

## Product Data Sheet

Product Name: Desmopressin  
Cat. No.: GC12303

### Chemical Properties

Cas. No. 16679-58-6

Chemical Name 1-(7-(2-amino-2-oxoethyl)-10-(3-amino-3-oxopropyl)-13-benzyl-16-(4-hydroxybenzyl)-6,9,12,15,18-pentaoxo-1,2-dithia-5,8,11,14,17-amino-2-oxoethyl)amino)-5-((diaminomethylene)amino)-1-oxopentan-2-yl)pyrrolidine-2-carboxamide

SMILES O=C(C1C5SSCCC(NC(CC2=CC=C(O)C=C2)C(NC(CC3=CC=CC=C3)C(NC(CCC(N)=O)C(NC(CC(N)=O)C(N1)=O)=O)=O)=O)N4C(C(=O)N)C5=O

Formula  $C_{46}H_{64}N_{14}O_{12}S_2$  M.Wt

Solubility DMF: 1 mg/ml, DMSO: 5 mg/ml, PBS (pH 7.2): 2 mg/ml Storage

General tips For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored at -20 °C.

Shipping Condition Evaluation sample solution: ship with blue ice. All other available sizes: ship with RT, or blue ice upon request.

Structure

### Background

Desmopressin (dDAVP) is a synthetic peptide analog of natural pituitary hormone 8-arginine vasopressin (ADH) with hemostatic and anti-diuretic properties [1].

Desmopressin reduced the formation of lung nodules in F3II tumor cell injected BALB/c mice. In vitro, desmopressin blocked the F3II cell colony formation. Desmopressin could inhibit metastasis formation on V2 vasopressin receptors in both endothelial and cancer cells [1]. Desmopressin has been proved to increase the release of platelet adhesion promoting factors which is most likely von Willebrand factor (VWF), from endothelial cells (ECs). However, desmopressin had no direct effect on platelets [2].

The administration of desmopressin agglomerates in rats significantly reduced the urine production [3]. Apart from these, rats treated by desmopressin had demonstrated a stronger Pimonidazole staining in the outer and inner medulla compared to control. Desmopressin-treated rats revealed nuclear accumulation in the papilla, which was confirmed by HIF-1 $\alpha$  immunostaining. Desmopressin-treated animals had shown a significant increase of HIF-target genes in the group of Desmopressin-regulated gene products including insulin-like growth factor binding proteins 1 and 3, fibronectin, hexokinase 2, angiopoietin 2, cathepsin D and cyclooxygenase 2. Desmopressin had been shown to cause the renal urine concentrating mechanism, leading to an upregulation of hypoxia-inducible gene expression and renal medullary hypoxia [4].

#### References:

1. Garona J1, Pifano M1, Scursioni AM2, Gomez DE1, Alonso DF3, Ripoll GV1. Insight into the effect of the vasopressin analog desmopressin on lung colonization by mammary carcinoma cells in BALB/c mice. *Anticancer Res.* 2014 Sep;34(9):4761-5.
2. Calmer S1, Ferkau A, Larmann J, Johanning K, Czaja E, Hagl C, Echtermeyer F, Goudeva L, Heuft HG, Theilmeyer G. Desmopressin (DDAVP) improves recruitment of activated platelets to collagen but simultaneously increases platelet endothelial interactions in vitro. *Platelets.* 2014;25(1):8-15.
3. Balducci AG1, Ferraro L, Bortolotti F, Nastruzzi C, Colombo P, Sonvico F, Russo P, Colombo G. Antidiuretic effect of desmopressin chimera agglomerates by nasal administration in rats. *Int J Pharm.* 2013 Jan 20;440(2):154-60.
4. Dietrich A1, Mathia S, Kaminski H, Mutig K, Rosenberger C, Mrowka R, Bachmann S, Paliege A. Chronic activation of vasopressin V2 receptor signalling lowers renal medullary oxygen levels in rats. *Acta Physiol (Oxf).* 2013 Apr;207(4):721-31.

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

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA