PRODUCT INFORMATION

PI3K p110γ (human, recombinant)

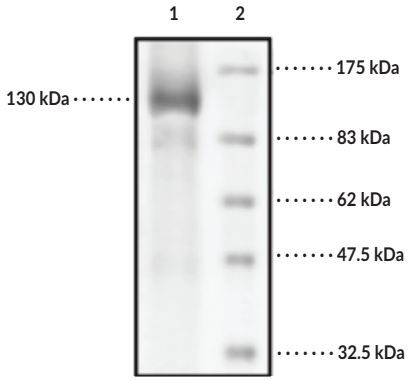
Item No. 33989

Overview and Properties

Synonyms:	p120-PI3K, Phosphatidylinositol 4,5-bisphosphate 3-kinase Catalytic Subunit γ isoform, PI3K-γ, PI3-kinase Subunit γ
Source:	Active recombinant human N-terminal His-tagged PI3K p110γ expressed in insect cells
Amino Acids:	1-1,102 (full length)
Uniprot No.:	P48736
Molecular Weight:	130 kDa
Storage:	-80°C (as supplied)
Stability:	≥6 months
Purity:	***batch specific*** (≥80% estimated by SDS-PAGE)
Supplied in:	25 mM Tris, pH 8.0, with 69 mM sodium chloride, 1.35 mM potassium chloride, 0.025% polysorbate 20, 3 mM DTT, and 50% glycerol
Protein Concentration:	***batch specific*** mg/ml
Activity:	***batch specific*** U/ml
Specific Activity:	***batch specific*** U/mg

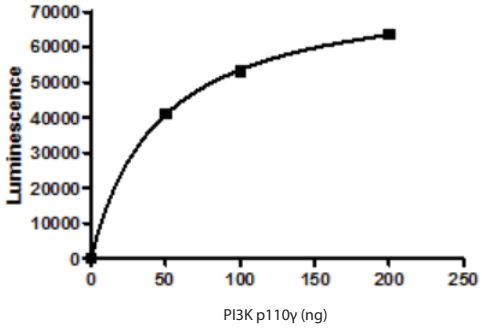
Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Images



Lane 1: PI3K p110γ (8 µg)
Lane 2: MW Markers

SDS-PAGE Analysis of PI3K p110γ.



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Description

Class I phosphatidylinositol 3-kinases (PI3Ks) are membrane-associated lipid kinases with roles in membrane trafficking during autophagy, endosome recycling, and endocytosis, adaptive and innate immune cell activation, and leukocyte chemotaxis, as well as various diseases.[1-3] They are heterodimeric enzymes composed of a p110 catalytic subunit and a regulatory subunit and act on three substrates, non-phosphorylated phosphatidylinositol (PI), inositol monophosphate (PI(4)P), and inositol bisphosphate (PI(4,5)P_2), to generate PI(3)P, PI(3,4)P_2, and PI(3,4,5)P_3, respectively.[1,2] The PI3K catalytic isoform p110γ forms a complex with the regulatory subunits p101 or p87, also known as p84, and is selectively controlled by G protein-coupled receptors to regulate signaling.[1] It is widely expressed, with high levels in cells of immune and hematopoietic origin, and dysregulation of p110γ expression is associated with tumorigenesis and invasion in various solid tumors. The gene encoding PI3K p110γ, *PIK3CG*, is located within the autism susceptibility locus, and SNPs in *PIK3CG* have been found in patients with the autism spectrum disorder tuberous sclerosis.[4] Inhibition of PI3K p110γ with small molecule inhibitors reduces joint inflammation and destruction in mouse models of rheumatoid arthritis, as well as reduces migration and accumulation of eosinophils in a mouse model of allergic pleurisy.[3] Cayman's PI3K p110γ (human, recombinant) protein can be used for binding assays.

References

1. Nürnberg, B. and Beer-Hammer, S. Function, regulation and biological roles of PI3Kγ variants. *Biomolecules* **9(9)**, 427 (2019).
2. Vogt, P.K., Hart, J.R., Gymnopoulos, M., *et al.* Phosphatidylinositol 3-kinase (PI3K): The oncoprotein. *Curr. Top. Microbiol. Immunol.* **347**, 79–104 (2011).
3. Rommel, C. Taking PI3Kδ and PI3Kγ one step ahead: Dual active PI3Kδ/γ inhibitors for the treatment of immune-mediated inflammatory diseases. *Curr. Top. Microbiol. Immunol.* **346**, 279-299 (2010).
4. Gross, C. and Bassell, G.J. Neuron-specific regulation of class I PI3K catalytic subunits and their dysfunction in brain disorders. *Front. Mol. Neurosci.* **7**, 12 (2014).

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