

753 **Supplemental Materials**

754

755 **Supplemental Table 1.** Micro-computed tomography measures of cancellous and cortical bone

756 and whole bone mechanical testing measures are shown.

	Measure	Wild Type		TLR5KO	
		Untreated	Δ Microbiota	Untreated	Δ Microbiota
Proximal Tibia	Bone Volume Fraction	0.15 \pm 0.02	0.15 \pm 0.03	0.15 \pm 0.01	0.13 \pm 0.01
	Trabecular Thickness (μm)	44.70 \pm 1.98	43.30 \pm 5.63	41.30 \pm 2.66	36.40 \pm 2.13 ^{#, \$}
	Trabecular Separation (μm)	197 \pm 14	191 \pm 11	187 \pm 7	176 \pm 7 ^{\$}
	Cortical TMD (mg HA/cm ³)	999 \pm 10	979 \pm 8 [*]	997 \pm 13	981 \pm 7 [#]
	Growth Plate Thickness (μm)	558 \pm 46	562 \pm 41	550 \pm 54	526 \pm 21
Femoral Diaphysis	Cortical Area (mm ²)	0.87 \pm 0.07	0.82 \pm 0.10	0.96 \pm 0.07 ^a	0.67 \pm 0.05 ^{#, \$}
	Marrow Area (mm ²)	1.06 \pm 0.07	1.17 \pm 0.10	1.17 \pm 0.15	0.99 \pm 0.08 ^{#, \$}
	Total Area (mm ²)	1.93 \pm 0.13	1.98 \pm 0.18	2.13 \pm 0.17 ^a	1.66 \pm 0.08 ^{#, \$}
	Cortical Thickness (μm)	210 \pm 10	189 \pm 17 [*]	220 \pm 14 ^a	170 \pm 12 ^{#, \$}
	Moment of Inertia (mm ⁴)	0.15 \pm 0.02	0.15 \pm 0.03	0.18 \pm 0.03 ^a	0.10 \pm 0.01 ^{#, \$}
	Minimum Moment of Inertia/ c (mm ³)	0.22 \pm 0.03	0.22 \pm 0.03	0.25 \pm 0.03 ^a	0.16 \pm 0.01 ^{#, \$}
Whole Femur	Length (mm)	16.05 \pm 0.21	16.15 \pm 0.24	15.88 \pm 0.26	15.61 \pm 0.14 ^{#, \$}
	Peak Bending Moment (N*mm)	41.09 \pm 2.84	37.32 \pm 2.86 [*]	40.47 \pm 3.00	29.43 \pm 1.87 ^{#, \$}
	Bending Stiffness (N/mm)	194 \pm 18	177 \pm 21	195 \pm 38	143 \pm 10 [#]

	Post Yield Displacement (mm)	0.31 ± 0.12	0.32 ± 0.08	0.27 ± 0.11	0.34 ± 0.10
--	------------------------------	-------------	-------------	-------------	-------------

757 Values are mean ± SD. TMD=Tissue mineral density

758 *WT-ΔMicrobiota v. WT-untreated, p<0.05

759 #TLR5KO-ΔMicrobiota v. TLR5KO-untreated, p<0.05

760 ^aTL5KO-untreated v. WT-untreated, p<0.05

761 ^sTLR5KO-ΔMicrobiota v. WT-ΔMicrobiota, p<0.05

762

763