

S02-6 **A purine system in neuropathic pain: a representative of purinergic transmission, problems and the prospects**

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Recently, very important roles of extracellular purines have been clarified by Japanese scientific groups. For example, a stimulation of P2X4 expressed on spinal microglia causes BDNF release from these cells resulting in neuropathic pain (Tsuda et al., Nature, 2003; Coull et al., Nature, 2005). ATP has very important role for evoking vascular endothelial cell response against bloodstream shearing stress (Yamamoto et al., Nat Med, 2006). A stimulation of P2Y6 expressed on microglia causes phagocytosis (Koizumi et al., Nature, 2007). Moreover, ATP released from enterobacterium causes intractable disease Crohn's disease (Atarashi et al., Nature, 2008). Besides, the mechanisms of these findings exceed a limit of conventional textbook conception, and purines are going to open a door of new research field of bio-functional control. Notably, various new drug seeds are waiting to be discovered under this field. I will show the data indicating tight relation of purinergic system and neuropathic pain, and also describe my personal opinion for problems and prospects of purinergic transmission.