against horizontal diffusion cells and shown to cause no noticeable damage to the applied skin, as observed by histological sectioning. The cells were also demonstrated to be useful in search of suitable enhancers for endoxifen. Endoxifen permeation using permeation enhancers was tested by using this new device and limonene was found to achieve highest flux, attaining the requirement for clinical applications. The fabricated cells can thus be useful in carrying out preformulation studies for expensive, new drug entities, both in industrial as well as academic research.

Maher, S. et al. (2016). "Intestinal permeation enhancers for oral peptide delivery." *Adv Drug Deliv Rev* 106(Pt B):277–319.

Intestinal permeation enhancers (PEs) are one of the most widely tested strategies to improve oral delivery of therapeutic peptides. This article assesses the intestinal permeation enhancement action of over 250 PEs that have been tested in intestinal delivery models. In depth analysis of preclinical data is presented for PEs as components of proprietary delivery systems that have progressed to clinical trials. Given the importance of copresentation of sufficiently high concentrations of PE and peptide at the small intestinal epithelium, there is an emphasis on studies where PEs have been formulated with poorly permeable molecules in solid dosage forms and lipoidal dispersions.

Martin, C. J. et al. (2017). "Development and Evaluation of Topical Gabapentin Formulations." *Pharmaceutics* 9(3):31.

Topical delivery of gabapentin is desirable to treat peripheral neuropathic pain conditions whilst avoiding systemic side effects. To date, reports of topical gabapentin delivery in vitro have been variable and dependent on the skin model employed, primarily involving rodent and porcine models. In this study a variety of topical gabapentin formulations were investigated, including Carbopol® hydrogels containing various permeation enhancers, and a range of proprietary bases including a compounded Lipoderm® formulation; furthermore, microneedle facilitated delivery was used as a positive control. Critically, permeation of gabapentin across a human epidermal membrane in vitro was assessed using Franz-type diffusion cells. Subsequently this data was contextualized within the wider scope of the literature. Although reports of topical gabapentin delivery have been shown to vary, largely dependent upon the skin model used, this study demonstrated that 6% (w/w) gabapentin 0.75% (w/w) Carbopol® hydrogels containing 5% (w/w) DMSO or 70% (w/w) ethanol and a compounded 10% (w/w) gabapentin Lipoderm® formulation were able to facilitate permeation of the molecule across human skin. Further preclinical and clinical studies are required to investigate the topical delivery performance and pharmacodynamic actions of prospective formulations.

Montaseri, H. et al. (2013). "Enhanced oral bioavailability of paclitaxel by concomitant use of absorption enhancers and P-glycoprotein inhibitors in rats." *J Chemother* 25(6): 355–361.

Paclitaxel (PCT) is a cytotoxic agent with a broad antineoplastic activity. IV formulation of PCT causes hypersensitivity reactions in some patients and oral administration is an alternative to decrease the side effects. PCT is not orally available because of low solubility, lack of intestinal permeability, and efflux by pumps in intestinal wall. PCT solution in cremophor EL: ethanol (100 mg/kg) was administered orally to rats after