**DESCRIPTION**

<table>
<thead>
<tr>
<th>Source</th>
<th>Spodoptera frugiperda, Sf 21 (baculovirus)-derived Ala301-Ser412 (Tyr340Phe) Accession # P10600</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-terminal Sequence Analysis</td>
<td>Ala301</td>
</tr>
<tr>
<td>Structure / Form</td>
<td>Disulfide-linked homodimer</td>
</tr>
<tr>
<td>Predicted Molecular Mass</td>
<td>12.7 kDa (monomer)</td>
</tr>
</tbody>
</table>

**SPECIFICATIONS**

| SDS-PAGE | 12 kDa, reducing conditions  
24 kDa, non-reducing conditions |
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Activity</td>
<td>Measured by its ability to inhibit the IL-4-dependent proliferation of HT-2 mouse T cells. Tsang, M. et al. (1995) Cytokine 7:389. The ED$_{50}$ for this effect is 0.01-0.04 ng/mL. The specific activity of recombinant human TGF-β3 is approximately 2.2 x 10⁴ IU/μg, which is calibrated against recombinant human TGF-β3 WHO International Standard (NIBSC code: 09/234).</td>
</tr>
<tr>
<td>Endotoxin Level</td>
<td>&lt;0.01 EU per 1 μg of the protein by the LAL method.</td>
</tr>
<tr>
<td>Purity</td>
<td>&gt;97%, by SDS-PAGE under reducing conditions and visualized by silver stain.</td>
</tr>
<tr>
<td>Formulation</td>
<td>Lyophilized from a 0.2 μm filtered solution in Acetonitrile and TFA. See Certificate of Analysis for details.</td>
</tr>
</tbody>
</table>

**PREPARATION AND STORAGE**

- **Reconstitution**: Reconstitute 2 μg vials at 20 μg/mL in sterile 4 mM HCl containing at least 0.1% human or bovine serum albumin. Reconstitute 10 μg or larger vials at 50 μg/mL in sterile 4 mM HCl.
- **Shipping**: The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
- **Stability & Storage**: Use a manual defrost freezer and avoid repeated freeze-thaw cycles.
  - 12 months from date of receipt, -20 to -70 °C as supplied.
  - 1 month, 2 to 8 °C under sterile conditions after reconstitution.
  - 3 months, -20 to -70 °C under sterile conditions after reconstitution.

**DATA**

**Bioactivity**

Recombinant Human TGF-β3 (Catalog # 243-B3/CF) inhibits Recombinant Mouse IL-4 (Catalog # 404-ML) induced proliferation in the HT-2 mouse T cell line. The ED$_{50}$ for this effect is 0.01-0.04 ng/mL.

**SDS-PAGE**

1 μg lane of Recombinant Human TGF-β3 was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by silver staining, showing single bands at 12 kDa and 24 kDa, respectively.
TGFβ3 (transforming growth factor-beta 3) is a member of a TGF-β superfamily subgroup that is defined by their structural and functional similarities (1-5). TGF-β3 and its closely related proteins, TGF-β1 and -β2, act as cellular switches to regulate immune function, cell proliferation, and epithelial-mesenchymal transition (4, 6, 7). The non-redundant biological effects of TGF-β3 include involvement in palatogenesis, chondrogenesis, and pulmonary development (1, 2, 7-9). Human TGF-β3 cDNA encodes a 412 amino acid (aa) precursor that contains a 20 aa signal peptide and a 392 aa proprotein. The proprotein is processed by a furin like convertase to generate a 220 aa latency-associated peptide (LAP) and a 112 aa mature TGF-β3, respectively. Mature human TGF-β3 shows 100%, 99%, and 98% aa identity with mouse/dog/horse, rat, and pig TGF-β3, respectively. TGF-β3 is secreted as a complex with LAP. This latent form of TGF-β3 becomes active upon cleavage by plasmin, matrix metalloproteases, thrombospondin-1, and a subset of integrins (12). TGF-β3 binds with high affinity to TGF-βRII, a type II serine/threonine kinase receptor. This receptor then phosphorylates and activates type I serine/threonine kinase receptors, TGF-βRI or ALK-1, to modulate transcription through Smad phosphorylation (13-15). The divergent biological effects exerted by individual TGF-β isoforms is dependent upon the recruitment of co-receptors (TGF-βRII and endoglin) and the subsequent initiation of Smad-dependent or independent signaling pathways (14, 16, 17).

References: