

## Supplementary Material

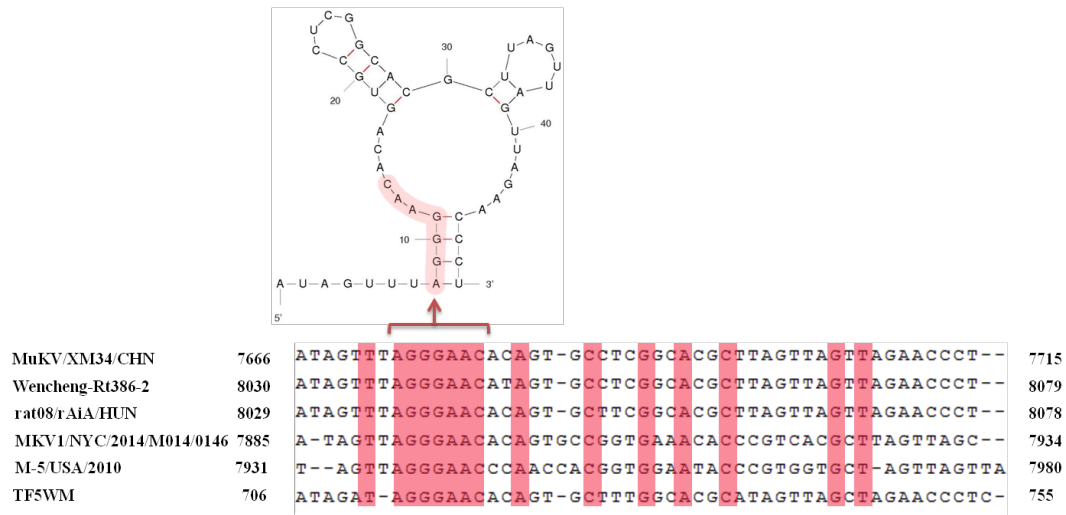
**Table S1 Information for primer sequences**

Reaction number	Primer name	Primer sequences (5'-3')	Size of PCR products (bp)
1	MuKV-181-F	TCCTGACTCCCACGGGTTGACC	1065
	MuKV-1224-R	TTGGTGGTGGGAATTGCCCTGGC	
2	MuKV-771-F	CTGCTGTYGCTGCCTCCTCCAC	1180
	MuKV-1929-R	GGGTACGCACGCACGAAGGARA	
3	MuKV-1797-F	CCACYGGCTGGAACCTTGCAGG	1498
	MuKV-3273-R	ATGGCAGCAAGACCAGARGTRT	
4	MuKV-2570-F	CCAGTYTCCCCAAGCGCCATTG	1198
	MuKV-3746-R	CCGCGACRGTCTTCTCTGGAGA	
5	MuKV-3349-F	WAACCCCAATGGTCTCCCAGTC	1170
	MuKV-4497-R	ACAGACATGGGGGTAGGAGARC	
6	MuKV-4101-F	CATTGGCTCTCGGAGTCGGTGC	1460
	MuKV-5539-R	RCGGACCGTGTGGAYTGGAAR	
7	MuKV-5299-F	CCTCCCCATGGCATCTCTGGAA	910
	MuKV-6187-R	GAGAAGGCGGGTRTGGTGGGGT	
8	MuKV-5936-F	ATYCCCCTTGCCCGCTCYCTTT	1325
	MuKV-7239-R	TTGCARCCAACCGCRCAACCAT	
9	MuKV-6952-F	CGCGGGTTTCCCCTGGAACACC	562
	MuKV-7492-R	GGARGTGGCCACACAMCCGGAG	
10	MuKV-7361-F	GCCTTCWCCCTCGTGGCCAARC	890
	MuKV-8229-R	CTCAAAGACAACCCTGGCCCGC	

R: A/G; Y: C/T; W: A/T; M: A/C

**Table S2** Sample collection and information on MuKV detection

Region	<i>Rattus norvegicus</i>		<i>Rattus tanezumi</i>		<i>Rattus losea</i>		Total
	Number of	Prevalence	Number of	Prevalence	Number of	Prevalence	
	samples		samples		samples		
<b>Xiamen</b>	19	21.1% (4/19)	18	11.1% (2/18)	59	10.2% (6/59)	12.5% (12/96)
<b>Malipo</b>	47	31.9% (15/47)	1	100% (1/1)	0	-	33.3% (16/48)
<b>Yiyang</b>	80	27.5% (22/80)	19	34.6% (6/19)	0	-	28.3% (28/99)
<b>Total</b>	146	28.1% (41/146)	38	23.7% (9/38)	59	10.2% (6/59)	23.0% (56/243)



**Figure S1 Predicted barbell-like structure of partial 3'UTR of MuKV/XM34/CHN and sequence alignment of partial 3'UTRs of MuKVs.** The sequence alignment in the 49-nt partial 3'UTRs begins after the stop codon, and the numbers on both sides of the sequences indicate the nucleotide position. The reference *Kobuvirus* sequences include Wencheng-Rt386-2 (accession no. MF352432.1), rat08/rAiA/HUN (accession no. MN116647.1), MKV1/NYC/2014/M014/0146 (accession no. MF175074.1), M-5/USA/2010 (accession no. JF755427.1) and TF5WM (accession no. JQ408726.1).