

# Exocytosis of specific granule lumen proteins

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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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Reactome database release: 88

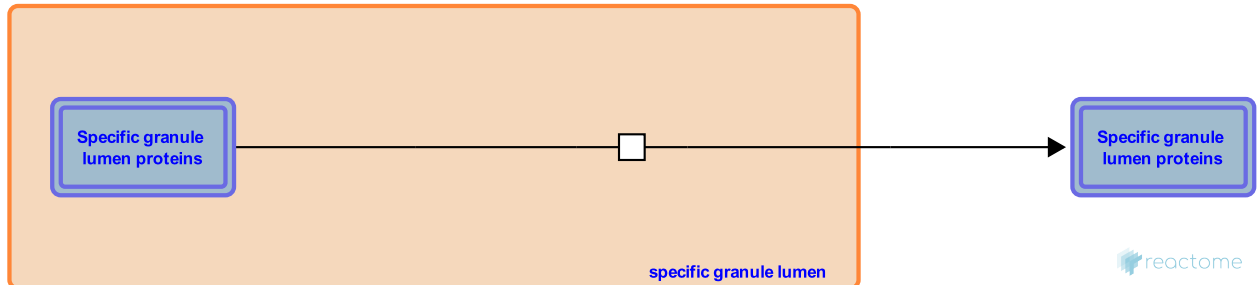
This document contains 1 reaction ([see Table of Contents](#))

## Exocytosis of specific granule lumen proteins ↗

**Stable identifier:** R-HSA-6798749

**Type:** transition

**Compartments:** specific granule lumen, extracellular region



Secondary (specific) granules are peroxidase-negative and rich in antimicrobial substances (Joiner et al. 1989, Rorvig et al. 2012). They are more irregular and elongated in form than azurophil granules (Bainton et al. 1971). This might reflect volume adjustment in azurophil granules, which are known to proteolytically process a significant fraction of the proteins that are targeted to them, while little or no processing and therefore no increase in osmotic activity due to proteolysis has been observed in secondary granules (Borregaard & Cowland 1997). Secondary and tertiary granules have overlapping contents but can be discriminated by their intrinsic buoyant densities when centrifuged on gradient media (Kjeldsen et al. 1994).

### Literature references

Heegaard, NH., Rørvig, S., Borregaard, N., Østergaard, O. (2013). Proteome profiling of human neutrophil granule subsets, secretory vesicles, and cell membrane: correlation with transcriptome profiling of neutrophil precursors. *J. Leukoc. Biol.*, 94, 711-21. ↗

### Editions

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