

Figure S1: Representative confocal images showing the expression of ECMs in 2D ARPE19 monolayers under several conditions.

2D ARPE 19 monolayers at Day 5 in the absence or presence of 1 mM, 10 mM or 100 mM tamsulosin (TAM) were subjected to immunohistochemistry analyses. Representative immunolabeling images by specific antibodies against collagen 1 (COL 1), collagen 4 (COL 4), collagen 6 (COL6), or fibronectin (FN) (green), DAPI (blue) and Phalloidin (red) are shown in panel A (scale bar: 100  $\mu$ m). The staining intensities of the labeling of each ECM protein were plotted in panel B. All experiments were performed in duplicate using fresh preparations consisting of 5 spheroids each. Data are presented as the arithmetic mean  $\pm$  standard error of the mean (SEM). \*  $P < 0.05$ , \*\*  $P < 0.01$ , \*\*\*  $P < 0.005$ , \*\*\*\*  $P < 0.001$  (ANOVA followed by a Tukey's multiple comparison test).

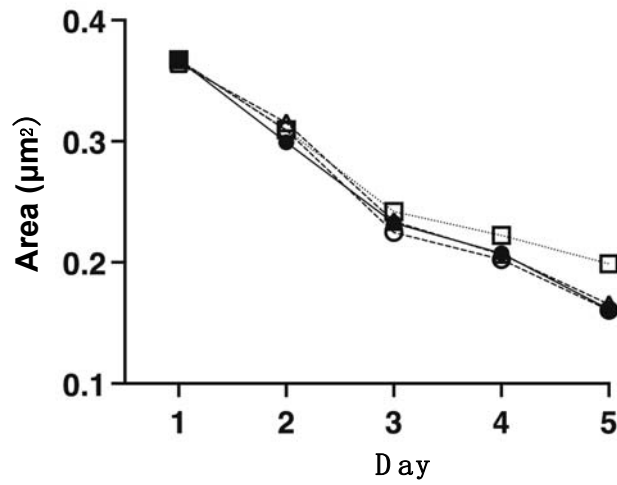


Figure S2: Time course of changes in the mean sizes of the 3D ARPE 19 spheroids during 5 days culture.

The fluctuation in the mean sizes of the 3D ARPE19 spheroids of non-treated controls (CONT), or in the presence of 1 mM, 10 mM or 100 mM tamsulosin (TAM) during 5 days spheroid culture are plotted.

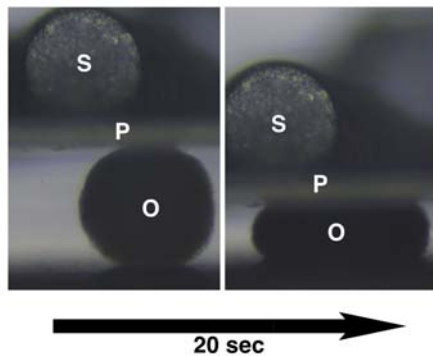


Figure S3: The measurement of the physical stiffness using a microsqueezer.

A single living 3D ARPE19 spheroid at Day 5 was compressed and the force ( $\mu\text{N}$ ) required to induce a 50 % deformity of every single spheroid out of 15-20 freshly prepared 3D spheroids were measured over a period of 20 seconds (panel A, O; 3D spheroid, P; compressing plate, S; pressure sensor).



## CERTIFICATE OF ANALYSIS

ATCC® Number: CRL-2302™  
Lot Number: 70013110  
Name: ARPE-19  
Description: Retinal Epithelium  
Species: Human (*Homo sapiens*)  
Volume/Ampule: Approximately 1 mL  
Date Frozen: 15MAR2018  
Recovery: A T-75 setup at a dilution of 1:15 reaches approximately 20% confluence in 1 day and 80% confluence in 4 days.  
Product Format: Cells cryopreserved in the appropriate cryopreservation medium  
Expiration Date: Not applicable  
Storage Conditions: Vapor phase of liquid nitrogen

0.05% / 1:1000

Test / Method	Specification	Result
Ampule passage number	Report results	20
Population doubling level (PDL)	Report results	Not applicable
Total cells/ampoule (Cell count using Trypan Blue stain method)	Report results	$7.6 \times 10^5$ total cells/ampoule
Post-freeze viability (Cell count using Trypan Blue stain method)	$\geq 50.0\%$	95.2%
Growth properties (Visual observation method)	Adherent	Adherent
Morphology (Visual observation method)	Epithelial-like*	Epithelial-like
Test for mycoplasma contamination Hoechst DNA stain (indirect) method Agar culture (direct) method PCR-based assay	None detected None detected None detected	None detected None detected None detected
Species determination: COI assay (interspecies)	Human	Human

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Table S1: The Quantitative PCR primers