

PRODUCT INFORMATION



ECT2 BRCT domains (human, recombinant)

Item No. 14168

Overview and Properties

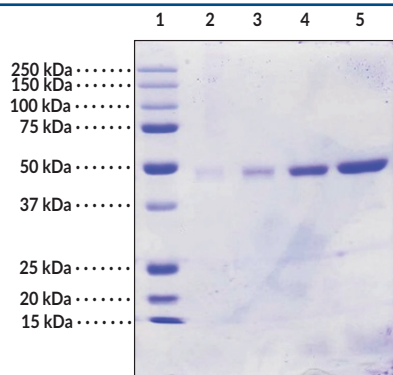
Synonym: Epithelial Cell-transforming Sequence 2 Oncogene
Source: Recombinant N-terminal GST-tagged protein expressed in *E. coli*
Amino Acids: 161-361 (partial protein)
Molecular Weight: 50.2 kDa
Storage: -80°C (as supplied)
Stability: ≥1 year
Purity: **batch specific** (≥90% estimated by SDS-PAGE)
Supplied in: 50 mM Tris, pH 7.5, with 500 mM sodium chloride, 5% glycerol, and 5 mM β-mercaptoethanol

Protein

Concentration: **batch specific** mg/ml

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Image



Lane 1: MW Marker
Lane 2: ECT2 BRCT domain (1 μg)
Lane 3: ECT2 BRCT domain (2 μg)
Lane 4: ECT2 BRCT domain (5 μg)
Lane 5: ECT2 BRCT domain (10 μg)

Representative gel image shown; actual purity may vary between each batch.

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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Description

Epithelial cell-transforming sequence 2 oncogene (ECT2) is a guanine nucleotide exchange factor (GEF) that catalyzes the exchange of GDP for GTP from small GTPases of the Rho family, such as RhoA, RhoC, Rac1, and Cdc42.¹ ECT2 GEF activity plays an essential role during cytokinesis.² ECT2 contains a DH (DBL-homology) domain, a pleckstrin homology (PH) domain and tandem BRCT domains.³ BRCT domains are modular units of ~100 amino acids that fold independently and recognize linear phosphoserine or phosphothreonine regions to mediate protein-protein and protein-DNA interactions.⁴⁻⁵ BRCT domains were initially recognized in the C-terminal region of the breast cancer protein BRCA1, as well as the p53 binding protein and the yeast cell cycle checkpoint protein RAD9.⁶ BRCT domains often occur as tandem repeats at the C-terminal end of several proteins that are functionally diverse.⁵ Most BRCT domain-containing proteins participate in DNA-damage checkpoint control or DNA-repair pathways, or both.⁶⁻⁷ The BRCT domains of ECT2 make intramolecular interactions with the C-terminal DH/PH domains of the protein, thus, masking the catalytic GEF activity for Rho GTPases.⁸ Additionally, release of the autoinhibition by the BRCT domains may be necessary for the proper functioning of ECT2 during cytokinesis.⁸ Expression levels of ECT have been shown to be strongly correlated with prognosis in glioma patients.⁹

References

1. Miki, T., Smith, C.L., Long, J.E., *et al.* Oncogene *ect2* is related to regulators of small GTP-binding proteins. *Nature* **362(6419)**, 462-465 (1993).
2. Kimura, K., Tsuji, T., Takada, Y., *et al.* Accumulation of GTP-bound RhoA during cytokinesis and a critical role of ECT2 in this accumulation. *J. Biol. Chem.* **275(23)**, 17233-17236 (2000).
3. Fields, A.P. and Justilien, V. The guanine nucleotide exchange factor (GEF) *Ect2* is an oncogene in human cancer. *Adv. Enzyme Regul.* **50(1)**, 190-200 (2010).
4. Manke, I.A., Lowery, D.M., Nguyen, A., *et al.* BRCT repeats as phosphopeptide-binding modules involved in protein targeting. *Science* **302(5645)**, 636-639 (2003).
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