

**Figure S1.** Co-staining for OPN (green) and IBA1 (red) in sham mice and the peri-infarct area of mice 2, 7, 14, 21, or 28 days post-stroke, n=6 per group. OPN was localized with IBA1 (microglia marker) (pointed by the white arrow). Original magnification, 40×. Scale bar: 20 µm.



**Figure S2.** Co-staining for OPN (red) and GFAP (green) in sham mice and the peri-infarct area of mice 2, 7, 14, 21, or 28 days post-stroke, n=6 per group. OPN was not co-localized with GFAP. Original magnification,  $40 \times$ . Scale bar: 20 µm.



Figure S3. Additional original western images for relative levels of the OPN protein in the ipsilateral/contralateral hemisphere.



Figure S4. Additional original western images for relative levels of the SYN protein in the ipsilateral hemisphere.



Figure S5. Additional original western images for relative levels of the beclin1 protein in the ipsilateral hemisphere.

	Sham	Stroke+Saline	Stroke+rOPN
N=1	4233	4756	7936
N=2	2511	6952	7802
N=3	2819	5893	7272
N=4	3160	5742	8890
N=5	2132	5021	7268
Mean	2971	5672.8	7833.6
SEM	716.52	768.76	593.76

 Table S1. The statistical data of VgluT 1 puncta in each biological sample in Ipsilesional cortex for

 Figure 5B

Table S2. The statistical data of VgluT 1 puncta in each biological sample in Contralesion cortex forFigure 5B

	Stroke+Saline	Stroke+rOPN
N=1	3857	7845
N=2	3825	7632
N=3	4532	7465
N=4	3526	7941
N=5	3632	6958
Mean	3874.4	7568.2
SEM	350.81	347.18



Figure S6. Additional original western images for relative levels of the SYN protein after OPN treatment.



Figure S7. Additional original western images for relative levels of the integrin-  $\beta$ 1 protein after OPN and GRGDSP treatment.



Figure S8. Additional original western images for relative levels of the SYN protein after OPN and GRGDSP treatment.



Figure S9. Additional original western images for relative levels of the beclin1 protein after OPN and GRGDSP treatment.