

# 15<sup>th</sup> EUROPEAN NEUROLOGY CONGRESS

August 29-31, 2017 | London, UK

## The relationship between global acetylation histone H4 levels and spinal cord injury: an experimental study

Viviane Rostirola Elsner<sup>1</sup>, Mayara Ferraz de Menezes<sup>2</sup>, Fabrício Nicola<sup>3</sup>, Ivy Reichert Vital da Silva<sup>1</sup>, Léder Leal Xavier<sup>2</sup>, Adriana Vizuete<sup>3</sup>, Carlos Alberto Gonçalves<sup>3</sup>, Carlos Alexandre Netto<sup>3</sup> and Régis Gemerasca Mestriner<sup>2</sup>

<sup>1</sup>IPA Methodist University, Porto Alegre, RS, Brazil

<sup>2</sup>Pontifical Catholic University of Rio Grande do Sul, Brazil

<sup>3</sup>Federal University of Rio Grande do Sul, Brazil

Emerging evidences have been pointed out that the imbalance on epigenetic machinery exert a pivotal role in the physiopathology of several neurological, neurodegenerative and neuropsychiatric conditions. However, this relationship in spinal cord injury (SCI) have been poorly investigated. Therefore, this study aimed to evaluate the modulation of global histone H4 acetylation levels, an important epigenetic mark, after a thoracic SCI model in rats. Male Wistar rats aged 3 months were submitted to a thoracic SCI model and global histone H4 acetylation levels were measured at different time-points: 6h, 24h, 48h, 72h and 7days after. The global histone H4 acetylation levels were determined using the Global Histone H4 Acetylation Assay Kit (Colorimetric Detection, EpiQuik USA) according to the manufacturer's instructions. The Animal Bioethics Committee of both Federal University of Rio Grande do Sul (number 26116) and Pontifical Catholic University of Rio Grande do Sul (number 15/00492) approved the study protocol. It was observed that global histone H4 acetylation levels changed at the evaluated time-groups ( $P=0.0001$ ). Post hoc tests showed the 72h post-SCI group was significantly increased from all the other groups ( $P\leq 0.03$ ). Moreover, there was an additional difference between the 24h and 7 day post-SCI groups ( $P=0.01$ ). Taken together, our findings suggest histone H4 acetylation levels as novel possible biomarker in SCI. We also showed that this modulation in the perilesional tissue are time-dependent after SCI. These preliminary findings may open new avenues for introducing therapies and strategies in the preventive management and treatment of SCI.

elsner.fisiologia@gmail.com