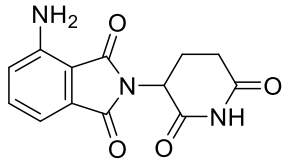
Product data sheet

MedKoo Cat#: 202310 Name: Pomalidomide CAS#: 19171-19-8 Chemical Formula: $C_{13}H_{11}N_3O_4$ Exact Mass: 273.07496 Molecular Weight: 273.24	
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:
Pomalidomide, also known as CC4047, is an orally bioavailable derivative of thalidomide with potential immunomodulating, antiangiogenic and antineoplastic activities. Although its exact mechanism of action has yet to be fully elucidated, pomalidomide appears to inhibit TNF-alpha production, enhance the activity of T cells and natural killer (NK) cells and enhance antibody-dependent cellular cytotoxicity (ADCC). Pomalidomide was approved on February 8, 2013 as a treatment for relapsed and refractory multiple myeloma.

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	15.0	54.9

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	3.66 mL	18.30 mL	36.60 mL
5 mM	0.73 mL	3.66 mL	7.32 mL
10 mM	0.37 mL	1.83 mL	3.66 mL
50 mM	0.07 mL	0.37 mL	0.73 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. Shrestha P, Davis DA, Jaeger HK, Stream A, Aisabor AI, Yarchoan R. Pomalidomide restores immune recognition of primary effusion lymphoma through upregulation of ICAM-1 and B7-2. PLoS Pathog. 2021 Jan 7;17(1):e1009091. doi: 10.1371/journal.ppat.1009091. PMID: 33411730; PMCID: PMC7817053.
2. Davis DA, Shrestha P, Aisabor AI, Stream A, Galli V, Pise-Masison CA, Tagawa T, Ziegelbauer JM, Franchini G, Yarchoan R. Pomalidomide increases immune surface marker expression and immune recognition of oncovirus-infected cells. Oncoimmunology. 2018 Dec 5;8(2):e1546544. doi: 10.1080/2162402X.2018.1546544. PMID: 30713808; PMCID: PMC6343774.

In vivo study

1. Casu MA, Mocci I, Isola R, Pisanu A, Boi L, Mulas G, Greig NH, Setzu MD, Carta AR. Neuroprotection by the Immunomodulatory Drug Pomalidomide in the Drosophila LRRK2WD40 Genetic Model of Parkinson's Disease. Front Aging Neurosci. 2020 Feb 13;12:31. doi: 10.3389/fnagi.2020.00031. PMID: 32116655; PMCID: PMC7031158.
2. Li Z, Qiu Y, Personett D, Huang P, Edenfield B, Katz J, Babusis D, Tang Y, Shirely MA, Moghaddam MF, Copland JA, Tun HW. Pomalidomide shows significant therapeutic activity against CNS lymphoma with a major impact on the tumor microenvironment in murine models. PLoS One. 2013 Aug 5;8(8):e71754. doi: 10.1371/journal.pone.0071754. PMID: 23940785; PMCID: PMC3734315.

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7. Bioactivity

Biological target:

Pomalidomide is the third-generation immunomodulatory agent, functions through interacting with the E3 ligase cereblon and induces degradation of essential Ikaros transcription factors.

In vitro activity

Here, treatment of PEL cells with Pom (Pomalidomide) restores NK cell lysis and T-cell activation, and this is directly due to the upregulation of the co-stimulatory molecules ICAM-1 and B7-2, as specific blocking antibodies to these proteins prevent the responses. To this study's knowledge, this is the first report of otherwise "immunologically silent" PELs being specifically sensitized for recognition and lysis by T-cells and NK-cells, both of which are important components of anti-tumor immunity. The mechanistic studies further provide evidence that these effects occur through Pom's effects on the E3 ubiquitin ligase cereblon and, at least in part, involve the PI3K pathway.

Reference: PLoS Pathog. 2021 Jan; 17(1): e1009091. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7817053/

In vivo activity

POM (Pomalidomide) showed a negative impact on proliferation of Raji and OCI-LY10 cells (Figure 2) and significant preclinical therapeutic activity against CNS lymphoma in both Raji and OCI-LY10 murine orthotopic models. The in vivo findings showed a dose-dependent therapeutic activity against CNS lymphoma with statistically significant therapeutic activity at 3 mg, 10 mg, and 30 mg/kg dose levels of POM in terms of reduction of tumor growth and prolongation of survival (Figure 3).

Reference: PLoS One. 2013; 8(8): e71754. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3734315/

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.