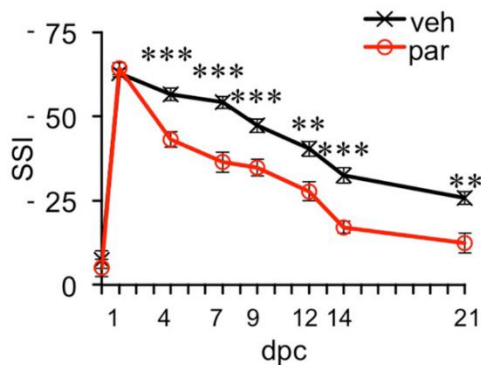


Parthenolide supports PNS repair

Parthenolide and its derivatives for use in the treatment of axonal damage

Invention

Peripheral nerve damage is a common cause of considerable functional morbidity, and healthcare expenditure. Surgery can be done in case of a peripheral nerve cut or rupture but a large section of injuries however is unsuitable for primary repair, and standard clinical management results in inadequate sensory and motor restoration in the majority of cases, despite the rigorous application



of complex microsurgical techniques. In general, injured peripheral nervous tissue possesses the capacity to regenerate severed axons and therefore the ability for repair. Mechanisms of so-called neuroregeneration may include generation of new glia, extension of axons, re-myelination or restoration of functional synapses. However, the ability for neuroregeneration differs strongly between the peripheral nervous system (PNS) and the central nervous system (CNS). However, although injured axons of the peripheral nervous system show generally greater potential for intrinsic axonal regrowth, functional regeneration is often limited, mainly due to a decline in neurotrophic support from Schwann cells over time and axonal misguidance. These aspects become particularly evident in cases of long distance regeneration, for example after sciatic

Quantification of functional motor recovery determined in adult wild type mice treated with either parthenolide (par, n=11) or vehicle (veh, n=11) by the static sciatic index (SSI) at 1, 4, 7, 9, 12, 14 and 21 days after sciatic nerve crush (dpc)

nerve injury in legs or median nerve damage in arms. Therefore, the development of novel therapeutic measures aiming to accelerate axon regeneration and thereby improving functional recovery is highly desirable. It was found by the inventors of the present invention that the natural product parthenolide and its derivatives facilitate the axonal growth and guidance of injured peripheral nerves in cell culture and most significantly also in vivo. The inventors demonstrate that the intraneural injection of parthenolide at the regenerating nerve results in an improved functional motor recovery as well as in an improved sensory functional recovery.

Commercial Opportunities

On behalf of the University of Cologne, PROvendis offers this opportunity for licensing or co-development.

Current Status

Patentes granted in GB, DE, FR, JP, CN, US

An invention from the University of Cologne.

Advantages

- Use of a natural product for the treatment of injured peripheral nerves
 - ▶ Unique mode of action
 - ▶ Medical use/compound protection achievable
- Functional in vivo data from mouse model available
- Access to inventor know-how

Technology Readiness Level

1 2 3 4 5 6 7 8 9
Technology validated in lab

Sector(s)

- Pharmaceutical Industry

Ref.-No.

4315



Contact

D. Jens Moll
PROvendis GmbH
Schloßstraße 11-15
D-45468 Mülheim an der Ruhr
E-mail: jmm@provendis.info
Phone: +49(0)208-94105-31
www.provendis.info