

1 **Description of Additional Supplementary Files**

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3 **File Name:** Supplementary Data 1

4 **Description:** Numerical source data used to create Fig. 2 g-i, Fig. 3 j, and Fig. 5 in the
5 manuscript.

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7 **File Name:** Supplementary Movie 1

8 **Description: P-GAN recovers the retinal pigment epithelial (RPE) cells from**
9 **speckled AO-OCT enface images.** Toggling between speckled and P-GAN recovered
10 RPE image for participant S1 shows that P-GAN suppressed the noise and revealed the
11 RPE cellular structure. Scale bar: 50 μm .

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13 **File Name:** Supplementary Movie 2

14 **Description: Comparison between P-GAN recovered RPE image and ground truth**
15 **averaged RPE image.** Toggling between P-GAN recovered and averaged RPE images
16 for participant S2 shows similarity in the cells. Scale bar: 50 μm .

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18 **File Name:** Supplementary Movie 3

19 **Description: Comparison of GAN recovered RPE images and ground truth**
20 **averaged RPE images.** Video shows simultaneous visual comparison of the speckled
21 RPE, GAN, Pix2Pix, CycleGAN, P-GAN recovered RPE, and averaged ground truth
22 images for three participants (S1-S3). Scale bar: 50 μm .

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