

PAK1 PBD Agarose Beads

CATALOG NUMBER: STA-411

STORAGE: -20°C

QUANTITY AND CONCENTRATION: 800 μ L of 50% Agarose slurry, 400 μ g PAK1-PBD in 1X PBS, 50% Glycerol

SHELF LIFE: 1 year from receipt under proper storage conditions; avoid multiple freeze thaw cycles

Background

Small GTP-binding proteins (or GTPases) are a family of proteins that serve as molecular regulators in signaling transduction pathways. Rac, a 21 kDa protein, belongs to the family of Rho GTPases regulating a variety of biological response pathways that include cell motility, cell division, gene transcription, and cell transformation. Like other small GTPases, Rac regulates molecular events by cycling between an inactive GDP-bound form and an active GTP-bound form. In its active (GTP-bound) state, Rac binds specifically to the p21-binding domain (PBD) of p21-activated protein kinase (PAK) to control downstream signaling cascades.

Presentation

PAK PBD Agarose beads, in color, are easy to visualize, minimizing potential loss during washes and aspirations of Rac-GTP pulldown (Figure 1).

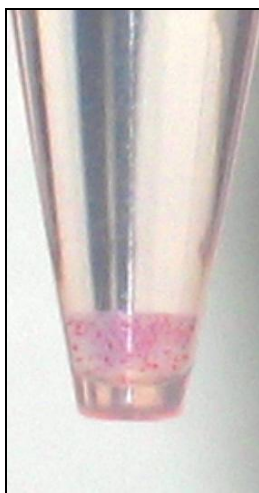


Figure 1: PAK-PBD Beads in Color

Activity

Product specifically interacts and precipitates GTP-bound Rac or Cdc 42 from cell lysate (Figures 2 & 3).

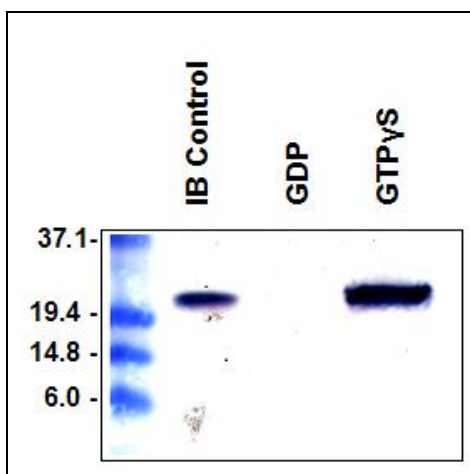


Figure 2: Rac Activation Assay. *Lane 1*, GTPase Immunoblot Positive Control. *Lane 2*, 293 cell lysate loaded with GDP and incubated with PAK PBD Agarose beads. *Lane 3*, 293 cell lysate loaded with GTPγS and incubated with PAK-1 PBD Agarose beads. Samples were immunoblotted with anti-Rac antibody.

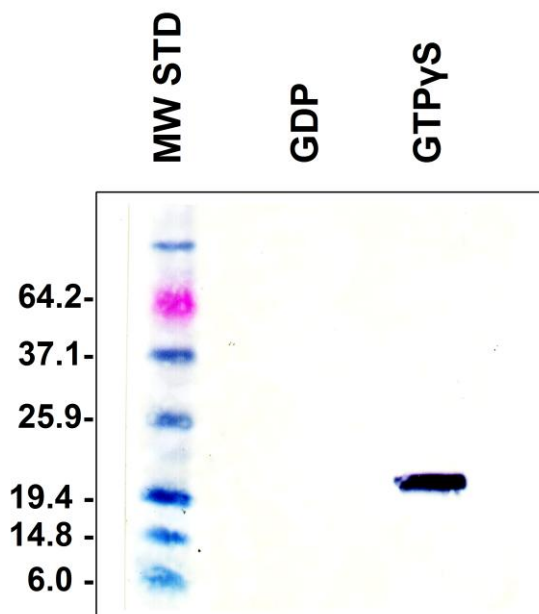


Figure 3: Cdc42 Activation Assay. *Lane 1*, MW Standard. *Lane 2*, 293 cell lysate loaded with GDP and incubated with PAK PBD Agarose beads. *Lane 3*, 293 cell lysate loaded with GTPγS and incubated with PAK-1 PBD Agarose beads. Samples were immunoblotted with anti-Cdc42 antibody.

References

1. Raftopoulou M., and Hall A. (2004) *Dev Biol.* **265**: 23-32.
2. Bar-Sagi D., and Hall A. (2000) *Cell* **103**: 227-38.
3. Benard, V., Bohl, B. P., and Bokoch, G. M. (1999) *J. Biol. Chem.* **274**, 13198-13204.

Recent Product Citations

1. Morrison, A. R. et al. (2014). Chemokine-Coupled β 2 Integrin-Induced Macrophage Rac2-Myosin IIA Interaction Regulates VEGF-A mRNA Stability and Arteriogenesis. *J Exp Med.* **211**:1957-1968.
2. Pothula, S. et al. (2013). Regulation of Cdc42 Expression and Signaling Is Critical for Promoting Corneal Epithelial Wound Healing. *Invest. Ophthalmol. Vis. Sci.* **54**: 5343-5352.
3. Cheng, J. et al.(2010).FSP-1 Silencing in Bone Marrow Cells Suppresses Neointima Formation in Vein Graft. *Circ Res.* **110**:230-240.
4. Levy-Adam, F. et al. (2008). Heparanase Facilitates Cell Adhesion and Spreading by Clustering of Cell Surface Heparan Sulfate Proteoglycans. *PLoS ONE* **3(6)**:e2319.
5. Zhang, Q-G. et al. (2009). Estrogen Attenuates Ischemic Oxidative Damage Via an Estrogen Receptor Alpha-Mediated Inhibition of NADPH Oxidase Activation. *J. Neurosci.* **29**:13823-13836.
6. Sabbatini, M. E. et al. (2010). CCK Activates RhoA and Rac1 Differentially Through G-alpha-13 and G-alpha-q in Mouse Pancreatic Acini. *Am. J. Physiol. Cell Physiol.* **298**:C592-C605.

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