

Supplementary Materials

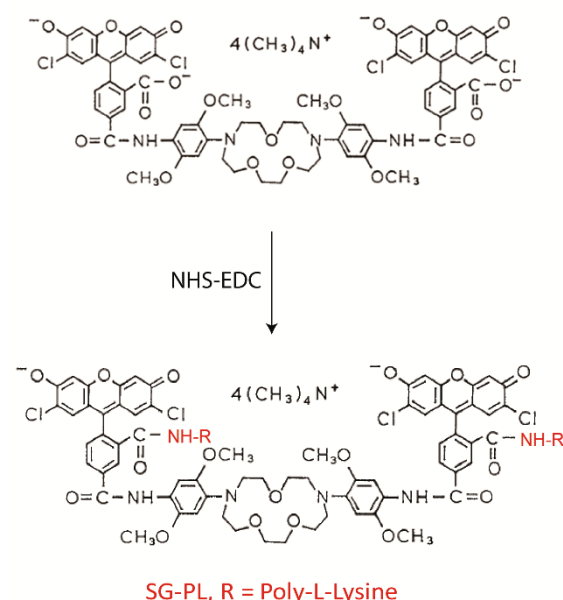
Remote Measurements of Tear Electrolyte Concentrations on Both Sides of an Inserted Contact Lens

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Scheme S1. Chemical synthesis and structures of sodium probes for use in CL.

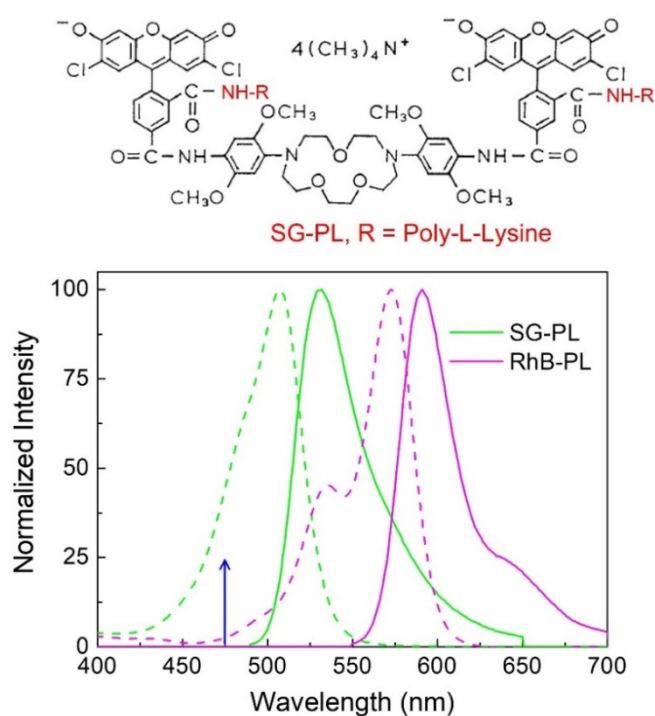


Figure S1. Chemical structure of SG-PL (top). Normalized excitation (dashed line) and emission (solid line) spectra SG-PL and RhB-PL in 7.2 phosphate buffer.

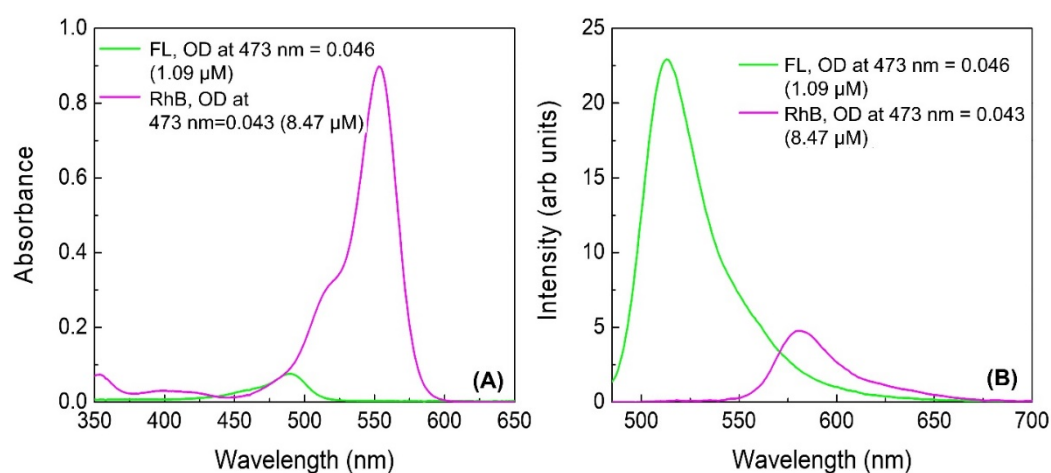


Figure S2. (A), Absorption and (B) emission spectra of fluorescein (FL) and rhodamine B (RhB) in pH 7.2 phosphate buffer. Iso-OD solutions at 473 nm with concentrations of 1.09 and 8.47 μM for FL and RhB, respectively, were used. $\lambda_{ex} = 473$ nm.

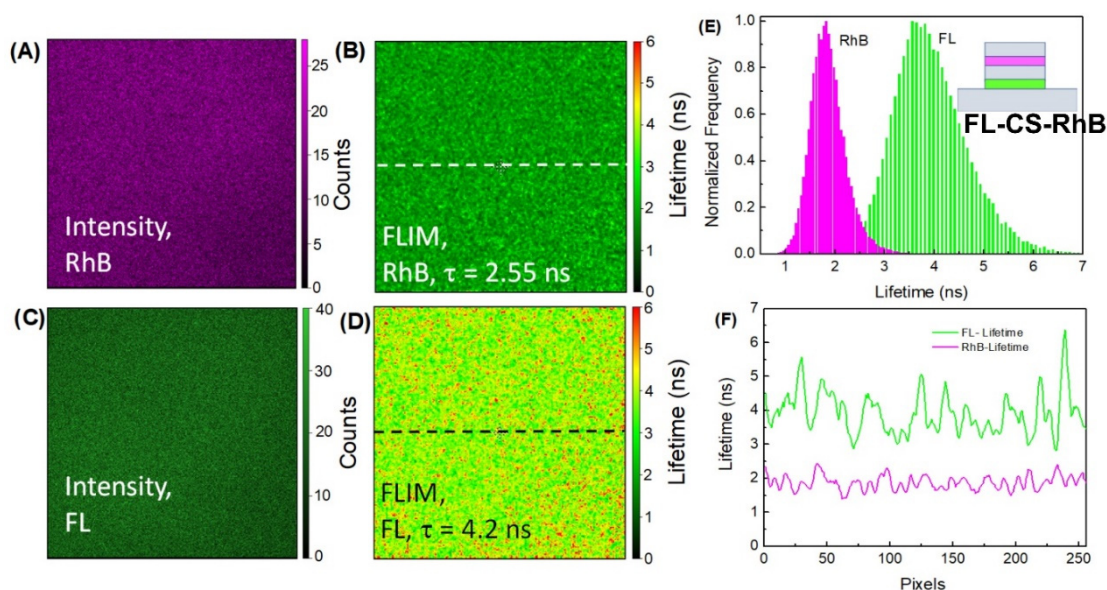


Figure S3. Confocal intensity images (A and C) and FLIM images (B and D) from RhB-layer and FL-layer, respectively, in FL-CS-RhB system shown. Intensity images were color coded with green for FL and magent for RhB for clarity. The image size was $450 \times 450 \mu\text{m}$ with 256×256 -pixel resolution. (E) Lifetime histograms from the entire FLIM images shown in (B) and (D). (F) FL and RhB lifetimes across the respective lenes on the FLIM images shown in (B) and (D) for FL and RhB, respectively.

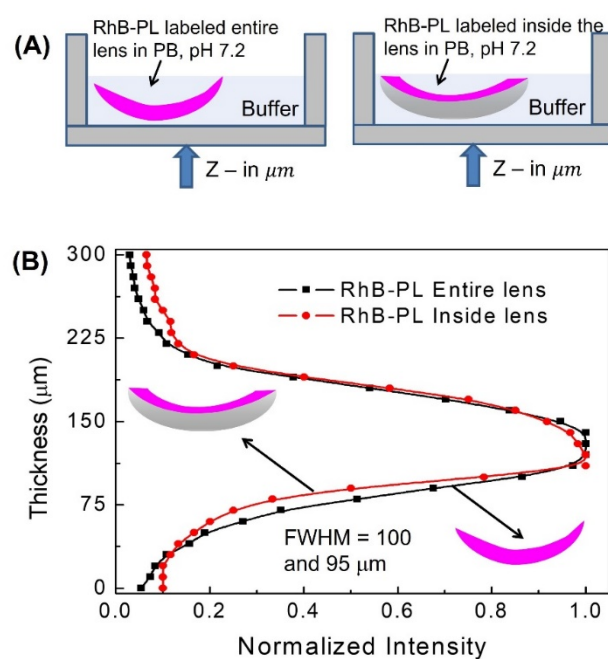


Figure S4. (A), Z-scan of emission intensity distribution of RhB-PL labeled entire or inside the Comfilcon A lenses. (B), Z-scan of emission intensity distribution of RhB-PL labeled entire or inside the Comfilcon A lenses. $\lambda_{\text{ex}} = 473 \text{ nm}$, 575/105 nm band-pass emission filter, 25 μm pinhole, 256 \times 256 pixel resolution, 450 \times 450 μm image size, 20 \times objective. Gray and pink lenses, respectively, for without and with RhB-PL area.