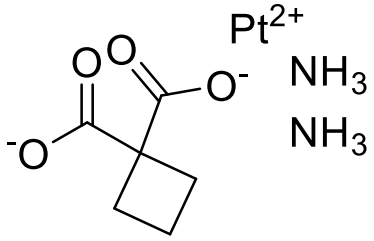
Product data sheet

MedKoo Cat#: 100130 Name: Carboplatin CAS#: 41575-94-4 Chemical Formula: $C_6H_{12}N_2O_4Pt$ Molecular Weight: 371.25	
Product supplied as:	Powder
Purity (by HPLC):	≥ 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:

Carboplatin is a second-generation platinum compound with a broad spectrum of antineoplastic properties. Carboplatin contains a platinum atom complexed with two ammonia groups and a cyclobutane-dicarboxyl residue. This agent is activated intracellularly to form reactive platinum complexes that bind to nucleophilic groups such as GC-rich sites in DNA, thereby inducing intrastrand and interstrand DNA cross-links, as well as DNA-protein cross-links. These carboplatin-induced DNA and protein effects result in apoptosis and cell growth inhibition.

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
DMF	1.0	2.69
Water	7.09	19.10
PBS (pH 7.2)	1.0	2.69

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.69 mL	13.47 mL	26.94 mL
5 mM	0.54 mL	2.69 mL	5.39 mL
10 mM	0.27 mL	1.35 mL	2.69 mL
50 mM	0.05 mL	0.27 mL	0.54 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. Patra B, Lateef MA, Brodeur MN, Fleury H, Carmona E, Péant B, Provencher D, Mes-Masson AM, Gervais T. Carboplatin sensitivity in epithelial ovarian cancer cell lines: The impact of model systems. PLoS One. 2020 Dec 31;15(12):e0244549. doi: 10.1371/journal.pone.0244549. PMID: 33382759; PMCID: PMC7774933.

In vivo study

1. Chou FJ, Lin C, Tian H, Lin W, You B, Lu J, Sahasrabudhe D, Huang CP, Yang V, Yeh S, Niu Y, Chang C. Preclinical studies using cisplatin/carboplatin to restore the Enzalutamide sensitivity via degrading the androgen receptor splicing variant 7 (ARv7) to further suppress Enzalutamide resistant prostate cancer. Cell Death Dis. 2020 Nov 2;11(11):942. doi: 10.1038/s41419-020-02970-4. PMID: 33139720; PMCID: PMC7606511.

7. Bioactivity

Biological target: DNA synthesis inhibitor which binds to DNA, inhibits replication and transcription and induces cell death.

Product data sheet

In vitro activity

The results show that spheroid formation of EOC cell lines is significantly faster and more uniform in polydimethylsiloxane (PDMS) microfluidic devices and Matrigel-assisted ULA plates than in hanging-droplets or ULA plates without Matrigel. Carboplatin responses were observed in both 3D spheroid models using flow cytometric analysis, but no significant decrease in spheroid size was detected. For the majority of the EOC cell lines (3 out of 4) a similar response to carboplatin treatment was observed by both spheroid methods. Interestingly, two cell lines classified as resistant to carboplatin in 2D cultures responded as sensitive in 3D models, and one sensitive cell line in 2D culture showed resistance in the 3D spheroids. The results highlight the challenges in choosing appropriate pre-clinical models for empirical drug testing.

Reference: PLoS One. 2020; 15(12): e0244549. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7774933/

In vivo activity

Importantly, when replacing Cis with another lower nephrotoxicity platinum-based chemotherapeutic agent, Carboplatin, we found Carboplatin could still degrade ARv7 (and fAR) (Fig. 1g), before induction of apoptosis (Fig.2l2l). Together, the results shown in Fig. 1a–g suggest that Cis and Carboplatin may degrade ARv7 and AR mutants of AR-F876L at low doses that have minimal effects on the induction of apoptosis in multiple EnzR CRPC cells.

Reference: Cell Death Dis. 2020 Nov; 11(11): 942. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7606511/