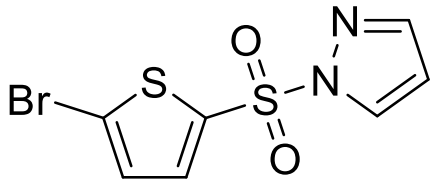


Product data sheet



MedKoo Cat#: 563968 Name: Qstatin CAS#: 902688-24-8 Chemical Formula: C ₇ H ₅ BrN ₂ O ₂ S ₂ Exact Mass: 291.8976 Molecular Weight: 293.15		
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:

Qstatin is a selective inhibitor of quorum sensing (QS) in vibrio species.

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	83.33	284.25

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	3.41 mL	17.06 mL	34.11 mL
5 mM	0.68 mL	3.41 mL	6.82 mL
10 mM	0.34 mL	1.71 mL	3.41 mL
50 mM	0.07 mL	0.34 mL	0.68 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. Kim BS, Jang SY, Bang YJ, Hwang J, Koo Y, Jang KK, Lim D, Kim MH, Choi SH. QStatin, a Selective Inhibitor of Quorum Sensing in Vibrio Species. mBio. 2018 Jan 30;9(1):e02262-17. doi: 10.1128/mBio.02262-17. PMID: 29382732; PMCID: PMC5790914.

In vivo study

1. Kim BS, Jang SY, Bang YJ, Hwang J, Koo Y, Jang KK, Lim D, Kim MH, Choi SH. QStatin, a Selective Inhibitor of Quorum Sensing in Vibrio Species. mBio. 2018 Jan 30;9(1):e02262-17. doi: 10.1128/mBio.02262-17. PMID: 29382732; PMCID: PMC5790914.

7. Bioactivity

Biological target:

QStatin is a potent and selective inhibitor of SmcR (V. harveyi LuxR homologue) with an EC₅₀ of 208.9 nM, binding tightly to SmcR and changes the flexibility of the protein, thereby altering its transcription regulatory activity.

In vitro activity

To examine whether QStatin affects the DNA-binding activity of SmcR, an electrophoretic mobility shift assay (EMSA) with PvpPE DNA was performed. Although SmcR binding to the DNA was reduced specifically by QStatin in a dose-dependent manner, the interaction was not completely abolished. The enthalpic (ΔH) and entropic (TΔS) components of the free binding energy of SmcR-

Product data sheet



DNA interaction were markedly changed by QStatin, indicating that QStatin affects the characteristics of the interaction between SmcR and PvpE DNA. Similarly, SmcR interactions with the promoter DNAs of the flhF (PflhF) and VVMO6_03194 (PVVMO6_03194) genes, both of which are directly repressed by SmcR (37), were affected by QStatin. In these cases, the effect of QStatin was more noticeable, as the compound decreased the binding affinities of SmcR for the DNAs about 5-fold (for PflhF) or 8-fold (for PVVMO6_03194).

Reference: mBio. 2018 Jan-Feb; 9(1): e02262-17. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5790914/>

In vivo activity

It was examined whether QStatin (20 μ M) affects the expression of SmcR regulon in vivo. Both quantitative reverse transcription-PCR (qRT-PCR) and RNA sequencing analyses revealed that QStatin-treated WT *V. vulnificus* (WT+QStatin) and DMSO-treated Δ smcR mutant *V. vulnificus* (Δ smcR+DMSO) had expression profiles similar to those seen with the SmcR regulon (Fig. 5a and andb;b; see also Fig. S4), indicating that QStatin switches SmcR to a dysfunctional state and globally affects the expression of the SmcR regulon in vivo. Also, QStatin does not seem to inhibit transcriptional regulators other than SmcR, because gene expression profiles in the Δ smcR mutant were not affected by QStatin treatment (Fig. 5b); thus, the Δ smcR+QStatin sample clustered with the Δ smcR+DMSO and WT+QStatin samples in a principal-component analysis (Fig. 5c). Taken together, these transcriptome-level in vivo analyses further indicate that QStatin affects the expression of the whole SmcR regulon by directly and selectively inhibiting SmcR.

Reference: mBio. 2018 Jan-Feb; 9(1): e02262-17. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5790914/>

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.