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Poster Presentation

Role of Sparstolonin B in Intracerebral Hemorrhage-Induced Inflammatory Brain Injury: Blocking the Formation of TLR2/TLR4 Heterodimer

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Abstract

Intra-cerebral hemorrhage (ICH) is a particularly severe type of stroke accounting for 10–15 % of all strokes and is associated with a mortality rate of 30–50%. Neuroinflammation contributes to ICH-induced secondary brain injury and understanding the mechanisms causing neuroinflammation can be helpful to find new treatments of ICH. Recent studies demonstrated that toll like receptor 2 (TLR2) forms a heterodimer with TLR4 mediated ICH-induced inflammatory injury and the Hemoglobin released following an intracerebral bleed, triggers the formation of TLR2/TLR4 heterodimer through the myeloid differentiation primary response gene 88 (MyD88). Sparstolonin B (SsnB), a novel bioactive compound obtained from a Chinese herb Sparganium stoloniferum is believed as an anti-inflammatory compound that can suppress the inflammatory responses of macrophages to ligands for TLR2 and TLR4. SsnB has also been shown to block signaling pathways following TLR2 and TLR4 activation. It has been suggested that SsnB may be an antagonist to TLR2 and TLR4. But its effect on formation of the TLR2/TLR4 heterodimer remains still unclear. We hypothesize that SsnB would block TLR2/TLR4 heterodimer formation. So the administration of SsnB can interfere with the assembly of the TLR2/TLR4 heterodimer and may be a potential therapeutic approach in the treatment of ICH.

Keywords: Intracerebral Hemorrhage, Neuroinflammation, Sparstolonin B, TLR2/TLR4 Heterodimer

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