

Table S1. Best-fit models predicting circulating leukocyte concentrations in 400 species of birds and 251 species of mammals. Models test for the effects of body mass on \log_{10} -transformed lymphocyte and granulocyte concentrations.

Taxon	Model	DIC	Δ DIC	λ (unadjusted) [95% CI]	Marginal R^2 [95% CI]	Conditional R^2 [95% CI]	
Lymphocytes							
Birds	1. β_0	-1001.64	53.34	0.89 [0.76:0.93]		0.89 [0.76:0.93]	
	2. $\beta_0 + \beta_1 \times \log_{10}(\text{Mass})$	-1054.98	0.0	0.63 [0.49:0.79]	0.15 [0.07:0.22]	0.79 [0.69:0.88]	
	Heterophils						
	1. β_0	-1018.19	81.09	0.84 [0.75:0.91]		0.84 [0.75:0.91]	
	2. $\beta_0 + \beta_1 \times \log_{10}(\text{Mass})$	-1099.28	0.0	0.61 [0.44:0.73]	0.2 [0.11:0.27]	0.77 [0.7:0.86]	
Lymphocytes							
Non-volant mammals	1. β_0	-434.72	36.79	0.9 [0.76:0.95]		0.9 [0.76:0.95]	
	2. $\beta_0 + \beta_1 \times \log_{10}(\text{Mass})$	-471.51	0.0	0.69 [0.51:0.85]	0.12 [0.05:0.23]	0.86 [0.72:0.92]	
	Neutrophils						
	1. β_0	-602.76	20.36	0.74 [0.5:0.88]		0.74 [0.5:0.88]	
	2. $\beta_0 + \beta_1 \times \log_{10}(\text{Mass})$	-623.12	0.0	0.57 [0.39:0.78]	0.09 [0.03:0.18]	0.7 [0.053:0.84]	

Table S2. Slope coefficients (b) and credible intervals (CI) of fixed effects in the mass model (model 2) for lymphocyte and granulocyte concentrations among 400 species of birds and 251 species of mammals. For birds, model 2 outcompeted (>53 Δ DIC) model 1 (intercept-only). Posterior mean is the mean of the posterior distribution. For non-volant mammals, model 2 outcompeted (>20 Δ DIC) model 1 (intercept-only). Posterior mean is the mean of the posterior distribution.

Taxon	Model		Posterior mean	l-95% CI	u-95% CI
Birds	<u>Lymphocytes</u>				
	2. $\beta_0 + \beta_1 \times \log_{10}(\text{mass})$	Intercept	-0.17	-0.28	-0.04
		Log(mass)	-0.07	-0.09	-0.06
	<u>Heterophils</u>				
	2. $\beta_0 + \beta_1 \times \log_{10}(\text{mass})$	Intercept	-0.56	-0.66	-0.46
		Log(mass)	0.08	0.07	0.1
Non-volant mammals	<u>Lymphocytes</u>				
	2. $\beta_0 + \beta_1 \times \log_{10}(\text{mass})$	Intercept	-0.08	-0.25	0.09
		Log(mass)	-0.08	-0.1	-0.06
	<u>Neutrophils</u>				
	2. $\beta_0 + \beta_1 \times \log_{10}(\text{mass})$	Intercept	-0.47	-0.56	-0.36
		Log(mass)	0.04	0.02	0.05

Table S3. Intercepts, slope coefficients (b ; posterior mean) and credible intervals (CI) of fixed effects in the direct bat/bird/non-volant mammal analysis for **lymphocyte** concentrations among 63 species of bats, 400 species of birds and 251 species of non-volant mammals. Posterior mean is the mean of the posterior distribution. Top models are denoted with bolded text.

Model		Posterior mean	l-95% CI	u-95% CI
3. Null	Intercept	-0.38	-0.67	-0.04
4. Taxon	Intercept	-0.33	-0.82	0.09
	Taxon – Bird	-0.03	-0.64	0.65
	Taxon – Mammal	-0.11	-0.3	0.06
5. Mass	Intercept	-0.15	-0.37	0.08
	Log(mass)	-0.07	-0.09	-0.06
6. Mass+ Taxon	Intercept	-0.27	-0.61	0.1
	Log(mass)	-0.08	-0.1	-0.07
	Taxon – Bird	0.12	-0.34	0.63
	Taxon – Mammal	0.17	0.04	0.32
7. Mass + Taxon + Mass*Taxon	Intercept	-0.31	-0.67	0.04
	Log(mass)	-0.05	-0.12	0.01
	Taxon – Bird	0.15	-0.34	0.64
	Taxon – Mammal	0.25	0.07	0.44
	Log(mass)*Taxon – Bird	-0.02	-0.09	0.04
	Log(mass)*Taxon - Mammal	-0.04	-0.1	0.03

Table S4. Intercepts, slope coefficients (*b*; posterior mean), and credible intervals (CI) of fixed effects in the direct bat/bird/mammal analysis for granulocyte concentrations among 63 species of bats, 414 species of birds and 256 species of non-volant mammals. Posterior mean is the mean of the posterior distribution. Top models are denoted with bolded text.

Model		Posterior mean	l-95% CI	u-95% CI
3. Null	Intercept	-0.32	-0.57	-0.11
4. Taxon	Intercept	-0.42	-0.81	-0.08
	Taxon – Bird	0.06	-0.4	0.56
	Taxon – Mammal	0.12	-0.02	0.25
5. Mass	Intercept	-0.51	-0.67	-0.34
	Log(mass)	0.06	0.05	0.07
6. Mass+ Taxon	Intercept	-0.46	-0.76	-0.2
	Log(mass)	0.06	0.05	0.07
	Taxon – Bird	-0.05	-0.37	0.34
	Taxon – Mammal	-0.09	-0.2	0.03
7. Mass + Taxon + Mass*Taxon	Intercept	-0.46	-0.7	-0.16
	Log(mass)	0.05	0.003	0.11
	Taxon – Bird	-0.11	-0.45	0.23
	Taxon – Mammal	-0.0002	-0.17	0.16
	Log(mass)*Taxon – Bird	0.03	-0.03	0.08
	Log(mass)*Taxon - Mammal	-0.01	-0.06	0.05

Table S5. Bat leukocyte data and endotherm metadata. There are three species of bats where leukocyte data are missing and that is because they originate from Species 360. All captive bird and mammal leukocyte data are available from Species 360.

[Click here to download Table S5](#)

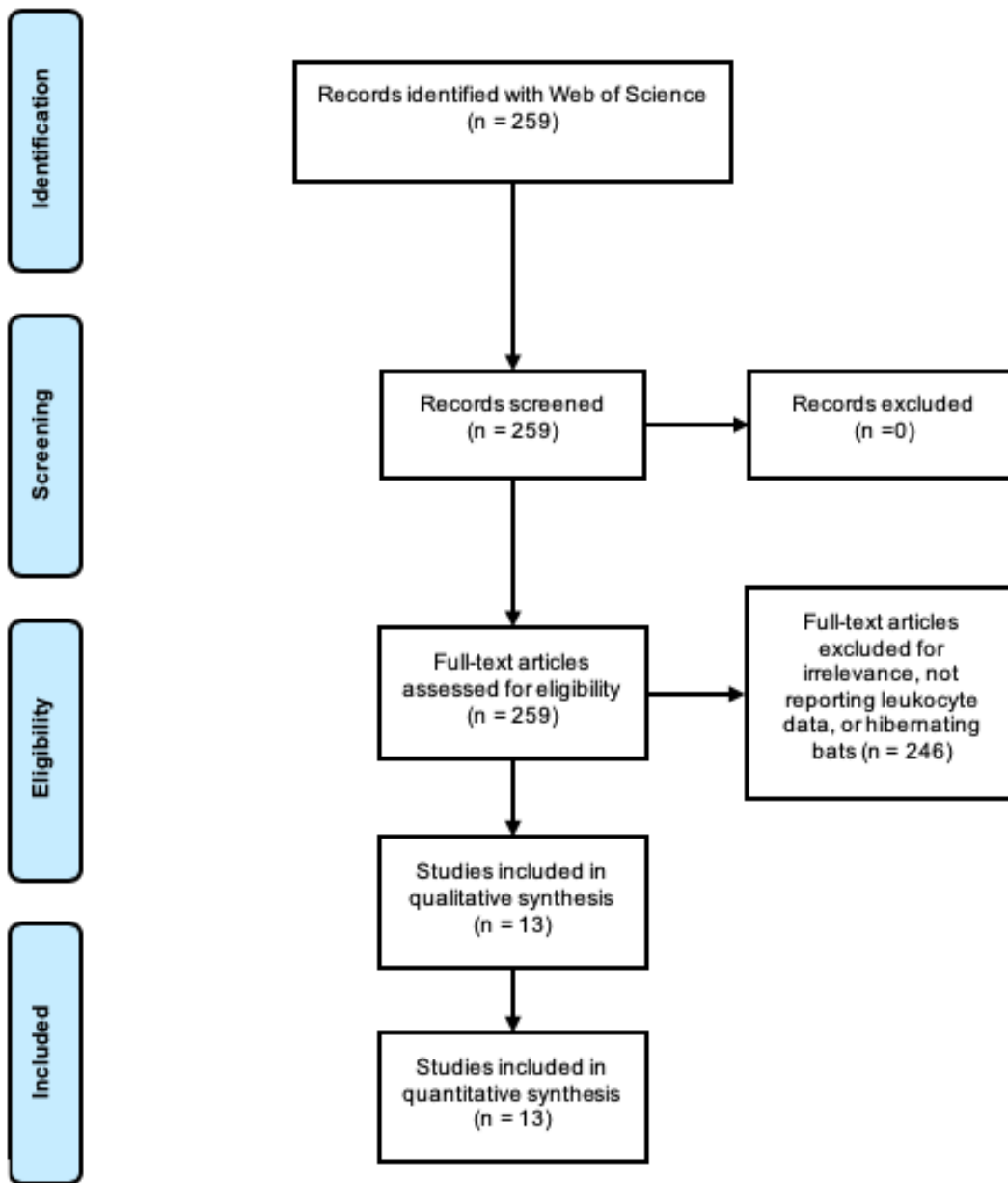


Fig. S1. The data collection and inclusion process for studies of bat leukocyte proportions (PRISMA diagram). Searches used the following string: TS=(bat OR Chiroptera OR flying fox) AND (hematology OR white blood cell OR leukocyte). Searches were run in May 2020. Publications were excluded if they did not assess differential white blood cell counts in bats.

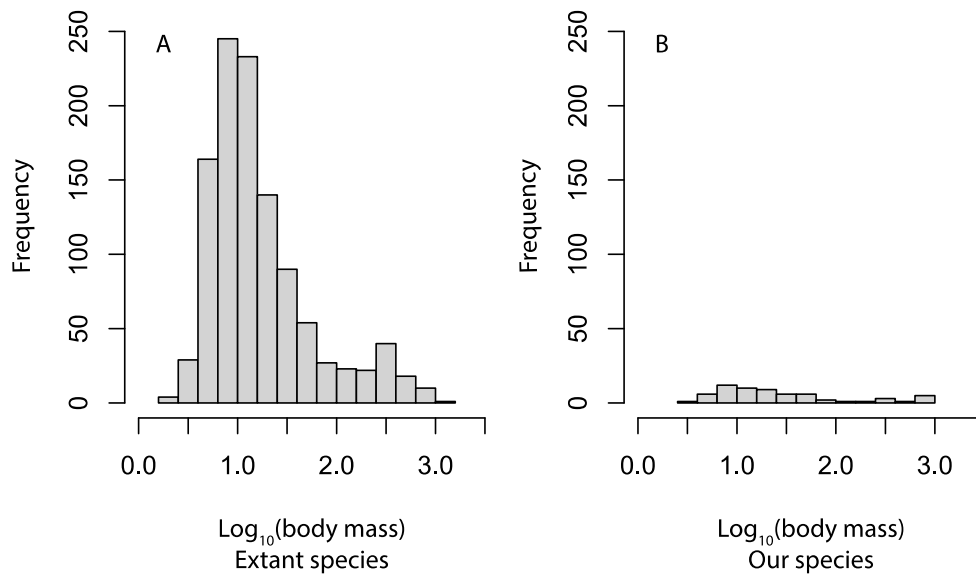


Fig. S2. The frequency distribution of the (A) world's extant bat body mass ($n=1100$) and (B) the bat species used in this study ($n=63$). Data for panel A was taken from Elton traits (Wilman et al. 2014).