Product Data Sheet

Product Name: Arg-Gly-Asp-Cys
Cat. No.: GC30186

Chemical Properties

Cas. No.	109292-46-8		
SMILES	Arg-Gly-Asp-Cys		
Formula	$C_{15}H_{27}N_7O_7S$	M.Wt	449.48
Solubility	Water : ≥ 50 mg/mL (111.24 mM)	Storage	Store 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	Arg-Gly-Asp-Cys		

Protocol

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com
Address: 10292 Central Ave. #205, Montclair, CA, USA

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Cell experiment: Human precursor dermal fibroblasts (HDF, human dermal progenitor cells, 12 week male donor) are use in the assay. WST-1 assay is used to assess the viability of HDF when incubated with chitosan derivatives. For this study, HDF are seeded in a 96-well plate at a density of 6×103 cells/cm2. To each well, 100 µL of cell suspension is added and incubated for 48 h in order to allow cell attachment. DMEM is then replaced by 100 µL of CMTMC and RGDC-DAH-CMTMC suspension at concentrations of 0.25 mg/mL, 0.5 mg/mL and 1 mg/mL, respectively. Cell viability under polymer incubation is evaluated during 2, 4 and 7 days. SDS (1%) is used as negative control. The polymer solution is changed every 3 days. 100 µL of WST-1 (1:10 dilution in DMEM) are added in each well after removing the polymer suspension and incubated for 0.5-2 h. Absorbance is recorded with a BioTek Microplate reader at two different wavelengths (450 and 690 nm). The viability is presented as percentage compared to the positive control group (cells in DMEM supplemented with 10% fetal calf serum). All experiments are carried out in triplicates.

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References:

[1]. Patrulea V, et al. Peptide-decorated chitosan derivatives enhance fibroblast adhesion and proliferation in wound healing. Carbohydr Polym. 2016 May 20;142:114-23.

Background

H-Arg-Gly-Asp-Cys-OH is a tetrapeptide that contains the arginine-glycine-aspartate (RGD) motif, a sequence that acts as a recognition site for various adhesion proteins.[1] It inhibits the binding of fibrinogen to endothelial cells and ADP-stimulated platelets with IC_{50} values of 320 and 35 ?M, respectively.[2] Implantation of titanium rods coated with H-Arg-Gly-Asp-Cys-OH increases bone formation in rat femurs.[3] H-Arg-Gly-Asp-Cys-OH has been conjugated to polyethylenimine to improve gene transfection efficiency.[4]

1.Park, H.S., Kim, C., and Kang, Y.K.Preferred conformations of RGDX tetrapeptides to inhibit the binding of fibrinogen to plateletsBiopolymers63(5)298-313(2002) 2.Tranqui, L., Andrieux, A., Hudry-Clergeon, G., et al.Differential structural requirements for fibrinogen binding to platelets and to endothelial cellsJ. Cell Biol.108(6)2519-2527(1989) 3.Ferris, D.M., Moodie, G.D., Dimond, P.M., et al.RGD-coated titanium implants stimulate

increased bone formation in vivoBiomaterials20(23-24)2323-2331(1999) 4.Kunath, K., Merdan, T., Hegener, O., et al.Integrin targeting using RGD-PEI conjugates for in vitro gene transferJ. Gene Med.5(7)588-599(2003)