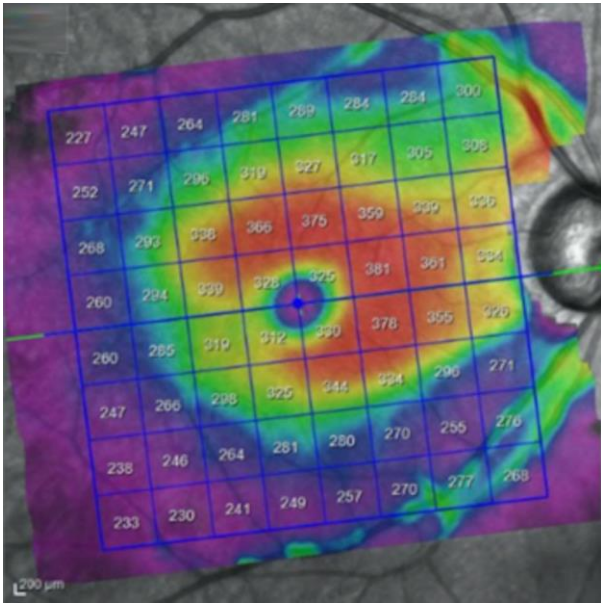**Supplementary Figure 1.** Posterior Pole Algorithm of the Spectralis OCT (left panel) and the 36 superpixels (right panel, gray superpixels) that were analyzed in the study.

Supplementary Figure 2. Heat map displaying the difference in population rates between the subgroups with visual field MD $\leq$ –6 and MD > –6 dB for the ganglion cell layer (GCL, left panel) and inner plexiform layer (IPL, right panel) in the Established Glaucoma (EG) group. Numbers represent rates in the subgroup with MD $\leq$ –6 dB minus that of MD > –6 dB subgroup. A white asterisk indicates a Bayesian p-value <0.025 and identifies a superpixel with a significantly negative rate of change difference; black asterisk indicates p-value >0.975 and identifies a superpixel with a significantly positive rate of change difference.

Supplementary Figure 3. Heat map displaying the difference in population intercepts between the subgroups with visual field MD $\leq$ –6 and MD > –6 dB for the ganglion cell layer (GCL, left panel) and inner plexiform layer (IPL, right panel) in the Established Glaucoma (EG) group. Numbers represent rates in the subgroup with MD $\leq$ –6 dB minus that of MD > –6 dB subgroup. A white asterisk indicates a Bayesian p-value <0.025 and identifies a superpixel with a significantly negative intercept difference; black asterisk indicates p-value >0.975 and identifies a superpixel with a significantly positive intercept difference.

Supplementary Figure 4. Heat map with superpixel population slope posterior means for the ganglion cell layer (top) and inner plexiform layer (bottom) for the Glaucoma Suspect group (left) and the Established Glaucoma group (right). A white asterisk indicates a Bayesian p-value <0.025 and identifies a superpixel with a significantly negative population rate of change; black asterisk indicates p-value >0.975 and identifies a superpixel with a significantly positive population rate of change.

Established Glaucoma-GCL

	2	3	4	5	6	7
7	0.071	0.030	0.175	-0.070	-0.100	-0.058
6	-0.040	-0.066	-0.021	-0.094	-0.017	-0.059
5	0.046	0.029	-0.012	-0.132	0.057	0.222*
4	0.052	0.090	0.116	-0.085	0.083	0.155
3	0.000	0.129	-0.057	0.105	0.226	0.029
2	-0.136	-0.145	-0.029	0.174	-0.010	-0.123

Established Glaucoma-IPL

	2	3	4	5	6	7
7	-0.010	0.017	-0.034	0.019	0.076	-0.055
6	-0.108	-0.101	-0.109	0.070	-0.026	0.005
5	-0.093	0.135	0.029	0.059	0.114	0.007
4	-0.002	0.126	0.095	-0.064	0.112	0.044
3	-0.057	-0.039	0.188	0.267*	0.113	0.093
2	-0.043	0.034	0.089	-0.037	-0.021	-0.070

Slope Difference

-0.1 0.0 0.1 0.2

Established Glaucoma-GCL

	2	3	4	5	6	7
7	-2.51*	-2.40*	-2.47*	-1.72	-1.03	-0.71
6	-4.01*	-4.42*	-4.77*	-4.25*	-3.32*	-1.59
5	-4.14*	-6.16*	-4.58*	-5.15*	-5.21*	-2.90*
4	-3.35*	-4.69*	-4.05*	-3.91*	-2.96*	-1.79
3	-4.19*	-5.13*	-4.08*	-3.83*	-2.77*	-1.26
2	-2.55*	-2.67*	-2.50*	-2.36*	-1.19	-0.57

Established Glaucoma-IPL

	2	3	4	5	6	7
7	0.53	-0.32	-0.50	-0.76	-0.17	0.06
6	-0.52	-1.61*	-2.60*	-2.74*	-2.01*	-1.06
5	-2.74*	-4.08*	-2.43*	-3.26*	-3.10*	-1.66*
4	-2.11*	-3.16*	-2.21*	-1.77	-1.64	-0.64
3	-0.52	-0.90	-1.72	-1.64	-0.95	-0.19
2	0.67	0.41	0.03	0.50	1.29*	0.73

Intercept Difference

-6 -4 -2 0

Glaucoma Suspect-GCL

	2	3	4	5	6	7
7	-0.072	-0.193*	-0.140*	-0.213*	-0.215*	-0.005
6	-0.186*	-0.124*	-0.154*	-0.211*	-0.292*	-0.148*
5	-0.303*	-0.196	-0.112	-0.144	-0.262*	-0.278*
4	-0.169	-0.179*	-0.096	-0.030	-0.339*	-0.271*
3	-0.196*	-0.231*	-0.344*	-0.339*	-0.268*	-0.102
2	-0.083	-0.117	-0.157*	-0.218*	-0.141*	-0.011

Established Glaucoma-GCL

	2	3	4	5	6	7
7	0.005	0.011	0.074	0.004	0.018	-0.045
6	-0.027	-0.065	-0.111	-0.065	-0.042	-0.014
5	-0.147*	-0.252*	-0.452*	-0.447*	-0.371*	-0.256*
4	-0.062	-0.142*	-0.062	-0.092	-0.507*	-0.340*
3	-0.063	-0.110	-0.169*	-0.297*	-0.281*	-0.061
2	-0.074	-0.070	-0.032	-0.072	-0.119*	-0.056

Glaucoma Suspect-IPL

	2	3	4	5	6	7
7	-0.029	0.024	-0.108	-0.124	-0.022	-0.028
6	-0.027	-0.049	-0.228*	-0.115	-0.090	-0.135*
5	-0.160*	-0.097	-0.160*	-0.148	-0.165*	-0.094
4	-0.167*	-0.120	-0.065	-0.165*	-0.084	-0.113
3	-0.110	-0.169*	-0.115	-0.098	-0.092	-0.041
2	-0.003	-0.030	-0.110	-0.064	-0.033	0.193*

Established Glaucoma-IPL

	2	3	4	5	6	7
7	0.009	-0.039	-0.079	-0.080	-0.108*	-0.043
6	-0.055	-0.168*	-0.159*	-0.078	-0.140*	-0.112*
5	-0.077	-0.311*	-0.326*	-0.247*	-0.191*	-0.222*
4	-0.090	-0.274*	-0.110*	-0.114	-0.379*	-0.279*
3	-0.090*	-0.207*	-0.304*	-0.320*	-0.270*	-0.181*
2	-0.021	-0.059	-0.167*	-0.154*	-0.092*	-0.030

Population Slope

-0.4 -0.2 0.0