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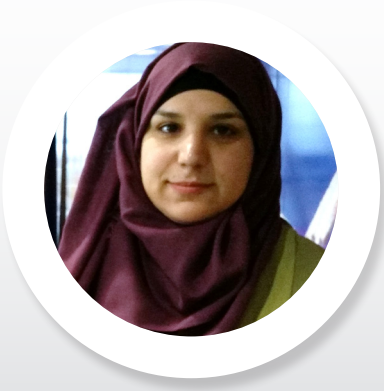

**Hiba Natsheh**
The Hebrew University of Jerusalem, Israel

Co-Author
**Elka Touitou**
The Hebrew University of Jerusalem, Israel

## Nasal administration of tramadol and oxytocin in animal model for pain using Phospholipid magnesome carrier

In a previous work, we have shown the ability of Phospholipid Magnesome to improve nasal drug delivery to brain. Here, we focus on the role of this carrier to enhance the antinociceptive effect of two central acting analgesic drugs, tramadol and oxytocin. More than a two-fold increase in tramadol brain concentration relative to controls was detected in 10 minutes (the first tested time point) following the drug nasal administration in Phospholipid Magnesome. In an *in vivo* experiment using the acetic acid induced pain mice model, we observed a rapid and improved antinociceptive effect of nasal treatment with these drugs, each incorporated in the new carrier. The treatments reduced significantly the number of writhes achieving a maximum possible effect (MPE%) of 67 and 62% for tramadol and oxytocin systems, respectively. On the other hand, a weak antinociceptive effect was noticed for the nasal control systems: water solution, a non-vesicular system and liposome. In conclusion, our data showed that administrating the two analgesic drugs nasally from Phospholipid Magnesome enhances their delivery to brain and improves pain treatment efficacy in animal model. Using the new carrier may help to design nasal products for noninvasive and efficient pain treatment with a rapid onset of action.

### Biography

Hiba Natsheh is currently a Post-doctoral fellow in Prof. Elka Touitou lab at The Institute for Drug Research, School of Pharmacy, Faculty of Medicine, The Hebrew University of Jerusalem. Prof. Touitou lab is worldwide recognized for designing novel approaches for enhanced dermal and transmucosal drug delivery.

hiba.natsheh@mail.huji.ac.il