Doctoral School of Information and Biomedical Technologies
Polish Academy of Sciences (TIB PAN)

SUBJECT:

Mucoadhesive polymeric systems for controlled drug delivery

SUPERVISOR:

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DESCRIPTION:

The aim of the research will be to develop and optimize highly innovative polymer systems for drug release based on the mucoadhesion phenomena. This kind of local drug release can be applied for various tissue areas characterized by the presence of mucous membranes (the presence of mucin), such as the buccal, ocular, and nasal cavities, gastrointestinal tract as well as vagina. We plan to investigate both hydrogels and electrospun materials depending on the specific application (tissue). The problem of such systems contains a lot of basic research, related for instance to optimization of the mechanism of mucoadhesion. Mucoadhesion is a complex process and numerous theories have been presented to explain the mechanisms involved. One of the crucial points of planned research will be devoted to materials optimization, both from the perspective of effective mucoadhesion and sustained drug delivery. The planned studies will be most probably focused on buccal and nasal applications. In the latter case, cooperation with the strong medical group from Warsaw Medical University is planned. From a histological point of view, the nasal mucosa provides a very attractive route for systemic drug delivery.

BIBLIOGRAPHY:

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