

# Autophosphorylation of PAK1

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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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Reactome database release: 88

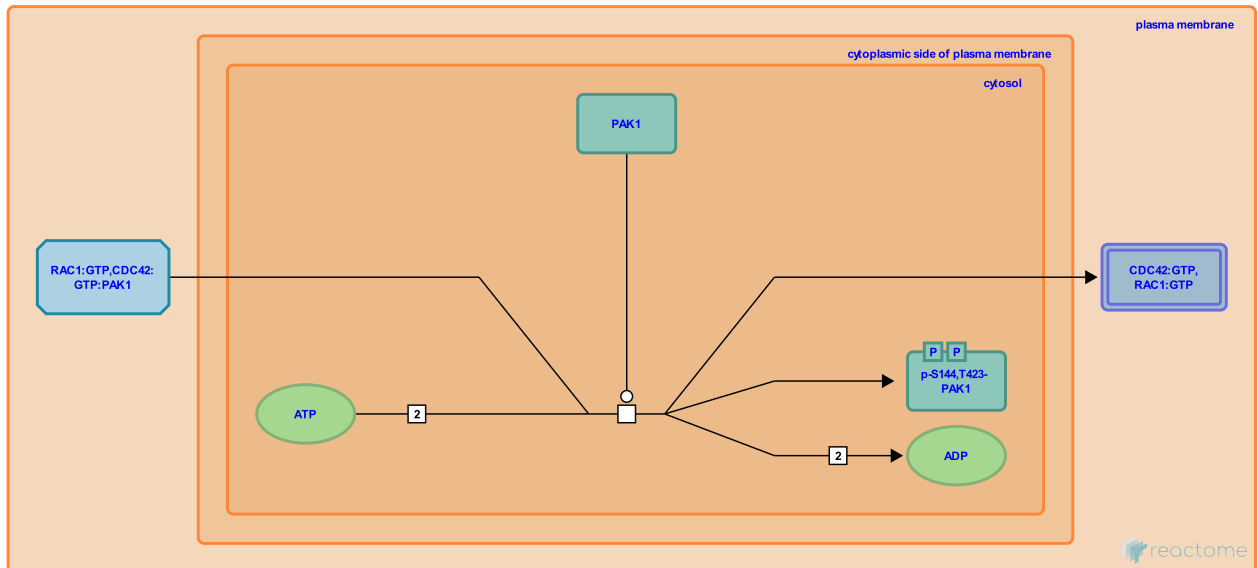
This document contains 1 reaction ([see Table of Contents](#))

## Autophosphorylation of PAK1 [↗](#)

**Stable identifier:** R-HSA-2029454

**Type:** transition

**Compartments:** cytosol



PAK1 needs autophosphorylation for complete activation. PAK1 is autophosphorylated at several sites, but S144 flanking the kinase inhibitor region and T423 within the catalytic domain are the two conserved sites that regulate the catalytic activity (Chong et al. 2001, Parrini et al. 2001).

### Literature references

Parrini, MC., Lei, M., Mayer, BJ., Harrison, SC. (2002). Pak1 kinase homodimers are autoinhibited in trans and dissociated upon activation by Cdc42 and Rac1. *Mol Cell*, 9, 73-83. [↗](#)

Manser, E., Lim, L., Chong, C., Tan, L. (2001). The mechanism of PAK activation. Autophosphorylation events in both regulatory and kinase domains control activity. *J Biol Chem*, 276, 17347-53. [↗](#)

### Editions

2012-01-04	Authored, Edited	Garapati, P V.
2012-05-15	Reviewed	Rosales, C.
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