Product Data Sheet

Product Name: GRGDSPC
Cat. No.: GC33313

Chemical Properties

Cas. No.	91575-26-7		
SMILES	Gly-Arg-Gly-Asp-Ser-Pro-Cys		
Formula	$C_{25}H_{42}N_{10}O_{11}S$	M.Wt	690.73
Solubility	Soluble in Water	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	GRGDSPC		

Protocol

Kinase experiment:

GRGDSPC at various concentrations (5, 10, 20 mg peptide/g DEX-MAES) is mixed with the 40% theoretical mono(2-acryloyloxyethyl) succinate (MAES) (16% actual)-modified DEX macromer solution containing 0.05% Igracure D-2959 for 0.25-3 h at room temperature to examine conjugation efficiency and kinetics. The peptide conjugation efficiency is determined using Ellman’s assay. In addition, conjugation efficiency of the peptide to acrylated DEX (DEX-MAES16) and methacrylated DEX (DEX-HEMA16) with similar degrees of acrylate and methacrylate modification, respectively, are compared[1].

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References:

[1]. Nguyen MK, et al. Photocrosslinkable, biodegradable hydrogels with controlled cell adhesivity for prolonged siRNAdelivery to hMSCs to enhance their osteogenic differentiation. J Mater Chem B. 2017 Jan 21;5(3):485-495.

Background

GRGDSPC, a 7-amino acid peptide, is a thiolated cell adhesion peptide.

GRGDSPC is conjugated to acrylated dextran via thiol-acrylate reaction to regulate the interactions of human mesenchymal stem cells (hMSCs) with the photocrosslinkable hydrogels. To determine the conjugation kinetics and efficiency of GRGDSPC peptide to DEX-MAES16, various GRGDSPC concentrations (i.e., 5, 10 and 20 mg/1 g DEX-MAES16) are conjugated to the acrylated Dextran (DEX) macromer over time (0.25, 0.5, 1 and 3h) in PBS at pH 7.8 and the free thiol groups of unreacted peptides are quantified using Ellman's assay. In addition, the reaction kinetics of the thiol-peptide to acrylated (DEX-MAES16) and methacrylated (DEX-HEMA16) macromers are compared. As early as 15 min conjugation, with 5, 10 and 20 mg of GRGDSPC peptide/1 g modified DEX, the peptide conjugation efficiencies with DEX-MAES are 105.40, 94.10 and 87.45%, respectively, while for the reaction with the DEX-HEMA they are 0.73, 15.78 and 18.42%, respectively. After 1h, the GRGDSPC conjugation with DEX-MAES is completed with the peptide concentration of 10 mg, but only 35.66% of the thiol groups of the peptide react with DEX-HEMA. The reaction kinetics are also monitored at 3 h of conjugation, and all of the 20 mg GRGDSPC peptide reacts with acrylated DEX compared to only 32.53% for the

methacrylated DEX at this time point[1].

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