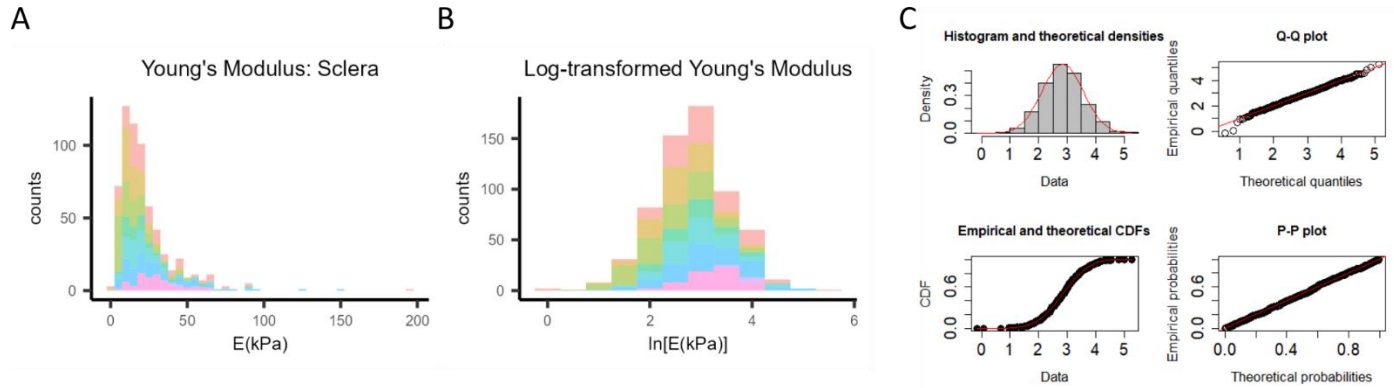


1 **Supplemental Materials**

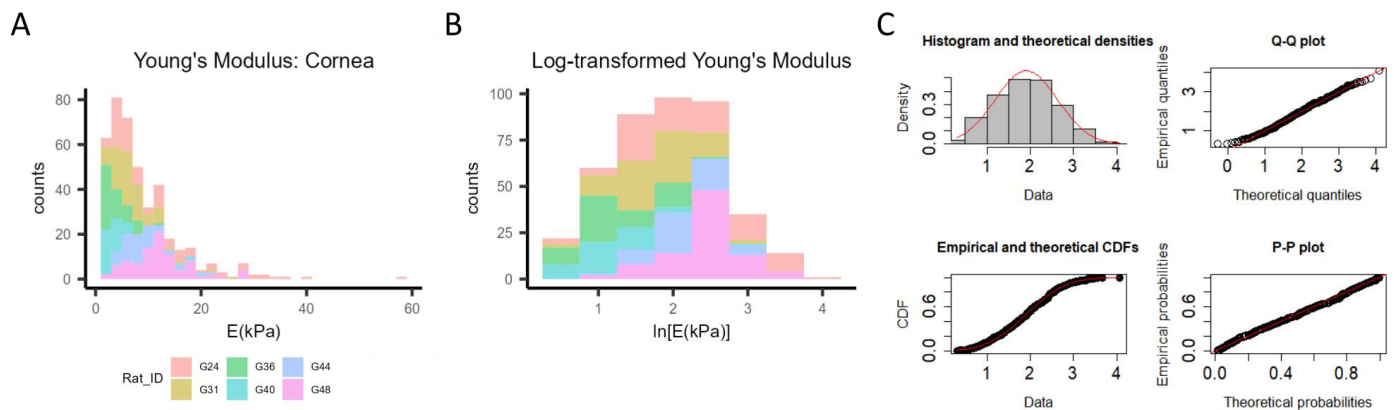
2 *Supplemental Figure 1: Young's Modulus in Rat Sclera*



3

4 **A)** Histogram of scleral Young's modulus values ($n=631$ measurements, 8 rat eyes). **B)** Log-transformed Young's
5 modulus data showing an approximately normal distribution. **C)** Goodness-of-fit plots comparing a normal
6 distribution fit to the log-transformed scleral Young's modulus values shows high agreement between empirical and
7 theoretical data. This data passed the K-S normality test. See Figure 3 for explanation of plots.

8 *Supplemental Figure 2: Young's Modulus in Rat Cornea*



9

10 **A)** Histogram of cornea Young's modulus values ($n=415$ measurements, 6 rat eyes). **B)** Log-transformed Young's
11 modulus data showing an approximately normal distribution. **C)** Goodness-of-fit plots comparing a normal
12 distribution fit to the log-transformed scleral Young's modulus values shows high agreement between empirical and
13 theoretical data. This data passed the K-S normality test. See Figure 3 for explanation of plots.

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16 *Supplemental Table 1: Mice used in this study*

Mouse ID	Date of birth	Sacrifice date	Age	Sex
36711	6/8/2021	5/17/2022	11 mo	M
37146*	9/3/2021	7/13/2022	10 mo	M
37148**	9/3/2021	7/13/2022	10 mo	F
37149	9/3/2021	7/13/2022	10 mo	F
37506	11/11/2021	9/14/2022	10 mo	F
37507	11/11/2021	9/14/2022	10 mo	F

17 *Both eyes removed from analysis (not enough data/technical issues)

18 ** Only OS (left) eye used in analysis *Supplemental Table 2: Rats used in this study*

Rat ID	Date of birth	Sacrifice date	Age	Sex
G20	01/21/22	08/29/2022	7 mo	F
G22	01/21/11	09/14/2022	7 mo	F
G24	07/03/2022	10/24/2022	3 mo	F
G31	07/03/2022	11/14/2022	4 mo	F
G36	07/03/2022	11/28/2022	5 mo	F
G40	10/03/2022	03/06/2023	5 mo	F
G44	10/03/2022	03/19/2023	5 mo	F
G48	10/03/2022	04/03/2023	6 mo	F

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21 *Supplemental Table 3: Optic Nerve Head Outlier Removal data*

Mouse	Eye*	Geometric mean E (kPa)	Number of cryosections measured	Number of data points remaining after each quality control step			
				Remove poor Hertz model fits	Filter for indentation < 2 μ m	Filter for repeated measurements	Cook's distance outlier removal
36711	OD	2.391	8	137	130	107	99
	OS	1.125	10	157	155	155	144
37148	OS	2.996	8	219	193	154	150
37149	OD	0.91	4	83	80	64	64
	OS	3.57	6	152	135	96	91
37506	OS	0.941	9	117	115	78	74
	OD	1.148	11	154	153	153	144
37507	OD	0.757	5	122	108	91	86
	OS	1.526	4	88	85	64	60
Total:			65	1229	1154	962	912

22 * OD = right eye, OS = left eye