

Supporting Information

Synergistic Cysteamine Delivery Nanowafer as an Efficacious Treatment Modality for Corneal Cystinosis

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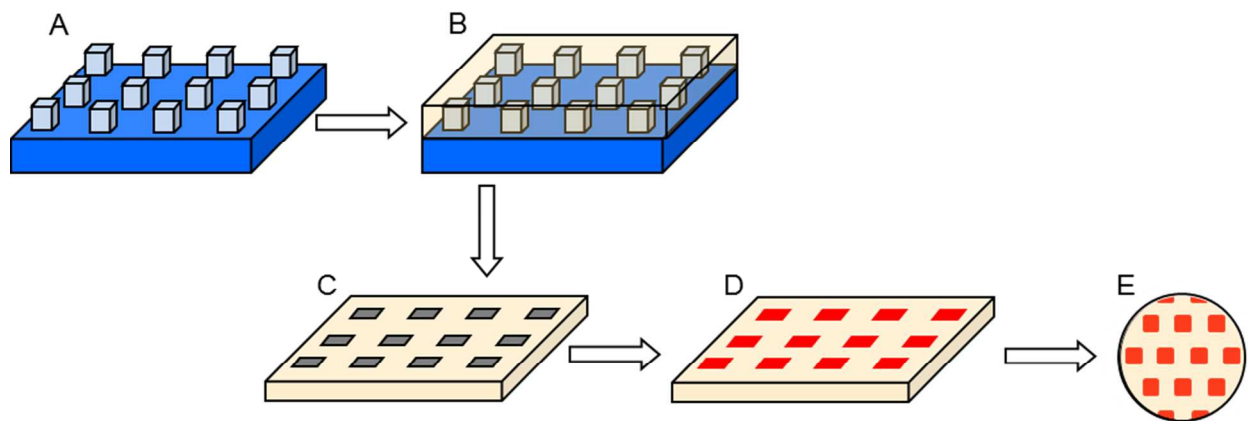


Figure S1. Schematic of the nanowafers fabrication *via* the hydrogel template strategy. (A) Silicon wafer master template having 500 nm square posts fabricated by e-beam lithography. (B) Fabrication of a PVA template. (C) PVA template. (D) PVA template filled with drug. (E) A drug filled nanowafers.

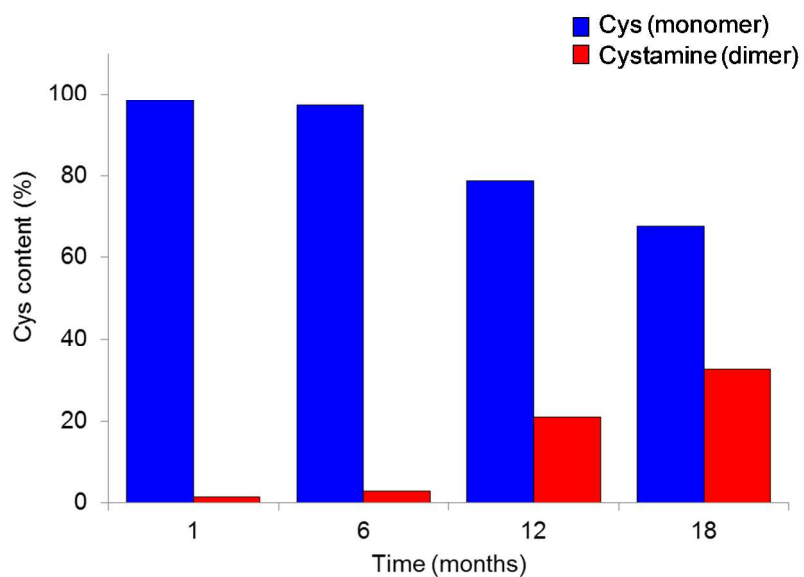


Figure S2. Cys-NW protects Cys from oxidation to therapeutically inactive cystamine. A plot depicting the stability of Cys (monomer) in the nanowafer compared to cystamine (dimer).

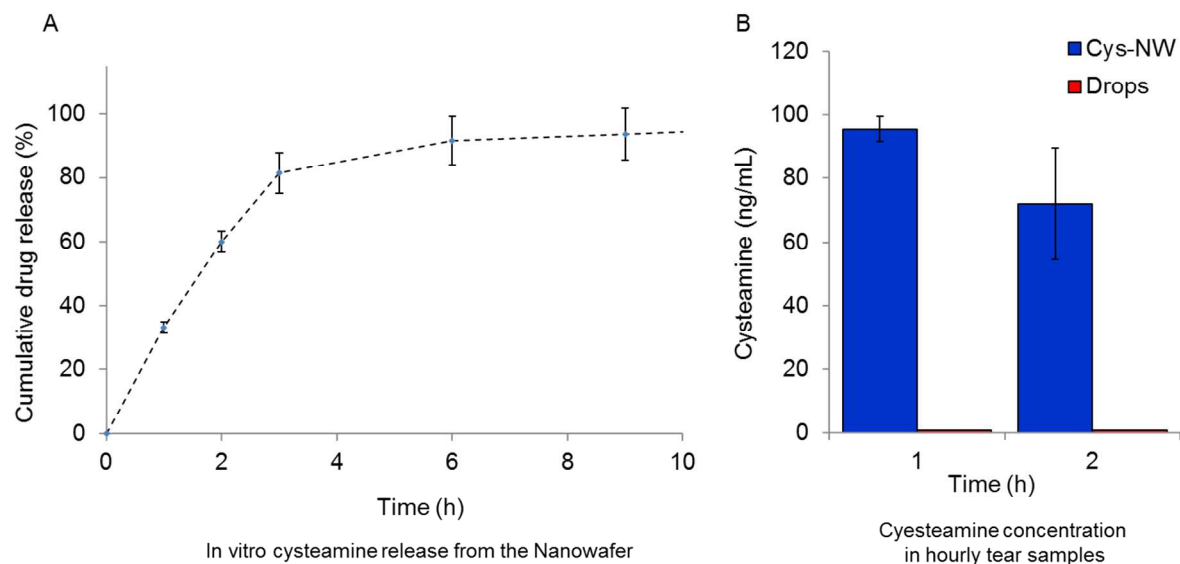


Figure S3. Cys-NW improves the drug residence time on the ocular surface. (A&B) Bright field and fluorescence images demonstrating the application of a nanowafer on mouse eye. (C) In vitro drug release profile of Cys-NW. (D) Cys content in the tear samples collected after Cys-NW and Cys eye drop instillation. Data is represented as mean \pm SEM.

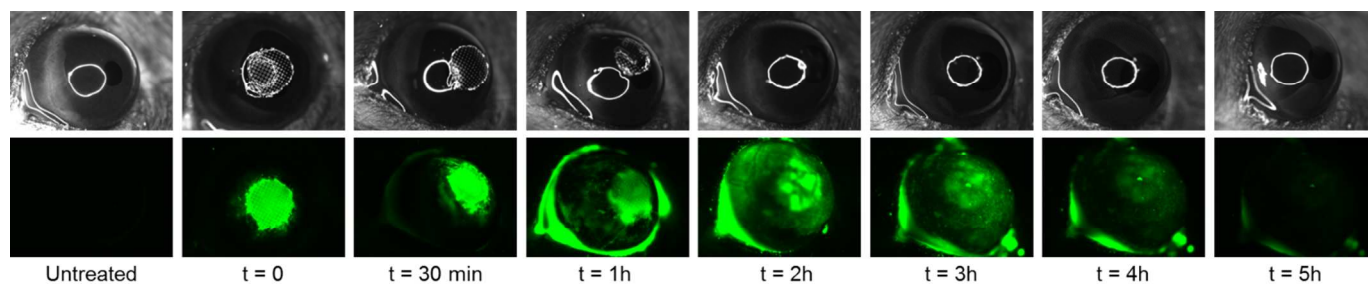


Figure S4. Demonstration of adherence and dissolution of the nanowafer during the course of the drug release. Top Panel: Bright field micrographs demonstrating the disappearance of the nanowafer after 1 hour (please see the arrows pointing the position of the nanowafer). Bottom Panel: Fluorescence micrographs demonstrating the presence of fluorescein in the corneal tissue for up to 5 hours.