

Real-Time Oral Biodistribution of Fluorescent Labelled Olmesartan Medoxomil SMEDDS

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Abstract

Nowadays, the use of fluorescent labeled molecules with near infrared dye at in vivo imaging, are increasingly common in the pharmaceutical field. Although there were many studies on the imaging of the drugs after iv injection, there have been no oral biodistribution studies similar to our study. BCS Clas II type, antihypertensive drug Olmesartan medoxomil is a prodrug which is converted to olmesartan with low bioavailability in the gastrointestinal tract. The aim of this work was to prove increased oral biodistribution of Olmesartan by fluorescent labelled Self-Microemulsifying Drug Delivery System. In this study, VivoTag® 680 XL was chosen for the determination of the biodistribution of OM-SMEDDS. Labelled OM-SMEDDS and control dye administered group of mice visualised and emission values were recorded during the experiment. *Preparation of OM-SMEDDS:* The experiments were carried out using our previous standardized and optimized SMEDDS and validated HPLC method. The precipitated OM-SMEDDS was transferred to another ependorf and the remaining washed portion was administered with 150 µl of oral gavage to the mice. The results were statistically evaluated with one-way ANOVA (Analysis of variance) method. Differences in p values were considered significant ($p < 0.05$).

Speaker Publications:

1. "Fluorescence labeled microbubbles for multimodal imaging," Biochem. Biophys. Res. Commun., vol. 464, no. 3, pp. 737–742, 2015.
2. "Design and development of a self-microemulsifying drug delivery system of olmesartan medoxomil for enhanced bioavailability," Drug Dev. Ind. Pharm., vol. 45, no. 8, 2019.
3. "Oral activity of a nature-derived cyclic peptide for the treatment of multiple sclerosis," Proc. Natl. Acad. Sci., 2016.
4. "Synthesis, pharmacokinetics, and biological use of lysine-modified single-walled carbon nanotubes," Int. J. Nanomedicine, vol. 9, pp. 4245–4255, 2014.
5. "Use of lipophilic near-infrared dye in whole-body optical imaging of hematopoietic cell homing," J. Biomed. Opt., vol. 11, no. 5, p. 050507, 2006.

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Biography:

Yelda Komesli completed her PhD degree program in Biopharmaceutical and Pharmacokinetics at Ege University Institute of Health Sciences in 2017. She worked as a Pharmacist in Konak-Izmir, Hereke-Izmit, Etlik-Ankara SSI Directorates. In 2018, she assigned as Assist Prof. Dr. in Van Yüzüncü Yıl University Faculty of Pharmacy. Since October-2019, she has been working as an Assist Prof. Dr. at the Department of Pharmaceutical Biotechnology, Faculty of Pharmacy, Department of Pharmacy Technology, Altinbaş University in Istanbul-TURKEY.