BORA binds PLK1 and AURKA

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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

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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. ↗

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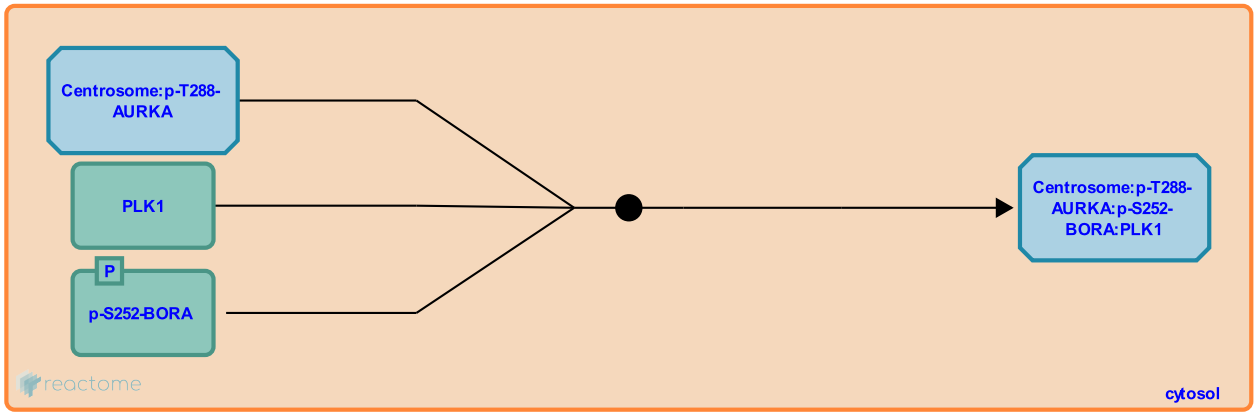
Stable identifier: R-HSA-3000319

Type: binding

Compartments: cytosol



BORA is able to interact with both AURKA (Aurora A kinase) and PLK1. Binding of BORA to PLK1 increases the accessibility of PLK1 threonine residue T210 and also brings PLK1 in proximity to AURKA, enabling AURKA to phosphorylate T210 of PLK1 and thereby activate PLK1 (Seki et al. 2008). While BORA is required for mitotic activation of AURKA in Drosophila (Hutterer et al. 2006), it does not significantly activate AURKA in human cells (Seki et al. 2008). AURKA is able to phosphorylate BORA in vitro, but the functional significance of this modification has not been determined (Hutterer et al. 2006).

Literature references

Seki, A., Coppinger, JA., Yates, JR., Jang, CY., Fang, G. (2008). Bora and the kinase Aurora a cooperatively activate the kinase Plk1 and control mitotic entry. *Science, 320*, 1655-8.

Hutterer, A., Zigman, M., Knoblich, JA., Schleiffer, A., Wirtz-Peitz, F., Berdnik, D. (2006). Mitotic activation of the kinase Aurora-A requires its binding partner Bora. *Dev. Cell, 11*, 147-57.

Editions

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