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## Peripheral nerve trauma in the pig, a model for neuropathic pain: Evaluation of evoked and spontaneous pain

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Rodent models are frequently used in the research of pain and continue to provide valuable data on the mechanisms driving pain although criticized due to limited translation ability to human conditions. Previously we have suggested expressed mechanical and tactile allodynia, indicative of painful neuropathy 28 post-surgery peripheral nerve traumas (PNT). In this study we investigate the spontaneous behavior of the pigs following PNT induced neuropathic pain. Computerized monitoring system was used to evaluate the changes in the open field test in addition to a applying a composite behavior scoring system. The data suggest the PNT operation did not affect the animal's ability to walk as the total distance walked by PNT animals was not different than the total distance walked by Sham operated animal. However, PNT animals expressed a significant change in pattern alteration. This effect was unrelated to the time that the animals spent in the open field. Following treatment with different drugs (Morphine, Buprenorphine or Gabapentin) the walking pattern of the animals in the open field changed in a drug specific manner. Also, the detailed behavior score revealed drug specific changes following treatment. Pharmacokinetic analysis of the 3 tested drugs blood and CSF concentration was correlated with the behavior analysis. Over all the data of this study suggest that the open field test together with the detailed behavior score applied in this model are a very powerful tool to assess the spontaneous behavior of pigs following PNT induced neuropathic pain.

### Recent Publications

1. Castel D, Sabbag I, Brenner O and Meilin S (2016) Peripheral Neuritis Trauma In Pigs: A Neuropathic Pain Model. *Journal of Pain* 17(1):36-49.
2. Meilin S, Machicao F and Elmlinger M (2014) Treatment with actovegin improves spatial learning and memory in rats following transient forebrain ischaemia. *Journal of Cellular and Molecular Medicine* 18(8):1623-30.
3. Castel D, Willentz E, Doron O, Brenner O and Meilin S (2014) Characterization of a porcine model of post-operative pain. *European Journal of Pain* 18(4):496-505.
4. Castel D, Naveh M, Aharon A and Doron O (2015) Prolonged analgesic effect of PRF-108 and PRF-110 on post-operative pain in pigs. *Pain and Therapy* 5(1):29-42.
5. Castel D, Sabbag I and Meilin S (2014) The effect of local/topical analgesics on incisional pain in a pig model. *Journal of Pain Research* 10:2169-2175.

### Biography

Sigal Meilin has passion over 20 years in the understanding of neuro-degeneration and pain processes. Her research focus has been on exploring and creating models of pain including translational models in post incision wounds in pigs which closely mimics humans' condition. She holds a PhD from Bar Ilan University in Tel Aviv, Israel where she continued her research involving multi-parametric monitoring of the living brain and the cross talk between the immune system and the neuronal system in neurodegenerative disease. She was the Leader of the Pharmacology Department of Pharms Ltd, prior to joining MD Biosciences in 2006.

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