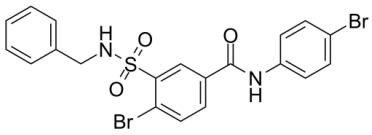
Data Sheet

Product Name:	RS-1
Cat. No.:	CS-5642
CAS No.:	312756-74-4
Molecular Formula:	C20H16Br2N2O3S
Molecular Weight:	524.23
Target:	CRISPR/Cas9; RAD51
Pathway:	Cell Cycle/DNA Damage
Solubility:	H2O : < 0.1 mg/mL (insoluble); DMSO : ≥ 100 mg/mL (190.76 mM)



BIOLOGICAL ACTIVITY:

RS-1 is a **RAD51** activator, and also increases **CRISPR/Cas9**-mediated knock-in efficiencies. IC50 & Target: RAD51[1], CRISPR/Cas9[2] **In Vitro:** RS-1 is a RAD51 activator, stimulating binding of hRAD51 to DNA with K_d ranging from 48 nM to 107 nM in the presence of ATP or ADP and in the absence of a nucleotide cofactor, and such an effect is not via inhibiting its ATPase activity. RS-1 (20 μM) affects the length and helical pitch of hRAD51 protein-DNA complexes. RS-1 (0, 1, 5, 10, 15, 20, and 25 μM) stimulates strand assimilation activity of hRAD51. RS-1 (7.5 μM) promotes resistance of human cells to cross-linking chemotherapy[1]. RS-1 (0, 7.5, 15 μM) increases Cas9-mediated knock-in efficiencies in rabbit embryos[2].

PROTOCOL (Extracted from published papers and Only for reference)

Kinase Assay: [1]Briefly, 15 μL reaction volumes include a **DNA strand exchange protein** (0.8 μM) that is preincubated for 5 min at 37°C with 1 μM (nucleotide concentration) ^{32}P-labeled oligonucleotide 306.7 in a reaction buffer containing 20 mM Hepes (pH 7.5), 1 mM DTT, 2 mM nucleotide cofactor, and 1 mM $MgCl_2$ and **various concentrations of RS-1**. For experimental buffer conditions that included calcium, 1 mM $CaCl_2$ is present in addition to (in the case of hRAD51) or in the place of (in the case of RecA and scRAD51) the 1 mM $MgCl_2$. Conditions with scRAD51 additionally contains 110 nM scRAD54. After this initial binding reaction, 10 μL of 19.75 μM (base pair concentration) supercoiled homologuecontaining target plasmid DNA (pRS306) is next added along with sufficient magnesium acetate to give a final concentration of 10 mM[1].

References:

[1]. Jayathilaka K, et al. 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.

[2]. Song J, et al. RS-1 enhances CRISPR/Cas9- and TALEN-mediated knock-in efficiency. Nat Commun. 2016 Jan 28;7:10548.

CAIndexNames:

Benzamide, 4-bromo-N-(4-bromophenyl)-3-[[(phenylmethyl)amino]sulfonyl]-

SMILES:

O=C(NC1=CC=C(Br)C=C1)C2=CC=C(Br)C(S(=O)(NCC3=CC=CC=C3)=O)=C2

Caution: Product has not been fully validated for medical applications. For research use only.

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