**Table. S2 Summary table:** Time course of all the morphological, functional, cellular, and transcriptome changes in the UPOAO model.

| Changes in each group | 30min-3d | 30min-7d | 60min-0d | 60min-3d | 60min-7d |
| --- | --- | --- | --- | --- | --- |
| RGCs counts | - | - | / | ↓ | ↓ |
| ERG | Amplitudes of a-waves | - | - | / | - | - (0.001, 0.003, 0.01, 0.03, 0.1, 1.0 cd.s/m2)↓ (0.3, 3.0, 10.0 cd.s/m2) |
|  | Response time of a-waves | - | - | - | - |
|  | Amplitudes of b-waves | - | - | ↓ | ↓ |
|  | Response time of b-waves | - | - | - | - |
|  | Amplitudes of OPs-waves | / | ↓ | ↓ |
| OCT |  | / | 1.5 PD | 3 PD | 4.5PD | 1.5 PD | 3 PD | 4.5PD |
| GCC thickness | - | - | - | ↓ | ↓ | ↓ |
| INL+OPL thickness | - | - | - | - | - | - |
| ONL+IS/OS+RPE thickness | - | - | - | - | - | - |
| total retinal thickness | - | - | ↓ | ↓ | ↓ | ↓ |
| HE | RNFL+GCL thickness | / | ↑ | ↓ |
| IPL thickness | ↓ | ↓ |
| INL thickness | - | ↓ |
| OPL thickness | - | - |
| ONL thickness | - | - |
| IS/OS+RPE thickness | - | - |
| Immunofluorescence density of retinal neural cells  | Bipolar cells (PKCα) | / | - | ↓ |
| Horizontal cells (Calbindin) | ↓ | ↓ |
| Cholinergic amacrine cells (ChAT) | ↓ | ↓ |
| Photoreceptor cells (Recoverin) | - | - |
| Peripheral leukocyte infiltration (CD45) # | / | ↑ | ↑ |
| Microglia counts (Iba1) | / | ↑ | ↑ |
| RNA-seq | DEGs number | / | 419 (up: 215; down: 204) | 542 (up: 372; down: 170) | 739 (up: 429; down: 310) |
| Enrichment | Immune cells migration-related pathways | Oxidative stress-related pathways | Immune inflammation-related pathways |

-: no change;

↑: increase;

↓: decrease;

/: not involved in the article;

#: supplementary content: also increase after 60min-ischemia and 1d-reperfusion;