



Product Information

RAL-B

Human, Recombinant

Expressed in *E. coli*

Product Number **R 2027**

Product Description

Recombinant human Ral-B protein is a small Ras-like GTP-binding protein, tagged with GST. It has a molecular weight of approx. 41 kDa (native protein MW of 21 kDa plus 20 kDa GST). It has been used as a positive control in immunoblotting applications with Anti-Ral-B antibodies and in protein binding assays of Ral-B and related proteins.

Ral-B and Ral-A are members of the Ras-like GTP binding protein family. This family of proteins share three characteristics: a molecular weight of between 20 and 30 kDa, the ability to bind GTP or GDP, and a low intrinsic GTPase activity. Ras proteins mediate their diverse biological functions by binding to, and participating in, the activation of multiple downstream targets in intracellular signalling cascades. Recent work has identified nucleotide-exchange factors for Ral-GTPases as the newest members of the set of putative Ras "effector molecules". Ral-A and Ral-B are widely expressed in tissues during the embryogenesis.^{1,2}

Ral-B was originally isolated from a human fetal lung. The native protein is 206 amino acids residues in length (21 kDa). Ral-B is 86% identical to members of the Rab5 subfamily as well as 94% homologous in nucleotide sequence to Rab5C of dog. The Ral-B gene is expressed ubiquitously in all human tissues examined.² Dominant-negative Ral decreased chemotactic migration in response to basic fibroblast growth factor (bFGF), hepatocyte growth factor (HGF), and insulin-like growth factor 1 (IGF-1).³ Increased levels of intracellular Ca²⁺ are sufficient for Ral activation in platelets. This activation mechanism correlates with the activation mechanism of the small GTPase Rap1, a putative upstream regulator of Ral guanine nucleotide exchange factors.⁴

Reagent

Recombinant Ral-B is supplied as a solution in 50 mM Tris, pH 7.5, containing 150 mM NaCl, 10 mM MgCl₂, 1 mM DTT, and 10% glycerol.

Precautions and Disclaimer

A material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazardous and safe handling practices.

Storage/Stability

Store at -20 °C. Upon initial thawing, for extended storage, freeze in working aliquots. Avoid repeated freezing and thawing to prevent denaturing of the protein. Do not store in a frost-free freezer. The protein is stable for at least 12 months when stored appropriately.

Product Profile

Ral B is used as a positive control in immunoblotting with Anti-Ral B antibody 10 to 500 ng of Ral-B may be used per lane for this purpose depending on the sensitivity of the antibody. For binding assays, the recommended amount ranges from 50 ng to 5 µg per test, depending on the assay conditions.

Note: In order to obtain best results in different techniques and preparations we recommend determining optimal working concentration by titration test.

References

1. Han, H.J., et al., Isolation and mapping of a human gene (RABL) encoding a small GTP-binding protein homologous to the Ras-related RAB gene. *Cytogenet. Cell Genet.*, **73**, 137-139 (1996).
2. Henry, D.O. et al., Ral GTPases contribute to regulation of cyclin D1 through activation of NF-κB. *Mol. Cell Biol.*, **20**, 8084-8092 (2000).
3. Suzuki, J., et al., Involvement of Ras and Ral in chemotactic migration of skeletal myoblasts. *Mol. Cell Biol.*, **20**, 4658-4665 (2000).
4. Wolthuis, R.M., et al., Activation of the small GTPase Ral in platelets. *Mol. Cell Biol.*, **18**, 2486-2491 (1998).

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