Product data sheet



MedKoo Cat#: 206934				
Name: PSMA617 TFA				
CAS#: 1702967-37-0 (free base)				
Chemical Formula: C ₅₇ H ₇₅ F ₁₂ N ₉ O ₂₄				
Exact Mass: 1041.5019				
Molecular Weight: 1498.25				
Product supplied as:	Powder			
Purity (by HPLC):	$\geq 98\%$			
Shipping conditions	Ambient temperature			
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.			
-	In solvent: -80°C 3 months; -20°C 2 weeks.			



1. Product description:

PSMA-617, also know as vipivotide tetraxetan. It is a ligand used to make 177Lu-PSMA-617, which is a radioactive molecule to fight cancer. PSMA617 possesses a small peptide, which was designed to target prostate-specific membrane antigen (PSMA). PSMA617 demonstrates high radiolytic stability for at least 72 h. PSMA617 has high inhibition potency (equilibrium dissociation constant Ki=2.34±2.94 nM on LNCaP; Ki=0.37±0.21 nM enzymatically determined). 177 Lu-PSMA-617 offers a potential additional life-prolonging treatment option for men with mCRPC.

2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMSO	125.0	83.43
Water	150.0	100.13

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	0.67 mL	3.34 mL	6.67 mL
5 mM	0.13 mL	0.67 mL	1.33 mL
10 mM	0.07 mL	0.33 mL	0.67 mL
50 mM	0.01 mL	0.07 mL	0.13 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study In vitro study

1. Ruigrok EAM, van Vliet N, Dalm SU, de Blois E, van Gent DC, Haeck J, de Ridder C, Stuurman D, Konijnenberg MW, van Weerden WM, de Jong M, Nonnekens J. Extensive preclinical evaluation of lutetium-177-labeled PSMA-specific tracers for prostate cancer radionuclide therapy. Eur J Nucl Med Mol Imaging. 2021 May;48(5):1339-1350. doi: 10.1007/s00259-020-05057-6. Epub 2020 Oct 23. PMID: 33094433; PMCID: PMC8113296.

2. Cui C, Hanyu M, Hatori A, Zhang Y, Xie L, Ohya T, Fukada M, Suzuki H, Nagatsu K, Jiang C, Luo R, Shao G, Zhang M, Wang F. Synthesis and evaluation of [64Cu]PSMA-617 targeted for prostate-specific membrane antigen in prostate cancer. Am J Nucl Med Mol Imaging. 2017 Apr 15;7(2):40-52. PMID: 28533936; PMCID: PMC5435610.

In vivo study

1. Stuparu AD, Meyer CAL, Evans-Axelsson SL, Lückerath K, Wei LH, Kim W, Poddar S, Mona CE, Dahlbom M, Girgis MD, Radu CG, Czernin J, Slavik R. Targeted alpha therapy in a systemic mouse model of prostate cancer - a feasibility study. Theranostics. 2020 Feb 3;10(6):2612-2620. doi: 10.7150/thno.42228. PMID: 32194823; PMCID: PMC7052903.

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2. Umbricht CA, Köster U, Bernhardt P, Gracheva N, Johnston K, Schibli R, van der Meulen NP, Müller C. Alpha-PET for Prostate Cancer: Preclinical investigation using 149Tb-PSMA-617. Sci Rep. 2019 Nov 28;9(1):17800. doi: 10.1038/s41598-019-54150-w. PMID: 31780798; PMCID: PMC6882876.

7. Bioactivity

Biological target:

Vipivotide tetraxetan (PSMA-617) is a high potent prostate-specific membrane antigen (PSMA) inhibitor.

In vitro activity

N/A

In vivo activity

To investigate treatment response as a function of disease burden, mice were treated with 40 kBq of 225Ac-PSMA-617 at either one-(early treatment cohort) or three- weeks (late treatment cohort) post intracardiac injection with C4-2 cells. This activity was chosen as it is well tolerated and efficacious in a subcutaneous mouse model (unpublished data). Early and late treatment resulted in a significant survival benefit (27 vs. 13 weeks; p<0.001). Disease remained stable in the early and late treatment groups for 8 and 3 weeks, respectively (Figure Figure22). One mouse from each group was excluded from analysis as no disease was evident on BLI.

Reference: Theranostics. 2020; 10(6): 2612–2620. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7052903/

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.