

5th International Conference on**Advances in Skin, Wound Care and Tissue Science**

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14th International Conference on **Clinical Dermatology**

October 15-16, 2018 Rome, Italy

Evaluation of pain following wound application in pigsSigal Meilin¹, David Castel² and Itai Sabbag³¹MD Biosciences, Israel²Tel-Aviv University, Israel³Lahav Research Institute, Israel

Porcine skin exhibits a high degree of homology to human skin and heals by epidermal cell migration (Swindle et al., 2011). There is also considerable correlation between contractile, metabolic and morphological features in skeletal muscle of humans and pigs, and, unlike the loose skin of rodents, pigs skin is tightly attached to the muscle and subcutaneous tissue as in humans (McAnulty, 2012). Consequently, pigs have become a standard model of wound healing (Sullivan et al., 2001). Furthermore, a study by Obreja and Ringkamp suggests that nociceptive and non-nociceptive fiber classes found in the skin of the pig correlate with human fiber classes, in both distribution and axonal excitability changes (Obreja et al., 2009). However monitoring pain in pigs is not trivial. We have shown previously that the von Frey methodology and behavior scoring are powerful methods enable the assessment of nociception in pigs (Castel et al., 2014, 2015, 2017). Our data shows that pain can be detected for a period of 5 days post incision wound. The data also suggest that this model is sensitive to local pain management such as Bupivacain, Exparel and Marcain. A review article, recently published, discussed the bottleneck in the development of topical analgesics to control pain (Kopsky and Stahl, 2017). The authors suggest four barriers to the development of such drugs. The first two are related to the choice of the active pharmaceutical ingredients (API) and the API formulation. The other two are related to the design and execution of clinical trials. We believe that using the pig for the preclinical development of such a therapies can not only serve as a solution for the two major obstacles stated by the authors, but can also de-risk the clinical trials.

Biography

Sigal Meilin's passion over 25 years has been 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 Barllan 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 joining to MD Biosciences in 2006.

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