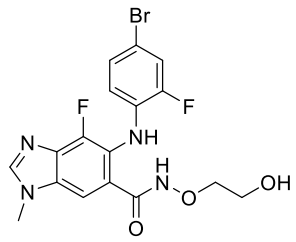
Product data sheet

MedKoo Cat#: 205531 Name: Binimetinib (MEK-162) CAS#: 606143-89-9 Chemical Formula: $C_{17}H_{15}BrF_2N_4O_3$ Exact Mass: 440.02956 Molecular Weight: 441.22681	
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:
Binimetinib, also known as MEK162 (ARRY-162), is an oral, highly selective MEK inhibitor. In preclinical studies, MEK162 showed significant antitumor activities in cell lines and animal models. MEK162 is the first targeted therapy to show activity in patients with NRAS -mutated melanoma and might offer a new option for a cancer with few effective treatments.

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	113.32

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.27 mL	11.33 mL	22.66 mL
5 mM	0.45 mL	2.27 mL	4.53 mL
10 mM	0.23 mL	1.13 mL	2.27 mL
50 mM	0.05 mL	0.23 mL	0.45 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. Hamidi H, Lu M, Chau K, Anderson L, Fejzo M, Ginther C, Linnartz R, Zubel A, Slamon DJ, Finn RS. KRAS mutational subtype and copy number predict in vitro response of human pancreatic cancer cell lines to MEK inhibition. Br J Cancer. 2014 Oct 28;111(9):1788-801. doi: 10.1038/bjc.2014.475. Epub 2014 Aug 28. PMID: 25167228; PMCID: PMC4453732.

In vivo study

1. Serra V, Eichhorn PJ, García-García C, Ibrahim YH, Prudkin L, Sánchez G, Rodríguez O, Antón P, Parra JL, Marlow S, Scaltriti M, Pérez-Garcia J, Prat A, Arribas J, Hahn WC, Kim SY, Baselga J. RSK3/4 mediate resistance to PI3K pathway inhibitors in breast cancer. J Clin Invest. 2013 Jun;123(6):2551-63. doi: 10.1172/JCI66343. Epub 2013 May 1. Erratum in: J Clin Invest. 2014 Mar 3;124(3):1418. PMID: 23635776; PMCID: PMC3668839.

7. Bioactivity
Biological target:

Binimetinib (MEK162) is an oral and selective MEK1/2 inhibitor. Binimetinib (MEK162) inhibits MEK with an IC50 of 12 nM.

In vitro activity

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Cell lines with a KRAS (V12) mutation and KRAS gains or loss (n=7) are ~10 times more resistant than those having neither a KRAS (V12) mutation nor KRAS CNV (n=14). Significant differences in baseline and MEK162-induced gene expression exist between the sensitive and resistant lines, especially in genes involved in RAS, EGF receptor and PI3K pathways. This was further supported by difference in signal transduction. MEK 162 blocked ERK1/2, as well as inhibited PI3K and S6 and increased p27KIP1 levels in the sensitive lines.

Reference: Br J Cancer. 2014 Oct 28;111(9):1788-801. https://www.ncbi.nlm.nih.gov/pmc/articles/pmid/25167228/

In vivo activity

Treatment with Binimetinib (ARRY-438162) reduces disease severity in a dose-related manner in both animal models. ARRY-438162 in the CIA model inhibits increases in ankle diameter by 27% and 50% at 1 and 3 mg/kg. Microscopic examination of the ankle joints show Binimetinib (ARRY-438162) significantly inhibits lesions (inflammation, cartilage damage, pannus formation and bone resorption) by 32% and 60% at 1 and 3 mg/kg. In AIA, 3 and 10 mg/kg of Binimetinib (ARRY-438162) inhibit AIA ankle diameter 11% and 34.

Reference: J Pheneger, et al. 2006, ACR Annual Scientific Meeting. Abst 794.
https://acr.confex.com/acr/2006/webprogram/Paper5558.html