

1 **Table S1.** Correlation coefficients between static histomorphometry measures and mechanical properties are shown
 2 in the lower triangle and the 95% confidence interval of the correlation is shown in the upper triangle.

	Young's Modulus	Yield Strain	Residual Strain	Yield Stress	BV/TV	BS/TV	ES/BS	Tb.Th	Tb.Sp	SMI	DA	Conn.D
Young's Modulus	-	(-0.51, 0.78)	(-0.87, 0.27)	(0.66, 0.98)	(0.25, 0.95)	(0.39, 0.96)	(-0.60, 0.72)	(-0.59, 0.73)	(-0.94, -0.16)	(-0.92, 0.02)	(-0.83, 0.40)	(-0.53, 0.77)
Yield Strain	0.23	-	(-0.59, 0.73)	(-0.15, 0.90)	(-0.43, 0.82)	(-0.56, 0.74)	(-0.85, 0.34)	(-0.45, 0.80)	(-0.80, 0.46)	(-0.65, 0.68)	(-0.84, 0.38)	(-0.88, 0.22)
Residual Strain	-0.48	0.13	-	(-0.59, 0.73)	(-0.94, -0.13)	(-0.94, -0.10)	(-0.92, 0.03)	(-0.93, -0.07)	(-0.34, 0.85)	(0.08, 0.93)	(-0.78, 0.50)	(-0.82, 0.42)
Yield Stress	0.92*	0.57	0.13	-	(0.36, 0.96)	(0.26, 0.95)	(-0.68, 0.66)	(-0.46, 0.80)	(-0.93, -0.06)	(-0.92, 0.06)	(-0.83, 0.37)	(-0.66, 0.67)
BV/TV	0.79*	0.33	-0.73*	0.83*	-	(0.51, 0.97)	(-0.40, 0.83)	(-0.14, 0.90)	(-0.90, 0.14)	(-0.96, -0.28)	(-0.82, 0.41)	(-0.54, 0.76)
BS/TV	0.84*	0.16	-0.72*	0.79*	0.88*	-	(-0.29, 0.86)	(-0.43, 0.81)	(-0.96, -0.29)	(-0.96, -0.33)	(-0.74, 0.57)	(-0.32, 0.85)
ES/BS	0.11	-0.42	-0.65	-0.01	0.36	0.47	-	(-0.55, 0.75)	(-0.69, 0.63)	(-0.91, 0.08)	(-0.49, 0.79)	(-0.45, 0.81)
Tb.Th	0.12	0.30	-0.70*	0.29	0.58	0.32	0.18	-	(-0.75, 0.56)	(-0.79, 0.48)	(-0.58, 0.73)	(-0.73, 0.58)
Tb.Sp	-0.74*	-0.29	0.42	-0.70*	-0.58	-0.80*	-0.05	-0.17	-	(-0.43, 0.81)	(-0.53, 0.77)	(-0.80, 0.46)
SMI	-0.67*	0.02	0.71*	-0.63	-0.80*	-0.82*	-0.62	-0.27	0.33	-	(-0.67, 0.66)	(-0.86, 0.31)
DA	-0.36	-0.38	-0.25	-0.39	-0.35	-0.15	0.26	0.13	0.21	-0.01	-	(-0.56, 0.75)
Conn.D	-0.21	-0.52	-0.34	0.01	0.19	0.44	0.31	-0.13	-0.30	-0.44	0.17	-

* p < 0.05. Full correlation scatterplots are included in Fig. S1.

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