

Nuclear Receptor Binding Protein 1

Gene: NRBP1 **Full name:** Nuclear Receptor Binding Protein 1 **Type:** Pseudokinase / Adaptor protein
Cellular location: Involved in trafficking between the endoplasmic reticulum and Golgi apparatus

□ Main Functions

- Regulates intestinal epithelial architecture via Wnt-responsive genes
- Functions in cellular signaling despite lacking classic catalytic activity
- Involved in protein homodimerization and intracellular transport
- May regulate apoptosis and cell proliferation

□ Biomedical Relevance

Cancer

- **Glioblastoma:** Promotes malignancy through PI3K/Akt pathway activation
- **Triple-negative breast cancer:** Acts via Rac1/Cdc42 signaling through P-Rex1
- **Colorectal cancer:** Overexpression linked to improved survival (via JNK pathway)
- **Prostate and bladder cancer:** Associated with tumor progression

Non-oncological diseases

- **Gout:** Genetic variants increase susceptibility
- **Triglycerides:** Implicated in lipid metabolism regulation

Viral infections

- Interacts with viral proteins: Dengue (NS3), HIV-1 (Gag)
- Alters host membranes to promote viral replication

□ Animal Model Studies

- Knockout mice are embryonically lethal (~E7.5) → essential in early development

□ Expression & Structure

- Highly expressed in: prostate, colon, brain, esophagus, testis
- Contains a pseudokinase domain (lacks known enzymatic activity)
- Several validated isoforms

□ Key References

- [NCBI Gene: NRBP1](#)
- [GeneCards: NRBP1](#)

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