1-P1-17

Poster Sessions

Zinc-aggravated M1 microglia suppress astrocytic engulfing activity via P2X7 receptors

Youichirou Higashi¹, Takaaki Aratake^{1,2}, Tomoya Hamada¹, Takahiro Shimizu¹, Shogo Shimizu¹, Suo Zou¹, Masaki Yamamoto¹, Rina Nakamura¹, Toshifumi Akizawa¹, Motoaki Saito¹

¹*Dept. of Pharmacol., Kochi Med. Sch., Kochi Univ.*, ²*JSPS Research Fellow*

[AIM] Extracellular zinc aggravates microglial M1 phenotype. Here, we investigated whether zinc-aggravated M1 microglia affects the astrocytic engulfing activity.

[METHODS] Mouse astrocytes were incubated with microglial-conditioned medium (MCM) collected from M1 microglia induced by lipopolysaccharide (LPS) after ZnCl₂ treatment. Astrocytic engulfment activity was examined by beads uptake assay. The mRNA level of P2X7 receptors (P2X7R) in astrocytes was measured by real-time PCR. Effect of A43809, a P2X7R antagonist, on MCM-induced astrocytic engulfment was also examined.

[RESULTS] MCM from M1 microglia increased the bead uptake by astrocytes. This increased engulfment activity was suppressed when astrocytes were treated with MCM from LPS-induced M1 microglia pretreated with ZnCl₂. P2X7R mRNA level was increased in astrocytes treated with MCM from M1 microglia, but not from M1 microglia pretreated with ZnCl₂. Treatment of astrocytes with A43809 resulted in attenuation of increase in the engulfment activity in astrocytes after MCM treatment.

[CONCLUSION] These results suggest zinc pretreatment abolishes the ability of M1 microglia to increase the engulfing activity in astrocytes via alteration of astrocytic P2X7R.