TGF beta 2/TGFB2 Protein, Rhesus Macaque (HEK293, His)

Cat. No.:	HY-P73613
Synonyms:	TGF-beta-2; Cetermin; G-TSF; TGFB2; Polyergin; rHuTGF-β2
Species:	Rhesus Macaque
Source:	HEK293
Accession:	F6ZJW6/NP_001253447.1 (L21-S414)
Gene ID:	707540
Molecular Weight:	Approximately 47 kDa

PROPERTIES

Appearance	Solution
Formulation	Supplied as a 0.2 μm filtered solution of PBS, pH 7.4.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconsititution	N/A.
Storage & Stability	Stored at -80°C for 1 year. It is stable at -20°C for 3 months after opening. It is recommended to freeze aliquots at -80°C for extended storage. Avoid repeated freeze-thaw cycles.
Shipping	Shipping with dry ice

DESCRIPTION

Background

In mammals, three different isoforms of TGF-β are described (TGF-β1, TGF-β2 and TGF-β3; transforming growth factor beta) to regulate apoptosis, proliferation, differentiation, migration and invasion processes utilising overlapping but not redundant mechanisms. All three isoforms are expressed in the liver, but their expression is differentially distributed among liver cell types. TGF-β2 expression in different liver cell types and is also associated with developmental defects and fibrotic diseases in mice[1][2][3].

The sequence of amino acids in TGF-β2 proteins from different species is very stable, which leads to the conclusion that in the process of evolution, TGF-β2 has been only slightly altered, and that both in humans and in animals, its function is similar.

TGFβ2 is a transforming growth factor beta (TGFB) family cytokine, with members of this cytokine family playing broad regulatory roles and controlling key physiological processes including cell migration, proliferation and differentiation via signalling through type I and type II receptors (TGFβR1 and TGFβR2), with signals propagating via the downstream regulatory SMAD proteins. This TGFβ/SMAD pathway is frequently dysregulated in human cancer. TGFβ cytokines are capable of suppressing T cell growth in response to IL2. The degree of TGFβ2 expression correlated with the expression of several different markers of immune cell subsets within tumours. In addition, TGF-β2 regulates embryonic development and, therefore not surprisingly, global Tgfb2 null mice exhibit a wide range of developmental defects and perinatal mortality [1][2][3].

TGF-β2 is an immune suppressor involved in the development of immune tolerance, and recombinant TGF-β2 incubation is more potent than TGF-β1 or TGF-β3 in suppressing macrophage inflammatory responses. TGF-β2 is shown to correlate with bad prognosis in intrahepatic CCAs and hepatocellular carcinoma. Mechanistically, canonical Smad signalling as well as crosstalk with Yap, Hippo, Wnt and β-catenin signalling have been demonstrated in the liver and other organs[1][2][3].

REFERENCES

[1]. Hirokazu Takahashi, et al. TGF-β2 is an exercise-induced adipokine that regulates glucose and fatty acid metabolism. Nat Metab. 2019 Feb;1(2):291-303.

[2]. Zunqiang Xiao, et al. TGFβ2 is a prognostic-related biomarker and correlated with immune infiltrates in gastric cancer. J Cell Mol Med. 2020 Jul;24(13):7151-7162.

[3]. Anne Dropmann, et al. TGF-β2 silencing to target biliary-derived liver diseases. Gut. 2020 Sep;69(9):1677-1690.

[4]. Gulab S Zode, et al. Transforming growth factor-β2 increases extracellular matrix proteins in optic nerve head cells via activation of the Smad signaling pathway. Mol Vis. 2011;17:1745-58.

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