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P0010 Electrical stimulation affects cellular activity, permeability, and calcium influx in nasal epithelial cells

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The nasal route drug administration for local and systemic delivery of many therapeutics is a convenient drug delivery route. Because it has a large surface area and can avoid enzymatic digestion in the liver or stomach that happen due to the degradation of drug by metabolic reaction. [1]. Although nasal drug delivery is highly efficient for hydrophobic molecules, delivery efficiency for hydrophilic molecules is much lower than for other drug delivery methods. Therefore, it is necessary to develop a novel strategy to overcome limited permeability of hydrophilic molecules. In this study, we designed a system for improving absorption efficiency of polar drugs by applying electrical stimulation to cells using a function generator and adherent cell electrodes. RPMI 2650 cells were exposed to 1min, 10 V_{pp}, Frequency from 1 Hz to 100 Hz. The applied electrical stimulation did not affect cell viability. We are analyzing the effects of electrical stimulations on cellular activity, transepithelial electrical resistance (TEER), and substance permeability, calcium influx depends on frequency ranges. This study could be used as a new strategy for enhancing the efficiency of drug absorption via the nasal route. This study was funded by the Korea Ministry of Environment (MOE), as the Environmental Health Action Program (2016001360005).

Keywords : Nasal delivery route, , electrical stimulation, calcium influx

References

1. Arora, P; Sharma, S; Garg, S, Permeability issues in nasal drug delivery (2002), DRUG DISCOVERY TODAY, Vol (No 7), Page 967-975