Noradrenaline increases oligodendrocyte precursor cell maturation and modulates pathology in experimental autoimmune encephalomyelitis

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Technology description

By inhibiting BMP-Smad signaling, UIC researchers have found a way to increase noradrenaline, which in turn increases oligodendrocyte precursor cell maturation and prevents the degradation of myelin. Useful for investigating the pathology in experimental autoimmune encephalomyelititis.

A demyelinating disease (DD) is any disease of the nervous system in which the myelin sheath of neurons is damaged. DD of the central nervous system such as Multiple Sclerosis (MS), Optic Neuritis typically have no cure. MS is an idiopathic disease of suspected autoimmune cause, in which the body's immune response attacks a person's central nervous system, leading to demyelination.

It has a prevalence that ranges between 2 and 150 per 100,000.Treatments attempt to return function after an attack, prevent new attacks, and prevent disability.

UIC inventors have discovered that Noradrenaline may influence the course of demyelinating diseases. They claim that Noradrenaline increases oligodendrocyte precursor cell (OPC) maturation and modulates pathology in experimental autoimmune encephalomyelitis by inhibition of BMP-Smad signaling. Thus, increase in Noradrenaline levels in the CNS may provide therapeutic effect for treatment of demyelinating diseases due to beneficial effects of Noradrenaline on OPC maturation involving modulation of the Bone Morphogenetic Protein (BMP) -Smad signaling pathway.

Advantages

A novel mechanism that may reveal a novel way to increase progenitor cells in the CNS that are able to develop in myelinating oligodendrocytes

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