

S1: Key to test images and supplemental ON cross sections

6 Rats	ON identifier	Sex	Age months	Average IOP* mmHg	Treatment	Number of Test images by damage grade**	Axon density per 1000 um2	% Gliotic area	ON Grade	Supplemental data
Rat 1 - Left eye	HF-5L	female	13	not available	Naïve	3 Healthy, 3 Mild	347	16.7	Healthy	S2
Rat 2 - Right eye	GM-1R	male	6.5	14.0	Naïve	5 Healthy	297	17.2	Healthy	S3
Rat 2 - Left eye	GM-1L	male	6.5	16.0	Naïve	1 Mild, 2 Moderate	270	19.7	Healthy	S4
Rat 3 - Left eye	DF-1L	female	11	10.8	Beads	1 Mild, 2 Moderate	290	20.0	Moderate	S5
Rat 4 - Right eye	DM-2R	male	12	15.9	Beads	3 Mild, 3 Moderate	274	23.8	Moderate	S6
Rat 5 - Left eye	DF-3L	female	11	13.2	Contralateral	3 Moderate	259	25.6	Moderate	S7
Rat 5 - Right eye	DF-3R	female	11	18.7	Beads	3 Severe	170	31.4	Severe	S8
Rat 6 - Left eye	FM-1L	male	10	30.1	Beads	4 Severe	147	33.5	Severe	S9
Rat 4 - Left eye	DM-2L	male	12	18.0	Contralateral	3 Severe	149	34.1	Severe	S10
Rat 1 - Right eye	HF-5R	female	13	not available	Naïve	4 Moderate	201	37.0	Severe	S11

*Average IOP for bead and contralateral eyes was calculated as area under IOP versus time curve divided by total time. For naïve eyes IOP was measured once.

** A total of 40 test image regions were selected across the 10 whole ON cross sections to represent a range of ON conditions. The 40 test images were then classified by 3 graders as Healthy, Mild, Moderate, or Severely damaged. The number and grade of test images from each ON are listed here.