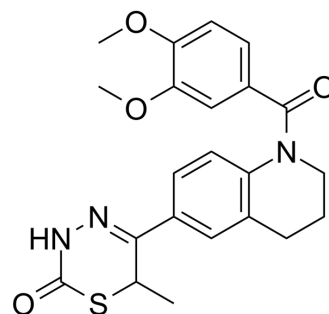


(+)-EMD 57033

| | | | |
|---------------------------|---|-------|----------|
| Cat. No.: | HY-106844A | | |
| CAS No.: | 147527-31-9 | | |
| Molecular Formula: | C ₂₂ H ₂₃ N ₃ O ₄ S | | |
| Molecular Weight: | 426 | | |
| Target: | Others | | |
| Pathway: | Others | | |
| Storage: | Powder | -20°C | 3 years |
| | | 4°C | 2 years |
| | In solvent | -80°C | 6 months |
| | | -20°C | 1 month |



BIOLOGICAL ACTIVITY

| | | | | | | | | | | |
|-------------------------------------|---|--|---------------|--|---------|----------------------|-----------------|---|---------|---|
| Description | (+)-EMD 57033 is a cardiac troponin C (cTnC) activator, is a dominant Ca ²⁺ sensitizer. (+)-EMD 57033 binds the cardiac/slow skeletal troponin C isoform and exerts myocardial contractile promotion function ^[1] . | | | | | | | | | |
| IC₅₀ & Target | Cardiac troponin C (cTnC) ^[1] | | | | | | | | | |
| In Vitro | <p>(+)-EMD 57033 (30 μM) recovers the activation and sensitivity of Ca²⁺ in pig single muscle fibres and reduces VIDD (ventilator-induced diaphragm muscle fibre dysfunction) of ^[2].</p> <p>(+)-EMD 57033 (5.0-5.8 μM; 10-15 min) significantly increases the coronary blood flow and myocardial Vo₂ (O₂ consumption) in both 100 bpm and 150 bpm heart rates of rabbit heart, with a [Ca²⁺]₀ concentration-dependent manner ([Ca²⁺]₀=1.0 or 2.5 mM)^[3].</p> <p>(+)-EMD 57033 (5.0-5.8 μM; 10-15 min) increases left ventricular (LV) end-diastolic pressure and prolongs relaxation^[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> | | | | | | | | | |
| In Vivo | <p>(+)-EMD 57033 (0.4 or 0.8 mg/kg/min; i.v.drip; over than 20 min) enhances contractility and achieves Ca²⁺ sensitization in intact failing hearts at substantial energetic savings and without compromise of diastolic function in dogs^[4]. 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>Mongrel dogs implanted with a micromanometer in left ventricle (LV) at the apex via lateral thoracotomy^[4]</td> </tr> <tr> <td>Dosage:</td> <td>0.4 or 0.8 mg/kg/min</td> </tr> <tr> <td>Administration:</td> <td>Intravenous drip; infused over 20 minutes</td> </tr> <tr> <td>Result:</td> <td>Enhanced contractility at both doses, with similar changes in CON (conscious dogs) and HF (heart failure dogs) hearts. Decreased the end-diastolic pressure (EDP) and lowered arterial load or preload at 0.8 mg/kg/min.</td> </tr> </table> | | Animal Model: | Mongrel dogs implanted with a micromanometer in left ventricle (LV) at the apex via lateral thoracotomy ^[4] | Dosage: | 0.4 or 0.8 mg/kg/min | Administration: | Intravenous drip; infused over 20 minutes | Result: | Enhanced contractility at both doses, with similar changes in CON (conscious dogs) and HF (heart failure dogs) hearts. Decreased the end-diastolic pressure (EDP) and lowered arterial load or preload at 0.8 mg/kg/min. |
| Animal Model: | Mongrel dogs implanted with a micromanometer in left ventricle (LV) at the apex via lateral thoracotomy ^[4] | | | | | | | | | |
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| Administration: | Intravenous drip; infused over 20 minutes | | | | | | | | | |
| Result: | Enhanced contractility at both doses, with similar changes in CON (conscious dogs) and HF (heart failure dogs) hearts. Decreased the end-diastolic pressure (EDP) and lowered arterial load or preload at 0.8 mg/kg/min. | | | | | | | | | |

REFERENCES

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- [1]. Wang X, et al. Structure of the C-domain of human cardiac troponin C in complex with the Ca²⁺ sensitizing drug EMD 57033. J Biol Chem. 2001 Jul 6;276(27):25456-66.
- [2]. Ochala J, et al. EMD 57033 partially reverses ventilator-induced diaphragm muscle fibre calcium desensitisation. Pflugers Arch. 2010 Feb;459(3):475-83.
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- [4]. Senzaki H, et al. Improved mechanoenergetics and cardiac rest and reserve function of in vivo failing heart by calcium sensitizer EMD-57033. Circulation. 2000 Mar 7;101(9):1040-8.
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Caution: Product has not been fully validated for medical applications. For research use only.

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