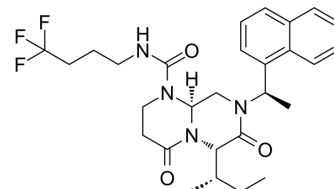


## (R)-ZG197

|                           |   |
|---------------------------|---|
| <b>Cat. No.:</b>          | HY-152096   |
| <b>CAS No.:</b>           | 2999672-72-7  |
| <b>Molecular Formula:</b> | C <sub>28</sub> H <sub>35</sub> F <sub>3</sub> N <sub>4</sub> O <sub>3</sub>              |
| <b>Molecular Weight:</b>  | 532.6   |
| <b>Target:</b>            | Bacterial; ClpP   |
| <b>Pathway:</b>           | Anti-infection; Cell Cycle/DNA Damage   |
| <b>Storage:</b>           | Please store the product under the recommended conditions in the Certificate of Analysis. |



### BIOLOGICAL ACTIVITY

|                                     |  |               |  |                |                      |                  |  |         |   |
|-------------------------------------|--|---------------|--|----------------|----------------------|------------------|--|---------|---|
| <b>Description</b>                  | (R)-ZG197 is a highly selective <i>Staphylococcus aureus</i> Caseinolytic protease P (SaClpP) activator with an EC <sub>50</sub> of 1.5 μM. (R)-ZG197 also activates <i>Homo sapiens</i> ClpP (HsClpP) with an EC <sub>50</sub> of 31.4 μM <sup>[1]</sup> .  |               |  |                |                      |                  |  |         |   |
| <b>IC<sub>50</sub> &amp; Target</b> | EC <sub>50</sub> : 1.5 μM (SaClpP), 31.4 μM (HsClpP) <sup>[1]</sup><br>Kd: 2.5 μM (SaClpP) <sup>[1]</sup>  |               |  |                |                      |                  |  |         |   |
| <b>In Vitro</b>                     | <p>(R)-ZG197 (10 μM; 2 h) significantly enhances the thermal stability of SaClpP while having a weak effect on HsClpP<sup>[1]</sup>.</p> <p>(R)-ZG197 (0-256 μg/mL; 18 h) significantly suppresses <i>S. aureus</i> with a quantified MIC of 0.5 μg/mL. (R)-ZG197 displays strong antibacterial activity on a broad spectrum of <i>S. aureus</i> strains, with MIC values of 0.5-2 μg/mL<sup>[1]</sup>.</p> <p>(R)-ZG197 (0-20 μM) decrease SaFtsZ abundance in the 8325-4 <i>S. aureus</i> but not in the corresponding ΔclpP mutant strain<sup>[1]</sup>. MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <p>Western Blot Analysis<sup>[1]</sup></p> <table border="1"> <tr> <td>Cell Line:</td> <td>Cell lysates of <i>S. aureus</i> 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 <i>S. aureus</i> 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.  |
| Cell Line:                          | Cell lysates of <i>S. aureus</i> 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.   |               |  |                |                      |                  |  |         |   |
| <b>In Vivo</b>                      | <p>(R)-ZG197 (25-100 mg/kg; i.p.; once) significantly prolong the survival rate in zebrafish USA300 infection model<sup>[1]</sup>.</p> <p>(R)-ZG197 (7.5 mg/kg; s.c.; twice a day for 3 days) shows anti-infective efficacy in murine skin <i>S. aureus</i> infection models<sup>[1]</sup>. 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<sup>[1]</sup></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> <tr> <td>Result:</td> <td>Significantly prolong the survival rate at 50 mg/kg. Lost therapeutic effects on zebrafish infected with the ΔclpP mutant strain.</td> </tr> </table>   | Animal Model: | Zebrafish USA300 infection model <sup>[1]</sup>                      | 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 ΔclpP mutant strain. |
| Animal Model:                       | Zebrafish USA300 infection model <sup>[1]</sup>  |               |  |                |                      |                  |  |         |   |
| 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 ΔclpP mutant strain.  |               |  |                |                      |                  |  |         |   |

|                 |  |
|-----------------|--|
| Animal Model:   | Female BALB/c mice, S. aureus infection model <sup>[1]</sup>                     |
| Dosage:         | 7.5 mg/kg  |
| Administration: | Subcutaneous injection, twice a day for 3 days                                   |
| Result:         | Caused a smaller necrotic lesion size in mice compared with the vehicle control. |

## 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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