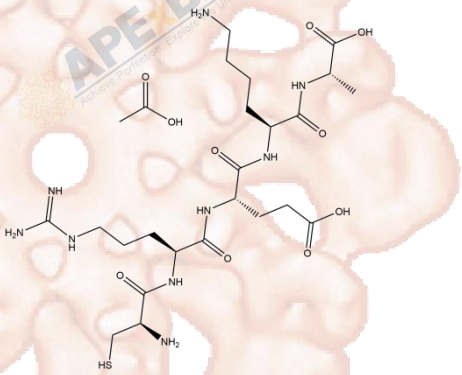
Product Data Sheet

CREKA peptide TFA



Cat. No.:	C8659
CAS No.:	847058-45-1
Formula:	C25H44F3N9O10S
M.Wt:	719.73
Synonyms:	/
Target:	Type IV collagen
Pathway:	Other Peptides
Storage:	Store at -20° C

Solvent & Solubility

In Vitro

Preparing Stock Solutions

Concentration / Solvent / Mass	1mg	5mg	10mg
1 mM	1.3894 mL	6.9470 mL	13.8941 mL
5 mM	0.2779 mL	1.3894 mL	2.7788 mL
10 mM	0.1389 mL	0.6947 mL	1.3894 mL

Please refer to the solubility information to select the appropriate solvent.

Biological Activity

Shortsummary

CREKA peptide TFA is a trifluoroacetic acid form of a short peptide with self-assembling properties. The peptide sequence is Cys-Arg-Glu-Lys-Ala (CREKA). This short peptide can specifically recognize and bind to overexpressed fibrin in diseased tissues, thereby enabling targeted localization to pathological sites. Studies have shown that CREKA peptide can effectively target regions associated with cancer, myocardial ischemia-reperfusion injury, and atherosclerosis. Due to its excellent targeting ability and self-assembly characteristics, CREKA peptide has broad application prospects in the field of nanomedicine. It can be used to construct targeted drug delivery systems, diagnostic imaging probes, and therapeutic nanomaterials, offering the potential to improve the precision and efficacy of disease diagnosis and treatment.

IC_{50} & Target		
In Vitro	**Cell Viability Assay**	
	Cell Line:	HeLa cells
	Preparation method:	EG hydrogel nanoparticles were synthesized by water-in-water emulsion. For CREKA functionalization, peptide (0.5 mM) was directly added into prepolymer solution, where acrylate groups in PEGDA bound via thiol ether linkage group with sulfur on cysteine. The conjugation reaction was carried out for 2 h at room temperature and the solution was dialyzed with dH2O and lyophilized for storage. PEG hydrogel nanoparticles were synthesized and surface-functionalized with CREKA peptide, then loaded with doxorubicin (DOX). HeLa cells were treated with these CREKA-PEG particles.
	Reacting conditions:	2 mg/mL, 4h
	Applications:	Confocal microscopy showed markedly higher cellular uptake of CREKA-nanoparticles compared to non-targeted or IKVAV-functionalized controls. Enhanced uptake correlated with greater DOX cytotoxicity, demonstrated by increased apoptosis in treated cells.
In Vivo	**Animal experiment**	
	Animal models:	MMTV PyMT mice
	Dosage form:	1–4 mg /kg, tail vein injection.
	Applications:	In vivo studies suggested significantly improved retention and anticancer effects with CREKA conjugated vehicles as compared to controls.
	Preparation method:	Amino group-functionalized dextran-coated superparamagnetic iron oxide nanoparticles (50-nm nanomag-d-SPIO) were coupled with CREKA peptide by using a cross-linker. The final coupling ratio was 30 nmol of fluorescein-labeled peptide molecules per milligram of iron oxide, or 8,000 peptides per particle. For near-infrared labeling with Cy7, ≈20% of the amines were derivatized with Cy7-NHS ester, and the remaining amines were used for conjugating the peptide. For i.v. injections, the animals were anesthetized with i.p. Avertin, and liposomes (2 μmol of DSPC) and/or nanoparticles (1–4 mg of Fe per kg of body weight) were injected into the tail vein. The animals were killed 5–24 h after injection by cardiac perfusion with PBS under anesthesia, and organs were dissected and analyzed for particle homing.
	Other notes:	The technical data provided above is for reference only.

Product Citations

See more customer validations on www.apexbt.com.

References

1. Okur AC, Erkoc P, Kizilel S. Targeting cancer cells via tumor-homing peptide CREKA functional PEG nanoparticles. Colloids Surf B Biointerfaces. 2016 Nov 1;147:191-200. doi: 10.1016/j.colsurfb.2016.08.005. Epub 2016 Aug 4. PMID: 27513587.

2.Simberg D, Duza T, Park JH, Essler M, Pilch J, Zhang L, Derfus AM, Yang M, Hoffman RM, Bhatia S, Sailor MJ, Ruoslahti E. Biomimetic amplification of nanoparticle homing to tumors. Proc Natl Acad Sci U S A. 2007 Jan 16;104(3):932-6. doi: 10.1073/pnas.0610298104. Epub 2007 Jan 10. PMID: 17215365; PMCID: PMC1783417.

Caution

FOR RESEARCH PURPOSES ONLY.

NOT FOR HUMAN, VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

Specific storage and handling information for each product is indicated on the product datasheet. Most APExBIO products are stable under the recommended conditions. Products are sometimes shipped at a temperature that differs from the recommended storage temperature. Shortterm storage of many products are stable in the short-term at temperatures that differ from that required for long-term storage. We ensure that the product is shipped under conditions that will maintain the quality of the reagents. Upon receipt of the product, follow the storage recommendations on the product data sheet.

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