PTTG1 (Securin) sequesters ESPL1 (Separase)

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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. ↗

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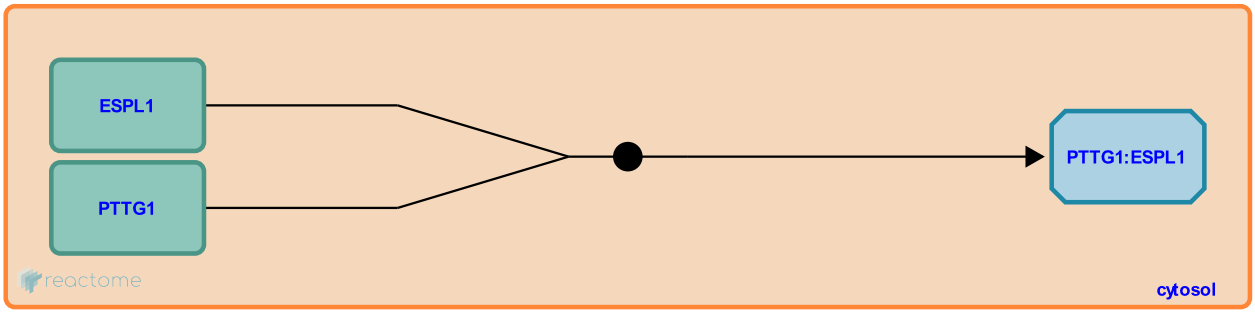
Stable identifier: R-HSA-2467798

Type: binding

Compartments: cytosol



Up to anaphase onset, ESPL1 (separase i.e. separin) forms a complex with PTTG1 (pituitary tumor-transforming gene 1) i.e. securin. PTTG1 sequesters ESPL1 and block its catalytic site, preventing it from cleaving centromeric cohesin and causing premature separation of sister chromatids (Zou et al. 1999, Waizenegger et al. 2001, Waizenegger et al. 2002). PTTG1 is overexpressed in cancer and acts as an oncogene (Zhang et al. 1999). Regulation of PTTG1 cellular level is important for chromosomal stability in human cells (Jallepalli et al. 2001).

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Editions

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