

Special Issue on Gene Therapy for CNS Conditions: Promoting Plasticity and Regeneration

CALL FOR PAPERS

CNS diseases and conditions are extremely heterogeneous resulting in a wide range of symptoms, phenotypes, and outcomes, requiring multifaceted approaches to treatment. Viral vector technology and gene therapy are on the forefront of providing promising routes of treatment for a broad range of debilitating conditions in the CNS including spinal cord injury, Parkinson's disease, and multiple sclerosis. The continued development of gene therapies has provided innovative tools to study the mechanisms of CNS disorders, leading to improvements in neural plasticity, neuroregeneration, and neurodegeneration. Additionally, recent applications of viral vectors with a particular impact on neuroplasticity research include the delivery of light-sensitive receptors (opsin, halorhodopsin) and calcium sensors to interrogate neural circuit dynamics (a.k.a. "optogenetics") and delivery of CRISPR/Cas to achieve brain region specific gene mutations. Looking into future therapeutic strategies, ongoing research into viral vector approaches has led the way to clinical trials demonstrating that vectors are well tolerated and safe for patients.

We invite researchers to contribute original research articles as well as review articles that will both capture and examine the current state of gene therapy technology in CNS conditions aimed at enhancing neural plasticity and regeneration. We are especially interested in articles which describe findings where neural plasticity following gene therapy treatments of specific CNS diseases/disorders/conditions is a major outcome. Equally, understanding the limitations of viral vector treatment as well as recent advances in viral technologies for promoting CNS repair in chronic CNS conditions would be particularly relevant.

Potential topics include but are not limited to the following:

- ▶ Gene therapy-induced axonal/neuronal sprouting or synaptic plasticity
- ▶ Viral vector-mediated neural plasticity following
 - ▶ Application of gene therapy for optogenetics and chemogenetics
 - ▶ Application of gene therapy for local in vivo gene mutation by CRISPR/Cas
- ▶ Noninvasive approaches for gene therapy in the CNS
- ▶ Recent advances following gene therapy in CNS disorders including but not limited to
 - ▶ Parkinson's disease
 - ▶ Spinal cord injury
 - ▶ Traumatic brain injury
 - ▶ Multiple sclerosis
 - ▶ Glioblastoma
 - ▶ Spinal muscular atrophy
 - ▶ Epilepsy

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/np/gtcp/>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

Lead Guest Editor

Melissa R. Andrews, University of Southampton, Southampton, UK
m.r.andrews@soton.ac.uk

Guest Editors

Eric J. Kremer, IGMM-CNRS, Montpellier, France
eric.kremer@igmm.cnrs.fr

Joost Verhaagen, Netherlands Institute for Neuroscience, Amsterdam, Netherlands
j.verhaagen@nin.knaw.nl

Submission Deadline

Friday, 26 January 2018

Publication Date

June 2018