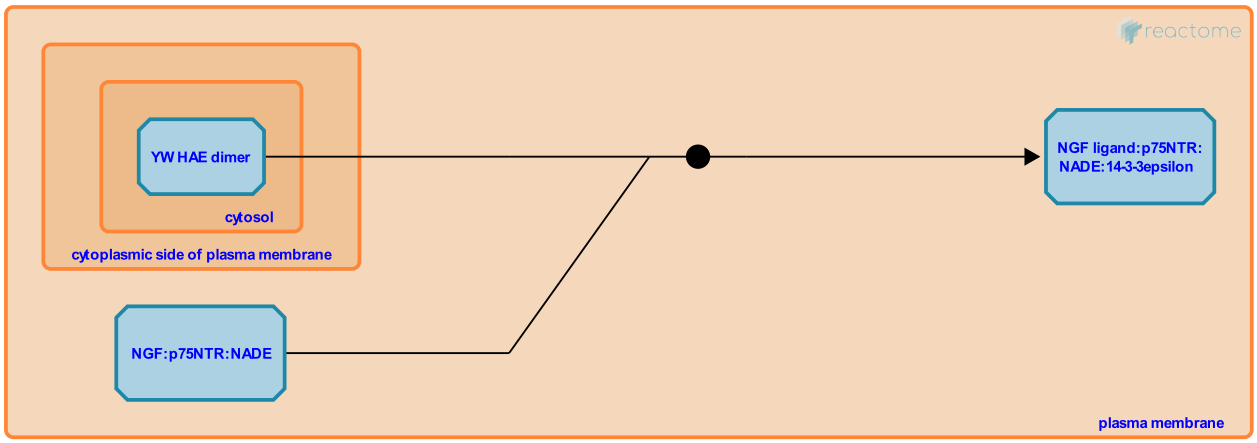
14-3-3epsilon attentuates NADE-related apoptosis ↗

Location: NADE modulates death signalling

Stable identifier: R-HSA-204981

Type: binding

Compartments: plasma membrane, cytosol



NADE forms a complex with the 14-3-3epsilon isoform. The last one interacts with caspase 3 through its C terminal region. The NADE:4-3-3epsilon complex negatively regulates p75NTR-mediated apoptosis, probably by down regulating caspase activity.

Preceded by: p75NTR:NADE promotes caspase2/3 activation

Literature references

Irie, S., Sato, TA., Mukai, J., Shoji-Hoshino, S., Oshimura, M., Nadano, D. et al. (2001). 14-3-3 is involved in p75 neurotrophin receptor-mediated signal transduction. *J Biol Chem, 276*, 17291-300. ↗

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