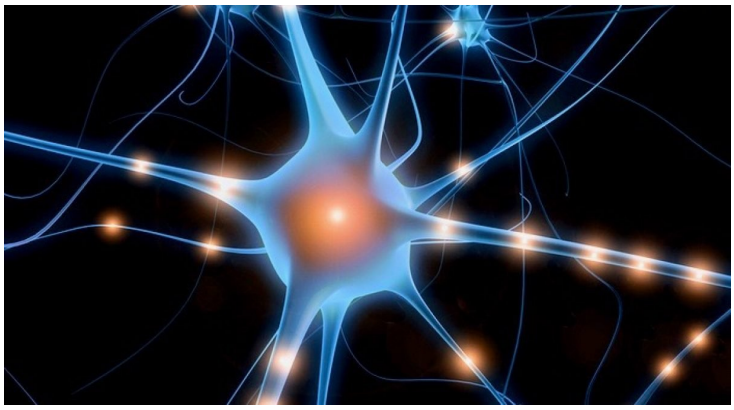
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# Michigan scientists develop EpiPen to heal spinal cord injuries

July 16, 2019 | News

**This technology could lead to new therapeutic strategies**



An injection of nanoparticles can prevent the body's immune system from overreacting to trauma, potentially preventing some spinal cord injuries from resulting in paralysis.

The approach was demonstrated in mice at the University of Michigan, US, with the nanoparticles enhancing healing by reprogramming the aggressive immune cells—call it an "EpiPen" for trauma to the central nervous system, which includes the brain and spinal cord.

Researchers have designed nanoparticles that intercept immune cells on their way to the spinal cord, redirecting them away from the injury. Those that reach the spinal cord have been altered to be more pro-regenerative.

With no drugs attached, the nanoparticles reprogram the immune cells with their physical characteristics: a size similar to cell debris and a negative charge that facilitates binding to immune cells. In theory, their nonpharmaceutical nature avoids unwanted side effects.

With fewer immune cells at the trauma location, there is less inflammation and tissue deterioration. Second, immune cells that do make it to the injury are less inflammatory and more suited to supporting tissues that are trying to grow back together.

Hopefully, this technology could lead to new therapeutic strategies not only for patients with spinal cord injury but for those with various inflammatory diseases.