

Supplemental Table S1. Primers used in this study.

Name	Sequence	Remarks
oligo(dT)	5'-GGCCACGCGTCGACTAGTACTTTTTTTTTTTTTTTT-3'	cDNA synthesis for 3'-RACE
RT-AKPI1-F	5'-AYGAYGTNGARCARGTNAARGAYATHAAYG-3'*	Degenerated PCR (forward)
RT-AKPI1-R	5'-GRTGNCCYTCNGGNCCNCCDATNCCNACNG-3'*	Degenerated PCR (reverse)
3-AKPI1-F	5'- TTGAGTTCGAGAGAAGCCTCGATGTGCTG -3'	PCR for 3'-RACE (forward)
dT	5'-GGCCACGCGTCGACTAGTAC-3'	PCR for 3'-RACE (reverse)
5-AKPI1-RT	5'-GGATTTCATTGTCCAC-3'	cDNA synthesis for 5'-RACE
SLIC	5'-GTAGGAATTCGGGTTGTAGGGAGGTCGACATTGCC-3'	Ligation with single stranded cDNA for 5'-RACE
AP1	5'-GGCAATGTCGACCTCCCTACAAC-3'	1st PCR for 5'-RACE (forward)
AP2	5'-CTCCCTACAACCCGAATTCCTAC-3'	2nd PCR for 5'-RACE (forward)
5-AKPI1-R1	5'-CACTGACCATTGGAAGATTCAGCACATCG -3'	1st PCR for 5'-RACE (reverse)
5-AKPI1-R2	5'- CAGGTGGACCCATGATTGCTGGCATAATGT -3'	2nd PCR for 5'-RACE (reverse)
Full-AKPI1-F	5'-GATGCTAATACAAGATCTCTA-3'	Amplification of full-length cDNA (forward)
Full-AKPI1-R	5'-GAGACAGCATAACCATTATTTC -3'	Amplification of full-length cDNA (reverse)
RT-AKPI2-F1	5'- GAYGGNGAYYTNGTNCARAAYG -3'*	1st PCR for degenerated PCR (forward)
RT-AKPI2-F2	5'- ATHYTNCNGTNGTNCARAAYG -3'*	2nd PCR for degenerated PCR (forward)
RT-AKPI2-R1	5'- TRTCDATRTCNCCNSWYTNG -3'*	1st PCR for degenerated PCR (reverse)
RT- AKPI2-R2	5'- RTCRTGYTCRAARAANACNA -3'*	2nd PCR for degenerated PCR (reverse)
3-AKPI2-F1	5'- CCTTGGGTTCACTTCTTCGCCGCGGTGTGC -3'	1st PCR for 3'-RACE (forward)
3-AKPI2-F2	5'- CTCCTTGGTGGACTATTGTCGAGAGTAAAC-3'	2nd PCR for 3'-RACE (forward)
5-AKPI2-RT	5'- CGCTTCTTCACTTGG -3'	cDNA synthesis for 5'-RACE
5-AKPI2-R	5'- CGACAGTGAGAGGGCATGTT -3'	PCR for 5'-RACE (reverse)
Full-AKPI2-F	5'- GATTACCAACTGAACAAGAAAAGAAAGCC -3'	Amplification of full-length cDNA (forward)
Full-AKPI2-R	5'-GAAGGCACAAGCTTTGATTATTTTATTAG -3'	Amplification of full-length cDNA (reverse)
EX-AKPI2-F	5'-GGACATATGAATCCCGTGCTCGAT-3'	Expression of recombinant AKPI2 (forward)
EX-AKPI2-R	5'-CTTGATCCTCATGCAGTCGATGATGTAGC-3'	Expression of recombinant AKPI2 (reverse)

* The standard of the mix base definitions are listed as following: Y: C and T; N: A, C, G and T; R: A and G; H: A, C and T; M: A and C; S: C and G; W: A and T; D: A,G and T.

Supplemental Table S2. Inhibitory activities of rAKPI2 toward proteases.

Molar ratio (I/E)	Inhibitory activity (%)		
	Papain	Subtilisin	Elastase
0.1	0	0	0
1	0	0	2.1
10	0	0	8.5