



**Dr Nicolas Granger**  
**DMV, PhD, Dip.ECVN**

Honorary Research Fellow

**Area of research**

Large animal models for neurological diseases

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**Biography**

I have recently been awarded a Translational Neuroscience Research Fellowship from the Institute for Advanced Studies from the University of Bristol (<http://www.bristol.ac.uk/ias/>).

**Activities / Findings**

**My profile:**

Neuroscientist / clinical neurologist.

Field of research: spinal cord injury, cellular therapies, translational / regenerative medicine.

**My career path:**

I graduated from the National Veterinary School of Alfort, France, in 2002, where I also completed an internship in 2003 and then a neurology / neurosurgery training from 2003 to 2006. At this time I was also taking part in research on muscular dystrophy affecting dogs and humans and participated in a trial testing mesoangioblast cell therapy to correct this disease. I became a Diplomate of the European College of Veterinary Neurology in October 2006.

I moved to the United Kingdom, at the Queen's Veterinary School Hospital, University of Cambridge, where I practiced as a clinical neurologist from 2006 to 2008, running the neurology / neurosurgery service. I then took a research position in neuroscience in Cambridge, which allowed me to obtain a PhD in neurosciences in 2012.

I joined the University of Bristol in September 2012, as a senior lecturer in small animal neurology, which involves teaching neurology, clinical work on our neurological / neurosurgical canine and feline cases and research in neuroscience.

My research interests:

My research focuses on the development of new therapeutic strategies for spinal cord injury in dogs and humans. I tested the efficacy of a cell therapy for paraplegic dogs, which constitute an avenue for treating similar injuries in people. During my PhD, I conducted a clinical trial in domestic dogs with irreversible spinal cord injury and chronic paraplegia, in which we demonstrated that autologous spinal cord transplantation of canine olfactory ensheathing cells has strong positive effects on locomotion. Olfactory ensheathing cells form a major natural cell transplant population with a well-established role in nerve guidance and support during regeneration. To demonstrate efficacy of new treatments, I use kinematic, urodynamic and electrophysiological methods. I also work on the development of neuro-prosthesis to treat urinary incontinence in paraplegic dogs.

Current projects on spinal cord injury treatment involve the use of new molecules (such as chondroitinase ABC or DRP-3) in combination with olfactory ensheathing cells and neuroprosthesis. Repair of the spinal cord and restoration of the neurological function might be achieved by combining a biological approach

with biomedical engineering.

Research in veterinary neurology:

I am leading research on inherited peripheral nerve diseases in companion animals, taking advantage of next-generation sequencing tools (such as single nucleotide polymorphism genotyping array and the sequenced dog genome). This approach is useful to identify the molecular defects underlying inherited peripheral nerve diseases in dogs, sometimes with very small number of affected individuals. This promises to lead to an exponential unraveling of genetic mutations in animals spontaneously affected by suspected genetic diseases.

Main diseases I have been investigating are:

- Juvenile Laryngeal Paralysis & Polyneuropathy (JLPP) in Black Russian Terriers (see:<http://www.caninegeneticdiseases.net/JLPP/>)
- Demyelinating polyneuropathy in Miniature Schnauzers

## Keywords

- Neurology
- neuroscience
- spinal cord injury
- cellular therapy
- animal model
- translational research

## Skills

- spinal cord injury
- inherited peripheral nerve diseases

## Processes and functions

- trauma

## Methodologies

- animal model
- kinematic
- electrophysiology
- urodynamic

## Memberships

### Organisations

[Bristol Veterinary School](#)

[Companion Animal Studies](#)

[Farm Animal Science](#)

[Langford Clinical Veterinary Service](#)

[Langford Farm](#)

[Veterinary General](#)

[Veterinary Pathology and Infection and Immunity](#)

## Recent publications

- Ito, D, Carwardine, D, Prager, J, Wong, LF, Kitagawa, M, Jeffery, N & Granger, N, 2019, '[Methods of olfactory ensheathing cell harvesting from the olfactory mucosa in dogs](#)'. *PLoS ONE*, vol 14.
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- Shaw, TA, De Risio, L, Laws, EJ, Rose, JH, Harcourt-Brown, TR & Granger, N, 2017, '[Prognostic Factors Associated with Recovery of Ambulation and Urinary Continence in Dogs with Acute Lumbosacral Spinal Cord Injury](#)'. *Journal of Veterinary Internal Medicine*, vol 31., pp. 825-831
- Mortera, V, van Oostrom, H, Yeaman, C, Gutierrez-Quintana, R, Penderis, J & Granger, N, 2017, '[Suspected air embolism through the thoracic ventral internal vertebral venous plexus during hemilaminectomy in dogs](#)'. *Journal of Small Animal Practice*, vol 58., pp. 355-358
- Carwardine, D, Prager, J, Neeves, J, Muir, EM, Uney, J, Granger, N & Wong, L-F, 2017, '[Transplantation of canine olfactory ensheathing cells producing chondroitinase ABC promotes chondroitin sulphate proteoglycan digestion and axonal sprouting following spinal cord injury](#)'. *PLoS ONE*, vol 12., pp. e0188967
- Carwardine, D, Rose, J, Harcourt-Brown, TR & Granger, N, 2017, '[Effectiveness of manual bladder expression in paraplegic dogs](#)'. *American Journal of Veterinary Research*, vol 78., pp. 107-112
- Monteiro, SRM, Gallucci, A, Rousset, N, Freeman, PM, Ives, EJ, Gandini, G, Granger, N & Vanhaesebrouck, AE, 2016, '[Medical management of spinal epidural empyema in five dogs](#)'. *Journal of the American Veterinary Medical Association*, vol 249., pp. 1180-1186
- Mhlanga-Mutangadura, T, Johnson, GS, Schnabel, RD, Taylor, JF, Johnson, GC, Katz, ML, Shelton, GD, Lever, TE, Giuliano, E, Granger, N, Shomper, J & O'Brien, DP, 2016, '[A mutation in the Warburg syndrome gene, RAB3GAP1, causes a similar syndrome with polyneuropathy and neuronal vacuolation in Black Russian Terrier dogs](#)'. *Neurobiology of Disease*, vol 86., pp. 75-85
- Barker, EN, Dawson, LJ, Rose, J, Van Meervenne, S, Frykman, O, Rhodin, C, Leijon, A, Soerensen, KE, Järnegren, J, Johnson, GC, O'Brien, DP & Granger, N, 2016, '[Degenerative encephalopathy in Nova Scotia Duck Tolling Retrievers presenting with a rapid eye movement sleep behavior disorder](#)'. *Journal of Veterinary Internal Medicine*, vol 30., pp. 1681-1689
- Carwardine, D, Wong, L-F, Fawcett, J, Muir, E & Granger, N, 2016, '[Canine olfactory ensheathing cells from the olfactory mucosa can be engineered to produce active chondroitinase ABC](#)'. *Journal of the Neurological Sciences*, vol 367., pp. 311-318

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