APB166Hu03 100µg Active VGF Nerve Growth Factor Inducible (VGF) Organism Species: *Homo sapiens* (Human) *Instruction manual* 

#### FOR RESEARCH USE ONLY NOT FOR USE IN CLINICAL DIAGNOSTIC PROCEDURES

13th Edition (Revised in Aug, 2023)

#### [PROPERTIES]

Source: Prokaryotic expression. Host: E. coli Residues: Ala23~Pro615 Tags: N-terminal His-tag **Purity: >80% Endotoxin Level:** <1.0EU per 1µg (determined by the LAL method). Buffer Formulation: PBS, pH7.4, containing 0.01% Sarcosyl, 5% Trehalose. Original Concentration: 200µg/mL Applications: Activity Assays. (May be suitable for use in other assays to be determined by the end user.) Predicted isoelectric point: 4.4 Predicted Molecular Mass: 68.7kDa Accurate Molecular Mass: 80kDa as determined by SDS-PAGE reducing conditions. Phenomenon explanation: The possible reasons that the actual band size differs from the predicted are as follows: 1. Splice variants: Alternative splicing may create different sized proteins from the same gene. 2. Relative charge: The composition of amino acids may affects the charge of the protein. 3. Post-translational modification: Phosphorylation, glycosylation, methylation etc. 4. Post-translation cleavage: Many proteins are synthesized as pro-proteins, and then cleaved to give the active form. 5. Polymerization of the target protein: Dimerization, multimerization etc.

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### [ <u>USAGE</u> ]

Reconstitute in ddH<sub>2</sub>O to a concentration of 0.1-0.5 mg/mL. Do not vortex.

#### [ STORAGE AND STABILITY ]

Storage: Avoid repeated freeze/thaw cycles.

Store at 2-8°C for one month.

Aliquot and store at -80°C for 12 months.

**Stability Test:** The thermal stability is described by the loss rate. The loss rate was determined by accelerated thermal degradation test, that is, incubate the protein at 37°C for 48h, and no obvious degradation and precipitation were observed. The loss rate is less than 5% within the expiration date under appropriate storage condition.

## [<u>SEQUENCE</u>]

APPGRPEAQPPPLSSEHKEPVAGDAVPGPKDGSAPEVRGARNSEPQDEGELF QGVDPRALAAVLLQALDRPASPPAPSGSQQGPEEEAAEALLTETVRSQTHSLP APESPEPAAPPRPQTPENGPEASDPSEELEALASLLQELRDFSPSSAKRQQETA AAETETRTHTLTRVNLESPGPERVWRASWGEFQARVPERAPLPPPAPSQFQA RMPDSGPLPETHKFGEGVSSPKTHLGEALAPLSKAYQGVAAPFPKARRPESAL LGGSEAGERLLQQGLAQVEAGRRQAEATRQAAAQEERLADLASDLLLQYLLQ GGARQRGLGGRGLQEAAEERESAREEEEAEQERRGGEERVGEEDEEAAEAEA EAEEAERARQNALLFAEEEDGEAGAEDKRSQEETPGHRRKEAEGTEEGGEEED DEEMDPQTIDSLIELSTKLHLPADDVVSIIEEVEEKRKRKKNAPPEPVPPPRAAP APTHVRSPQPPPPAPAPARDELPDWNEVLPPWDREEDEVYPPGPYHPFPNYI RPRTLQPPSALRRRHYHHALPPSRHYPGREAQARRAQEEAEAEERRLQEQEEL ENYIEHVLLRRP

## [ACTIVITY]

Neurosecretory protein VGF is specifically expressed in a subpopulation of neuroendocrine cells, and is upregulated by nerve growth factor. Human VGF precursor is 615 amino acids (aa) in length. It contains an 22 aa signal sequence plus a 593 aa mature region. The structural organization of this gene is similar to that of the rat gene, and both the translated and the untranslated regions show a

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high degree of sequence similarity to the rat gene. The encoded secretory protein also shares similarities with the secretogranin/chromogranin family, however, its exact function is not known. Besides,VGF can affect the downstream signal transduction process of BDNF through its derived peptides, and affect the biological effects mediated by BDNF, such as neurodevelopment and synaptic plasticity., thus a binding ELISA assay was conducted to detect the interaction of recombinant human VGF and recombinant human BDNF. Briefly,biotin-linked VGF were diluted serially in PBS, with 0.01% BSA (pH 7.4). Duplicate samples of 100  $\mu$  I were then transferred to BDNF-coated microtiter wells and incubated for 1h at 37°C. Wells were washed with PBST 3 times and incubation with Streptavidin-HRP for 30min, then wells were aspirated and washed 5 times. With the addition of substrate solution, wells were incubated 15-25 minutes at 37°C. Finally, add 50µl stop solution to the wells and read at 450nm immediately. The binding activity of VGF and BDNF was shown in Figure 1, the EC50 for this effect is 0.066ug/mL.



Figure 1. The binding activity of VGF with BDNF

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### [IDENTIFICATION]



Figure 2. Gene Sequencing (extract)



Figure 3. SDS-PAGE

Sample: Active recombinant VGF, Human

#### [IMPORTANT NOTE]

The kit is designed for research use only, we will not be responsible for any issue if the kit was used in clinical diagnostic or any other procedures.