ATAGENIX LABORATORIES

Catalog Number:ATMP00249HU

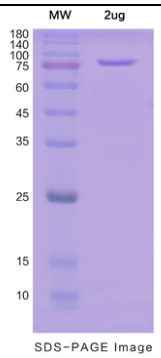
Recombinant Human ITGB3 protein ,C- His Tag

Product Details

Summary

English name	Recombinant Human ITGB3 protein ,C- His Tag
Purity	>90% as determined by SDS-PAGE
Endotoxin level	<1.0 EU per μg of the protein as determined by the LAL method.
Construction	A DNA sequence encoding the human ITGB3(Met1-Asp718) was fused with the C-terminal His Tag
Accession #	P05106
Host	Mammalian cells
Species	Homo sapiens (Human)
Predicted Molecular Mass	79.09kDa
Formulation	Supplied as solution form in PBS or lyophilized from PBS .
Shipping	In general, proteins are provided as lyophilized powder/frozen liquid. They are shipped out with dry ice/blue ice unless customers require otherwise.
Stability &Storage	Use a manual defrost freezer and avoid repeated freeze thaw cycles. Store at 2 to 8 °C for one week . Store at -20 to -80 °C for twelve months from the date of receipt.
Reconstitution	Reconstitute in sterile water for a stock solution.A copy of datasheet will be provided with the products, please refer to it for details.

SDS-PAGE image



SDS-PAGE Image

Background

Background	Integrin alpha-V/beta-3 (ITGAV:ITGB3) is a receptor for cytotactin, fibronectin, laminin, matrix metalloproteinase-2, osteopontin, osteomodulin, prothrombin,

thrombospondin, vitronectin and von Willebrand factor. Integrins alpha-IIb/beta-3 and alpha-V/beta-3 recognize the sequence R-G-D in a wide array of ligands. Also, Integrin alpha-V/beta-3 acts as a receptor for herpes virus 8/HHV-8, coxsackievirus A9, Hantaan virus, cytomegalovirus/HHV-5, human metapneumovirus, human parechovirus 1 and west nile virus. Furthermore, in case of HIV-1 infection, the interaction with extracellular viral Tat protein seems to enhance angiogenesis in Kaposi's sarcoma lesions.

Alternative Names GP3A，ITGB3

References Pirooznia, Abdi, Beiki, Emami, Arab, Sabzevari, Soltani-Gooshkhaneh (2020) 177Lu-labeled cyclic RGD peptide as an imaging and targeted radionuclide therapeutic agent in non-small cell lung cancer: Biological evaluation and preclinical study Bioorganic chemistry.

Frontier progress

Non-small cell lung carcinoma (NSCLC) is among the most lethal lung cancers responsible for 80-85% of death. αvβ3 integrin receptor subtype has been identified as a lung cancer biomarker since its expression correlates with tumor progression and metastasis. The extracellular domain of the receptor forms a binding site for RGD-based sequences. Therefore, specific targeting of αvβ3 integrin receptors by these short peptides can be an excellent candidate for cancer imaging and therapy. In this research, the radiolabeling of DOTA-E(cRGDfK)2 with 177Lu was efficiently implemented. The Log P value, in vivo, in vitro, metabolic stability, cellular uptake and specific binding of the radiopeptide was determined. The tumor targeting capacity and the therapeutic potential of the radiotracer was studied in A549 tumor-bearing mice. Imaging studies at different time intervals were performed by SPECT/CT. Radiochemical purity of more than 99% and Log P of -3.878 was obtained for 177Lu-labelled peptide. Radiotracer showed favorable in vivo, in vitro and metabolic stability. The radiopeptide dissociation constant (Kd) was 15.07nM. Radiopeptide specific binding was more than 95%. Biodistribution studies showed high accumulation of the radiopeptide in tumor and rapid excretion by urinary route. Maximum tumor uptake was at 4h post-injection. Following administration of this radiopeptide to mice, not only tumor growth was suppressed, but significant tumor shrinkage was also observed. In conclusion, this radiopeptide can be employed for staging, follow-up imaging and as peptide receptor radionuclide therapeutic agent allowing efficient therapy for NSCLC and other cancers overexpressing αvβ3 integrin receptors.