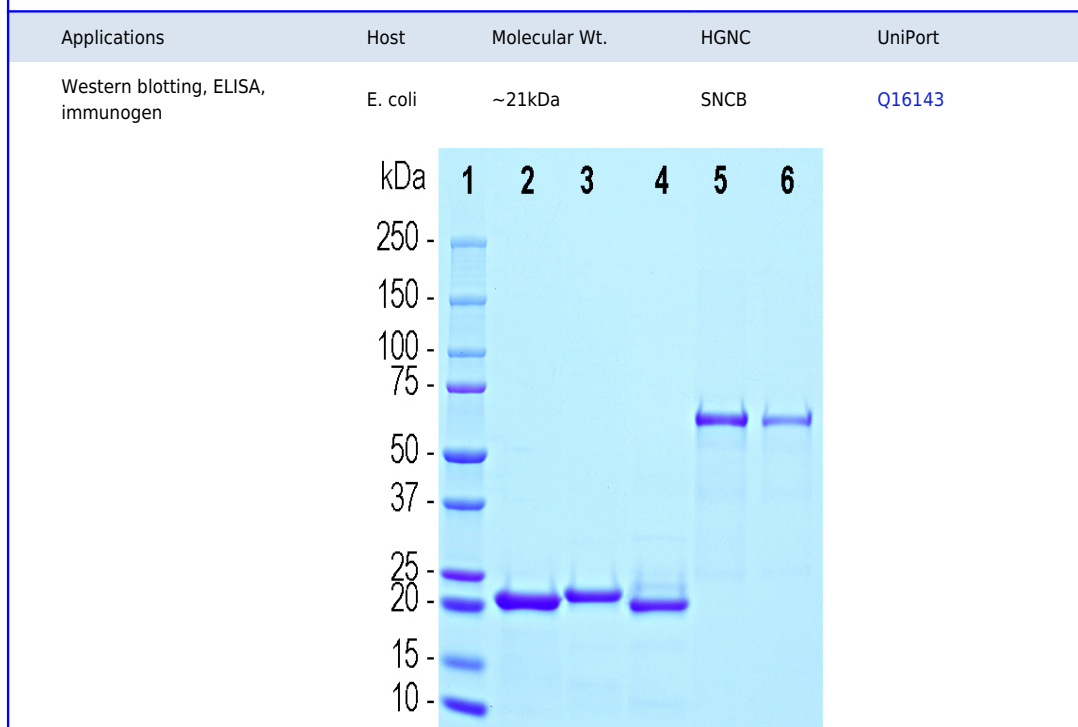


References:

1. Maroteaux L, Campanelli JT, Scheller RH. Synuclein: a neuron-specific protein localized to the nucleus and presynaptic nerve terminal. *J. Neurosci.* 8:2804-15 (1988).
2. Lavedan C. The Synuclein Family. *Genome Research* 8:871-80 (1998).
3. Polymeropoulos, MH et al. Mutation in the alpha-synuclein gene identified in families with Parkinson's disease. *Science* 276:2045-7 (1997).
4. Kruger, R et al. Ala30-to-Pro mutation in the gene encoding alpha-synuclein in Parkinson's disease. *Nature Genet.* 18:106-8 (1998).
5. Chartier-Harlin, M-C. et al. Alpha-synuclein locus duplication as a cause of familial Parkinson's disease. *Lancet* 364:1167-9 (2004).
6. Ji H. et al. Identification of a breast cancer-specific gene, BCSG1, by direct differential cDNA sequencing. *Cancer Res.* 57:759-64 (1997).
7. Greten-Harrison, B. et al. $\alpha\beta\gamma$ -Synuclein triple knockout mice reveal age-dependent neuronal dysfunction. *PNAS* 107:19573-8 (2001).

β -synuclein Full Length Recombinant Protein

Prot-r-SNCB



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:

β -synuclein is a member of the synuclein protein family, the other two members being α and γ -synuclein, each protein being coded for by a distinct but related gene. α -synuclein was originally isolated as a major synaptic vesicle associated protein from the electric organ of the fish *Torpedo* (1), and direct homologues of α -synuclein are found in all vertebrates. Later work connected α -synuclein expression with several human brain pathologies, so that it is a major component of the Lewy bodies of Parkinson's disease (2-5). β -synuclein was isolated as a component of normal and diseased human brain as a protein clearly related to but distinct from α -synuclein (6). The human β -synuclein molecule is 134 amino acids in size compared to 140 amino acids for α -synuclein, and the N-terminal halves of the two molecules are virtually identical while the C-terminal regions is more variable. As a result we made our new β -synuclein antibodies to this region. Like α -synuclein, β -synuclein is heavily concentrated in the brain in presynaptic regions. A third synuclein, γ -synuclein was originally identified as breast cancer specific gene 1, (BCSG1), but is also heavily expressed in brain and also has a similar N-terminal sequence. The three synucleins appear to have overlapping functions so genetic deletion of all three in mice is required to obtain serious neurological deficits (7).

A codon optimized cDNA encoding full length human β -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.

FOR RESEARCH USE ONLY. NOT INTENDED FOR DIAGNOSTIC OR THERAPEUTIC USE.

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.