**Supplementary Figures**

**Figure S1.** The positive monoclonal BRL-3A cell lines in Lenti-GFP and Lenti-OPN groups were captured by using bright field (left panel) and fluorescence (right panel) microscopy. Scale bar = 50μm. The monoclonal BRL-3A cell lines were obtained by selecting some GFP positive cells and expanding them by limiting the dilution cloning in Lenti-OPN and control Lenti-GFP groups.



**Figure S2.** Representative flow cytometry results showing the effects of Lenti-GFP (A) and Lenti-OPN (B) on cell cycle distribution at 48h after seeding positive monoclonal BRL-3A cell lines, Ad-RFP (C) and Ad-OPN (D), scramble (E) and OPN-siRNA2 (F), and Ad-scramble (G) and Ad-shOPN3 (H) on cell cycle distribution at 48h after transfection.



**Figure S3.** Immunofluorescence assays showing the expressions of Ki-67 in liver tissues at 3 and 24h after partial hepatectomy (PH) (Scale bar = 50μm). All groups were subjected to 2/3 partial hepatectomy, and then the experimental groups were injected with rrOPN, and the control groups with PBS through rat tail vein. Liver tissues were obtained for Ki-67 immunofluorescence assay for detecting the effect of rrOPN on hepatocyte proliferation, and the Ki67-positive cell rate showed no significant changes at 3 and 24h after PH between rrOPN group and control group.

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**Figure S4.** Sudan IV staining results displaying the lipid droplets in the hepatic cells around the liver central vein at 24h after partial hepatectomy. Scale bar = 100μm.