

Supplemental Table 1. Diameter (mean \pm SD) and p-values for the ascending aorta at each pressure, age, and genotype.

Number of mice are shown in parentheses. Significant p-values are shown in bold.

P3		Pressure (mmHg)									
Diameter (μm)	0	9	18	27	36	45	54	63	72	81	90
WT (n=7)	480 \pm 18	503 \pm 27	526 \pm 26	568 \pm 22	603 \pm 29	633 \pm 43	650 \pm 45	667 \pm 51	677 \pm 50	684 \pm 50	690 \pm 51
<i>Eln</i> ^{+/-} (n=5)	451 \pm 25	484 \pm 15	524 \pm 26	562 \pm 44	612 \pm 59	635 \pm 55	649 \pm 55	659 \pm 54	670 \pm 51	674 \pm 52	680 \pm 53
p-value	0.070	0.156	0.908	0.796	0.750	0.955	0.990	0.800	0.840	0.763	0.745

P7		Pressure (mmHg)									
Diameter (μm)	0	12	24	36	48	60	72	84	96	108	120
WT (n=9)	611 \pm 39	644 \pm 34	687 \pm 35	729 \pm 34	774 \pm 30	816 \pm 35	843 \pm 30	860 \pm 30	871 \pm 30	878 \pm 31	883 \pm 32
<i>Eln</i> ^{+/-} (n=8)	569 \pm 72	600 \pm 74	651 \pm 70	705 \pm 80	727 \pm 76	748 \pm 71	761 \pm 68	771 \pm 64	779 \pm 62	784 \pm 62	788 \pm 60
p-value	0.165	0.152	0.215	0.450	0.134	0.034	0.011	0.005	0.004	0.003	0.002

P14		Pressure (mmHg)									
Diameter (μm)	0	14	28	42	56	70	84	98	112	126	140
WT (n=10)	788 \pm 92	816 \pm 78	853 \pm 69	886 \pm 63	925 \pm 67	957 \pm 73	992 \pm 83	1027 \pm 90	1049 \pm 96	1069 \pm 99	1080 \pm 103
<i>Eln</i> ^{+/-} (n=8)	701 \pm 77	731 \pm 63	777 \pm 50	824 \pm 53	876 \pm 66	922 \pm 73	961 \pm 87	984 \pm 88	1009 \pm 94	1020 \pm 96	1028 \pm 96
p-value	0.044	0.021	0.016	0.040	0.138	0.335	0.453	0.328	0.389	0.309	0.284

P21		Pressure (mmHg)									
Diameter (μm)	0	20	40	60	80	100	120	140	160		
WT (n=7)	871 \pm 62	916 \pm 50	970 \pm 51	1030 \pm 54	1092 \pm 61	1158 \pm 68	1223 \pm 79	1256 \pm 80	1284 \pm 76		
<i>Eln</i> ^{+/-} (n=10)	758 \pm 47	795 \pm 59	858 \pm 68	932 \pm 82	1013 \pm 99	1084 \pm 98	1133 \pm 87	1162 \pm 75	1178 \pm 68		
p-value	0.002	< 0.001	0.002	0.009	0.060	0.083	0.046	0.030	0.012		

P30		Pressure (mmHg)							
Diameter (μm)	0	25	50	75	100	125	150	175	
WT (n=8)	1022 \pm 54	1070 \pm 47	1128 \pm 40	1211 \pm 60	1305 \pm 78	1401 \pm 102	1470 \pm 114	1510 \pm 117	
<i>Eln</i> ^{+/-} (n=6)	829 \pm 77	891 \pm 68	979 \pm 71	1096 \pm 85	1218 \pm 89	1293 \pm 94	1326 \pm 97	1346 \pm 98	
p-value	< 0.001	< 0.001	< 0.001	0.012	0.079	0.070	0.033	0.012	

P60		Pressure (mmHg)						
Diameter (μm)	0	25	50	75	100	125	150	175
WT (n=8)	1030 \pm 107	1113 \pm 73	1200 \pm 68	1323 \pm 81	1456 \pm 80	1569 \pm 86	1637 \pm 88	1678 \pm 91
<i>Eln</i> ^{+/-} (n=8)	922 \pm 37	990 \pm 26	1116 \pm 60	1275 \pm 74	1408 \pm 76	1470 \pm 69	1500 \pm 71	1517 \pm 70
p-value	0.025	0.002	0.020	0.239	0.237	0.024	0.004	0.002

Supplemental Table 2. Diameter (mean \pm SD) and p-values for the left carotid artery at each pressure, age, and genotype. Number of mice are shown in parentheses. Significant p-values are shown in bold.

P7		Pressure (mmHg)									
Diameter (μm)	0	12	24	36	48	60	72	84	96	108	120
WT (n=10)	277 \pm 27	300 \pm 30	320 \pm 29	337 \pm 29	354 \pm 21	363 \pm 22	369 \pm 20	374 \pm 20	376 \pm 21	378 \pm 20	381 \pm 20
<i>Eln</i> ^{+/-} (n=8)	256 \pm 30	280 \pm 23	306 \pm 27	324 \pm 31	335 \pm 26	341 \pm 25	346 \pm 27	348 \pm 27	351 \pm 28	353 \pm 28	355 \pm 28
p-value	0.138	0.135	0.316	0.394	0.134	0.069	0.059	0.043	0.059	0.055	0.047

P14		Pressure (mmHg)									
Diameter (μm)	0	14	28	42	56	70	84	98	112	126	140
WT (n=9)	334 \pm 18	347 \pm 22	370 \pm 29	389 \pm 34	413 \pm 39	432 \pm 39	447 \pm 37	455 \pm 35	460 \pm 35	462 \pm 35	464 \pm 35
<i>Eln</i> ^{+/-} (n=6)	319 \pm 25	334 \pm 25	352 \pm 21	383 \pm 22	405 \pm 21	422 \pm 22	429 \pm 23	435 \pm 22	437 \pm 24	439 \pm 23	442 \pm 23
p-value	0.251	0.344	0.191	0.654	0.648	0.520	0.266	0.202	0.168	0.149	0.167

P21		Pressure (mmHg)								
Diameter (μm)	0	20	40	60	80	100	120	140	160	
WT (n=9)	335 \pm 24	353 \pm 21	388 \pm 17	438 \pm 19	516 \pm 36	579 \pm 31	599 \pm 26	606 \pm 25	610 \pm 26	
<i>Eln</i> ^{+/-} (n=9)	306 \pm 12	327 \pm 12	370 \pm 14	421 \pm 22	469 \pm 22	496 \pm 9	506 \pm 11	510 \pm 13	513 \pm 12	
p-value	0.006	0.005	0.030	0.088	0.005	< .001	< .001	< .001	< .001	

P30		Pressure (mmHg)						
Diameter (μm)	0	25	50	75	100	125	150	175
WT (n=8)	363 \pm 28	392 \pm 32	434 \pm 34	501 \pm 41	580 \pm 56	614 \pm 58	628 \pm 57	635 \pm 56
<i>Eln</i> ^{+/-} (n=8)	332 \pm 15	356 \pm 13	402 \pm 12	479 \pm 22	545 \pm 20	565 \pm 25	572 \pm 25	578 \pm 27
p-value	0.018	0.016	0.034	0.214	0.134	0.055	0.031	0.026

P60		Pressure (mmHg)						
Diameter (μm)	0	25	50	75	100	125	150	175
WT (n=8)	383 \pm 30	420 \pm 22	466 \pm 24	533 \pm 40	592 \pm 39	621 \pm 35	636 \pm 37	645 \pm 38
<i>Eln</i> ^{+/-} (n=8)	346 \pm 15	386 \pm 12	441 \pm 15	510 \pm 20	559 \pm 22	579 \pm 26	590 \pm 32	596 \pm 32
p-value	0.011	0.003	0.031	0.174	0.061	0.019	0.020	0.015

Supplemental Table 3. Compliance (mean \pm SD) and p-values for the ascending aorta at each pressure, age, and genotype. Number of mice are shown in parentheses. Significant p-values are shown in bold.

P3		Pressure (mmHg)									
Compliance ($\mu\text{m}/\text{mmHg}$)	0	9	18	27	36	45	54	63	72	81	90
WT (n=7)	0	2.96 \pm 0.80	3.96 \pm 0.93	4.09 \pm 1.04	3.61 \pm 0.93	2.84 \pm 0.72	2.05 \pm 0.53	1.38 \pm 0.42	0.88 \pm 0.35	0.76 \pm 0.22	0.75 \pm 0.29
<i>Eln</i> ^{+/-} (n=5)	0	4.32 \pm 2.87	4.90 \pm 2.49	4.52 \pm 2.04	3.61 \pm 1.32	2.57 \pm 0.73	1.67 \pm 0.52	1.01 \pm 0.42	0.58 \pm 0.30	0.53 \pm 0.26	0.64 \pm 0.46
p-value		0.352	0.460	0.698	0.100	0.534	0.248	0.170	0.142	0.152	0.678
P7		Pressure (mmHg)									
Compliance ($\mu\text{m}/\text{mmHg}$)	0	12	24	36	48	60	72	84	96	108	120
WT (n=9)	0	3.36 \pm 1.36	4.12 \pm 0.97	4.03 \pm 0.79	3.41 \pm 0.55	2.59 \pm 0.38	1.82 \pm 0.39	1.22 \pm 0.43	0.80 \pm 0.44	0.53 \pm 0.42	0.36 \pm 0.38
<i>Eln</i> ^{+/-} (n=8)	0	3.93 \pm 1.51	4.03 \pm 1.37	3.22 \pm 0.88	2.25 \pm 0.58	1.45 \pm 0.66	0.91 \pm 0.68	0.56 \pm 0.59	0.35 \pm 0.45	0.21 \pm 0.31	0.12 \pm 0.20
p-value		0.428	0.884	0.068	< 0.001	0.001	0.007	0.023	0.054	0.095	0.131
P14		Pressure (mmHg)									
Compliance ($\mu\text{m}/\text{mmHg}$)	0	14	28	42	56	70	84	98	112	126	140
WT (n=10)	0	2.34 \pm 1.55	2.69 \pm 1.06	2.81 \pm 0.60	2.77 \pm 0.57	2.61 \pm 0.72	2.33 \pm 0.77	2.01 \pm 0.76	1.67 \pm 0.76	1.37 \pm 0.77	1.13 \pm 0.76
<i>Eln</i> ^{+/-} (n=8)	0	2.81 \pm 1.12	3.54 \pm 0.91	3.69 \pm 1.18	3.37 \pm 1.27	2.76 \pm 1.06	2.05 \pm 0.73	1.42 \pm 0.48	0.94 \pm 0.36	0.60 \pm 0.32	0.39 \pm 0.31
p-value		0.472	0.086	0.084	0.249	0.740	0.442	0.066	0.018	0.013	0.016
P21		Pressure (mmHg)									
Compliance ($\mu\text{m}/\text{mmHg}$)	0	20	40	60	80	100	120	140	160		
WT (n=7)	0	2.46 \pm 0.54	3.13 \pm 0.26	3.35 \pm 0.59	3.23 \pm 0.78	2.86 \pm 0.66	2.37 \pm 0.40	1.87 \pm 0.24	1.44 \pm 0.31		
<i>Eln</i> ^{+/-} (n=7)	0	2.19 \pm 1.03	3.44 \pm 1.07	3.92 \pm 1.19	3.66 \pm 1.20	2.94 \pm 1.04	2.13 \pm 1.01	1.46 \pm 0.99	0.98 \pm 0.83		
p-value		0.552	0.476	0.290	0.450	0.877	0.569	0.323	0.212		
P30		Pressure (mmHg)									
Compliance ($\mu\text{m}/\text{mmHg}$)	0	25	50	75	100	125	150	175			
WT (n=6)	0	1.96 \pm 0.50	3.22 \pm 0.43	3.85 \pm 0.91	3.75 \pm 1.15	3.10 \pm 1.04	2.28 \pm 0.93	1.58 \pm 1.05			
<i>Eln</i> ^{+/-} (n=8)	0	3.07 \pm 1.21	4.80 \pm 1.40	4.87 \pm 1.28	3.73 \pm 1.01	2.24 \pm 0.59	1.11 \pm 0.37	0.49 \pm 0.37			
p-value		0.041	0.016	0.108	0.972	0.108	0.026	0.052			
P60		Pressure (mmHg)									
Compliance ($\mu\text{m}/\text{mmHg}$)	0	25	50	75	100	125	150	175			
WT (n=8)	0	3.44 \pm 1.86	4.91 \pm 0.81	5.25 \pm 0.52	4.66 \pm 0.73	3.57 \pm 0.75	2.40 \pm 0.67	1.45 \pm 0.57			
<i>Eln</i> ^{+/-} (n=8)	0	4.23 \pm 1.25	6.37 \pm 0.96	5.88 \pm 0.85	3.85 \pm 0.70	1.90 \pm 0.54	0.74 \pm 0.34	0.24 \pm 0.17			
p-value		0.337	0.006	0.101	0.041	< 0.001	< 0.001	< 0.001			

Supplemental Table 4. Compliance (mean \pm SD) and p-values for the left carotid artery at each pressure, age, and genotype. Number of mice are shown in parentheses. Significant p-values are shown in bold.

P7		Pressure (mmHg)									
Compliance ($\mu\text{m}/\text{mmHg}$)	0	12	24	36	48	60	72	84	96	108	120
WT (n=10)	0	1.71 \pm 0.82	1.58 \pm 0.44	1.30 \pm 0.45	1.00 \pm 0.48	0.73 \pm 0.41	0.50 \pm 0.30	0.32 \pm 0.20	0.20 \pm 0.13	0.12 \pm 0.09	0.07 \pm 0.07
<i>Eln</i> ^{+/-} (n=8)	0	2.10 \pm 1.18	1.83 \pm 0.52	1.27 \pm 0.45	0.77 \pm 0.47	0.43 \pm 0.39	0.24 \pm 0.30	0.16 \pm 0.22	0.09 \pm 0.13	0.05 \pm 0.09	0.03 \pm 0.06
p-value		0.452	0.300	0.883	0.316	0.132	0.084	0.146	0.105	0.146	0.207

P14		Pressure (mmHg)									
Compliance ($\mu\text{m}/\text{mmHg}$)	0	14	28	42	56	70	84	98	112	126	140
WT (n=9)	0	1.14 \pm 0.93	1.64 \pm 0.85	1.74 \pm 0.45	1.58 \pm 0.34	1.28 \pm 0.50	0.94 \pm 0.55	0.62 \pm 0.49	0.37 \pm 0.35	0.19 \pm 0.20	0.09 \pm 0.10
<i>Eln</i> ^{+/-} (n=6)	0	1.25 \pm 0.29	2.03 \pm 0.60	1.99 \pm 0.34	1.43 \pm 0.16	0.86 \pm 0.30	0.46 \pm 0.23	0.22 \pm 0.13	0.09 \pm 0.06	0.03 \pm 0.03	0.01 \pm 0.01
p-value		0.751	0.314	0.246	0.305	0.063	0.039	0.041	0.046	0.045	0.039

P21		Pressure (mmHg)								
Compliance ($\mu\text{m}/\text{mmHg}$)	0	20	40	60	80	100	120	140	160	
WT (n=9)	0	0.79 \pm 0.25	2.44 \pm 0.49	3.73 \pm 0.73	3.44 \pm 0.50	1.97 \pm 0.44	0.75 \pm 0.39	0.21 \pm 0.20	0.050 \pm 0.08	
<i>Eln</i> ^{+/-} (n=7)	0	1.44 \pm 0.49	2.62 \pm 0.57	2.72 \pm 0.33	1.94 \pm 0.34	1.01 \pm 0.44	0.41 \pm 0.30	0.14 \pm 0.13	0.04 \pm 0.04	
p-value		0.012	0.535	0.003	< 0.001	< 0.001	0.072	0.384	0.680	

P30		Pressure (mmHg)						
Compliance ($\mu\text{m}/\text{mmHg}$)	0	25	50	75	100	125	150	175
WT (n=8)	0	1.24 \pm 0.18	2.67 \pm 0.48	3.03 \pm 0.70	2.16 \pm 0.53	1.03 \pm 0.35	0.36 \pm 0.23	0.11 \pm 0.12
<i>Eln</i> ^{+/-} (n=8)	0	1.29 \pm 0.34	2.91 \pm 0.34	3.01 \pm 0.42	1.68 \pm 0.47	0.54 \pm 0.30	0.11 \pm 0.08	0.01 \pm 0.01
p-value		0.738	0.270	0.950	0.072	0.010	0.020	0.066

P60		Pressure (mmHg)						
Compliance ($\mu\text{m}/\text{mmHg}$)	0	25	50	75	100	125	150	175
WT (n=8)	0	1.78 \pm .072	2.63 \pm 0.60	2.47 \pm 0.50	1.71 \pm 0.56	0.94 \pm 0.54	0.44 \pm 0.35	0.18 \pm 0.16
<i>Eln</i> ^{+/-} (n=8)	0	2.19 \pm 0.30	2.79 \pm 0.34	2.25 \pm 0.28	1.36 \pm 0.33	0.67 \pm 0.31	0.28 \pm 0.20	0.11 \pm 0.10
p-value		0.171	0.522	0.289	0.149	0.235	0.298	0.331

Supplemental Figure 1. The unloaded outer diameter of the left carotid artery is significantly smaller in *Eln*^{+/-} mice by P21 (A). The thickness is not significantly different at any age (B). N = 6 – 11/group.

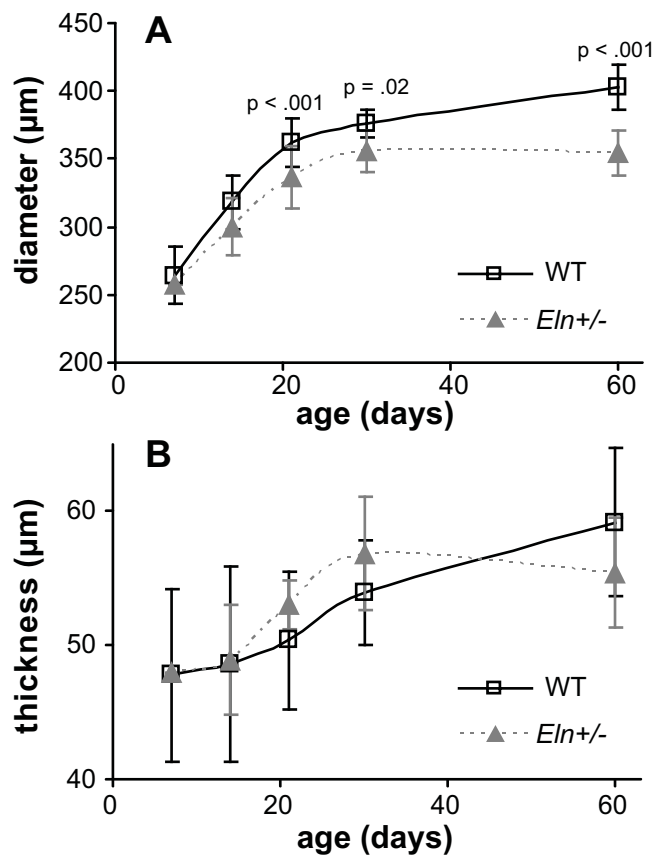
Supplemental Figure 2. Carotid pressure-outer diameter curves for WT (A), *Eln*^{+/-} (B), and representative ages for both genotypes (C). Diameter differences between the genotypes are significant for at least five pressure steps at P21 – 60 (Supplemental Table 2). N = 6 – 10/group.

Supplemental Figure 3. Carotid normalized pressure-outer diameter curves for WT (A), *Eln*^{+/-} (B), and representative ages for both genotypes (C). WT and *Eln*^{+/-} carotid have similar diameters at the systolic pressure (SP) for each age and genotype except for P21 (D). Error bars same as Supp. Fig. 2, but removed for clarity. N = 6 – 10/group.

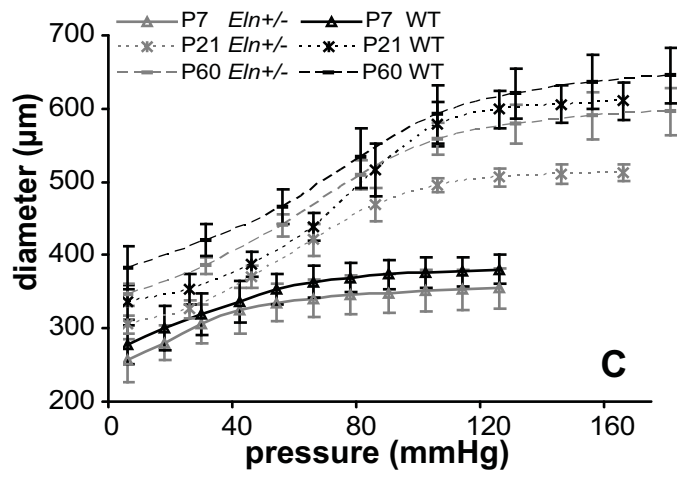
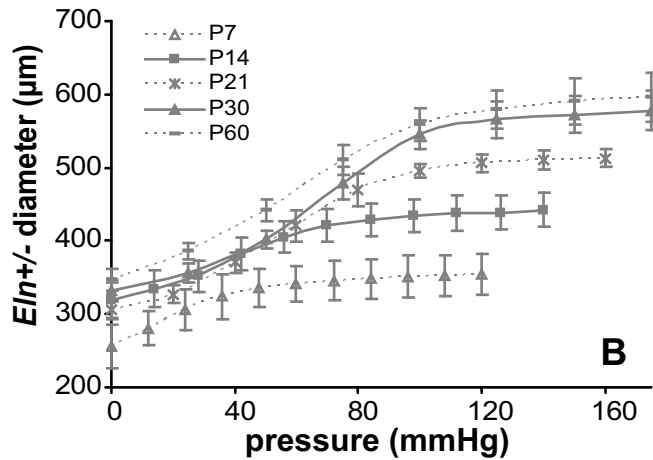
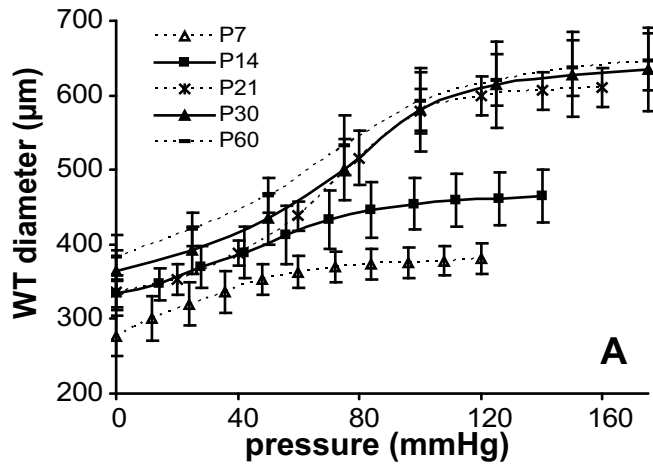
Supplemental Figure 4. Carotid normalized pressure-compliance curves for WT (A), *Eln*^{+/-} (B), and representative ages for both genotypes (C). At the systolic pressure (SP) for each age and genotype, the compliance of *Eln*^{+/-} carotid is significantly lower than WT for P14 – 60 (D). N = 6 – 10/group.

Supplemental Figure 5. Carotid circumferential stretch ratio-stress curves for WT (A), *Eln*^{+/-} (B), and representative ages for both genotypes (C). The curves segregate into two groups by age, but are similar between genotypes for most ages. N = 6 – 10/group.

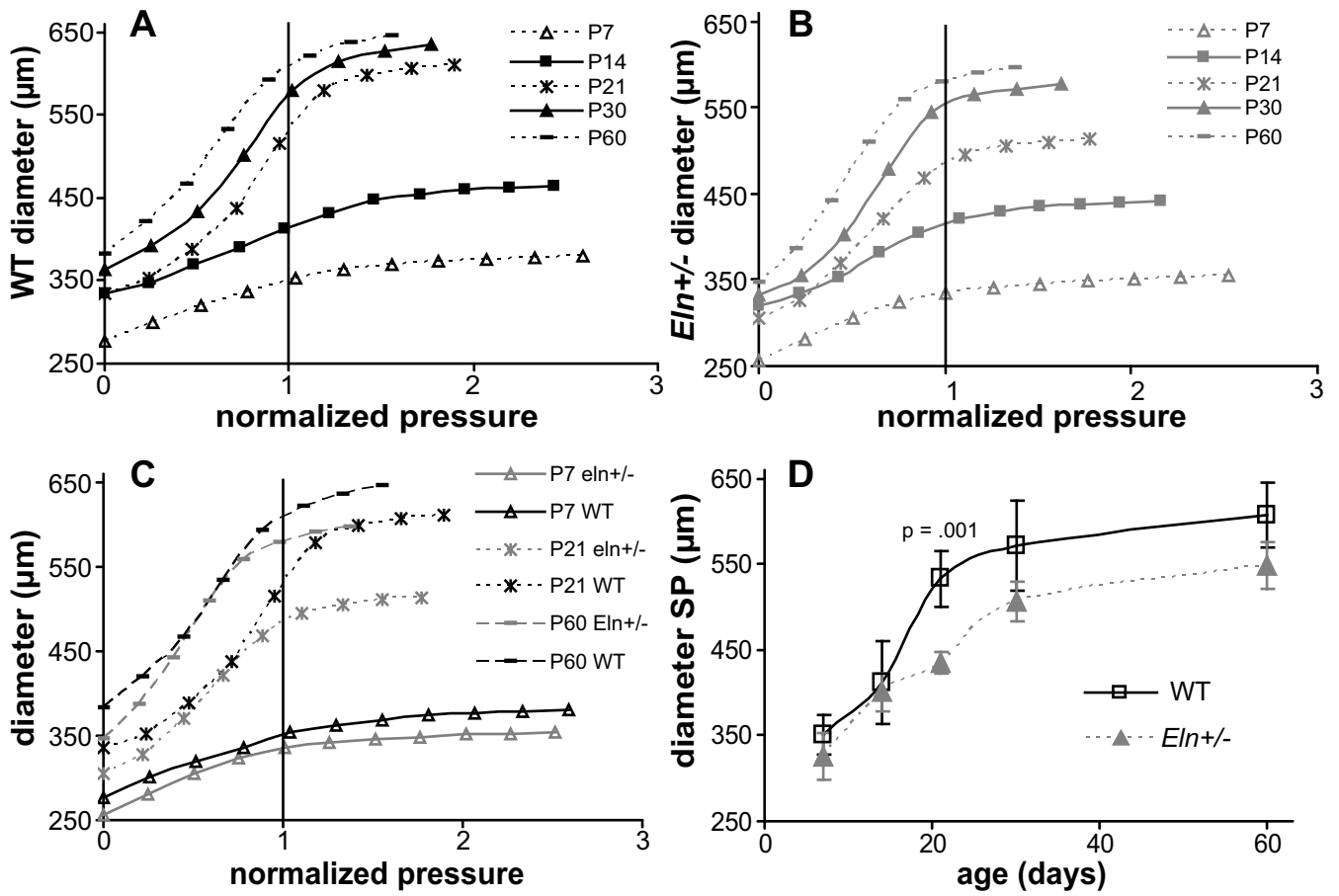
Supplemental Figure 6. Carotid circumferential stretch ratio (A), circumferential stress (B), Hudetz elastic modulus (HM) (C) and pulse wave velocity (PWV) (D) at the systolic pressure (SP) for each age and genotype. There are significant differences between genotypes for the stretch ratio and stress by P60 and the HM and PWV by P14. N = 6 – 10/group.



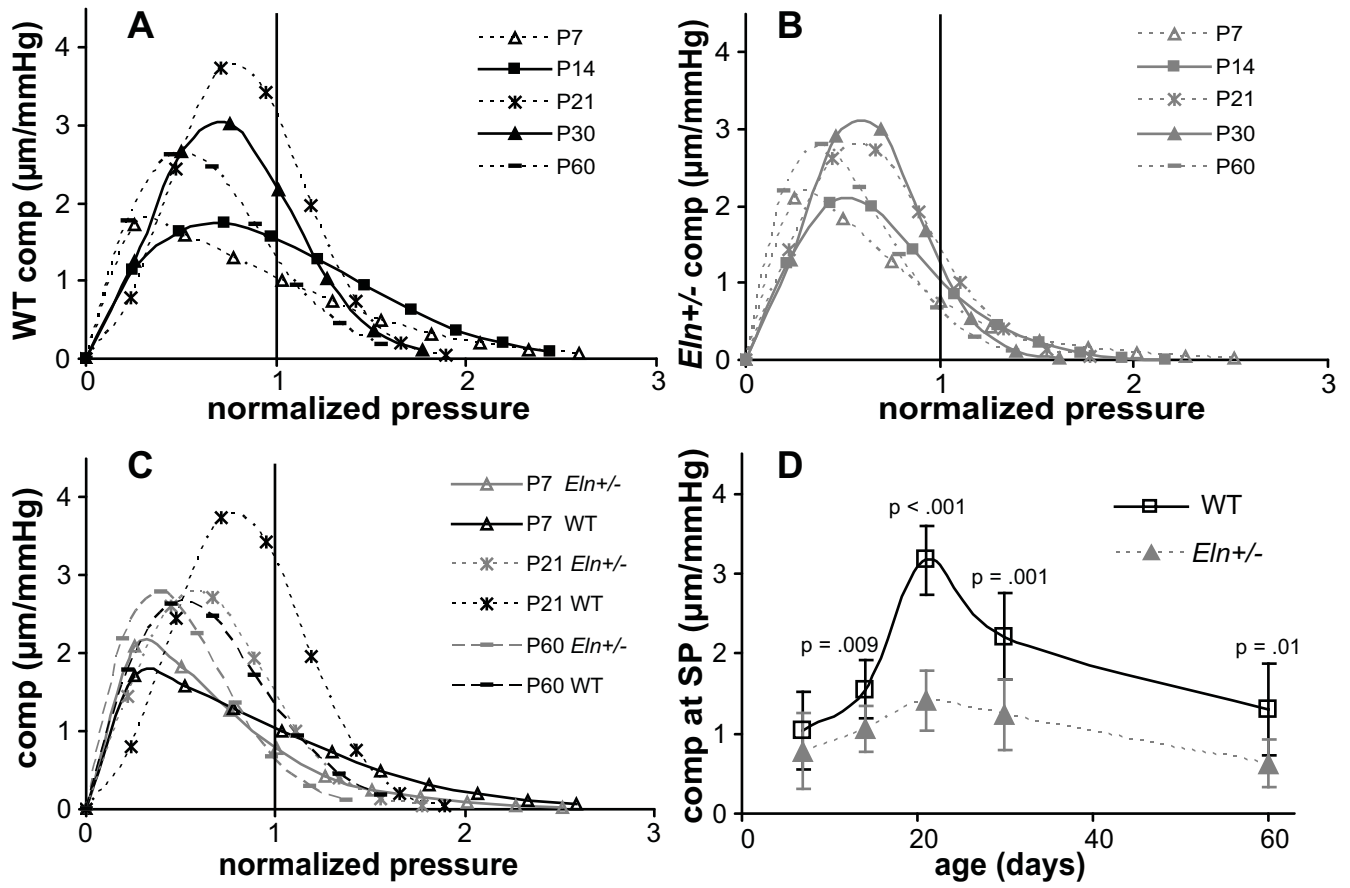
Supplemental Figure 1



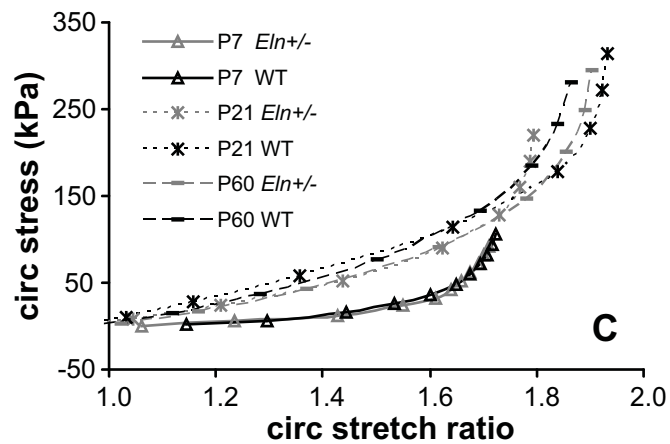
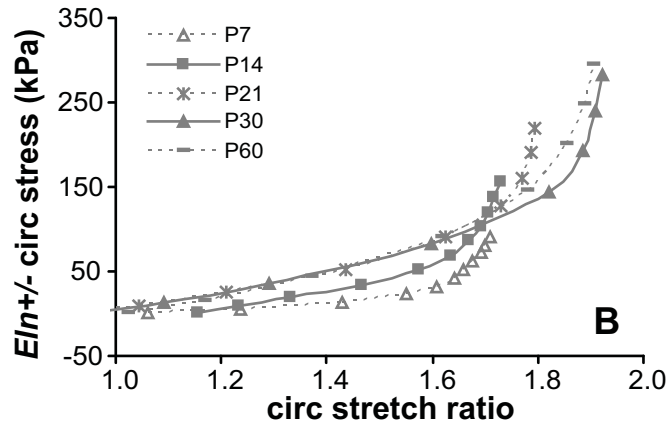
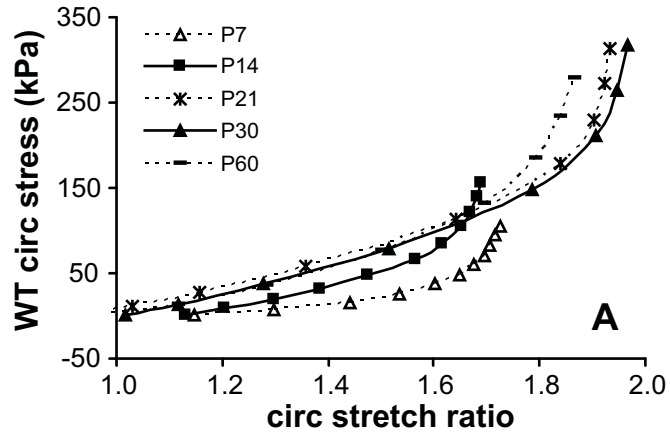
Supplemental Figure 2



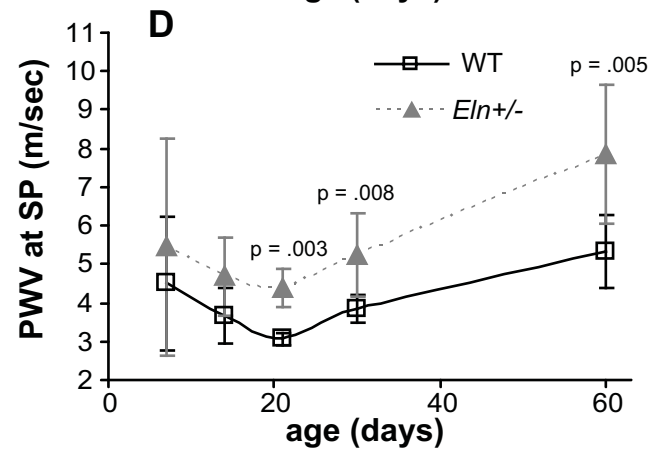
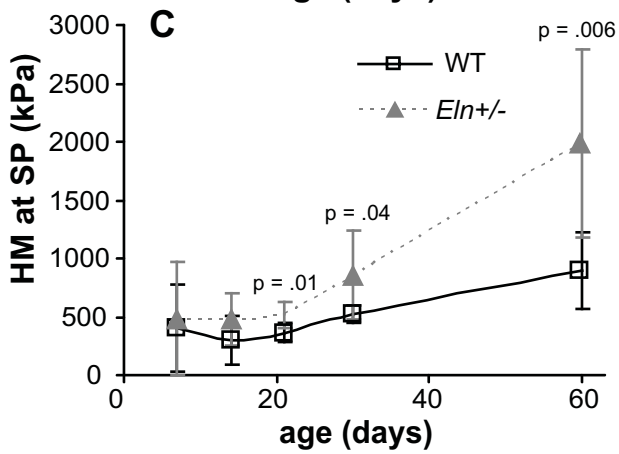
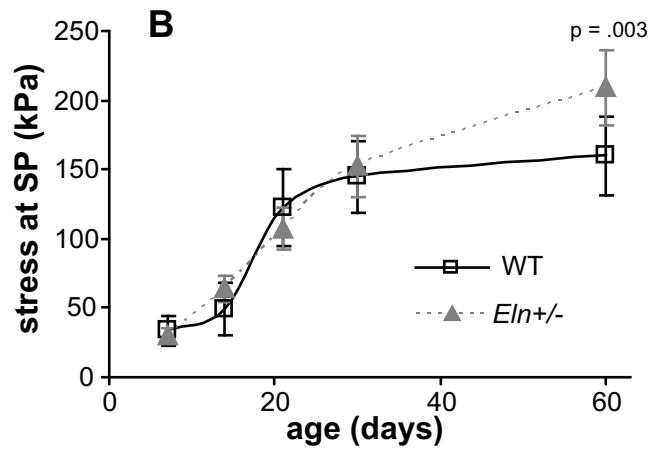
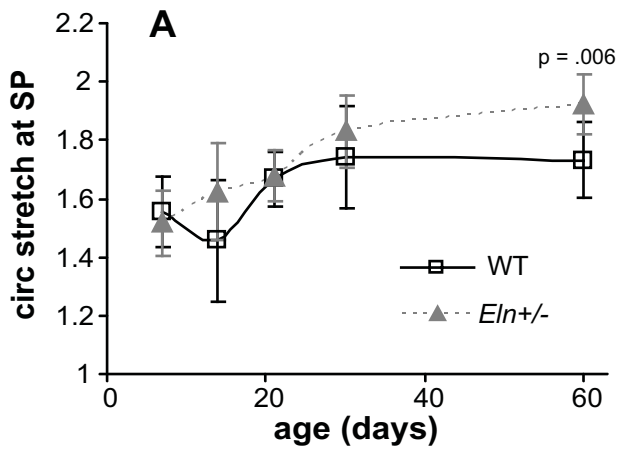
Supplemental Figure 3



Supplemental Figure 4



Supplemental Figure 5



Supplemental Figure 6