Fig. S1 MALDI-TOF mass spectrometry analysis of cathelicidin-NV

Fig. S2 Multi-sequence alignment of cathelicidin-NV precursor with other amphibian cathelicidins. The symbols under the alignment indicate the following: *asterisk* identical sites; *colon* conserved sites; *dot* less conserved sites. *Dashes* are inserted to optimize the alignment. The two conserved cysteine residues involved in disulfide bridges are *gray shaded*.

Fig. S3 The activity on the motility and proliferation of keratinocytes and fibroblasts of the scrambled version of cathelicidin-NV (sNV) and sCathelicidin-NV. Cultured keratinocytes (A) and fibroblasts (B) were treated with vehicle (Control), sNV and sCathelicidin-NV with indicated concentration and relative cell numbers were estimated by O.D readings. Values are the mean ± SEM (n = 5). *, $P < 0.05$; **, $p < 0.01$ compared with control; ##, $p < 0.01$ compared with sNV.

Table S1 Primer sequences used for cloning in this study

Table S2 Antimicrobial activity of cathelicidin-NV

The results were calculated from three independent experiments in duplicates. ND, no detectable antimicrobial activity of cathelicidin-NV at concentration up to 200 μg/ml. MIC, minimal inhibitory concentration.

Fig. S1

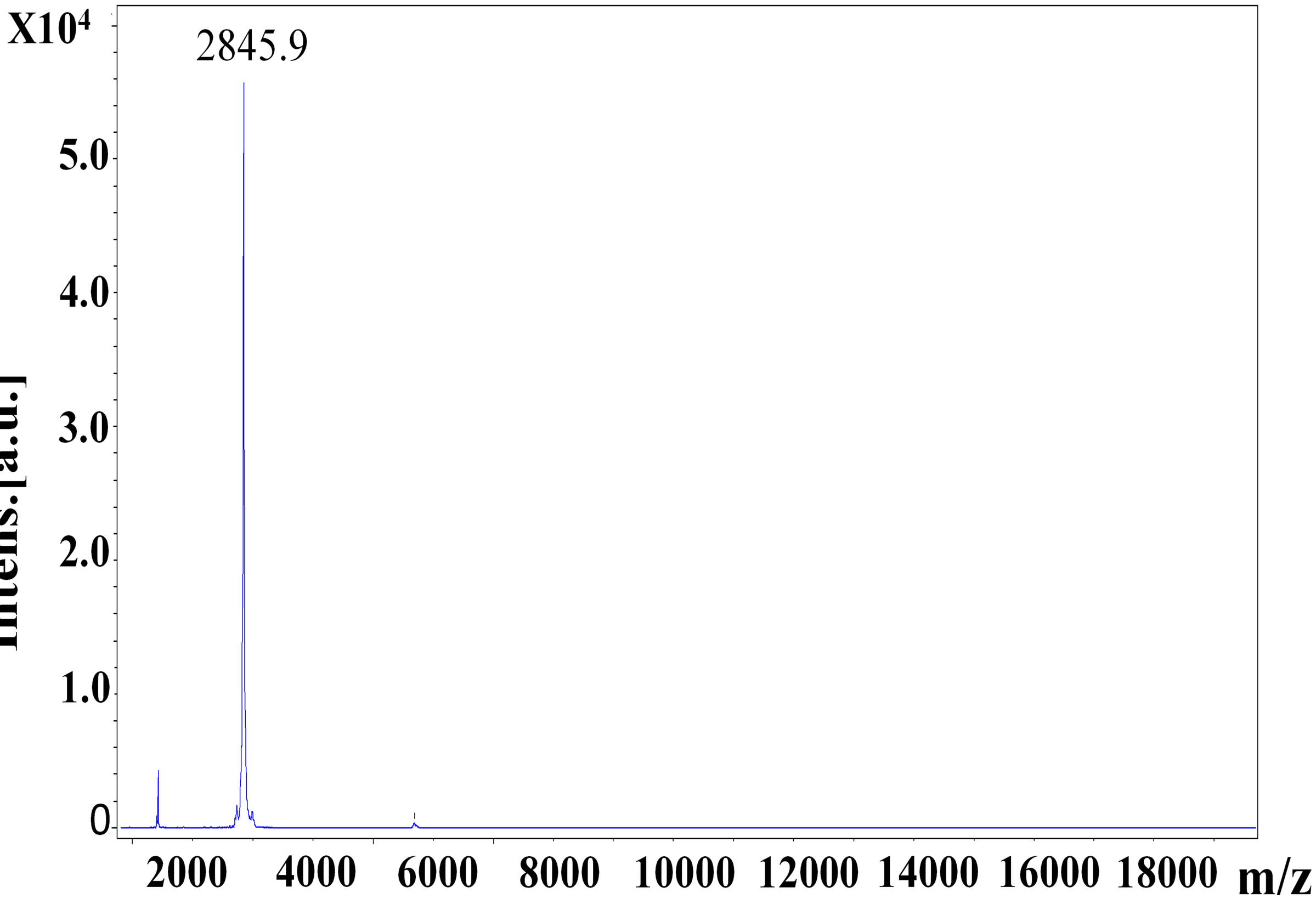
X10^4
2845.9
5.0
4.0
3.0
2.0
1.0
0
Intens.[a.u.]
2000
4000
6000
8000
10000
12000
14000
16000
18000
m/z

Fig.S2

```
Frog:Cathelicidin-NV          MKVWQCALWIS-ALTWQAARSQSPDREE----WIREALDLYNQREDGEFFFKFLSDLPAA
Frog:Cath-2-like-isoform X1   MKVWQCALWIS-ALTLQAARSQSPDREE----WIREALDLYNQREDGEFFFKFLSDLPAA
Frog:Cath-2-like isoform X2   MKVWQCALWIS-ALTLQAARSQSPDREE----WIKEALDLYNQREDGEFFFKFLSDLPAA
Frog:Na_CRAMP-like peptide    MKVWQCALWIS-ALTLQAARSQSPDREE----WIKEALDLYNQREDGEFFFKFLSDLPAA
Frog:Lf-CATH1                 MKIWQCVLWLS---AVTLARSQFLDQDG----WIREALDLYNQREDGEYFFKVLSDVPAD
Frog:Lf-CATH2                 MKIWQCVLWLS---TVTWARSQSPDQDG----WVREALDLYNQREDGEFYFKLLSDLPAA
Toad:Cathelicidin-DM          MRSWRLSLLLVSAVTLHGCLSDPAEPEVQDGRSIEDVIDLYNQREGVTYLYKSLDQLPPV
                              *: *:  * :    :   . *:  : :      :.:.:******.  : :* *.::*.

Frog:Cathelicidin-NV          PLEEE-NNPTISFLIKETECLKSEDINLEECDYKKDGEVKVCGLYPEEGETMKTLKCVSL
Frog:Cath-2-like-isoform X1   PLEEEGDSPAIGFLIKETDCPKSEDCDLEKRDYRKDGEVKVCALYREE----EDVKCVSL
Frog:Cath-2-like isoform X2   PLEEEGDSPAIGFLIKETDCPKSEDCDLEKRDYRKDGEVKVCALYREE----EDVKCVSL
Frog_Na_CRAMP-like peptide    PLEEE-NNPTIAFLIKETECLKSEDINLEECDYKKDGEVKVCGLYPAEGETMKTLKCVGL
Frog:Lf-CATH1                 LLQE-GESPEVAFLIKETECLKSEDNELARCDYKNDGEVKACGLYLEEGEASGTLKCVSL
Frog:Lf-CATH2                 LLQEEGDSPAVGFLIKETECRKSEAGDPEQCDYRQDGEVKVCALYREE----EEVKCVSL
Toad:Cathelicidin-DM          PMEEDENPNRRGFIMKETVCLKSENPDLTQCDFKPDGDVKICSLDLGD-EDPEDIMCFSL
                               ::*  :    .*::*** * ***  :  . *:: **:** *.*   :      : *..*

Frog:Cathelicidin-NV          TKFHT-KRARGKKECKDDRCRLLMKRGSFSYV--------------146 aa [Nanorana ventripunctata]
Frog:Cath-2-like-isoform X1   SKDSRTRRSGTKRNCNFLCKVKQRLRSASSTSHIGMAIPRPRG----154.aa [Nanorana parker]
Frog:Cath-2-like isoform X2   SKDSRTRRSGTKRNCNFLCKVKQRLRSASSTSHIGMAIPRPRG----154.aa [Nanorana parker]
Frog_Na_CRAMP-like peptide    TKANGKAESAVKIVKNVCKKAQSDGKDQWKAILQWRNTPTVGMDSSC161 aa [Nanorana parker]
Frog:Lf-CATH1                 TKNPRMKPANRRPPCRGIFCRRVGSSSAIARPGKTLSTFITV-----155 aa [Limnonectes fragilis]
Frog:Lf-CATH2                 TENSRIRRANKKGKCNVLCQLKQKLRSIGSGSHIGSVVLPRG-----151 aa [Limnonectes fragilis]
Toad:Cathelicidin-DM          NKEVRMKRSSRRKPCKGWLCKLKLRGGYTLIGSATNLNRPTYVRA---164 aa [Duttaphrynus melactus]
                              .:
```

Fig.S3

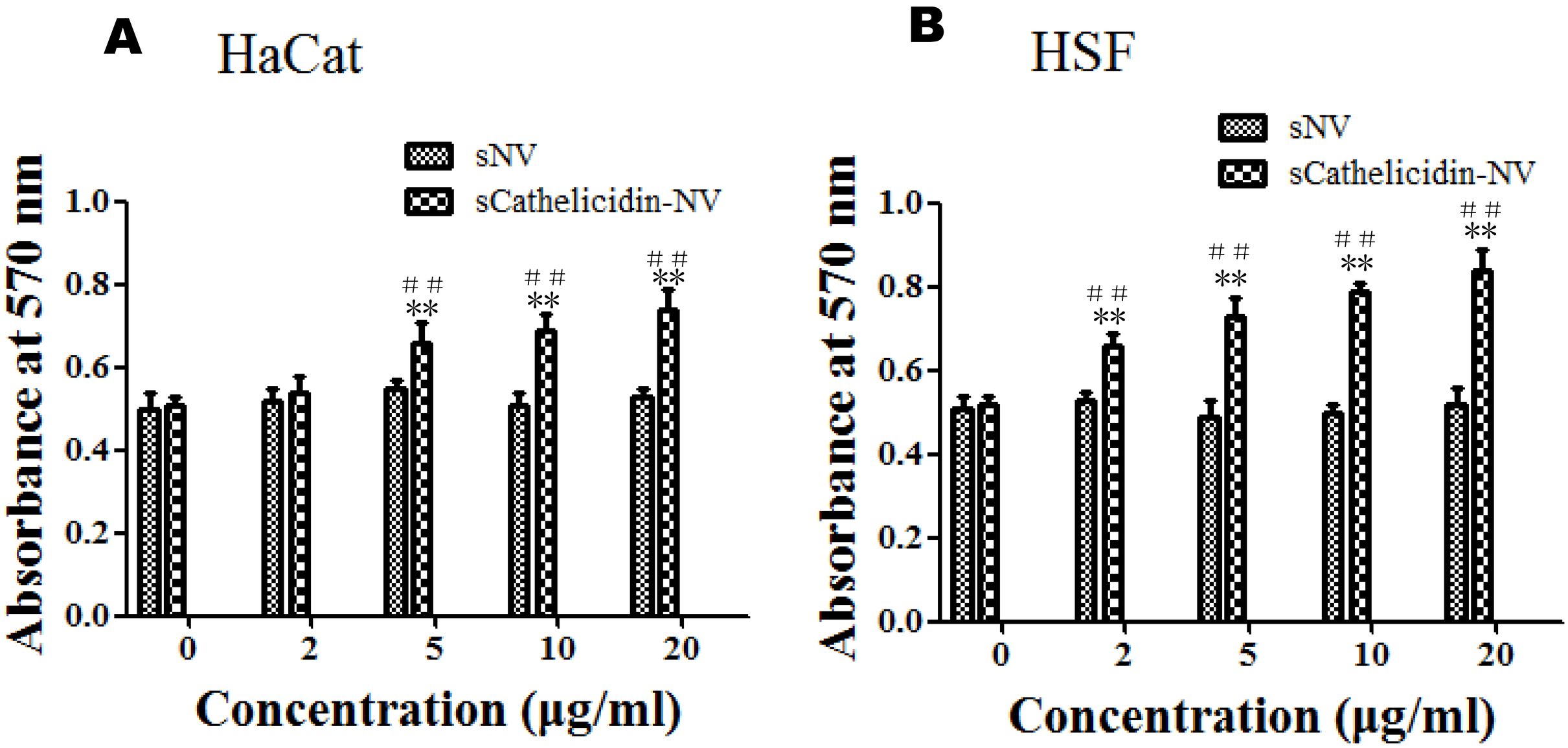
A
HaCat
B
HSF
sNV
sCathelicidin-NV
Absorbance at 570 nm
1.0
0.8
0.6
0.4
0.2
0.0
0
2
5
10
20
Concentration (μg/ml)
# #
**

Table S1. Primer sequences used for cloning in this study

Primer	Sequence (5’→3’)	application
Cathelicidin-NV-R_1	CYTTRCAYTCYTTYTTNCC*	5’ end screening
5’ PCR primer	AAGCAGTGGTATCAACGCAGAGT	5’ end screening
Cathelicidin-NV-F_1	ATGAAGGTCTGGCAGTGTGCGCTAT	3’ end screening
3’ PCR primer	CGGGGTACGATGAGACACCA	3’ end screening

*Where Y stands for C or T; R stands for A or G; N stands for A, C, G or T.

Table S2. Antimicrobial activity of cathelicidin-NV

Microorganisms	MIC (μg/ml)
Gram-positive bacteria	
Staphylococcus aureus ATCC2592	ND
Staphylococcus haemolyticus ATCC 29970	ND
Staphylococcus epidermidis ATCC 12228	ND
Streptococcus pyogenes ATCC19615	ND
Bacillus subtilis subtilis ATCC 6633	ND
Enterococcus faecalis ATCC29212	ND
Micrococcus luteus ATCC 4698	ND
Gram-negative bacteria	
Escherichia coli ATCC25922	ND
Salmonella paratyphi A ATCC 9150	ND
Salmonella typhimurium ATCC 14028	ND
Pseudomonas aeruginosa ATCC 27853	ND
Acinetobacter junii ATCC 17908	ND
Acinetobacter baumannii ATCC 17978	ND
Fungi	
Candida albicans ATCC 14053	ND
Candida glabrata ATCC 66032	ND