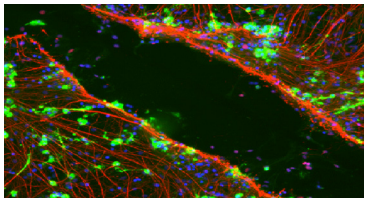
Moderate throughput screen to identify compounds that promote repair after spinal cord injury

CRACK IT Solutions

We are seeking collaborations with partners from the pharmaceutical industry and/or academia to further develop/validate our novel *in vitro* model of spinal cord injury.

What could your solution be used for?

Using a mixed population of cells isolated from the brain and spinal cord of embryonic rats, we have developed an *in vitro* model of spinal cord injury (SCI) that mimics many of the features of the condition thus allowing assessment of reagents that may potentiate central nervous system (CNS) repair.



Current *in vitro* and *in vivo* models of SCI do not generally easily allow the assessment of all the key cellular, molecular and biochemical changes in response to injury in humans and have significant animal welfare concerns. Our model can test compounds added at various stages of the culture development to target specific features in the repair process. It also has the capacity to test many combinations of drugs, which is potentially important for effective promotion of CNS repair and which would use many more animals than single treatment strategies.

Need for collaboration

We are experts in neural cell biology. However, our knowledge of industry requirements is limited. We are seeking collaborations with industry or academic partners who are able to provide novel reagents or compounds with preclinical/clinical data available to test in the model to assess the utility of our system in identifying potentially efficacious enhancers of CNS repair. This includes reagents to modulate molecules that are expressed on the astrocytic scar and are known to:

- Inhibit CNS repair e.g. chrondroitin sulphate proteoglycans (CSPGs), heparin sulphate proteoglycans (HSPGs)
- Promyelinate axons e.g. chemokines/cytokines
- Promote axonal outgrowth e.g. neurotrophic factors such as NT3, BDNF
- Natural/synthetic compounds/biomaterials which may affect any of the above.

3Rs impact assessment

In vivo studies of SCI use large cohorts of animals, cause moderate or severe suffering, and do not adequately replicate human SCI. Our culture model closely mimics human SCI at the cellular, molecular and biochemical level and has the potential to reduce animal use in this field of research:

- Providing a screen for the early identification and removal from development of drugs destined to fail because of a lack of efficacy reduces the number of compounds entering animal studies later in development.
- One rat can provide enough material to assess 24 – 48 treatments in triplicate, whilst similar work in rat models require cohorts of five – 10 animals for each treatment, a control and then the various combination of treatments.

To find out more or to connect with the technology developer contact crackitenquiries@nc3rs.org.uk

NC 3Rs

University of Glasgow

VIA VERITAS VITA

www.CRACKIT.org.uk
@CRACK_IT
crackitenquiries@nc3rs.org.uk
020 7611 2233