γ-synuclein Full Length Recombinant Protein

Prot-r-SNCG

Ordering Information
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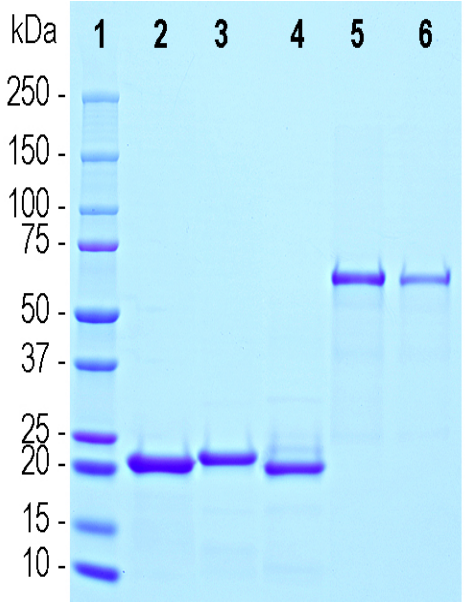
HGNC Name: SNCG
RRID: NA
Format: 1mg/mL in 6M Urea
Storage: Store at -20°C
UniProt: O76070

Applications	Host	Molecular Wt.	HGNC	UniPort
Western blotting, ELISA and antibody production	E. coli	~20kDa	SNCG	O76070



Coomassie Brilliant Blue staining of SDS-PAGE gel of recombinant human synuclein proteins. Lane 1 shows protein standards of apparent molecular weight as indicated in kDa. Other lanes show ~2µg of [2] α-synuclein, [3] β-synuclein, and [4] γ-synuclein. Lanes [5] and [6] show 2.0 and 1.0µg of BSA respectively.

Background:

γ-synuclein is a member of the synuclein family, the other two proteins being α and β-synuclein. α-synuclein was originally isolated as a major synaptic vesicle associated protein from the electric organ of the electric fish *Torpedo* and was independently discovered as a protein copurifying with amyloid fibrils of Alzheimer's disease. Further work showed that α-synuclein is a major component of the Lewy bodies of Parkinson's disease and accumulates in the brains of patients with multiple system atrophy and amyotrophic lateral sclerosis (1-3). The related protein γ-synuclein is also implicated in CNS and and other disorders and was originally isolated by screening for proteins expressed preferentially in the peripheral nervous system. As a close relative of α-synuclein it was named "persyn" for peripheral synuclein (4). It was also independently isolated and named "breast carcinoma specific gene 1 (BCSG1)", since it was heavily expressed in breast carcinoma but not in healthy breast tissue (5,6).

A codon optimized cDNA encoding full length human γ-synuclein was designed and inserted into the pET30a(+) expression vector. The vector adds an N-terminal His-tag, S-tag and proteolytic cleavage sites to the human sequence which increases the molecular weight by about 5kDa. The construct was expressed by standard methods in *E. coli* and purified using a Nickel column in 6M urea. The protein is supplied in 6M urea in phosphate buffer. The lane on the far left contains protein standards of the indicated molecular size. In the next lanes 2µg, 1µg and 0.5µg of the recombinant γ-synuclein were run as indicated and 1µg and 0.5µg of BSA were in the two right lanes.

References:

1. Maroteaux, L., Campanelli, JT and Scheller RH. Synuclein: a neuron-specific protein localized to the nucleus and presynaptic nerve terminal. J. Neurosci. 8:2804-2815 (1988).
2. Lavedan, C. The Synuclein Family. Genome Research 8:871-880 (1998).
3. Polymeropoulos, MH et al. Mutation in the alpha-synuclein gene identified in families with Parkinson's disease. Science 276: 2045-2047 (1997).
4. Buchman, VL et al. Persyn, a Member of the Synuclein Family, Has a Distinct Pattern of Expression in the Developing Nervous System. J. Neurosci. 8:9335-9341 (1998)
5. Ji H, et al. Identification of a breast cancer-specific gene, BCSG1, by direct differential cDNA sequencing. Cancer Res 57:759–64 (1997).
6. Bruening, W. et al. Synucleins are expressed in the majority of breast and ovarian carcinomas and in preneoplastic lesions of the ovary. Cancer 88:2154-63 (200).

Abbreviation Key:

mAb—Monoclonal Antibody pAb—Polyclonal Antibody WB—Western Blot IF—Immunofluorescence ICC—Immunocytochemistry IHC—Immunohistochemistry E—ELISA Hu—Human Mo—Monkey Do—Dog Rt—Rat Ms—Mouse Co—Cow Pi—Pig Ho—Horse Ch—Chicken Dr—D. rerio Dm—D. melanogaster Sm—S. mutans Ce—C. elegans Sc—S. cerevisiae Sa—S. aureus Ec—E. coli.