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| **Title:**Inhibition of C-X-C Motif Chemokine Receptor 3 (CXCR3) improves the outcomes of intracerebral hemorrhage**Authors:** NG Anson Cho Kiu1, LIU Cathy Jia Xin1, KIANG Karrie Mei Yee1, ZHU John Zhi Yuan1, CHAU Katrina Cheuk Wai1, LAM Tsz Lung1, LEUNG Gilberto Ka Kit1**Institution(s):**1Division of Neurosurgery, Department of Surgery, The University of Hong Kong. **Abstract:** ***Objective*:**To examine the effects of inhibition of CXCR3, a chemokine receptor, on the outcomes of experimental intracerebral hemorrhage (ICH) and to explore the potential underlying mechanism. ***Method:***Wild-type C57BL/6N and CXCR3 Knock-Out mice were used in this study. Experimental ICH was induced via intra-striatal injection of 0.04U Type IV collagenase in 0.5ul of 0.9% normal saline. The cylinder test, rotarod test and grid walking test were used to assess motor outcomes. Demyelination was examined by transmission electron microscopy and immunofluorescence staining. Real-time quantitative polymerase chain reaction was used to quantify the relative mRNA expression levels of CXCR3 and pro-inflammatory markers. The cell types that expressed CXCR3 and the changes in the percentages of various cell populations in brain and blood were detected by flow cytometry. ***Result:***CXCR3 Knock-Out mice had better motor functions especially in the first week after ICH. The degree of demyelination of the CXCR3 Knock-out mice was less severe compared to that of the Wild-Type mice. The relative expression levels of several pro-inflammatory markers are under investigation. CXCR3 mRNA expression was upregulated in the perihaematomal area but not in the contralateral hemisphere. A subpopulation of T cells was the main cell type that carried CXCR3. Preliminary result showed that CXCR3 expression was also upregulated in a T cell subpopulation in the peripheral blood in addition to its upregulation in the brain post-ICH. ***Conclusion:***The inhibition of CXCR3 improves outcomes of ICH in mice potentially via the reduction in neuroinflammation.  |

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