

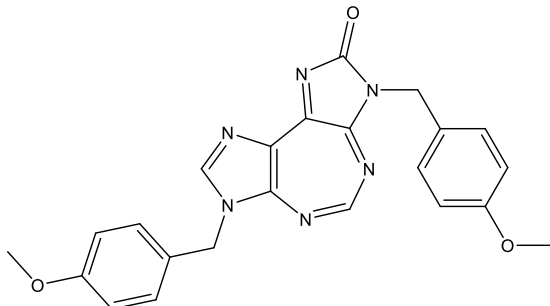
**Catalog # 10-4839**

**RK-33**

CAS# 1070773-09-9

3,7-Bis(4-methoxybenzyl)-3,7-dihydro-1,3,4,6,7,9-hexaza-2H-cyclopenta[e]azulene-2-one

Lot # FBS2061



RK-33 is an inhibitor of the RNA helicase DDX3 – IC<sub>50</sub>'s = 4.4-8.4 μM in high DDX3 expressing lung cancer cell lines A549, H1299, H23, and H460.<sup>1,2</sup> Inhibition of DDX3 led to activation of cell death pathways, inhibition of Wnt pathway signaling, and abrogation of non-homologous end-joining (NHEJ) DNA repair. RK-33 was also active in colorectal cancer<sup>3</sup>, prostate cancer<sup>4</sup>, and medulloblastoma cancer<sup>5</sup> cell lines. RK-33 caused radiosensitization in breast cancer through inhibition of mitochondrial translation.<sup>6</sup> RK-33 facilitates differentiation in human embryonic stem cells (hESC) and decreases pluripotency markers as well as reducing teratoma formation.<sup>7</sup>

- 1) Kondaskar *et al.* (2011), *Novel, Broad Spectrum Anticancer Agents Containing the Tricyclic 5:7:5-Fused Diimidazodiazepine Ring System*; ACS Med. Chem. Lett., **2** 252
- 2) Bol *et al.* (2015), *Targeting DDX3 with a small molecule inhibitor for lung cancer therapy*; EMBO Mol. Med., **7** 648
- 3) Heerma van Voss *et al.* (2015), *Identification of the DEAD box RNA helicase DDX3 as a therapeutic target in colorectal cancer*; Oncotarget, **6** 28312
- 4) Xie *et al.* (2016), *RK-33 Radiosensitizes Prostate Cancer Cells by Blocking the RNA Helicase DDX3*; Cancer Res., **76** 6340
- 5) Tantravedi *et al.* (2019), *Targeting DDX3 in Medulloblastoma Using the Small Molecule Inhibitor RK-33*; Transl. Oncol., **12** 96
- 6) Heerma van Voss *et al.* (2018), *Targeting mitochondrial translation by inhibiting DDX3: a novel radiosensitization strategy for cancer treatment*; Oncogene, **37** 63
- 7) Kerr *et al.* (2019), *Targeting RNA helicase DDX3 in stem cell maintenance and teratoma formation*; Genes Cancer, **10** 11

**PHYSICAL DATA**

Molecular Weight:	428.44
Molecular Formula:	C <sub>23</sub> H <sub>20</sub> N <sub>6</sub> O <sub>3</sub>
Purity:	98% by HPLC
	NMR: (Conforms)
Solubility:	DMSO (20 mg/ml)
Physical Description:	Yellow solid
Storage and Stability:	Store as supplied desiccated at -20°C for up to 1 year from the date of purchase. Solutions in DMSO may be stored at -20°C for up to 1 month.

**Materials provided by Focus Biomolecules are for laboratory research use only and are not intended for human or veterinary applications.**