

Table S1 : Results of statistical analyses for the different parameters studied

Tested variable	Test	Effect	DF	Test value	p-value	Effective (<i>M. mattheyi</i> , <i>M. minutoides</i> , <i>M. musculus</i>)
Body mass						
	Kruskal-Wallis	Species	2	64.491	< 0.001	25, 30, 24
Liver mass						
	Linear model	log(body mass)	1	1689.770	< 0.001	
		species	2	4.163	0.022	16, 19, 17
		log(body mass):species	2	6.174	0.004	
Relative liver mass						
	Linear model	log(body mass)	1	19.637	< 0.001	
		species	2	4.163	0.022	16, 19, 17
		log(body mass) :species	2	6.174	0.004	
Mass-specific metabolic rate – log(metabolic rate) as a function of log(body mass)						

	Linear model	log(body mass)	1, 26	159.265	< 0.001	9, 11, 5
		Activation state	1, 29	573.457	< 0.001	
Surface-specific metabolic rate – log(metabolic rate) as a function of log(body mass)						
	Linear model	log(body mass)	1, 26	25.299	< 0.001	9, 11, 5
		Activation state	1, 29	573.457	< 0.001	
Respiratory capacities of permeabilized muscular fibers						
State 2	Kruskal-Wallis	species	2	16,990	< 0.001	15, 18, 10
State 3 _{unc}	Kruskal-Wallis	species	2	19,602	< 0.001	15, 18, 10
Respiratory capacities of skeletal muscle mitochondria						
0 μ M (Oligomycine)	Kruskal-Wallis	species	2	15.975	< 0.001	6, 6, 7
20 μ M ADP	Kruskal-Wallis	species	2	15.583	< 0.001	6, 6, 7
100 μ M ADP	Kruskal-Wallis	species	2	11.991	0.002	6, 6, 7
500 μ M ADP	Kruskal-Wallis	species	2	15.219	< 0.001	6, 6, 7
State 3 _{unc}	Kruskal-Wallis	species	2	12.492	0.002	6, 6, 7
Respiratory capacities of liver mitochondria						
0 μ M (Oligomycine)	Kruskal-Wallis	Species	2	7.050	0.029	6, 6, 11

20 μ M ADP	Kruskal-Wallis	Species	2	11.219	0.004	6, 6, 11
100 μ M ADP	Kruskal-Wallis	Species	2	11.097	0.004	6, 6, 11
State 3 _{unc}	Kruskal-Wallis	species	2	5.672	0.059	6, 6, 11

Maximal ATP syntheses for skeletal muscle and liver mitochondria

Skeletal muscle	Kruskal-Wallis	Species	2	12.952	0.002	6, 6, 7
Liver	Kruskal-Wallis	Species	2	12.68	0.002	6, 6, 11

Mitochondrial efficiency of skeletal muscle

ATP vs. oxygen	Linear mixed-effect model	oxygen	1, 66	4574.604	< 0.001	6, 6, 7
		species	2, 20	22.763	< 0.001	
		Oxygen:species	2, 66	5.686	0.005	

ATP/O vs. log(oxygen)	Linear mixed-effect model	Log(oxygen)	1, 68	485.130	< 0.001	6, 6, 7
		species	2, 20	48.351	< 0.001	

Mitochondrial efficiency of liver

ATP vs. oxygen	Linear mixed-effect model	oxygen	1, 41	485.305	< 0.001	
		species	2, 19	8.152	0.003	6, 6, 11
		Oxygen:species	2, 41	40.562	< 0.001	
ATP/O vs. log(oxygen)	Linear mixed-effect model	Log(oxygen)	1, 43	109.219	< 0.001	
		species	2, 19	2.271	0.088	6, 6, 11