

Supplementary material

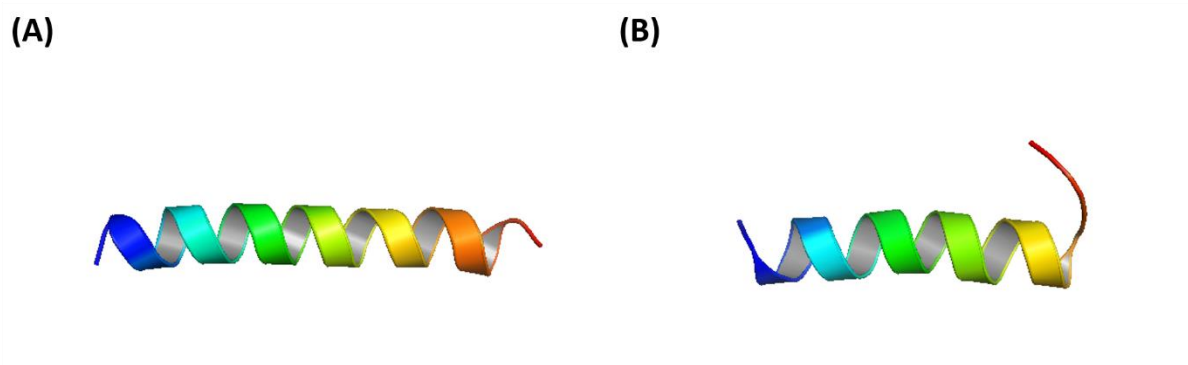


Figure S1: Energy-minimized 3D structure of Hg-CATH and Pb-CATH4. 3D structure of Hg-CATH (A) and Pb-CATH4 (B) were analyzed by LOMETS server and visualized by Pymol after energy minimization was conducted using Gromacs. Both peptides contain alpha-helical structure.

(A)

Peptides	Sequences and secondary structure predictions of mammalian cathelicidins with anti-HSV-1 activity																																					
Hg-CATH	S	K	F	F	R	K	A	R	K	K	L	G	K	G	L	Q	K	I	K	N	V	L	R	K	Y													
	c	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	c												
Pb-CATH4	T	R	S	R	W	R	R	F	I	R	G	A	G	R	F	A	R	R	Y	G	W	R	I	A														
	c	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	c	c	c	c	c														
LL-37	L	L	G	D	F	F	R	K	S	K	E	K	I	G	K	E	F	K	R	I	V	Q	R	I	K	D	F	L	R	N	L	V	P	R	T	E	S	
	c	c	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	
BMAP-28	G	G	L	R	S	L	G	R	K	I	L	R	A	W	K	K	Y	G	P	I	I	V	P	I	I	R	I	G										
	c	c	h	h	h	h	h	h	h	h	h	h	h	h	h	h	c	c	c	e	e	e	e	e	e	e	e	c	c									
Indolicidin	I	L	P	W	K	W	P	W	W	P	W	R	R																									
	c	c	c	c	c	c	c	c	c	c	c	c																										

h (alpha-helix)

e (extended strand)

c (random coil)

(B)

Peptide	Net charge (+)	Alpha helix (%)	Extended strand (%)	Random coil (%)
Hg-CATH	11	92	0	8
Pb-CATH4	9	75	0	25
LL-37	6	73	0	27
BMAP-28	8	50	25	25
Indolicidin	4	0	0	100

Figure S2: Comparison of sequences and secondary structure predictions of five cathelicidins with anti-HSV-1 activity. The sequence-dependent peptide characteristics of the peptides were analysed such as length, hydrophobicity, amphipathicity, net charge and helicity.

Table S1 : The sequence similarity of five cathelicidins with anti-HSV-1 activity.

	Hg-CATH	Pb-CATH4	LL-37	BMAP-28	Indolicidin
Hg-CATH	100	20	32	17	0
Pb-CATH4	-	100	14	25	12
LL-37	-	-	100	16	5
BMAP-28	-	-	-	100	10

Note. Global alignment analysis was performed using National Center for Biotechnology Information Search database (NCBI).