Supplementary Online Content

Bunya VY, Chen M, Zheng Y, et al. Development and evaluation of semiautomated quantification of lissamine green staining of the bulbar conjunctiva from digital images. *JAMA Ophthalmol*. Published online September 14, 2017. doi:10.1001/jamaophthalmol.2017.3346

This supplementary material has been provided by the authors to give readers additional information about their work.

a)

Average Cyan Channel Intensity	% Staining in Image	Average Yellow Channel Intensity
28.78	1.05	1.68

b)

	van Bijsterveld	NEI Superior	NEI Inferior	NEI Lateral	NEI Total
Grader 1	3	2	2	1	5
Grader 2	2	1	2	0	3
Algorithm	2.79	1.53	1.86	1.71	5.24

eTable 1: Algorithm features and corresponding subjective gradings for Figure 3. a) Algorithm features calculated for the image shown in Figure 3. b) Manual and automated algorithm gradings for the image shown in Figure 3.

eTable2. Inter-grader Correlation and Reliability for Lissamine Green Staining Scores

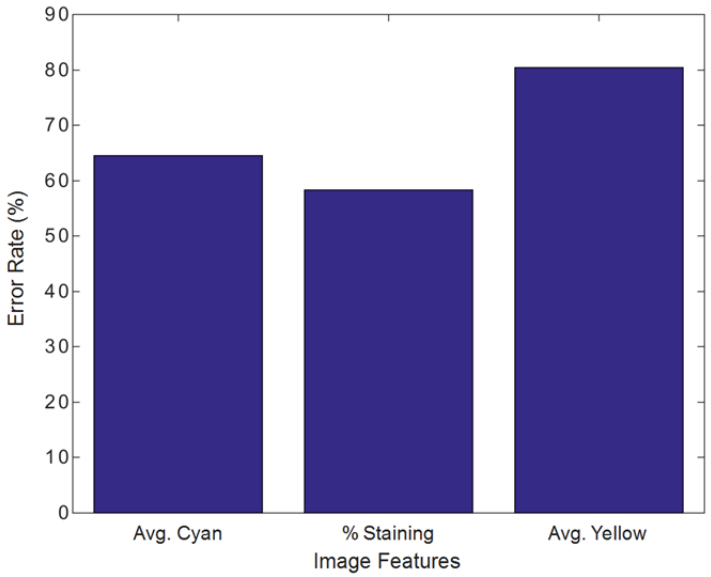
	Spearman correlation coefficient (r_s)	**Weighted Kappa***
van Bijsterveld Scale (N=35)	0.86	0.79
NEI scale (N=35)		
Top	0.84	0.85
Bottom	0.87	1.00
Lateral	0.93	0.95
Total	0.93	0.94

*Fleiss-Cohen weights

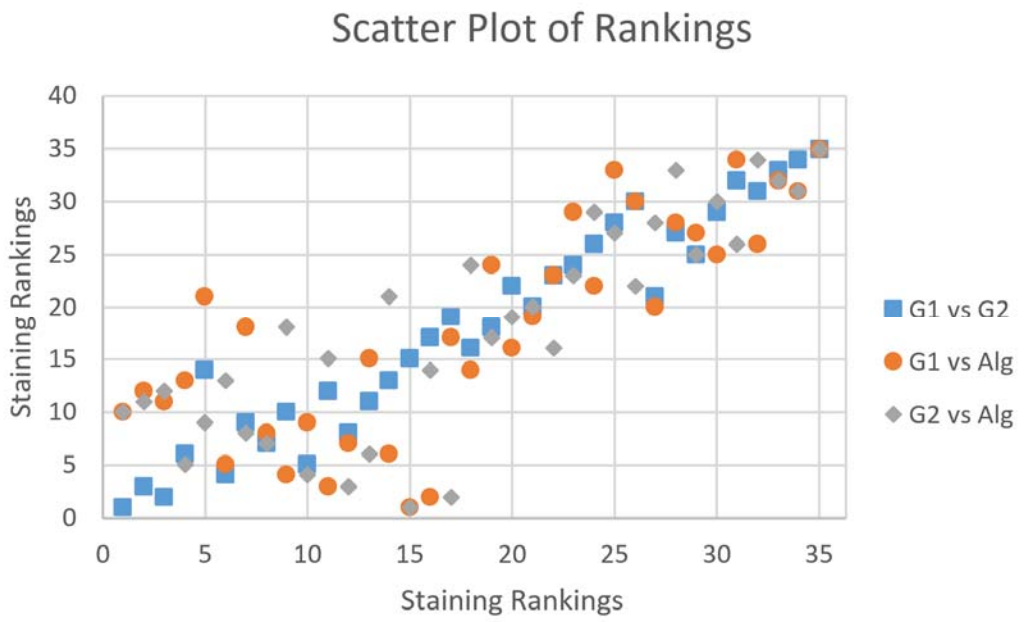
eTable 3. Correlation of Computer Algorithm Grading versus Subjective Gradings for Lissamine Green Staining

	Average of two graders*
van Bijsterveld Scale (N=35)	0.79
NEI scale (N=35)	
Top	0.60
Bottom	0.36
Lateral	0.54
Total	0.61

*Spearman correlation coefficients



<u>eFigure 1.</u> Plot of each feature's contribution to the regression. Each bar represents the increase in prediction error when the feature is randomly permuted.



<u>eFigure 2:</u> Plot of a comparison between the graders (G1 and G2) and the algorithm (Alg) rankings for placing each of the 35 images in rank order. A value of 1 indicates that the grader/algorithm rated the image as having the least staining, and a value of 35 indicate the image was rated as having the most staining.

