

**Table S2.** Relationship between  $\delta^{18}\text{O}_{\text{enamel}}$ (VSMOW‰) and climate variables including relative humidity (RH, %), mean annual temperature (MT, °C), and  $\delta^{18}\text{O}_{\text{precipitation}}$ ( $\delta^{18}\text{O}_P$ , VSMOW‰) of seven species of extant kangaroos (all primary data are from Ref [8];  $n=694$ , including all tooth positions).

Taxon	n	RH			MT			$\delta^{18}\text{O}_P$		
		R <sup>2</sup>	p-value	slope	R <sup>2</sup>	p-value	slope	R <sup>2</sup>	p-value	slope
<i>Macropus agilis</i>	57	0.12	0.009*	-6.06	0.00	0.942	-0.01	0.00	0.729	-0.14
<i>M. antilopinus</i>	9	0.30	0.127	-7.23	0.00	0.857	0.17	0.00	0.962	-0.05
<i>M. fuliginosus</i>	67	0.63	<0.0001*	-15.42	0.43	<0.0001*	0.82	0.03	0.180	1.56
<i>M. giganteus</i>	185	0.61	<0.0001*	-20.41	0.49	<0.0001*	0.40	0.37	<0.0001*	1.99
<i>M. robustus</i>	57	0.25	<0.0001*	-13.46	0.03	0.227	-0.10	0.02	0.349	-0.28
<i>M. rufogriseus</i>	29	0.56	<0.0001*	-26.89	0.48	<0.0001*	0.51	0.05	0.236	0.88
<i>M. rufus</i>	154	0.20	<0.0001*	-18.98	0.09	<0.001*	-0.27	0.16	<0.0001*	-1.22
<i>Macropus sp.</i>	694	0.51	<0.0001*	-16.93	0.09	<0.0001*	0.17	0.03	<0.0001*	0.57

\*Indicates significant relationships ( $p>0.05$ )