

Article

Self-Healing Alginate Hydrogel Formed by Dynamic Benzoxaborolate Chemistry Protects Retinal Pigment Epithelium Cells against Oxidative Damage

Minhua Liu ^{1,†}, Yate Huang ^{1,†}, Chunwen Tao ¹, Weijia Yang ¹, Junrong Chen ¹, Li Zhu ¹, Tonghe Pan ¹, Ravin Narain ^{4,*}, Kaihui Nan ^{1,2,3,*} and Yangjun Chen ^{1,2,3,*}

¹ State Key Laboratory of Ophthalmology, Optometry and Vision Science, School of Ophthalmology & Optometry, Wenzhou Medical University, Wenzhou, Zhejiang 325027, China

² National Engineering Research Center of Ophthalmology and Optometry, School of Biomedical Engineering, Wenzhou Medical University, Wenzhou, Zhejiang 325027, China

³ National Clinical Research Center for Ocular Diseases, Affiliated Eye Hospital of Wenzhou Medical University, Wenzhou, Zhejiang 325027, China

⁴ Department of Chemical and Materials Engineering, University of Alberta, Edmonton, Alberta T6G 2G6, Canada

† These two authors contributed equally to this work.

* Correspondence: narain@ualberta.ca; nankh@163.com; chenyj@wmu.edu.cn

Supporting Information

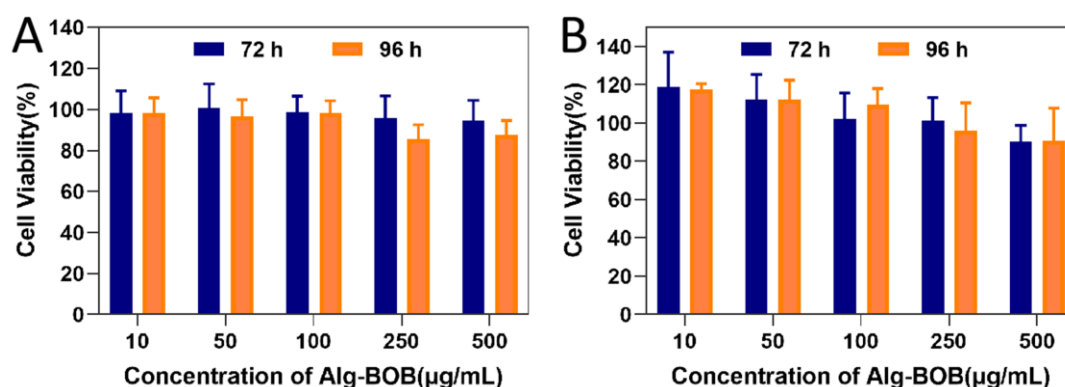


Figure S1. Cell viability of (A) ARPE-19 and (B) L929 cell lines after co-incubation with Alg-BOB polymer solution for a long time of 72 and 96 h, respectively ($n = 6$).

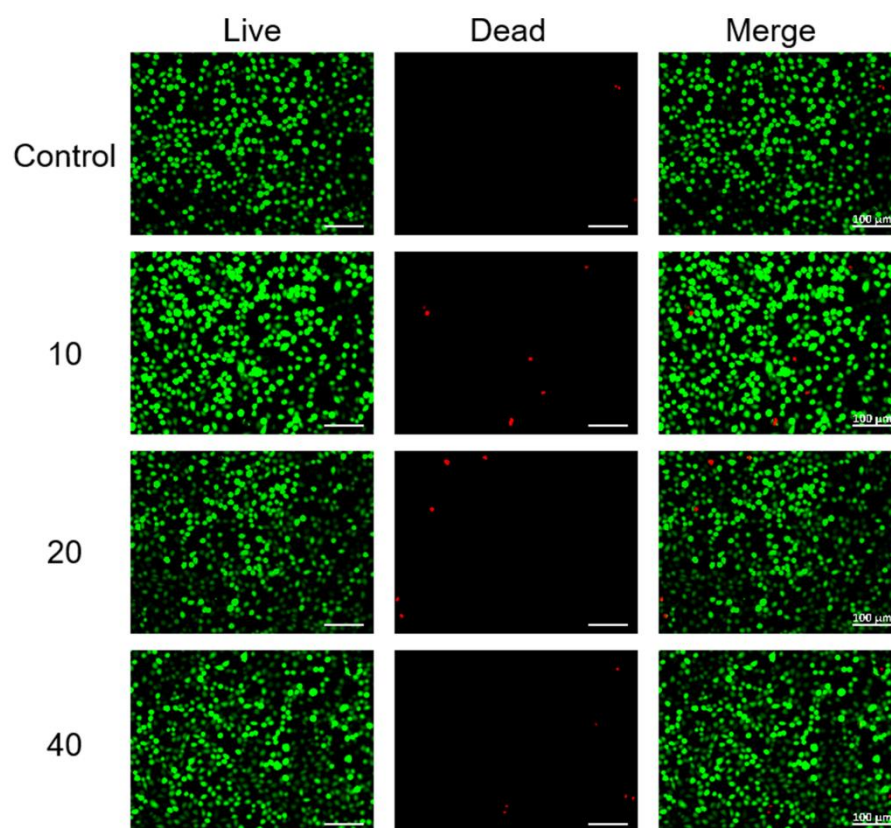


Figure S2. Live/Dead assay (green and red dots mean living and dead cells, respectively) of L929 cells cultured with gel extracts with different volume ratios of culture medium: hydrogel (10, 20, and 40, respectively). Scale bar = 100 μm .

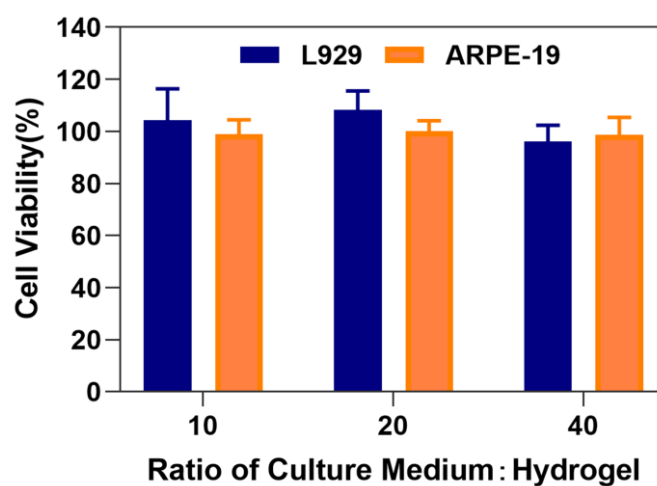


Figure S3. Cell viability of L929 and ARPE-19 cell lines after co-culture with gel extracts prepared by immersing the hydrogel in complete cell growth medium in presence of H_2O_2 for 24 h ($n = 6$).