Product Data Sheet

Product Name:	Endothelin 3 (human, rat)
Cat. No.:	GC13924

Chemical Properties

Cas. No.	117399-93-6		
Chemical Name	(1Z,3S,4Z,6S,7Z,9S,10Z,12S,13Z,15S,16Z,18S)-3-((1H-imidazol-5-yl)methyl)-18-((1H-indol-3-yl)methyl)-1-((1R,2Z,4S,5Z,7S,8Z,10S,11E,13S,14Z,16S,17Z,19S,20Z,22S,23Z,25R,26Z,28S,29Z,31R,36R,37Z,39S,40Z,42S,43Z,45S,46Z)-31-amino-7,13-bis(4-aminobutyl)-22-benzy		
SMILES	CC[C@]([C@@](/N=C(O)/[C@](/N=C(O)/[C@](/N=C(O)/[C@](/N=C(O)/[C@](/N=C(O)/[C@]1([H])CSSC[C@@](N)([H])/C(O)=N/[C@@](/C(O)=N/[C@@](/C(O)=N/[C@@](/C(O)=N/[C@@](/C(O)=N/[C@@](/C(O)=N/[C@@](/C(O)=N\[C@@](/C(O)=N/[C@@](/C(O)=N/[C@@](/C(O)=N/2)([H])CCC(O)=O)([H])		
Formula	$C_{121}H_{168}N_{26}O_{33}S_4$	M.Wt	2643.04
Solubility	Soluble to 1 mg/ml in Water	Storage	Desiccate at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 ℃ and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20℃ for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		
Structure	Endothelin 3 (human, rat)		

Background

Endothelin-3, human, mouse, rabbit, rat is a 21-amino acid vasoactive peptide that binds to G-protein-linked transmembrane receptors, ET-RA and ET-RB.

The endothelins (ETs) are a family of 21-amino-acid vasoconstrictor peptides comprising three distinct isoforms: ET-1, ET2 and Endothelin-3. Endothelin-3 is detected in plasma, heart, brain and vascular smooth muscle cells (VSMCs). The surface enzymes of VSMCs break down big Endothelin-3 to the corresponding mature peptide, Endothelin-3. Endothelin-3 down-regulate endothelin ETA receptor expression in coronary artery VSMCs without affecting receptor density or functional ETA receptor responses. By contrast, high concentrations of Endothelin-3 (100 nM) increase the expression of ETB receptors but abolish the vasoconstrictor response of the receptors, possibly due to the desensitizing effect of Endothelin-3[1]. Endothelin-3 stimulates ENCC adhesion to various ECM components. Endothelin-3 induces rapid changes in ENCC shape and protrusion dynamics favouring sustained growth and stabilization of lamellipodia, a process coincident with the increase in the number of focal adhesions and activated β1-integrins[2].

Endothelin-3 at low concentrations may attenuate inflammatory responses via ETB2 activation and NO production. Endothelin-3, which acts mainly on ETB, at low concentrations specifically inhibited platelet-activating factor (PAF)-induced paw oedema, whereas neither ET-1 nor Endothelin-2, both of which act on ETA and ETB, showed inhibitory activity. The inhibition by ET-1 and Endothelin-3 (each 0.5 pmol/paw) in the presence of BQ-123 (66.4 ± 6.7 % and 65.4 ± 22.6 %, respectively), is comparable to that by Endothelin-3 (0.5 pmol/paw) alone (65.4 ± 10.9 %), whereas neither ET-1 nor Endothelin-3 in the presence of BQ-788 showed inhibitory activity[3].

References:
[1]. Skovsted GF, et al. Endothelin-1 and Endothelin-3 Regulate Endothelin Receptor Expression in Rat Coronary Arteries. Basic Clin Pharmacol Toxicol. 2015 Nov;117(5):297-305.
[2]. Gazquez E, et al. Endothelin-3 stimulates cell adhesion and cooperates with β1-integrins during enteric nervous system ontogenesis. Sci Rep. 2016 Dec 1;6:37877. doi: 10.1038/srep37877.
[3]. Sato A, et al. Endothelin-3 at low concentrations attenuates inflammatory responses via the endothelin B2 receptor. Inflamm Res. 2013 Apr;62(4):417-24.

Caution: Product has not been fully validated for medical applications. For research use only.
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