

Product data sheet



MedKoo Cat#: 406955 Name: RS-09 CAS#: 312756-74-4 Chemical Formula: C ₂₀ H ₁₆ Br ₂ N ₂ O ₃ S Exact Mass: 521.9248 Molecular Weight: 524.23		
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:

RS-1, also known as RAD51-Stimulatory Compound-1, a RAD51 activator with potential anticancer activity. RAD51 is the central protein that catalyzes DNA repair via homologous recombination, a process that ensures genomic stability. RAD51 protein is commonly expressed at high levels in cancer cells relative to their noncancerous precursors. High levels of RAD51 expression can lead to the formation of genotoxic RAD51 protein complexes on undamaged chromatin.

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
DMF	30	57.23
DMSO	20	38.15

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.91 mL	9.54 mL	19.08 mL
5 mM	0.38 mL	1.91 mL	3.82 mL
10 mM	0.19 mL	0.95 mL	1.91 mL
50 mM	0.04 mL	0.19 mL	0.38 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. Jayathilaka K, Sheridan SD, Bold TD, Bochenska K, Logan HL, Weichselbaum RR, Bishop DK, Connell PP. A chemical compound that stimulates the human homologous recombination protein RAD51. Proc Natl Acad Sci U S A. 2008 Oct 14;105(41):15848-53. doi: 10.1073/pnas.0808046105. Epub 2008 Oct 7. PMID: 18840682; PMCID: PMC2572930.
2. Bi R, Li Y, Xu M, Zheng Q, Zhang DF, Li X, Ma G, Xiang B, Zhu X, Zhao H, Huang X, Zheng P, Yao YG. Direct evidence of CRISPR-Cas9-mediated mitochondrial genome editing. Innovation (Camb). 2022 Sep 27;3(6):100329. doi: 10.1016/j.xinn.2022.100329. PMID: 36275864; PMCID: PMC9579715.

In vivo study

1. Song J, Yang D, Xu J, Zhu T, Chen YE, Zhang J. RS-1 enhances CRISPR/Cas9- and TALEN-mediated knock-in efficiency. Nat Commun. 2016 Jan 28;7:10548. doi: 10.1038/ncomms10548. PMID: 26817820; PMCID: PMC4738357.

7. Bioactivity

Biological target:

RS-1 is an activator of DNA repair protein RAD51 (K_d = 48-107 for human RAD51 with different cofactors present).

Product data sheet



In vitro activity

RS-1 can increase both protein-DNA complex lengths and the pitch of helical filament turns. RS-1 stimulated hRAD51-mediated homologous strand assimilation (D-loop) activity by at least 5- to 11-fold, depending on the condition. RS-1 enhances the homologous recombination activity of hRAD51 by promoting the formation of active presynaptic filaments. RS-1 can enhance filament stability.

Reference: Proc Natl Acad Sci U S A. 2008 Oct 14;105(41):15848-53. <https://pubmed.ncbi.nlm.nih.gov/18840682/>

In vivo activity

This study found that the RS-1 significantly increased knock-in efficiency in vitro, with up to a five-fold improvement at different sites. In animal production, RS-1 yielded substantial improvements. This study provides insights for in vivo nuclease-mediated knock-in applications, enhancing gene-targeting efficiencies in pluripotent stem cells.

Reference: Nat Commun. 2016 Jan 28;7:10548. <https://pubmed.ncbi.nlm.nih.gov/26817820/>

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.