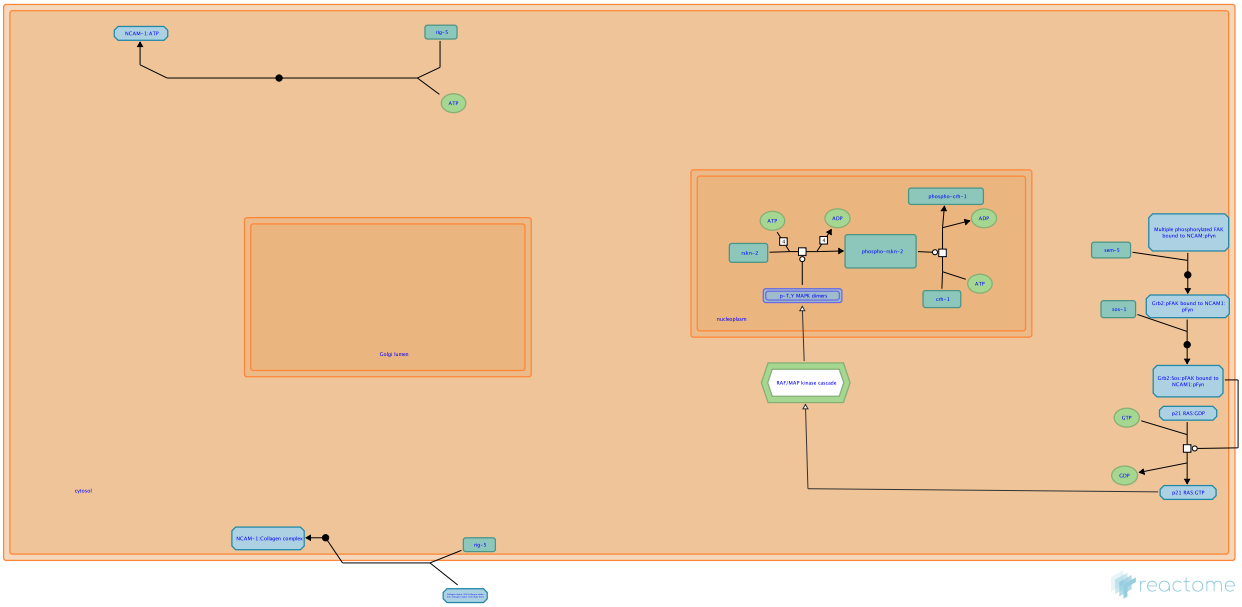
NCAM signaling for neurite out-growth



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

26/08/2021

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. ↗

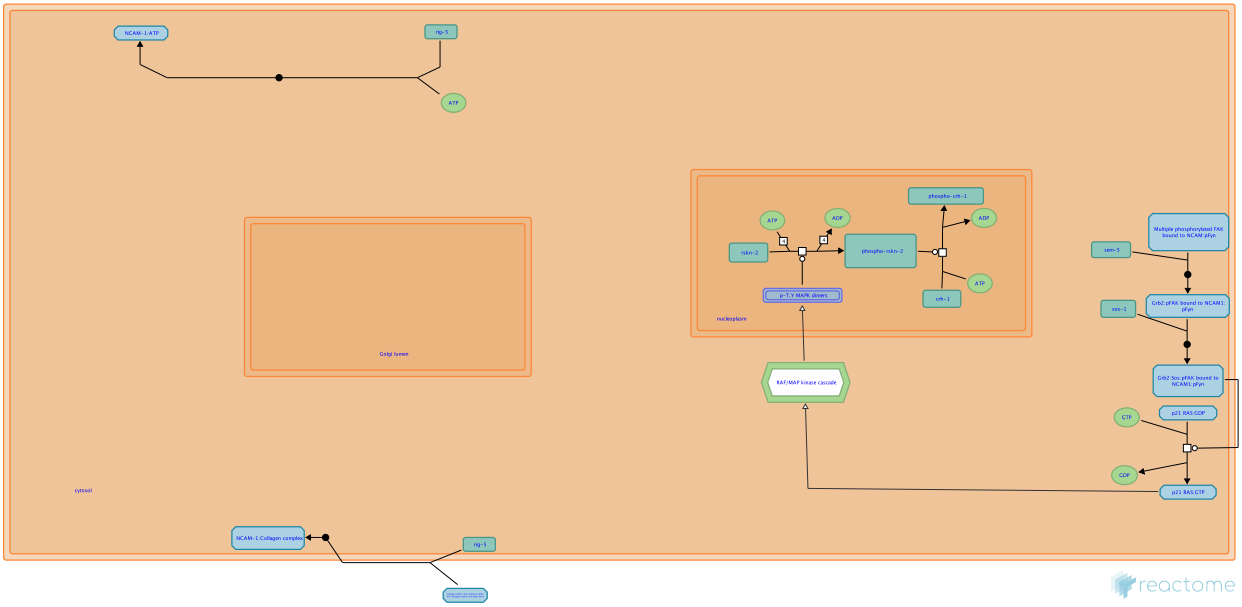
Fabregat, A., Korninger, F., Viteri, G., Sidiropoulos, K., Marin-Garcia, P., Ping, P. et al. (2018). Reactome graph database: Efficient access to complex pathway data. *PLoS computational biology, 14*, e1005968. ↗

NCAM signaling for neurite out-growth ↗

Stable identifier: R-CEL-375165

Compartments: plasma membrane

Inferred from: NCAM signaling for neurite out-growth (Homo sapiens)



This event has been computationally inferred from an event that has been demonstrated in another species.

The inference is based on the homology mapping from PANTHER. Briefly, reactions for which all involved PhysicalEntities (in input, output and catalyst) have a mapped orthologue/paralogue (for complexes at least 75% of components must have a mapping) are inferred to the other species. High level events are also inferred for these events to allow for easier navigation.

<a href='/electronic_inference_compara.html' target = 'NEW'>More details and caveats of the event inference in Reactome. For details on PANTHER see also: <a href='http://www.pantherdb.org/about.jsp' target='NEW'>http://www.pantherdb.org/about.jsp

Recruitment of Grb2 to pFAK:NCAM1 ↗

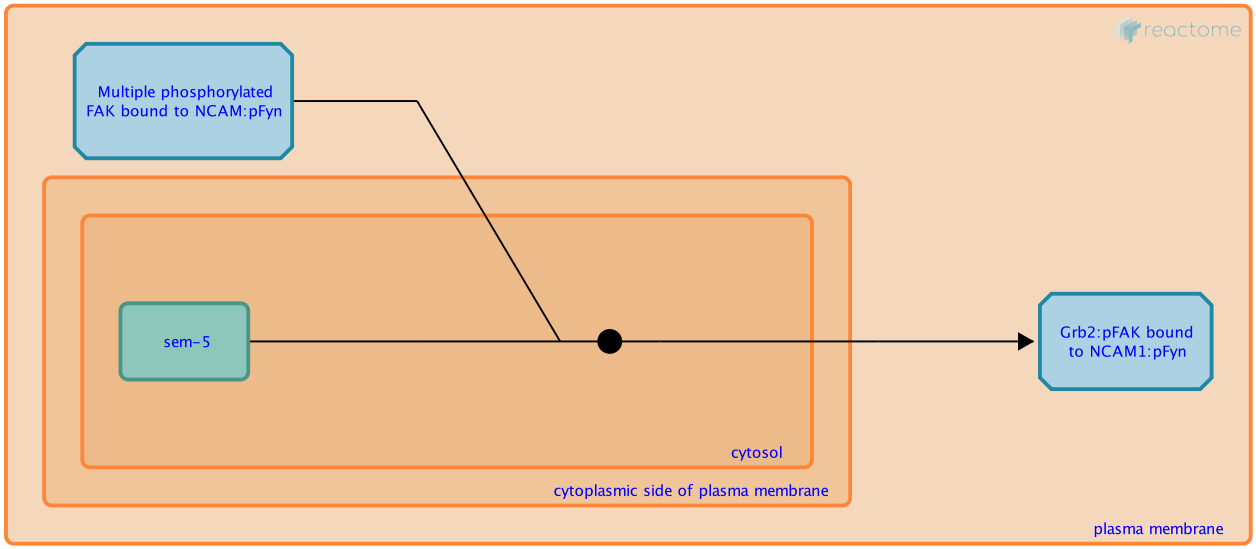
Location: NCAM signaling for neurite out-growth

Stable identifier: R-CEL-392051

Type: binding

Compartments: cytosol, plasma membrane

Inferred from: Recruitment of Grb2 to pFAK:NCAM1 (Homo sapiens)



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Followed by: SOS binds Grb2 bound to pFAK:NCAM1

SOS binds Grb2 bound to pFAK:NCAM1 ↗

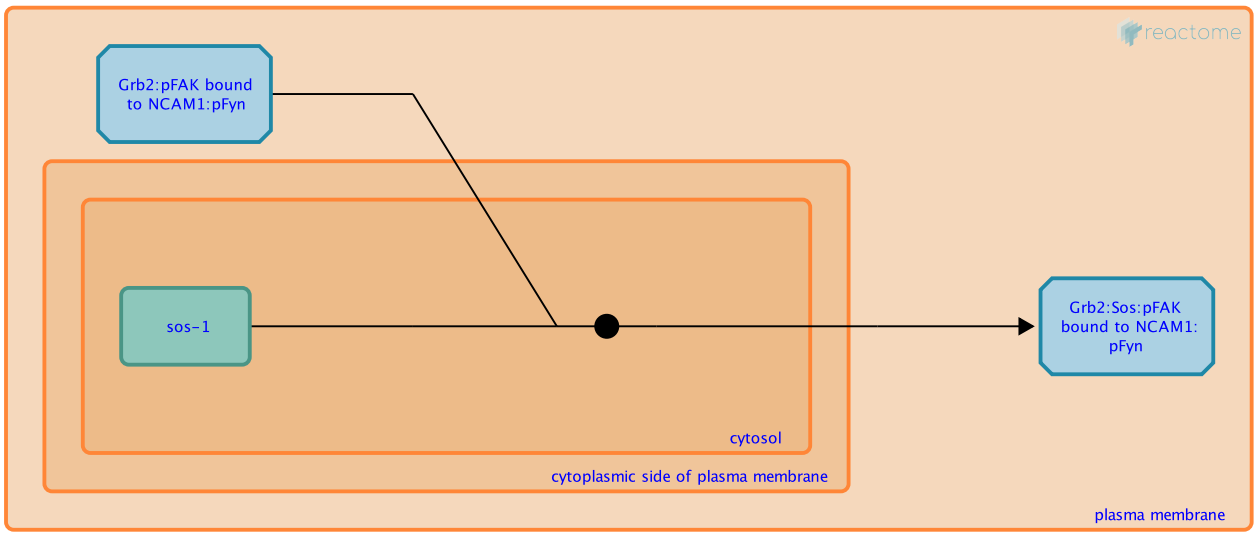
Location: NCAM signaling for neurite out-growth

Stable identifier: R-CEL-392053

Type: binding

Compartments: cytosol, plasma membrane

Inferred from: SOS binds Grb2 bound to pFAK:NCAM1 (Homo sapiens)



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Preceded by: Recruitment of Grb2 to pFAK:NCAM1

Followed by: NCAM1:pFAK:Grb2:Sos-mediated nucleotide exchange of Ras

NCAM1:pFAK:Grb2:Sos-mediated nucleotide exchange of Ras ↗

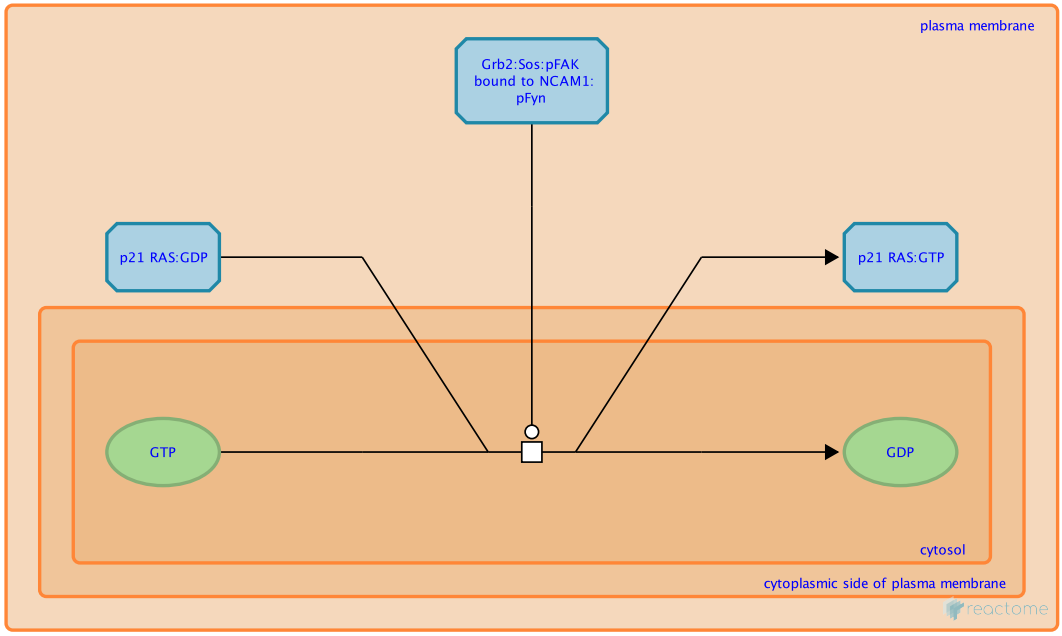
Location: NCAM signaling for neurite out-growth

Stable identifier: R-CEL-392054

Type: transition

Compartments: cytosol, plasma membrane

Inferred from: NCAM1:pFAK:Grb2:Sos-mediated nucleotide exchange of Ras (Homo sapiens)



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Preceded by: SOS binds Grb2 bound to pFAK:NCAM1

ERK1/2 phosphorylates MSK1 ↗

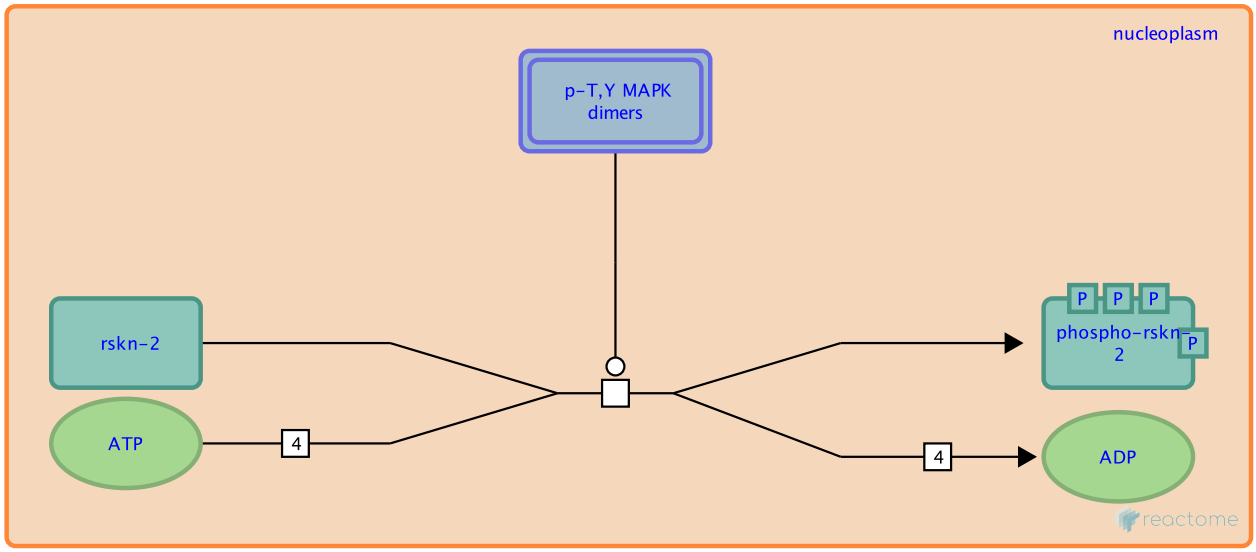
Location: NCAM signaling for neurite out-growth

Stable identifier: R-CEL-198756

Type: transition

Compartments: nucleoplasm

Inferred from: ERK1/2 phosphorylates MSK1 (Homo sapiens)



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Followed by: MSK1 activates CREB

MSK1 activates CREB ↗

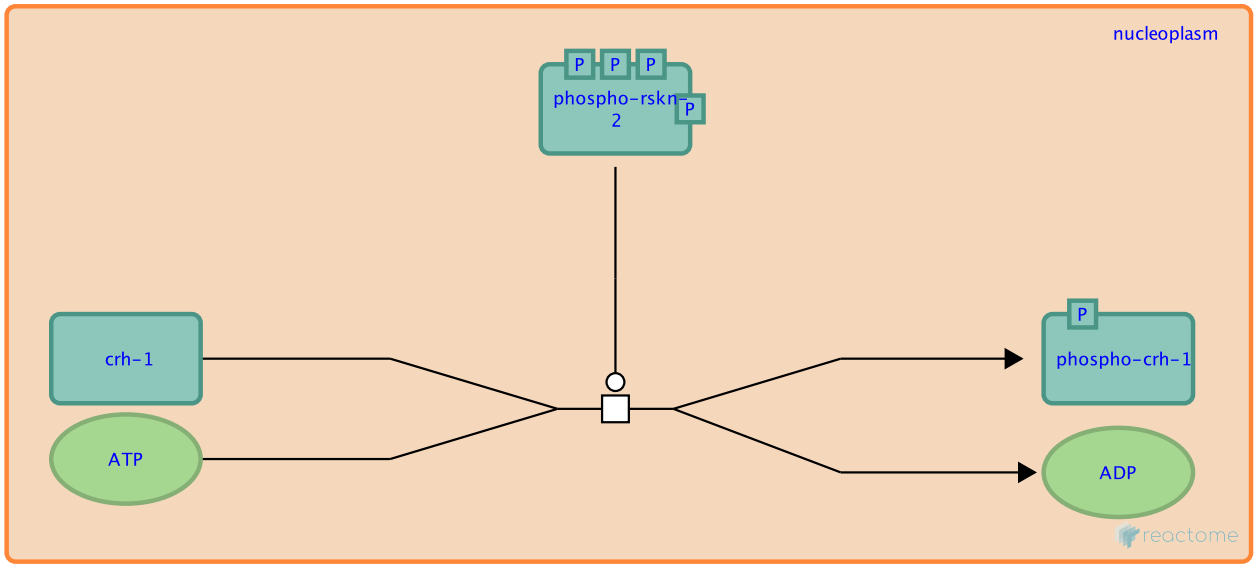
Location: NCAM signaling for neurite out-growth

Stable identifier: R-CEL-199935

Type: transition

Compartments: nucleoplasm

Inferred from: MSK1 activates CREB (Homo sapiens)



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Preceded by: ERK1/2 phosphorylates MSK1

NCAM1 interactions ↗

Location: NCAM signaling for neurite out-growth

Stable identifier: R-CEL-419037

Compartments: plasma membrane

Inferred from: NCAM1 interactions (Homo sapiens)

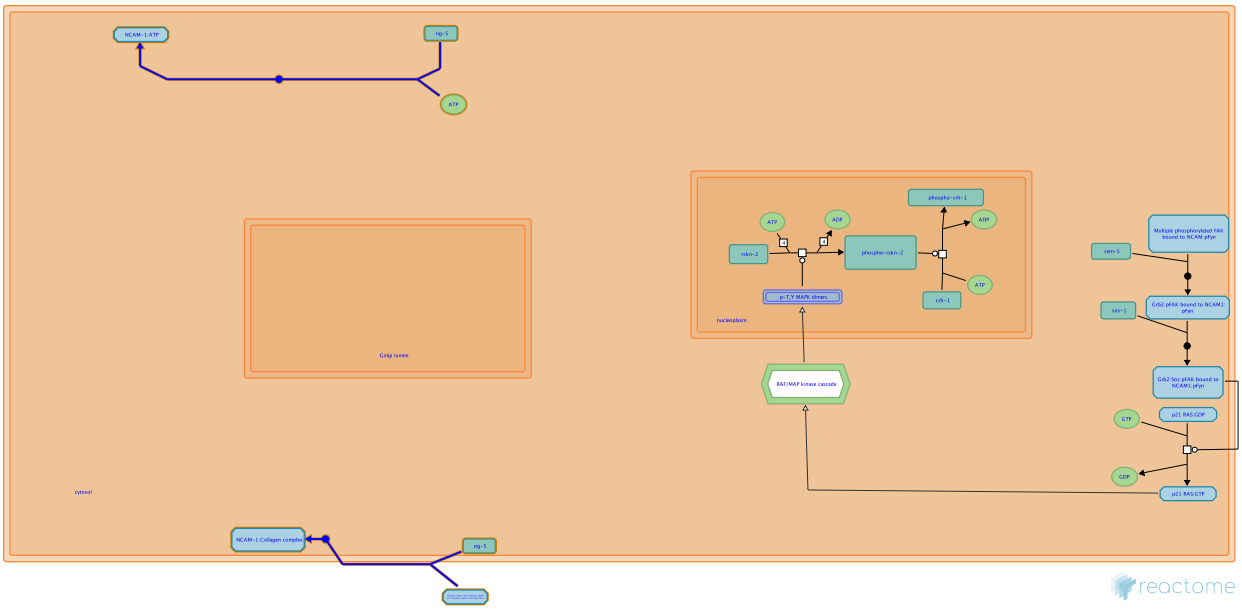

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Table of Contents

Introduction 1

NCAM signaling for neurite out-growth 2

- Recruitment of Grb2 to pFAK:NCAM1 3
- SOS binds Grb2 bound to pFAK:NCAM1 4
- NCAM1:pFAK:Grb2:Sos-mediated nucleotide exchange of Ras 5
- ERK1/2 phosphorylates MSK1 6
- MSK1 activates CREB 7
- NCAM1 interactions 8

Table of Contents 9