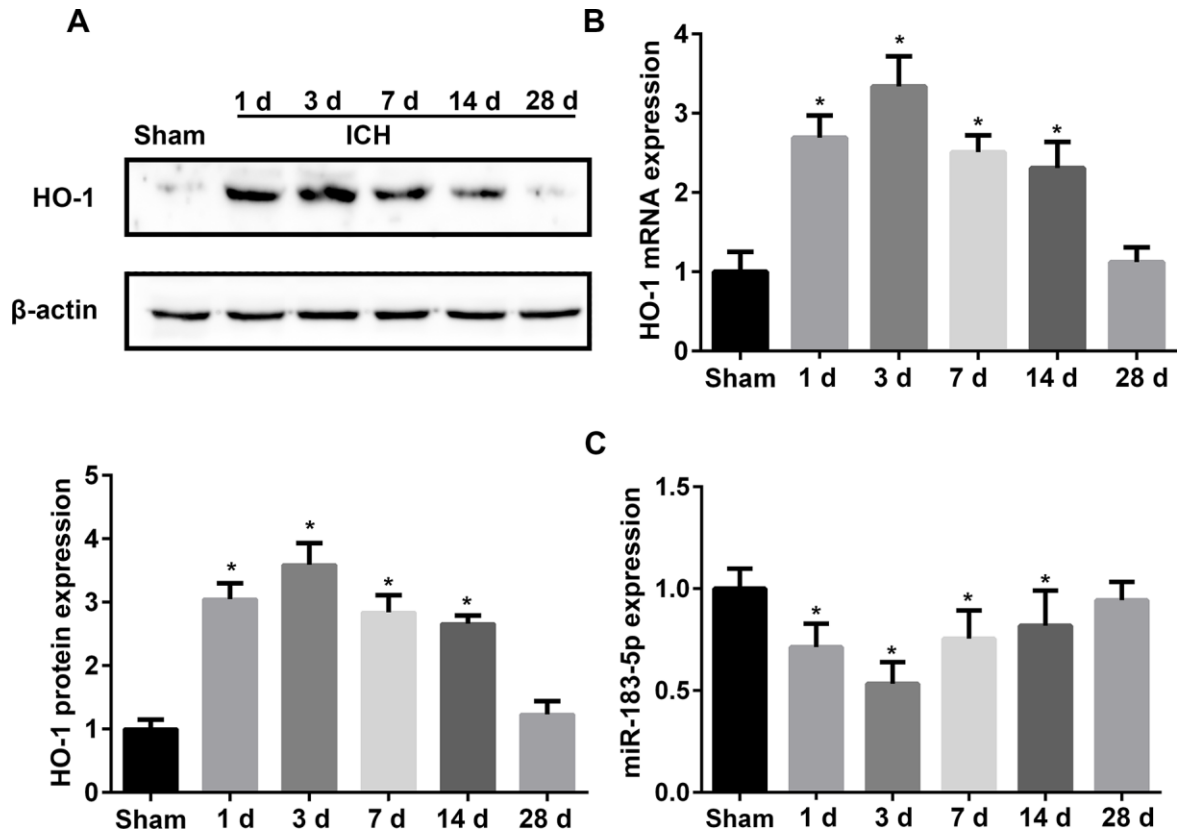
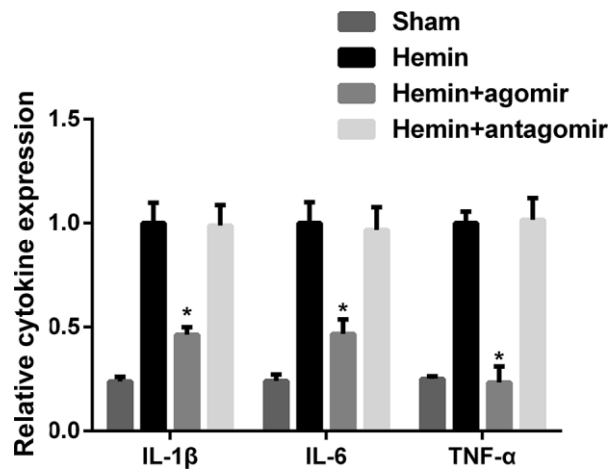


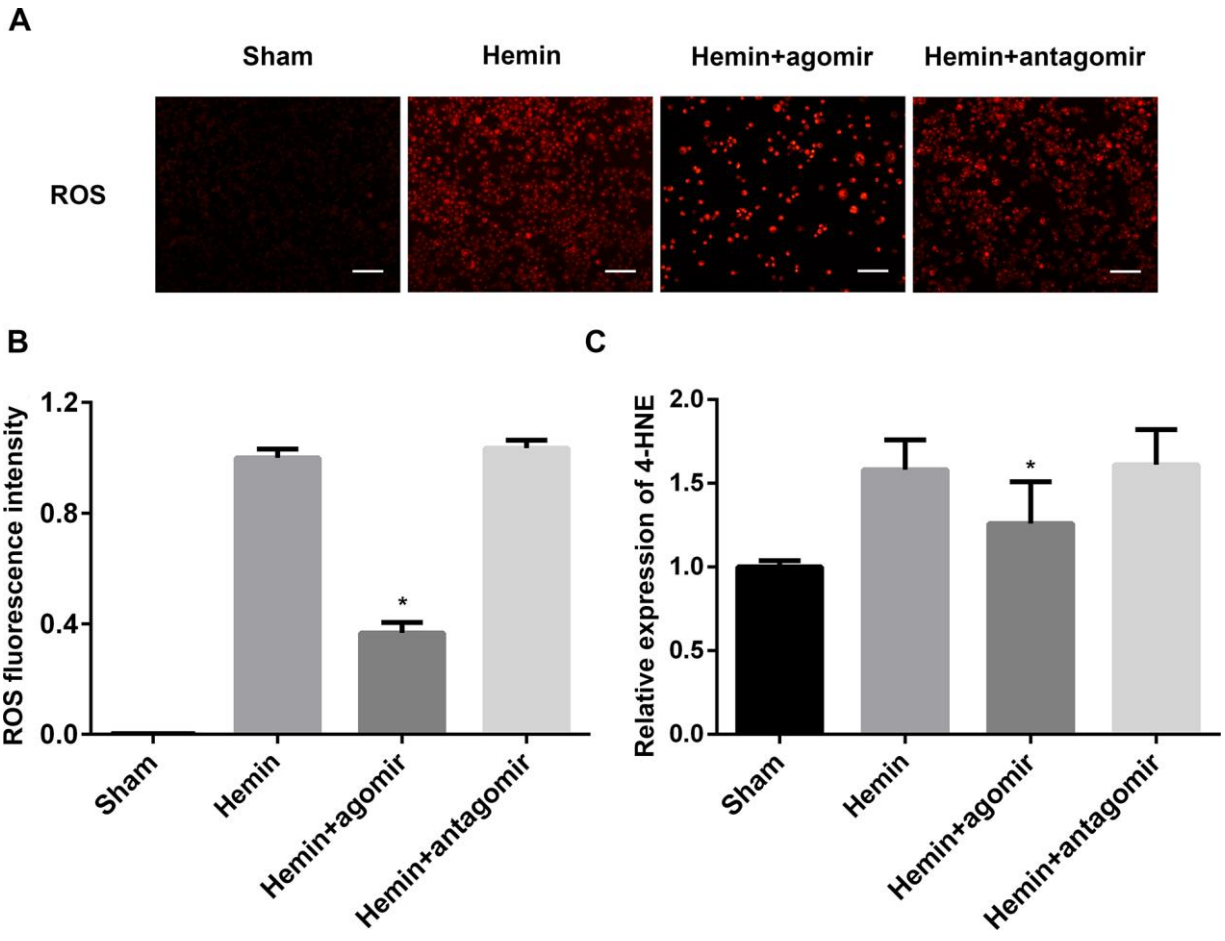
SUPPLEMENTARY FIGURES



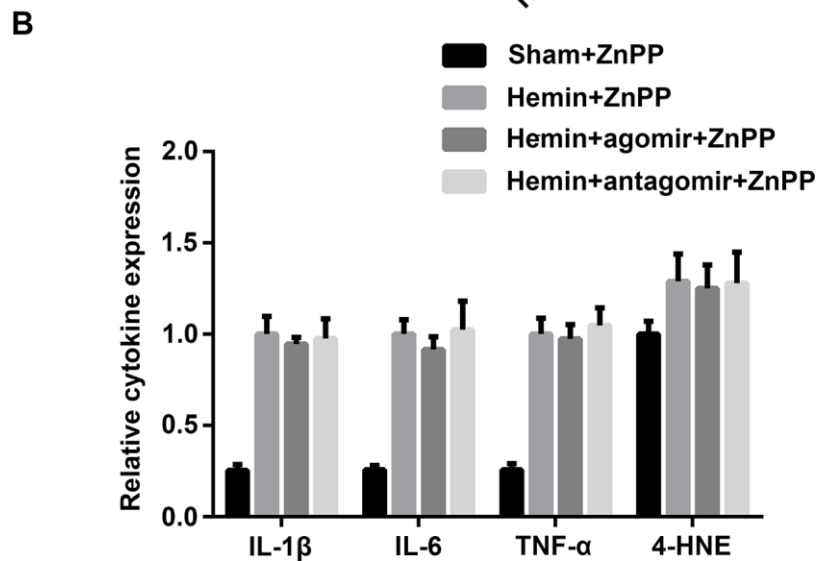
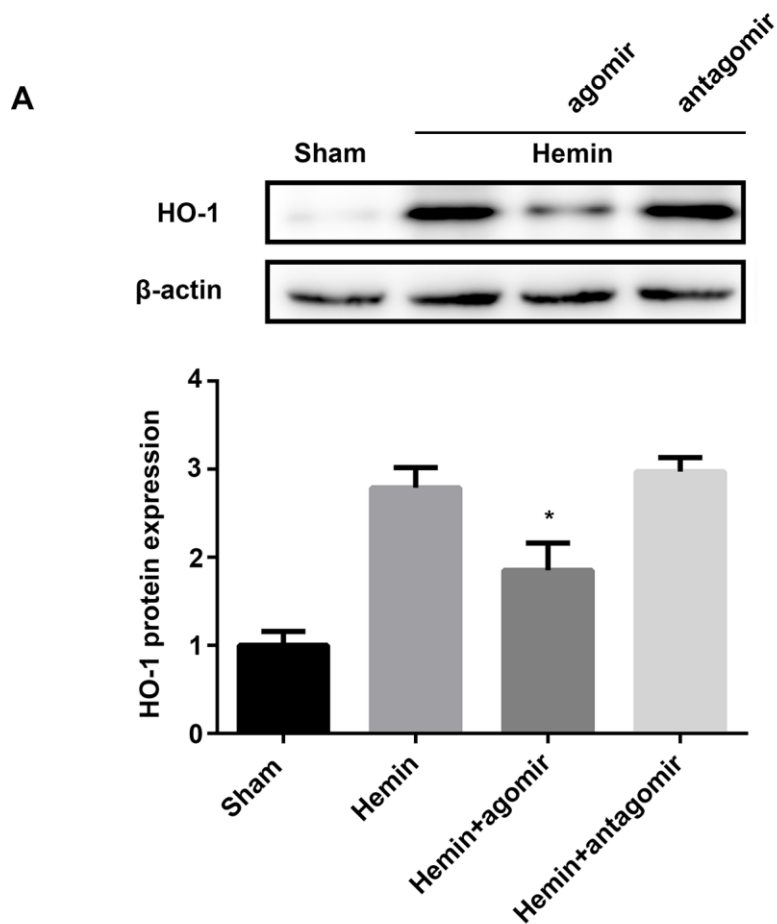
**Supplementary Figure 1. A negative correlation was observed between the time course of heme oxygenase-1 (HO-1) expression and miR-183-5p after intracerebral hemorrhaging (ICH).** (A) Above: western blotting showed HO-1 expression at different time points after ICH. Below: quantitative analysis of HO-1 protein expression at different time points after ICH.  $n = 8/\text{group}$ . (B) Quantitative analysis of HO-1 mRNA expression at different time points after ICH by qPCR.  $n = 8/\text{group}$ . (C) Quantitative analysis of miRNA-183-5p expression at different time points after ICH by qPCR.  $n = 8/\text{group}$ . Values are presented as the mean  $\pm$  standard deviation.  $*P < 0.05$  vs. the sham group.



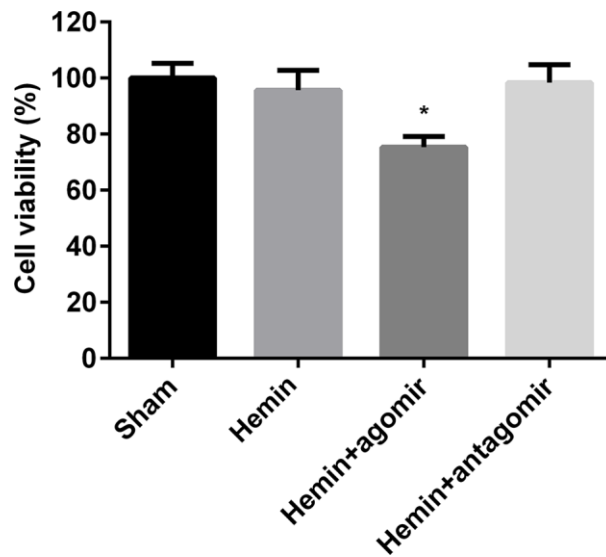
**Supplementary Figure 2. Treatment with miR-183-5p reduced cytokine release from BV2 microglia exposed to hemin.** Quantitative analysis of cytokine expression in the supernatants of cultured BV2 microglia from different groups at 24 hours after hemin treatment. n = 3/group. Values are presented as the mean  $\pm$  standard deviation. \* $P < 0.05$  vs. the hemin group.



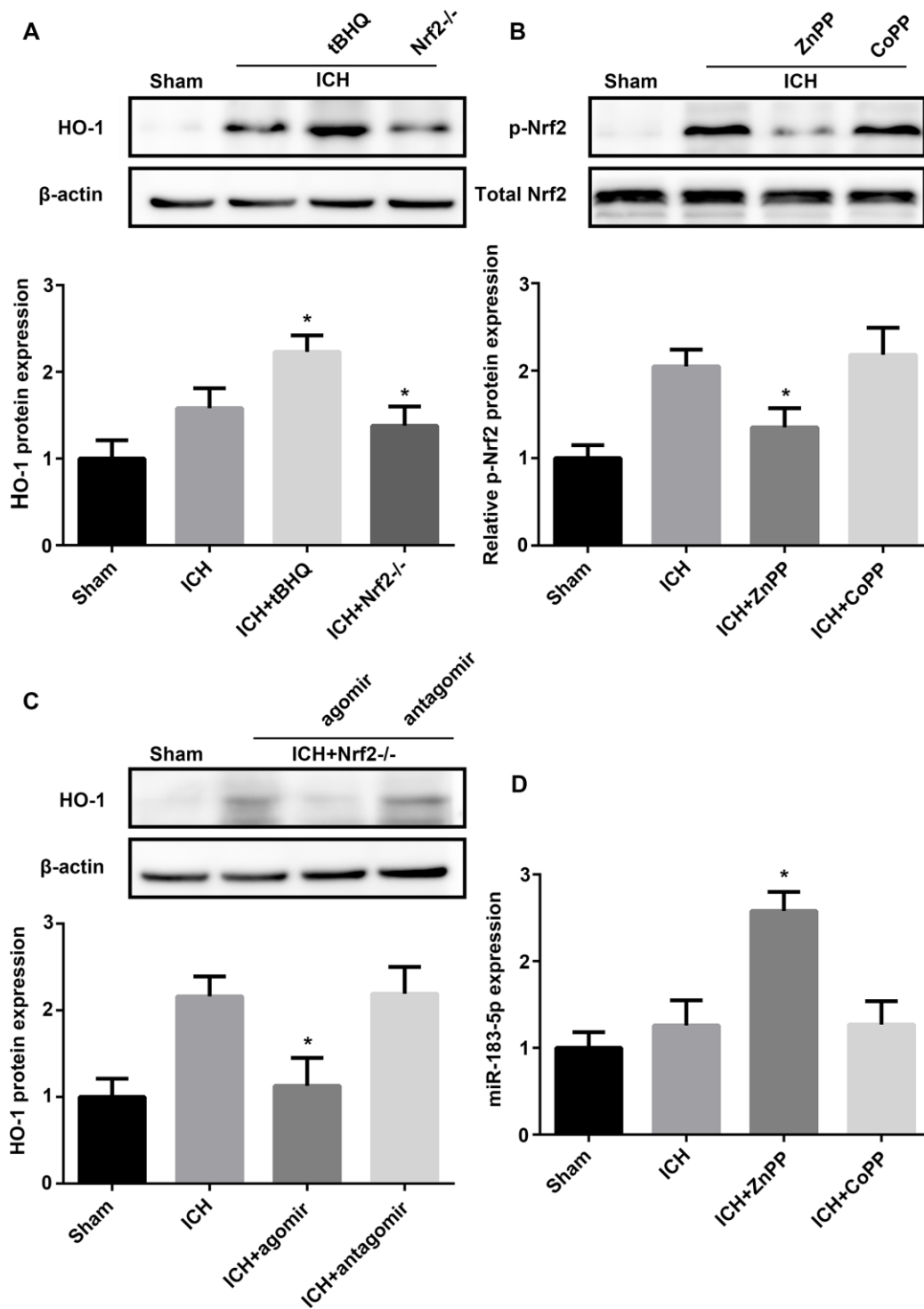
**Supplementary Figure 3. Treatment with miR-183-5p reduced reactive oxygen species (ROS) production by damaging BV2 microglia exposed to hemin.** (A) Representative immunofluorescence images of hydroethidine-positive ROS in BV2 microglia from different groups.  $n = 3/\text{group}$ . miR-183-5p reduced the number of microglial cells treated with hemin for 24 hours, and the total amount of ROS decreased. (B) Quantitative analysis of ROS fluorescence intensity in (A). (C) Quantitative analysis of 4-HNE in BV2 microglia from different groups.  $n = 3/\text{group}$ . Values are presented as the mean  $\pm$  standard deviation. \* $P < 0.05$  vs. the hemin group.



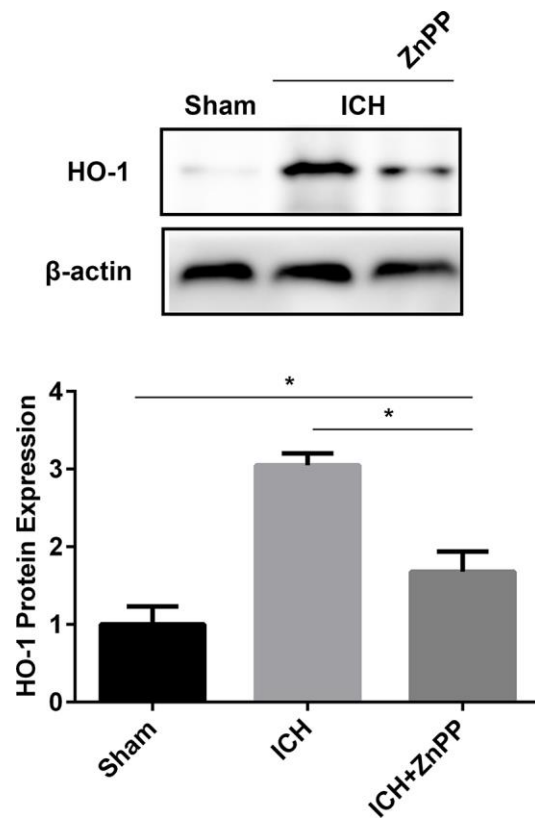
**Supplementary Figure 4. miR-183-5p alleviated inflammation and oxidative damage by directly targeting heme oxygenase-1 (HO-1).** (A) Above: western blotting revealed that miRNA-183-5p downregulated HO-1 expression. Below: quantitative analysis of HO-1 protein expression in different groups.  $n = 3/\text{group}$ . (B) Quantitative analysis of cytokines from the supernatants of cultured BV2 microglia and 4-HNE expression in BV2 microglia from different groups pretreated with the HO-1 inhibitor zinc protoporphyrin IX (ZnPP) at 24 hours after hemin treatment.  $n = 3/\text{group}$ . Values are presented as the mean  $\pm$  standard deviation. \* $P < 0.05$  vs. the hemin group.



**Supplementary Figure 5. miR-183-5p reduced the viability of BV2 microglia exposed to hemin.** The Cell Counting Kit-8 (CCK-8) assay revealed that administration of agomir-183-5p reduced the optical density values, as determined using a microplate reader.  $n = 3/\text{group}$ . Values are presented as the mean  $\pm$  standard deviation. \* $P < 0.05$  vs. the hemin group.



**Supplementary Figure 6. Regulatory relationship between miR-183-5p, heme oxygenase-1 (HO-1), and Nrf2.** (A) Above: western blotting revealed that Nrf2 activation promoted HO-1 expression in mice at 3 days after intracerebral hemorrhaging (ICH).  $n = 8/\text{group}$ . Below: quantitative analysis of HO-1 protein expression in the different groups above. (B) Above: western blotting revealed that HO-1 promoted Nrf2 activation in mice at 3 days after ICH.  $n = 8/\text{group}$ . Below: quantitative analysis of relative p-Nrf2 protein expression in the different groups above. (C) Above: western blotting revealed that miR-183-5p reduced HO-1 expression independent of Nrf2 in mice at 3 days after ICH.  $n = 8/\text{group}$ . Below: quantitative analysis of HO-1 protein expression in the different groups described above. (D) RT-qPCR revealed that miR-183-5p expression was increased in the presence of the HO-1 inhibitor zinc protoporphyrin IX (ZnPP) at 3 days after ICH.  $n = 8/\text{group}$ . Values are presented as the mean  $\pm$  standard deviation. \* $P < 0.05$  vs. the ICH group. CoPP, cobalt protoporphyrin IX; tBHQ, tert-butylhydroquinone.



**Supplementary Figure 7. Intraperitoneal injection of ZnPP inhibited the expression of HO-1 in brain tissue of mice 3 days after intracerebral hemorrhage.** n = 8/group. Values are presented as the mean ± standard deviation. \* $P < 0.05$ . ZnPP, zinc protoporphyrin IX