

SibTech, Inc.

scVEGF

Product #SBT301

scVEGF is 28 kDa engineered single-chain vascular endothelial growth factor. The protein consists of two 3-112aa fragments of human VEGF₁₂₁ cloned head-to-tail and fused to N-terminal Cys-tag. The complete amino acid sequence has 242 amino acids:

Met Lys Glu Ser Cys Ala Lys Lys Phe Gln Arg Gln His Met Asp Ser Gly Gly Gly Gly Ser Met
Ala Glu Gly Gly Gly Gln Asn His His Glu Val Val Lys Phe Met Asp Val Tyr Gln Arg Ser Tyr
Cys His Pro Ile Glu Thr Leu Val Asp Ile Phe Gln Glu Tyr Pro Asp Glu Ile Glu Tyr Ile Phe
Lys Pro Ser Cys Val Pro Leu Met Arg Cys Gly Gly Cys Cys Asn Asp Glu Gly Leu Glu Cys Val
Pro Thr Glu Glu Ser Asn Ile Thr Met Gln Ile Met Arg Ile Lys Pro His Gln Gly Gln His Ile
Gly Glu Met Ser Phe Leu Gln His Asn Lys Cys Glu Cys Arg Pro Lys Lys Asp Arg Ala Arg Ala
Met Ala Glu Gly Gly Gly Gln Asn His His Glu Val Val Lys Phe Met Asp Val Tyr Gln Arg Ser
Tyr Cys His Pro Ile Glu Thr Leu Val Asp Ile Phe Gln Glu Tyr Pro Asp Glu Ile Glu Tyr Ile
Phe Lys Pro Ser Cys Val Pro Leu Met Arg Cys Gly Gly Cys Cys Asn Asp Glu Gly Leu Glu Cys
Val Pro Thr Glu Glu Ser Asn Ile Thr Met Gln Ile Met Arg Ile Lys Pro His Gln Gly Gln His
Ile Gly Glu Met Ser Phe Leu Gln His Asn Lys Cys Glu Cys Arg Pro Lys Lys Asp Arg Ala Arg

Purification: scVEGF is expressed in bacteria, purified to >95% purity, and lyophilized from 20 mM ammonium acetate at pH 5.0.

Functional activity: The ability of scVEGF to bind to VEGF receptor VEGFR-2 is tested *in vitro* on 293/KDR human transformed embryonic kidney cells expressing 2.5x10⁶ VEGFR-2/cell (SibTech product #SBT021.293). Relative to unmodified rhVEGF₁₆₅ (R&D Systems), scVEGF displays 95-100% VEGF activity.

Radiolabeling with ^{99m}Tc and other applications: After treatment with equimolar amounts of DTT, thiol group in Cys-tag becomes available for direct radiolabeling with ^{99m}Tc for SPECT imaging of VEGF receptors (1) or site-directed conjugation of various payloads, including radionuclide chelators (2, 3).

One vial contains 0.15 mg of essentially salt-free lyophilized scVEGF

Reconstitution: To insure full recovery, spin the vial briefly before opening. Reconstitute in 0.15 ml of a buffer of your choice, to a final concentration of 1 mg/ml. We do not recommend using less than 0.15 ml for reconstitution.

Stability: Lyophilized scVEGF is stable for 1 year at -20°C. After reconstitution, scVEGF is stable and functionally active for at least 6 months, if stored at -20°C or below. Multiple thawing-freezing should be avoided.

Safety warnings: For research use only. Not for human use. Not recommended or intended for diagnosis in humans or animals. As all chemicals should be considered as potentially hazardous, it is advisable to wear suitable protective clothing, such as laboratory overalls, safety glasses and gloves. Care should be taken to avoid contact with skin or eyes. In case of contact with skin or eyes, wash immediately with water.

References

1. Levashova Z, Backer MV, Backer JM, Blankenberg FG. Direct labeling of Cys-tag in scVEGF with technetium 99m. *Bioconjugate Chemistry*, 19:1049-54, 2008.
2. Backer MV, Levashova Z, Patel V, Jehning BT, Claffey K, Blankenberg FG, Backer JM. Molecular imaging of VEGF receptors in angiogenic vasculature with single-chain VEGF driven probes. *Nature Med*, 13, 504-509, 2007.
3. Backer MV, Levashova Z, Levenson R, Blankenberg FG, Backer JM. Cysteine-containing fusion tag for site-specific conjugation of therapeutic and imaging agents to targeting proteins. *Methods in Molecular Medicine. Peptide-based Drug Design*. Humana Press, New York, NY. Ed: L. Otvos. Vol. 494, p.275-94, 2008.

115A Commerce Drive, Brookfield CT 06804, Tel. +1 203 775-5677, FAX +1 203 775-5705

www.sibtech.com E-mail: info@sibtech.com