Supplemental Document

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Refractive-index matching enhanced polarization sensitive optical coherence tomography quantification in human brain tissue: supplement

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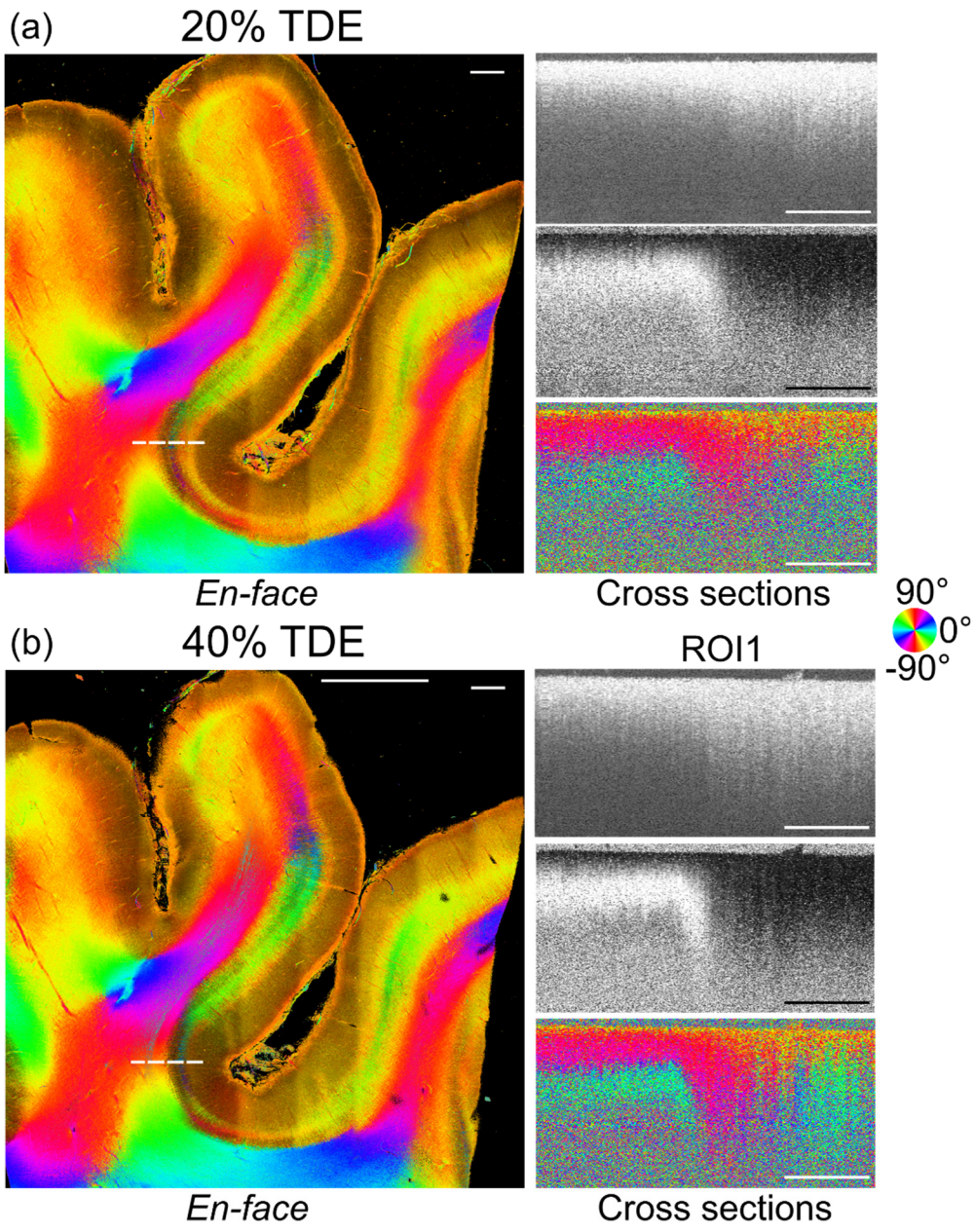

Fig. S1 PS-OCT images of human visual cortex in the occipital lobe *ex vivo* with 20% (a) and 40% TDE immersion (b), corresponding to Fig. 1. *En-face* optic axis orientation images by integrating 500 μm in depth are shown on the left and cross-sectional images are shown on the right. The location of the cross-sectional images of intensity (35~75 dB), retardance (0~60 deg) and optic axis orientation (-90~90 deg) were indicated by the dashed line on the *en-face* orientation in (a) and (b), separately. For *en-face* orientation images, axis orientation values are color coded in HSV space as illustrated by the color wheel and the brightness is modulated by retardance. Scale bars: 1 mm.

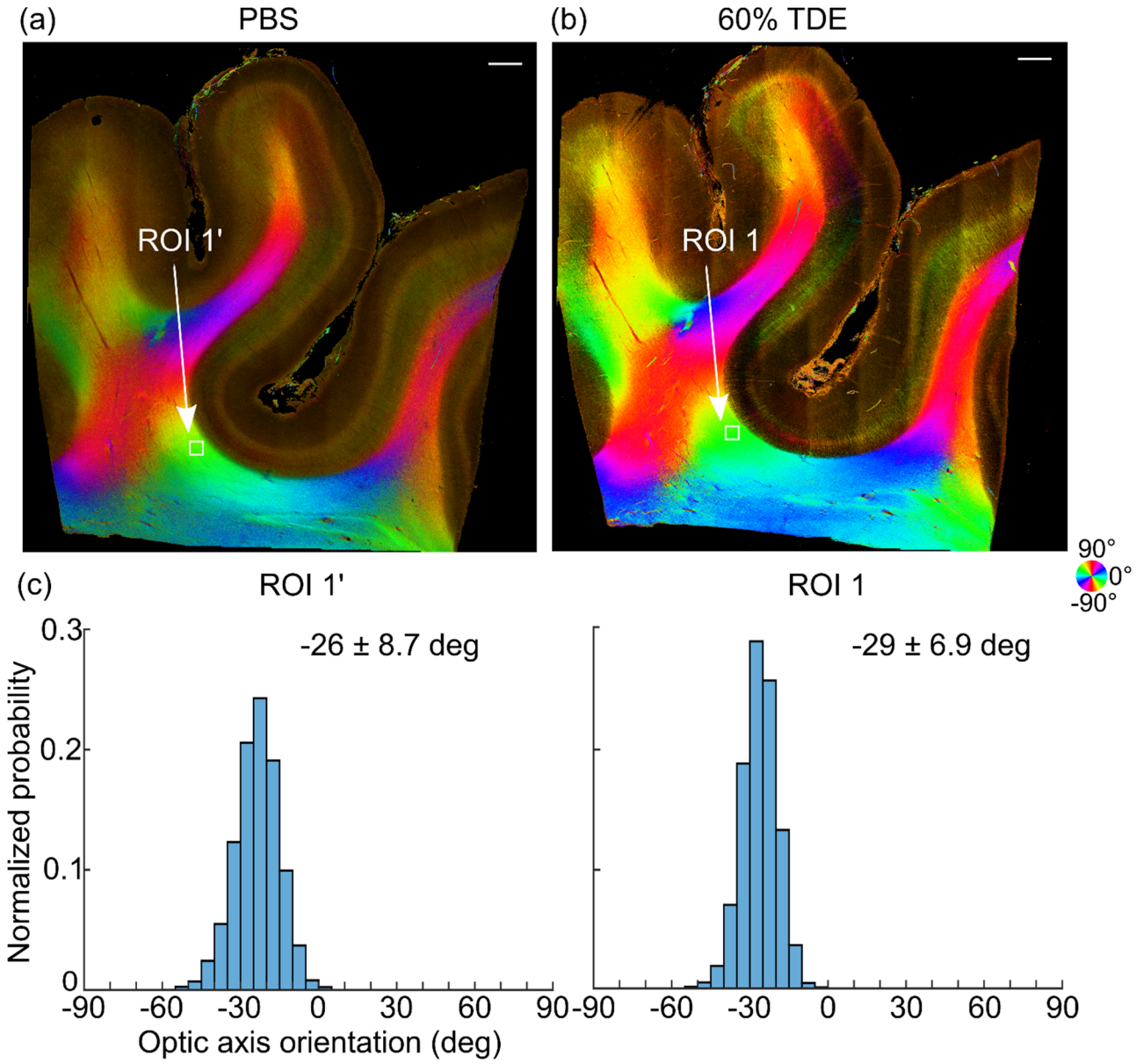

Fig. S2 *En-face* orientation images integrating 200 μm in depth with PBS (a) and 60% TDE immersion (b), corresponding to Fig. 1.
(a) - (b) The axis orientation values are color coded in HSV space as illustrated by the color wheel and the brightness is modulated by retardance. Scale bars: 1 mm.
(c) The orientation distributions in the same 500 × 500 μm^2 region labeled as ROI1' and ROI1 in (a) and (b), respectively. The averaged orientations are -26 ± 8.7 deg and -29 ± 6.9 deg with PBS and 60% TDE immersion.

Table S1. Apparent birefringence Δn measurements (mean±S.D.) in the white matter with respect to TDE concentration at three depth intervals.

TDE concentration	0 – 200 μm	200 – 400 μm	400 – 600 μm
0%	0.15±0.06 deg/μm	0.04±0.03 deg/μm	0.04±0.02 deg/ μm
20%	0.2±0.07 deg/μm	0.06±0.04 deg/μm	0.04±0.03 deg/ μm
40%	0.25±0.06 deg/μm	0.13±0.06 deg/μm	0.04±0.03 deg/ μm
60%	0.27±0.09 deg/μm	0.18±0.08 deg/μm	0.09±0.06 deg/ μm

Table S2. Apparent birefringence Δn measurements (mean±S.D.) in the gray matter with respect to TDE concentration at three depth intervals.

TDE concentration	0 – 200 μm	200 – 400 μm	400 – 600 μm
0%	0.023±0.02 deg/μm	0.08±0.04 deg/μm	0.04±0.03 deg/μm
20%	0.018±0.01 deg/μm	0.05±0.03 deg/μm	0.06±0.03 deg/μm
40%	0.019±0.02 deg/μm	0.04±0.03 deg/μm	0.06 ±0.03 deg/μm
60%	0.019±0.02 deg/μm	0.02±0.02 deg/μm	0.03±0.02 deg/μm

Table S3. Var_θ measurements (mean±S.D.) in the white matter with respect to TDE concentration at three depth intervals.

TDE concentration	0 – 200 μm	200 – 400 μm	400 – 600 μm
0%	26±8 deg	58±15 deg	59±7 deg
20%	18±5 deg	52±18 deg	53±9 deg
40%	16±4 deg	38±15 deg	54±11 deg
60%	17±5 deg	25±13 deg	44±19 deg

Table S4. Var_θ measurements (mean±S.D.) in the gray matter with respect to TDE concentration at three depth intervals.

TDE concentration	0 – 200 μm	200 – 400 μm	400 – 600 μm
0%	36±13 deg	65±12 deg	61±8 deg
20%	27±10 deg	52±21 deg	60±12 deg
40%	30±15 deg	49±20 deg	51±16 deg
60%	32±15 deg	40±21 deg	40±21 deg