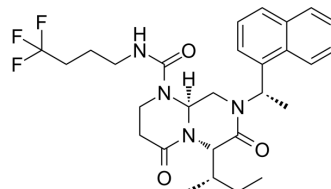


(S)-ZG197

Cat. No.:	HY-152097
CAS No.:	2999672-66-9
Molecular Formula:	C ₂₈ H ₃₅ F ₃ N ₄ O ₃
Molecular Weight:	532.6
Target:	Bacterial; ClpP
Pathway:	Anti-infection; Cell Cycle/DNA Damage
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	(S)-ZG197 is a highly selective Staphylococcus aureus Caseinolytic protease P (SaClpP) activator with an EC ₅₀ of 1.4 μM ^[1] .								
IC₅₀ & Target	EC ₅₀ : 1.4 μM (SaClpP) ^[1] Kd: 5.0 μM (SaClpP) ^[1]								
In Vitro	<p>(S)-ZG197 (10 μM; 2 h) increases the melting temperature (T_m) of SaClpP but barely changes the T_m of HsClpP. (S)-ZG197 significantly increases thermal stability of SaClpP^[1].</p> <p>(S)-ZG197 (0.1-100 μM; 2 h) exhibits a significantly diminished activity on the SaClpPI91W mutant for α-casein hydrolysis^[1].</p> <p>(S)-ZG197 (10 μM; 2 h) fails to induce the T_m shift of SaClpPI91W in intact staphylococcal cells^[1].</p> <p>(S)-ZG197 (0-256 μg/mL; 18 h) inhibits the growth of S. aureus 8325-4, and the MIC is 4 μg/mL. (S)-ZG197 displays strong antibacterial activity on a broad spectrum of S. aureus strains, with MIC values of 2-8 μg/mL^[1].</p> <p>(S)-ZG197 (0-20 μM) decrease SaFtsZ abundance in the 8325-4 S. aureus but not in the corresponding ΔclpP mutant strain^[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <p>Western Blot Analysis^[1]</p> <table border="1"> <tr> <td>Cell Line:</td> <td>Cell lysates of S. aureus 8325-4 clpP knockout (ΔclpP) strain</td> </tr> <tr> <td>Concentration:</td> <td>0, 2.5, 5 and 10 μM</td> </tr> <tr> <td>Incubation Time:</td> <td>15 min</td> </tr> <tr> <td>Result:</td> <td>SaFtsZ protein was degraded when SaClpP was added.</td> </tr> </table>	Cell Line:	Cell lysates of S. aureus 8325-4 clpP knockout (ΔclpP) strain	Concentration:	0, 2.5, 5 and 10 μM	Incubation Time:	15 min	Result:	SaFtsZ protein was degraded when SaClpP was added.
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In Vivo	<p>(S)-ZG197 (25-100 mg/kg; i.p.; once) significantly prolong the survival rate in zebrafish USA300 infection model^[1].</p> <p>(S)-ZG197 (7.5 mg/kg; s.c.; twice a day for 3 days) shows anti-infective efficacy in murine skin S. aureus infection models^[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <table border="1"> <tr> <td>Animal Model:</td> <td>Zebrafish USA300 infection model^[1]</td> </tr> <tr> <td>Dosage:</td> <td>25, 50, or 100 mg/kg</td> </tr> <tr> <td>Administration:</td> <td>Intraperitoneal injection, single dose</td> </tr> </table>	Animal Model:	Zebrafish USA300 infection model ^[1]	Dosage:	25, 50, or 100 mg/kg	Administration:	Intraperitoneal injection, single dose		
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Dosage:	25, 50, or 100 mg/kg								
Administration:	Intraperitoneal injection, single dose								

Result:	Significantly prolong the survival rate at 50 mg/kg. Lost therapeutic effects on zebrafish infected with the Δ clpP mutant strain.
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Animal Model:	Female BALB/c mice, <i>S. aureus</i> infection model ^[1]
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Dosage:	7.5 mg/kg
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Administration:	Subcutaneous injection, twice a day for 3 days
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Result:	Caused a smaller necrotic lesion size in mice compared with the vehicle control.
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REFERENCES

[1]. Wei B, et al. Anti-infective therapy using species-specific activators of *Staphylococcus aureus* ClpP. *Nat Commun.* 2022 Nov 14;13(1):6909.

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

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