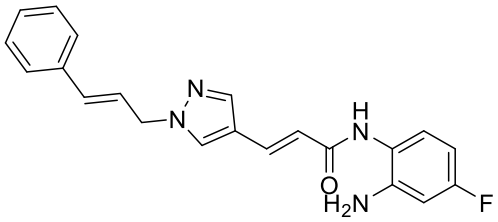
Product data sheet

MedKoo Cat#: 510215 Name: RGFP966 CAS#: 1357389-11-7 Chemical Formula: $C_{21}H_{19}FN_4O$ Exact Mass: 362.15429 Molecular Weight: 362.4	
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:
RGFP966 is a selective HDAC3 inhibitor . S ystemic treatment with RGFP966 facilitates extinction in mice in a manner resistant to reinstatement. A single treatment of RGFP966 enhances extinction of a previously established cocaine-conditioned place preference, while simultaneously enhancing long-term object-location memory within subjects. During extinction consolidation, HDAC3 inhibition promotes a distinct pattern of histone acetylation linked to gene expression within the infralimbic cortex, hippocampus, and nucleus accumbens. Thus, the facilitated extinction of drug-seeking cannot be explained by adverse effects on performance.

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	50	137.97
DMF	50	137.97

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.76 mL	13.80 mL	27.59 mL
5 mM	0.55 mL	2.76 mL	5.52 mL
10 mM	0.28 mL	1.38 mL	2.76 mL
50 mM	0.06 mL	0.28 mL	0.55 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. Leus NG, van der Wouden PE, van den Bosch T, Hooghiemstra WTR, Ourailidou ME, Kistemaker LE, Bischoff R, Gosens R, Haisma HJ, Dekker FJ. HDAC 3-selective inhibitor RGFP966 demonstrates anti-inflammatory properties in RAW 264.7 macrophages and mouse precision-cut lung slices by attenuating NF-κB p65 transcriptional activity. Biochem Pharmacol. 2016 May 15;108:58-74. doi: 10.1016/j.bcp.2016.03.010. Epub 2016 Mar 16. PMID: 26993378; PMCID: PMC4844503.

In vivo study

1. Jia H, Wang Y, Morris CD, Jacques V, Gottesfeld JM, Rusche JR, Thomas EA. The Effects of Pharmacological Inhibition of Histone Deacetylase 3 (HDAC3) in Huntington's Disease Mice. PLoS One. 2016 Mar 31;11(3):e0152498. doi: 10.1371/journal.pone.0152498. PMID: 27031333; PMCID: PMC4816519.

2. Bieszczad KM, Bechay K, Rusche JR, Jacques V, Kudugunti S, Miao W, Weinberger NM, McGaugh JL, Wood MA. Histone Deacetylase Inhibition via RGFP966 Releases the Brakes on Sensory Cortical Plasticity and the Specificity of Memory Formation. J Neurosci. 2015 Sep 23;35(38):13124-32. doi: 10.1523/JNEUROSCI.0914-15.2015. PMID: 26400942; PMCID: PMC4579377.

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7. Bioactivity

Biological target:

RGFP966 is an HDAC3 inhibitor with IC50 of 0.08 μM in cell-free assay, exhibits > 200-fold selectivity over other HDAC.

In vitro activity

RGFP966 was applied in cell-based model systems for inflammatory lung diseases using mouse RAW 264.7 macrophages, human bronchial epithelial (HBE) cells and human airway smooth muscle (hASM) cells that were subjected to LPS/IFNγ-stimulation. First, cytotoxicity of RGFP966 was investigated in these cell types and there was no significant observed decrease in cell viability at the applied concentrations, as compared to control cells (data not shown). In LPS/IFNγ-stimulated RAW 264.7 macrophages treatment with RGFP966 did not change the expression of the genes TNFα, iNOS, and IL-10 but provided a significant downregulation of the expression of the pro-inflammatory genes IL-1β, IL-6 and IL-12b (Fig. 2C). This effect was specific for macrophages as in HBE cells and hASM cells the expression of the investigated genes was not affected except for pro-inflammatory gene IL-6, which was upregulated in HBE cells.

Reference: Biochem Pharmacol. 2016 May 15;108:58-74. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4844503/

In vivo activity

The effects of RGFP966 ((E)-N-(2-amino-4-fluorophenyl)-3-(1-cinnamyl-1H-pyrazol-4-yl)acrylamide), a benzamide-type HDAC inhibitor that selectively targets HDAC3, was tested in the N171-82Q transgenic mouse model of HD. It was found that RGFP966 at doses of 10 and 25 mg/kg improves motor deficits on rotarod and in open field exploration, accompanied by neuroprotective effects on striatal volume. In light of previous studies implicating HDAC3 in immune function, gene expression changes were measured for 84 immune-related genes elicited by RGFP966 using quantitative PCR arrays. RGFP966 treatment did not cause widespread changes in cytokine/chemokine gene expression patterns, but did significantly alter the striatal expression of macrophage migration inhibitory factor (Mif), a hormone immune modulator associated with glial cell activation, in N171-82Q transgenic mice, but not WT mice. Accordingly, RGFP966-treated mice showed decreased glial fibrillary acidic protein (GFAP) immunoreactivity, a marker of astrocyte activation, in the striatum of N171-82Q transgenic mice compared to vehicle-treated mice.

Reference: PLoS One. 2016 Mar 31;11(3):e0152498. https://www.ncbi.nlm.nih.gov/pmc/articles/pmid/27031333/

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.