

Sexual selection and the adaptive evolution of PKDREJ protein in primates and rodents

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Supplementary data

Supplementary Figure S1 Amino acid alignment of PKDREJ in Muroidea.

Supplementary Figure S2 Cladograms of rodents used for evolutionary analyses.

Supplementary Table SI Primers used for amplification of PKDREJ in rodent species.

Supplementary Table SII Body mass, testes mass and residual testes mass of primate species.

Supplementary Table SIII Body mass, testes mass and residual testes mass of rodent species.

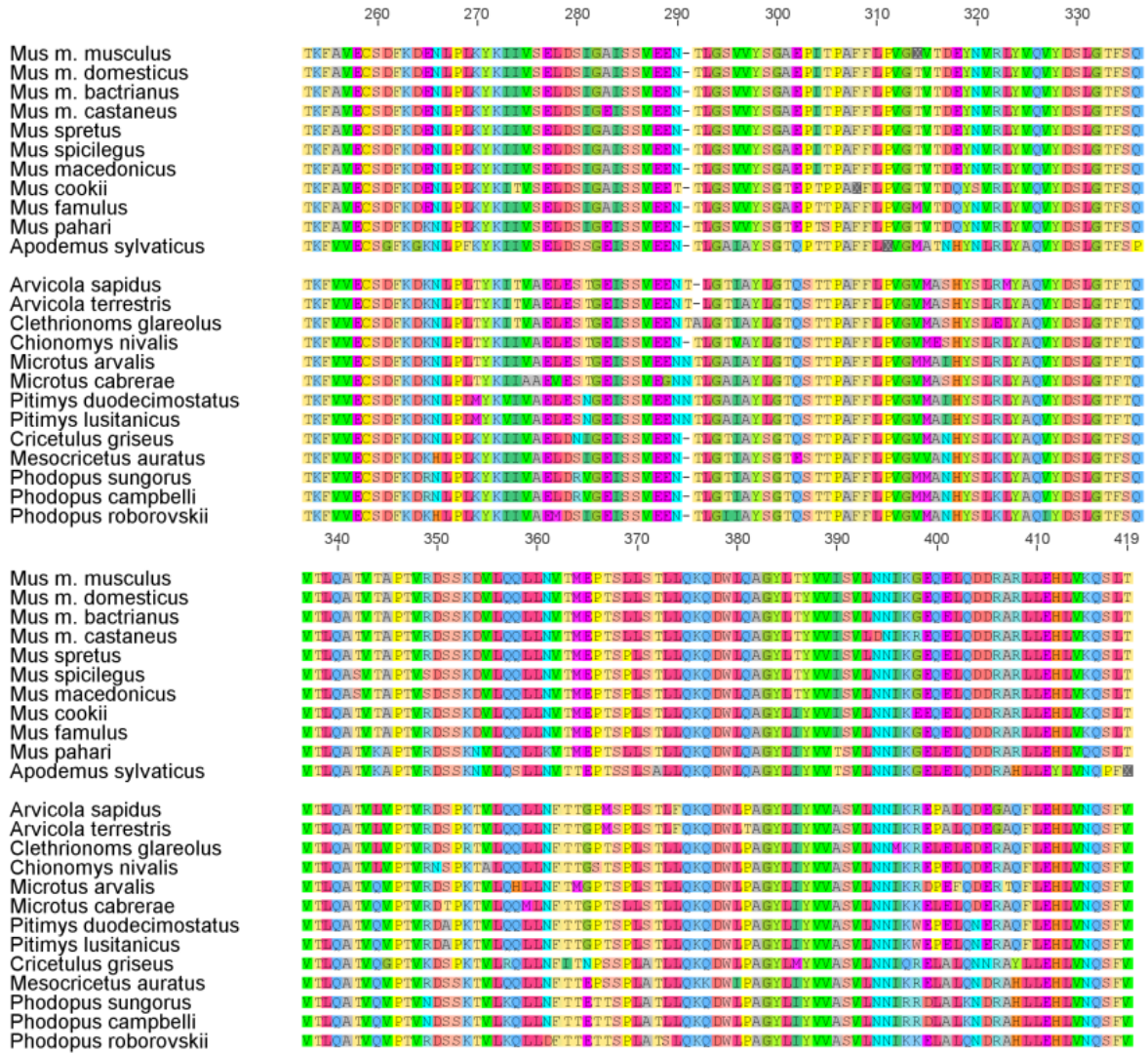
Supplementary Table SIV Lineage-specific evolutionary rates of PKDREJ in rodents.

Supplementary Figure S1 Amino acid alignment of PKDREJ in Muroidea. Protein sequences of the REJ domain for the 24 muroid species used in the study are shown.

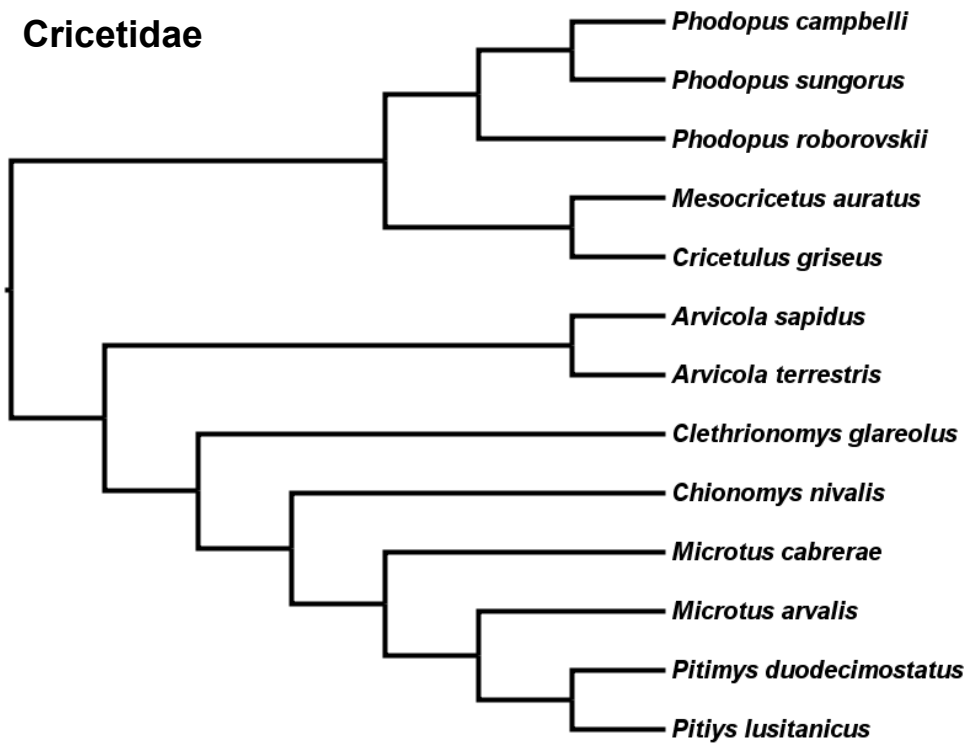
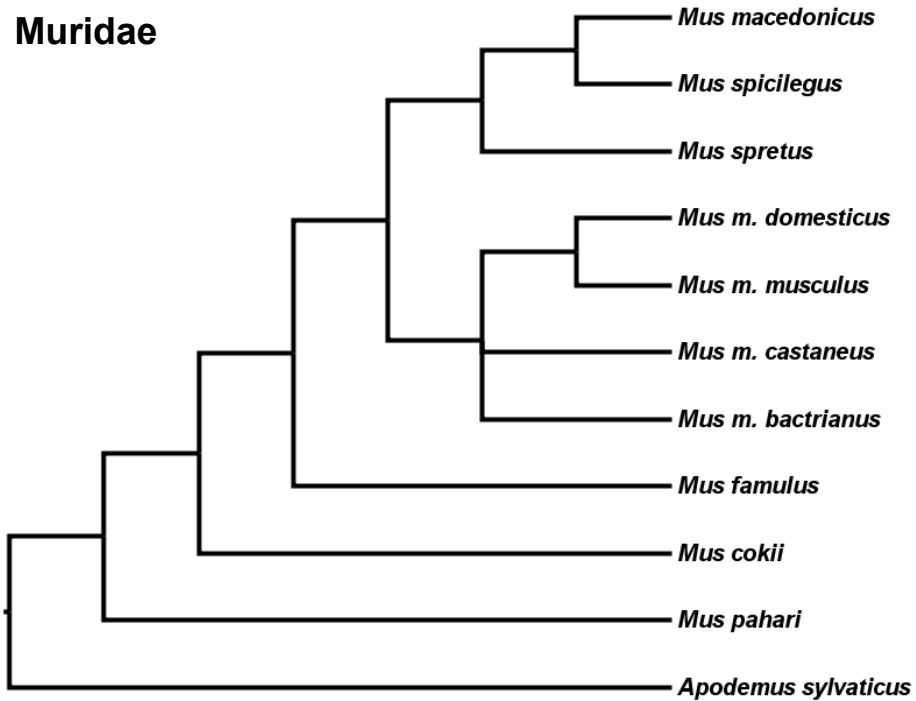


(cont.)

Supplementary Figure S1 (cont.)



Supplementary Figure S2 Cladograms of rodents used for evolutionary analyses. The analyses were performed considering the two possible topologies derived from the polytomy of *Mus musculus* subspecies.



Supplementary Table SI Primers used for amplification of PKDREJ in rodent species.

Primer	Sequence
PKDREJ 1-Fw	TTACGGGGTGTATGTGTTAAC
PKDREJ 1-Rv	CTGGGTAAATTTGGTAATCAC
PKDREJ 3-Rv	TCGTCCTCTGTGTTTCATAGCAA
PKDREJ Vol 1-Fw	CTGTCCATCAACAGGTGGGA
PKDREJ Vol 1-Rv	AGTACCCTGGACGAGATCTGC
PKDREJ 1 Ham-Fw	CCTGTAACATACAGTCCGTG
PKDREJ 1 Ham-Rv	ATCACCACCTGGCAGATCTG
Fw int PKDREJ	ATGTTTGACTGGGCAGGGCAAG
Rv int PKDREJ	CCTGCCAGTCAAACATCACTCA

Species	Primer pairs
<i>Mus m. musculus</i> , <i>Mus m. domesticus</i> , <i>Mus m. castaneus</i> , <i>Mus m. bactrianus</i> , <i>Mus spretus</i> , <i>Mus spicilegus</i> , <i>Mus macedonicus</i> , <i>Mus famulus</i> , <i>Mus cokii</i> , <i>Apodemus sylvaticus</i> .	PKDREJ 1-Fw / PKDREJ 1-Rv
<i>Mus pahari</i> .	PKDREJ 1-Fw / PKDREJ 3-Rv
<i>Arvicola sapidus</i> , <i>Arvicola terrestris</i> , <i>Clethrionomys glareolus</i> , <i>Chinomys nivalis</i> , <i>Pitymys duodecimostatus</i> , <i>Pitymys lusitanicus</i> .	PKDREJ 1-Fw / PKDREJ Vol 1-Rv
<i>Microtus arvalis</i> , <i>Microtus cabrerae</i> .	PKDREJ Vol 1-Fw / PKDREJ Vol 1-Rv
<i>Cricetulus griseus</i> , <i>Mesocricetus auratus</i> , <i>Phodopus sungorus</i> , <i>Phodopus campbelli</i> , <i>Phodopus roborovskii</i> .	PKDREJ Ham 1-Fw / PKDREJ Ham 1-Rv

Supplementary Table SII Body mass, testes mass and log residual testes mass of primates.

Species	Body mass (g)	Testes mass (g)	log residual testes mass	Reference
<i>Macaca mulatta</i>	10430	76.0	0.569	Kenagy and Trombulak (1986)
<i>Macaca nemestrina</i>	9980	66.7	0.525	Kenagy and Trombulak (1986)
<i>Ateles geoffroyi</i>	9800	64.2	0.514	Anderson and Dixson (2004)
<i>Pan panyscus</i>	39100	135.2	0.456	Anderson and Dixson (2004)
<i>Pan troglodytes</i>	44340	118.8	0.366	Kenagy and Trombulak (1986)
<i>Homo sapiens</i>	63540	50.2	-0.107	Kenagy and Trombulak (1986)
<i>Callithrix jacchus</i>	320	1.3	-0.24	Kenagy and Trombulak (1986)
<i>Pongo pygmaeus</i>	74640	36.3	-0.292	Kenagy and Trombulak (1986)
<i>Saguinus labiatus</i>	501	1.5	-0.307	Kenagy and Trombulak (1986)
<i>Lemur catta</i>	27000	17.8	-0.322	Anderson and Dixson (2004)
<i>Erythrocebus patas</i>	13000	7.2	-0.515	Anderson and Dixson (2004)
<i>Gorilla gorilla</i>	134000	23.2	-0.648	Kenagy and Trombulak (1986)

Supplementary Table SIII Body mass, testes mass and log residual testes mass of rodents.

Family	Species	Body mass (g)	Testes mass (g)	log residual testes mass
Muridae	<i>Apodemus sylvaticus</i>	30.43	0.962	0.58
	<i>Mus spicilegus</i>	14.49	0.409	0.23
	<i>Mus spretus</i>	17.01	0.295	0.08
	<i>Mus macedonicus</i>	18.40	0.282	0.05
	<i>Mus cookii</i>	23.67	0.305	0.01
	<i>Mus m. bactrianus</i>	18.60	0.175	-0.06
	<i>Mus m. domesticus</i>	16.36	0.135	-0.07
	<i>Mus m. musculus</i>	21.13	0.134	-0.13
	<i>Mus m. castaneus</i>	19.50	0.1	-0.14
	<i>Mus pahari</i>	30.08	0.118	-0.26
	<i>Mus famulus</i>	27.40	0.053	-0.29
Cricetidae	<i>Mesocricetus auratus</i>	88.59	2.893	1.55
	<i>Cricetulus griseus</i>	36.37	2.27	1.41
	<i>Phodopus campbelli</i>	45.38	2.105	1.16
	<i>Phodopus sungorus</i>	39.42	1.211	0.32
	<i>Phodopus roborovskii</i>	21.07	0.706	-0.02
	<i>Chionomys nivalis</i>	43.64	0.851	-0.08
	<i>Arvicola sapidus</i>	209.75	2.144	-0.31
	<i>Clethrionomys glareolus</i>	25.65	0.401	-0.37
	<i>Microtus arvalis</i>	36.40	0.285	-0.58
	<i>Pitimys lusitanicus</i>	17.73	0.093	-0.6
	<i>Pitimys duodecimostatus</i>	29.76	0.076	-0.73
	<i>Microtus cabreræ</i>	44.27	0.142	-0.79
	<i>Arvicola terrestris</i>	91.56	0.411	-0.96

Supplementary Table IV Lineage-specific evolutionary rates of PKDREJ in rodents. Parameters were calculated from the root of the phylogeny to the terminal branches.

Family	Species	dN	dS	ω
Muridae	<i>Mus spicilegus</i>	0.0829	0.1654	0.5013
	<i>Mus spretus</i>	0.0794	0.1786	0.4449
	<i>Mus macedonicus</i>	0.0829	0.1654	0.5015
	<i>Mus cokii</i>	0.0844	0.1617	0.5217
	<i>Mus musculus bactrianus</i>	0.0818	0.1654	0.4944
	<i>Mus domesticus</i>	0.0806	0.1654	0.4873
	<i>Mus musculus musculus</i>	0.0806	0.1654	0.4873
	<i>Mus musculus castaneus</i>	0.0829	0.1680	0.4937
	<i>Mus pahari</i>	0.0775	0.1661	0.4663
	<i>Mus famulus</i>	0.0806	0.1641	0.4910
	<i>Apodemus sylvaticus</i>	0.0627	0.1478	0.4242
Cricetidae	<i>Arvicola sapidus</i>	0.1070	0.2850	0.3754
	<i>Arvicola terrestris</i>	0.1050	0.2930	0.3584
	<i>Clethrionomys glareolus</i>	0.1210	0.3010	0.4020
	<i>Chionomys nivalis</i>	0.1120	0.2810	0.3986
	<i>Microtus arvalis</i>	0.1190	0.2910	0.4089
	<i>Microtus cabrerai</i>	0.1210	0.2910	0.4158
	<i>Pitimys duodecimostatus</i>	0.1210	0.2910	0.4158
	<i>Pitimys lusitanicus</i>	0.1220	0.2940	0.4150
	<i>Mesocricetus auratus</i>	0.0990	0.2230	0.4439
	<i>Cricetulus griseus</i>	0.1210	0.2320	0.5216
	<i>Phodopus sungorus</i>	0.1080	0.2620	0.4122
	<i>Phodopus campbelli</i>	0.1080	0.2620	0.4122
	<i>Phodopus roborovskii</i>	0.1060	0.2880	0.3681