

SPAI-1

Cat. No.:	HY-P3711
CAS No.:	131359-77-8
Molecular Formula:	C ₂₄₅ H ₃₈₆ N ₇₂ O ₆₅ S ₈
Molecular Weight:	5628.57
Sequence Shortening:	LLSKRGHCPRILFRCLSNPSNKCWRDYDCPGVKKCEGFCGKDCLYPK (Disulfide bridge:Cys8-Cys37,Cys15-Cys41,Cys24-Cys36,Cys30-Cys45)
Target:	Na ⁺ /K ⁺ ATPase
Pathway:	Membrane Transporter/Ion Channel
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.

BIOLOGICAL ACTIVITY

Description	SPAI-1 is a specific inhibitor for monovalent cation transporting ATPases. SPAI-1 is a peptide isolated from porcine duodenum, inhibits Na ⁺ , K ⁺ -ATPase and H ⁺ , K ⁺ -ATPase in vitro, stimulates Mg ²⁺ -ATPase ^{[1][2]} .
In Vitro	<p>SPAI-1 (10 nM; 2.5 hr) inhibits Na⁺, K⁺-ATPase by the competitive mode against Na⁺ and is uncompetitive with K⁺. The IC₅₀ of Na⁺, K⁺-ATPase inhibition effect is 0.12 μM^[1].</p> <p>SPAI-1 (3-10 μM; 10 or 20 min) significantly inhibits Na⁺, K⁺-ATPase^[2].</p> <p>SPAI-1 (0.1-100 μM; 10 or 20 min) shows light difference between enzyme preparations from dog and rat. As isoforms of Na⁺, K⁺-ATPase obtained from rats, SPAI-1 shows inhibition with IC₅₀s of 8.7-24.6 μM; as for isoforms of Na⁺, K⁺-ATPase obtained from dog, SPAI-1 shows inhibition with IC₅₀s of 11.6-17.5 μM^[2].</p> <p>SPAI-1 (0.1-100 μM; 10 or 20 min) stimulates ouabain-insensitive Mg²⁺-ATPase at high concentration but failed to inhibit Ca²⁺-ATPase^[2].</p> <p>SPAI-1 (0.01-50 μM; 10 or 20 min) also inhibits H⁺, K⁺-ATPase with an IC₅₀ value of 5 μM^[2].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>

REFERENCES

- [1]. Araki K, et al. Novel peptide inhibitor (SPAI) of Na⁺, K⁺-ATPase from porcine intestine. *Biochem Biophys Res Commun.* 1989 Oct 16;164(1):496-502.
- [2]. Ishizuka N, et al. Na⁺,K⁽⁺⁾-ATPase inhibition by an endogenous peptide, SPAI-1, isolated from porcine duodenum. *Biochim Biophys Acta.* 1991 Nov 4;1069(2):259-66.

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

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