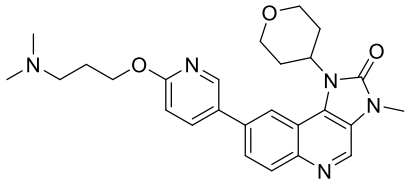
Product data sheet

MedKoo Cat#: 206501 Name: AZD0156 CAS#: 1821428-35-6 Chemical Formula: $C_{26}H_{31}N_5O_3$ Exact Mass: 461.2427 Molecular Weight: 461.566	
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:
AZD0156 is an orally bioavailable ataxia telangiectasia mutated (ATM) kinase inhibitor, with potential chemo-/radio-sensitizing and antineoplastic activities. Upon oral administration, AZD0156 targets and binds to ATM, thereby inhibiting the kinase activity of ATM and ATM-mediated signaling. This prevents DNA damage checkpoint activation, disrupts DNA damage repair, induces tumor cell apoptosis, and leads to cell death of ATM-overexpressing tumor cells. In addition, AZD0156 sensitizes tumor cells to chemo- and radiotherapy.

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	2.15	4.66
Ethanol	2.0	4.33

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	**1 mg**	**5 mg**	**10 mg**
1 mM	2.17 mL	10.83 mL	21.67 mL
5 mM	0.43 mL	2.17 mL	4.33 mL
10 mM	0.22 mL	1.08 mL	2.17 mL
50 mM	0.04 mL	0.22 mL	0.43 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. Zhang JQJ, Saravanabavan S, Rangan GK. Effect of Reducing Ataxia-Telangiectasia Mutated (ATM) in Experimental Autosomal Dominant Polycystic Kidney Disease. Cells. 2021 Mar 3;10(3):532. doi: 10.3390/cells10030532. PMID: 33802342; PMCID: PMC8000896.
2. Pan YR, Wu CE, Yeh CN. ATM Inhibitor Suppresses Gemcitabine-Resistant BTC Growth in a Polymerase θ Deficiency-Dependent Manner. Biomolecules. 2020 Nov 9;10(11):1529. doi: 10.3390/biom10111529. PMID: 33182492; PMCID: PMC7697425.

In vivo study

1. Zhang JQJ, Saravanabavan S, Rangan GK. Effect of Reducing Ataxia-Telangiectasia Mutated (ATM) in Experimental Autosomal Dominant Polycystic Kidney Disease. Cells. 2021 Mar 3;10(3):532. doi: 10.3390/cells10030532. PMID: 33802342; PMCID: PMC8000896.

7. Bioactivity
Biological target:

Product data sheet

AZD0156 is an ATM inhibitor with an IC50 of 0.58 nM.

In vitro activity

The AZD0156 IC_{50} values in GEM-resistant cell lines (SSP25-GR and SNU1196-GR) were reduced compared to those in the parental cells (SSP-25 and SNU1196) (Figure 2A). To further confirm the effect of DNA polymerase θ on ATM inhibitor sensitivity in BTCs, DNA polymerase θ expression was suppressed by shRNAs, and the AZD0156 IC_{50} values were determined in the control (shLacZ) and DNA polymerase θ knockdown (shPOLQ) BTC cells. In SSP-25 cells, the knockdown of DNA polymerase θ decreased AZD0156 IC_{50} (Figure 2B). Moreover, the knockdown of DNA polymerase θ diminished AZD0156 IC_{50} values in GEM-insensitive BTC cell lines TFK-1 and TGBC-24TKB (Figure 2C,D).

Reference: Biomolecules. 2020 Nov; 10(11): 1529. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7697425/

In vivo activity

In *Pkd1*$^{RC/RC}$ mice, AZD0156 reduced renal cell proliferation, measured by Ki-67, compared to vehicle (Figure 4A,B). In contrast, although the DNA damage marker γ-H2AX was not different between treatment groups (Figure 4A,C), AZD0156 increased renal p53 (Figure 4D,E). Due to the essential role of ATM in apoptosis, cleaved caspase-3 (Asp175) was also investigated. Cleaved-caspase-3 was expressed in distal tubules but was not altered by AZD0156 (Figure 4A). Furthermore, due to the short duration of this study, as expected, no changes in kidney enlargement and percentage cyst area were observed following AZD0156 treatment (Figure 5).

Reference: Cells. 2021 Mar; 10(3): 532. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8000896/