

Supplemental Material

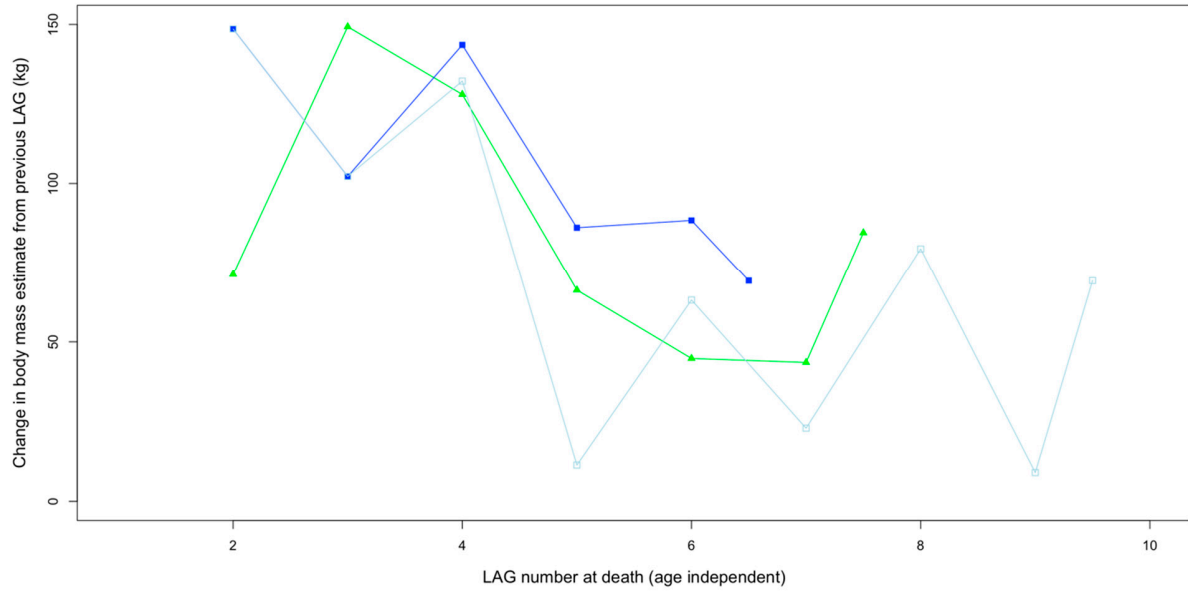


Figure S1. Growth rates in putative *Nanotyrannus* specimens Petey (green, triangles) and Jane, both uncorrected (light blue, open squares) and corrected for split multi-LAGs (dark blue, closed squares). Periosteum is included here as a half-LAG. LAG 1 is not included due to incomplete growth record and challenges of estimating endosteal circumference from Jane's incomplete femur.

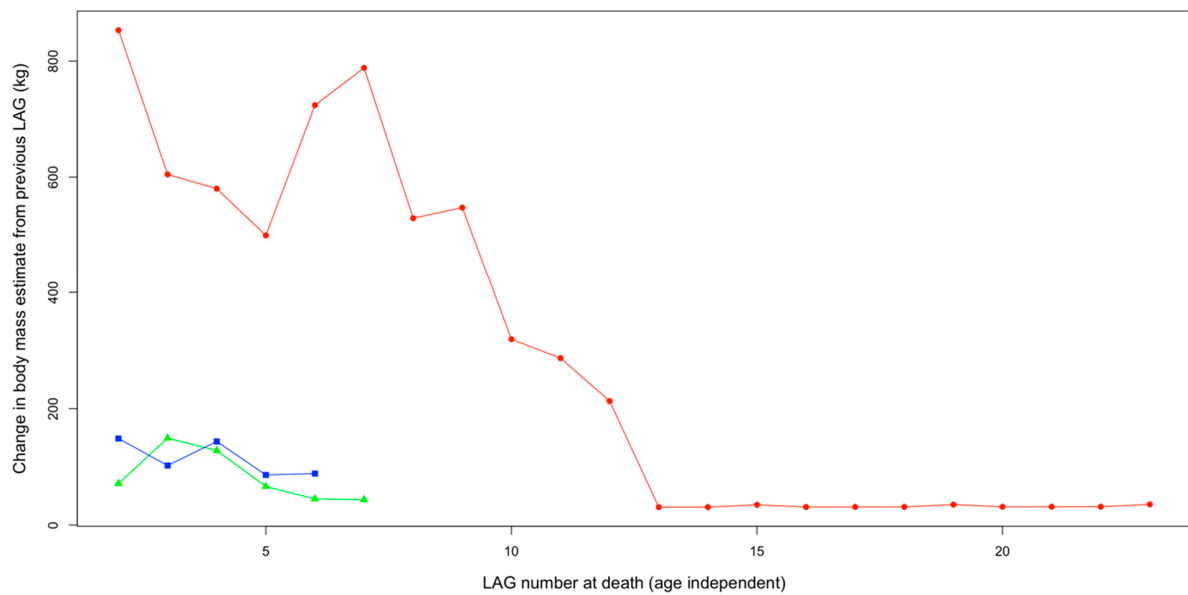


Figure S2. Growth rates in the *T. rex* Sue (red, circles) as well as putative *Nanotyrannus* specimens Petey (green, triangles) and Jane, corrected for split multi-LAGs (dark blue, closed squares). Periosteum is not included here. LAG 1 is not included due to incomplete growth record and challenges of estimating endosteal circumference from Jane's incomplete femur.

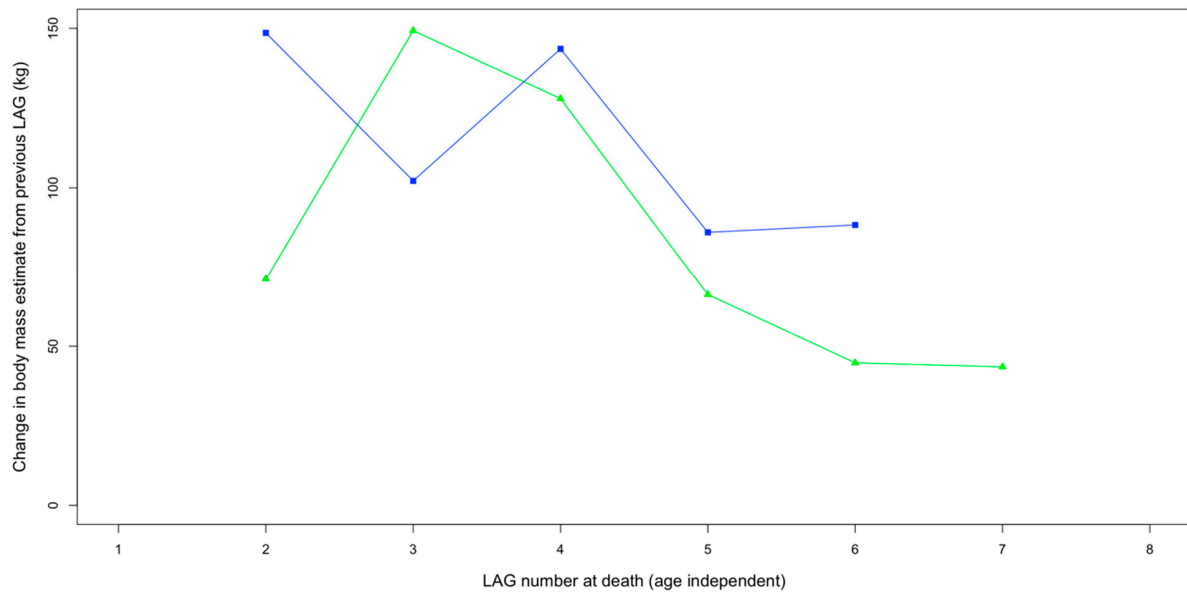


Figure S3. Growth rates in putative *Nanotyrannus* specimens Petey (green, triangles) and Jane, corrected for split multi-LAGs (dark blue, closed squares). Periosteum is not included here. LAG 1 is not included due to incomplete growth record and challenges of estimating endosteal circumference from Jane's incomplete femur.

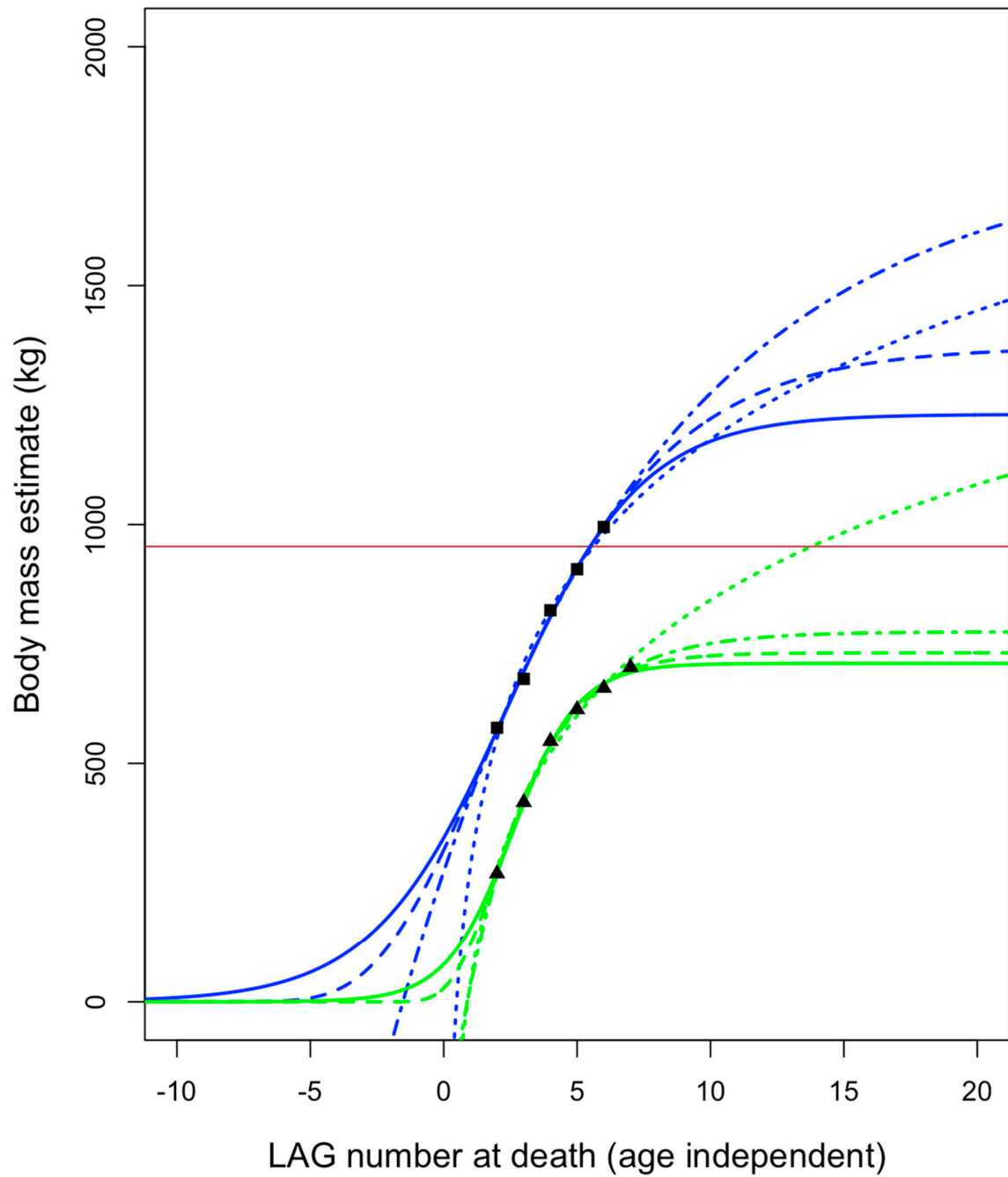


Figure S4. Age-independent growth curves for two *Nanotyrannus* specimens, Petey (green, triangles) and Jane (dark blue, solid squares), corrected for split multi-LAGs as in Cullen *et al.* (2020). LAG #1 and the periosteum are not included in the regressions shown here. Four different growth models are fit to each specimen: logistic (solid), Gompertz (dashed), logarithmic (dotted),

and von Bertalanffy (dot-dash). Brown horizontal line is the mass estimate at time of death for Jane from Hutchinson *et al.* (2011) using 3D modelling.

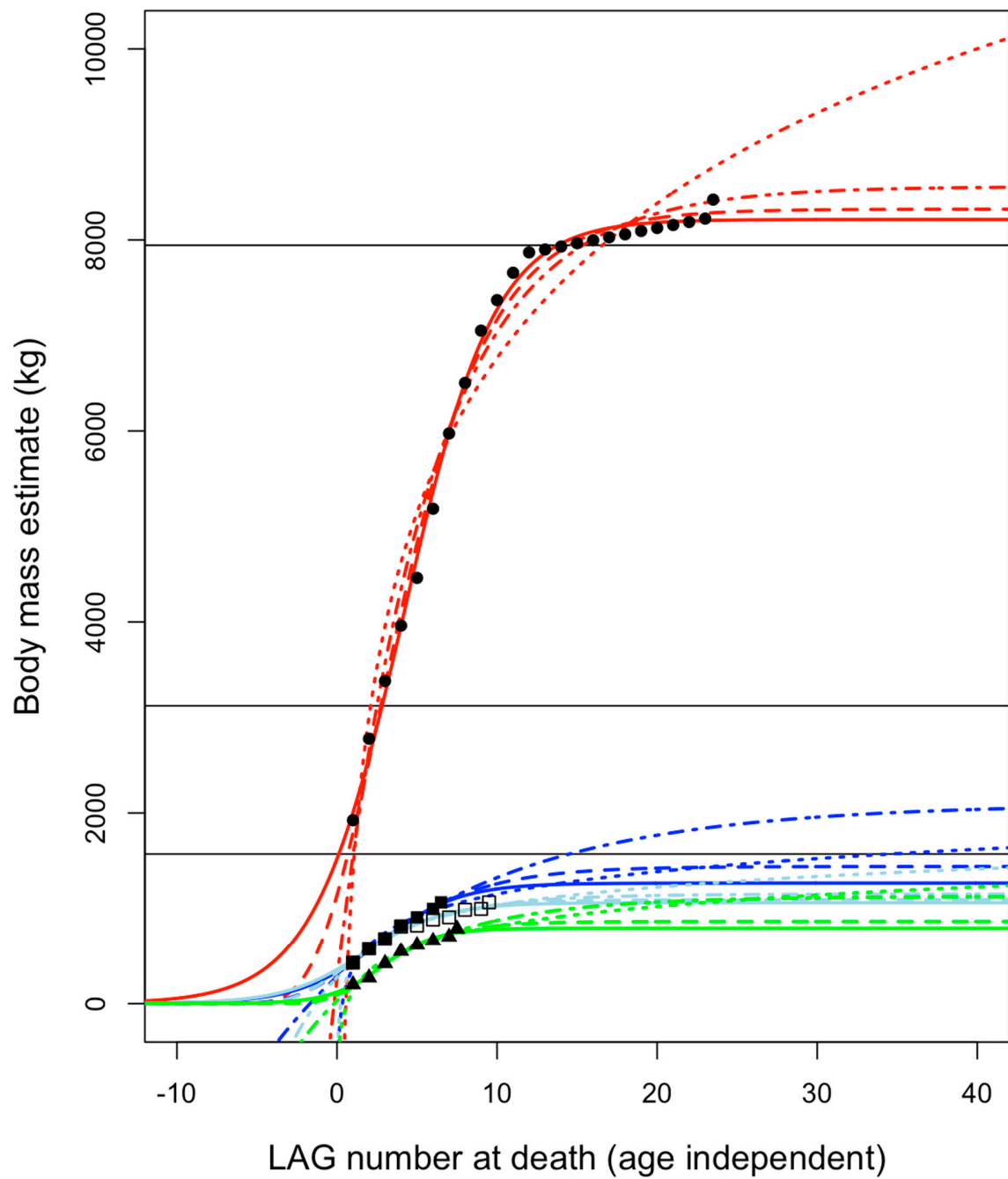


Figure S5. Age-independent growth curves for a large and old *Tyrannosaurus*, Sue (red, circles), and two *Nanotyrannus*, Petey (green, triangles) and Jane, presented both corrected for split multi-LAGs (dark blue, closed squares) as in Cullen *et al.* (2020) as well as uncorrected (light blue, open squares) as in Woodward *et al.* (2020). LAG #1 and the periosteum are included in the regressions shown here. Four different growth models are fit to each specimen: logistic (solid), Gompertz (dashed), logarithmic (dotted), and von Bertalanffy (dot-dash). Horizontal black lines are asymptotic masses derived from logistic regressions of multiple individuals (i.e., multiple specimens used in the regression, with each specimen assigned a single mass and age at death) from Longrich *et al.* (in review) and are presented in decreasing order as follows: *Tyrannosaurus*, *Gorgosaurus*, *Albertosaurus*.

Table S1. Summary of asymptotic body mass values rounded to nearest kg. Among asymptotic models, discrepancy between *T. rex* and the two *Nanotyrannus* specimens' body mass values range from about 391–1,207%, if comparison across model types is allowed.

Specimen	Taxon	Interpretation	Includes 1st LAG & periosteum?	Model	Asymptote (kg)
Sue	<i>Tyrannosaurus</i>	Cullen et al. (2020)	Yes	Logistic	8214
Sue	<i>Tyrannosaurus</i>	Cullen et al. (2020)	Yes	Gompertz	8322
Sue	<i>Tyrannosaurus</i>	Cullen et al. (2020)	Yes	von Bertalanffy	8558
Sue	<i>Tyrannosaurus</i>	Cullen et al. (2020)	No	Logistic	8194
Sue	<i>Tyrannosaurus</i>	Cullen et al. (2020)	No	Gompertz	8287
Sue	<i>Tyrannosaurus</i>	Cullen et al. (2020)	No	von Bertalanffy	8463
Petey	<i>Nanotyrannus</i>	Cullen et al. (2020)	Yes	Logistic	792
Petey	<i>Nanotyrannus</i>	Cullen et al. (2020)	Yes	Gompertz	862
Petey	<i>Nanotyrannus</i>	Cullen et al. (2020)	Yes	von Bertalanffy	1124
Petey	<i>Nanotyrannus</i>	Cullen et al. (2020)	No	Logistic	709
Petey	<i>Nanotyrannus</i>	Cullen et al. (2020)	No	Gompertz	732
Petey	<i>Nanotyrannus</i>	Cullen et al. (2020)	No	von Bertalanffy	775
Jane (corrected)	<i>Nanotyrannus</i>	Cullen et al. (2020)	Yes	Logistic	1265
Jane (corrected)	<i>Nanotyrannus</i>	Cullen et al. (2020)	Yes	Gompertz	1439
Jane (corrected)	<i>Nanotyrannus</i>	Cullen et al. (2020)	Yes	von Bertalanffy	2097
Jane (corrected)	<i>Nanotyrannus</i>	Cullen et al. (2020)	No	Logistic	1230
Jane (corrected)	<i>Nanotyrannus</i>	Cullen et al. (2020)	No	Gompertz	1372
Jane (corrected)	<i>Nanotyrannus</i>	Cullen et al. (2020)	No	von Bertalanffy	1783
Jane	<i>Nanotyrannus</i>	Woodward et al. (2020)	Yes	Logistic	1060
Jane	<i>Nanotyrannus</i>	Woodward et al. (2020)	Yes	Gompertz	1091
Jane	<i>Nanotyrannus</i>	Woodward et al. (2020)	Yes	von Bertalanffy	1150

Table S2. Summary of asymptotic values rounded to nearest mm for the pubic radius of Zuri. Among asymptotic models, the pubic radius at time of death ranges from about 90–98% of the predicted adult size.

Model asymptote	With LAG #1 & periosteum?	Pubic radius (mm)
Logistic	Yes	18.7
Gompertz	Yes	19
von Bertalanffy	Yes	19.6
Logistic	No	19.1
Gompertz	No	19.6
von Bertalanffy	No	20.3
Radius at death	NA	18.3