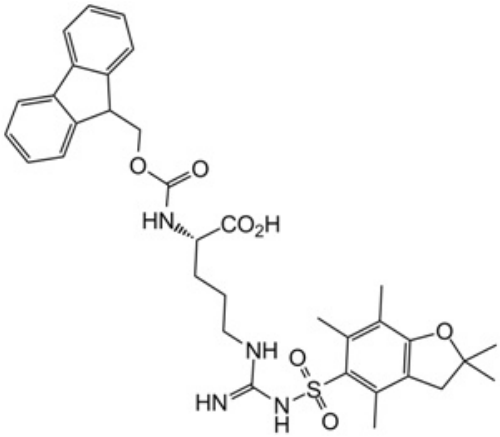
Product Data Sheet

Product Name: Fmoc-Arg(Pbf)-OH
Cat. No.: GA11082

Chemical Properties

Cas. No.	154445-77-9		
Chemical Name	(2S)-5-[[amino-[(2,2,4,6,7-pentamethyl-3H-1-benzofuran-5-yl)sulfonylamino]methylidene]amino]-2-(9H-fluoren-9-ylmethoxycarbonylamino)pentanoic acid		
SMILES	CC1=C2C(=C(C(=C1C)S(=O)(=O)NC(=NCCCC(C(=O)O)NC(=O)OCC3C4=CC=CC=C4C5=CC=CC=C35)N)C)CC(O2)(C)C		
Formula	$C_{34}H_{40}N_4O_7S$	M.Wt	648.8
Solubility	≥ 64.9mg/mL in DMSO, ≥ 2.14 mg/mL in EtOH with ultrasonic	Storage	Desiccate at -20°C
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 below -20°C 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



Protocol

Loading and coupling of Rink Amide resin[1]:

1. Rink Amide HL (0.98mmol/g) is expanded at 70°C for 20 minutes.

2. 20% piperidine solution is added in DMF to remove the Fmoc groups from the resin.

3. Fmoc amino acids (4.00eq.) are coupled with O-(benzotriazol-1-yl)-N,N,N′,N′-tetrafluorophosphorodimethylurea (HBTU, 3.92eq.), 1-hydroxybenzotriazole hydrate (HOBt, 4.00eq.), and N,N-dipropylacetamide (DIPEA, 8.0eq.).

4. Before coupling the next amino acid, the N-terminal Fmoc is removed with piperidine (20%) in DMF.

5. Fmoc-Phe-OH (4.0eq.) and Fmoc-Trp(Boc)-OH (4.0eq.) are coupled at 70°C for 5 minutes, Fmoc-Bip-OH (4.0eq.) is coupled at 75°C. Fmoc-Arg(Pbf)-OH (4.0eq.) is coupled at room temperature for 60 minutes, and Fmoc-Lys(N3) is coupled at room temperature for 16 hours. N3-PEG200-COOH (4.0eq.) or N3-PEG400-COOH (4.0eq.) is coupled with HBTU (3.92eq.) and HOBt (4.0eq.) for 16 hours at room temperature.

6. After the final coupling, the non-PEGylated peptide is removed from the Fmoc groups, the resin is washed with MeOH and DCM, and then placed in a drying machine overnight.

This protocol only provides a guideline, and should be modified according to your specific needs

References:
[1] Karlsen, E.A.; Stensen, W.; Juskewitz, E.; Svenson, J.; Berglin, M.; Svendsen, J.S.M. Anti-Colonization Effect of Au Surfaces with Self-Assembled Molecular Monolayers Functionalized with Antimicrobial Peptides on S. epidermidis. Antibiotics 2021, 10, 1516.

Background

Fmoc-Arg(Pbf)-OH is a protected amino acid derivative of arginine [1]. Fmoc-Arg(Pbf)-OH is a similar compound to Gly-Pro and Arg(Pbf)-OH, both of which are dipeptide structural units. The Pbf group of Fmoc-Arg(Pbf)-OH can be cleaved under moderately acidic conditions [2]. Fmoc-Arg(Pbf)-OH has been used in the solid-phase synthesis of peptides containing L-arginine [3].

References:
[1] Beatriz G, et al. Successful development of a method for the incorporation of Fmoc-Arg (Pbf)-OH in solid-phase peptide synthesis using N-butylpyrrolidinone (NBP) as solvent. Green Chemistry, 2020, 22(10): 3162-3169.

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[2] Fields C G, Fields G B. Minimization of tryptophan alkylation following 9-fluorenylmethoxycarbonyl solid-phase peptide synthesis[J]. Tetrahedron letters, 1993, 34(42): 6661-6664.
[3] Boullet H, Bentot F, Hequet A, et al. Small antimicrobial peptide with in vivo activity against sepsis[J]. Molecules, 2019, 24(9): 1702.
[4] Karlsen, E.A.; Stensen, W.; Juskewitz, E.; Svenson, J.; Berglin, M.; Svendsen, J.S.M. Anti-Colonization Effect of Au Surfaces with Self-Assembled Molecular Monolayers Functionalized with Antimicrobial Peptides on S. epidermidis. Antibiotics 2021, 10, 1516.

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