Easing the Pain

Hyperalgesia – extreme sensitivity to pain – is particularly difficult to manage, but ***Professor David Wynick*** and his group in the Research Centre for Neuroendocrinology have now identified certain genes that could be drug candidates for treating this disabling condition.

Pain is something that we have all experienced to a greater or lesser degree, but the past decade has seen great progress in understanding its causes. There are two major types of pain – inflammatory and neuropathic. Inflammatory pain occurs when tissues are injured by viruses, bacteria, trauma, chemicals, heat, cold or any other harmful stimulus, while neuropathic pain is caused by damage to the sensory nerves.

After accidents and particularly during illnesses like diabetes, damaged nerves can cause a loss of sensation, but in many patients negative symptoms such as numbness can be accompanied by positive symptoms, involving, in almost all cases, some sort of false sensation of pain. The experience can range from a mild irritation to excruciating torture. Indeed, some patients are unable to work, walk or sleep, and some, who experience an unbearable burning when their skin is touched, can hardly wear clothes.

These people are hyperalgesic, suffering excessive sensitivity to pain. This type of neuropathic pain is extremely difficult to manage. Usually it is chronic and fails to respond to standard analgesic interventions. Some 15-20 per cent of people with diabetes are hyperalgesic. At present, there are no drugs that deal with this effectively and the brain mechanism that causes the pain is poorly understood. While nerves in areas like the arm do repair, almost to normal function, those in the brain do not.

For the past eight years David Wynick, Professor of Molecular Medicine at Bristol University's Research Centre for Neuroendocrinology, and his group have focused on these problems and in particular on the role played by the neuropeptide 'galanin' as a possible pain modulator which affects the brain. Studies have demonstrated that following nerve injury, high levels of galanin are synthesised and stored within a number of brain regions, the anterior pituitary and the peripheral nervous system, indicating that galanin plays a critical role in the response of the central and peripheral nervous system to injury. Targeted disruption of the galanin gene has been shown to reduce the number of sensory neurons and their ability to regenerate, further emphasising the critical role played by galanin in modulating pain. These exciting results have led to the identification of certain genes that could be drug candidates, and to the formation of a University spin-out company called NeuroTargets Ltd.

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Licensing genes as drug targets has already provided significant early revenues for NeuroTargets. From 2004 the company will also develop selected targets through pre-clinical and early clinical testing. The resulting output will form the basis of a further financing round which will allow the company to exploit its technology platform more fully via the development of a proprietary drug pipeline. Funds for this activity will be partly derived from revenue and partly from new venture capital, which is actively being sought. ■

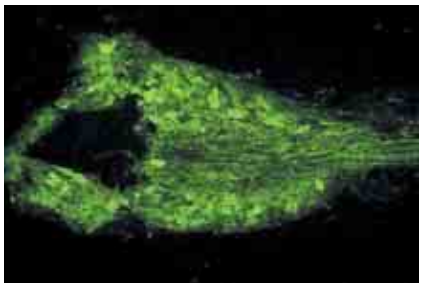

Photo: Fiona Holmes

Galanin seen in cell bodies of the pain-sensing nerves.

www.bris.ac.uk/Depts/URCN/labs/wynick.html

NeuroTargets Ltd is a joint venture between the University of Bristol and Progeny bioVentures, a subsidiary of ANGLE Technology. This innovative biopharmaceutical company has developed a unique, patented tool for the rapid identification of rare and novel genes, not usually identified by existing conventional techniques. NeuroTargets is building libraries of genes to identify novel drug targets for the treatment of neuropathic pain, inflammatory pain, diabetic neuropathy and stroke. ■

www.neurotargets.co.uk