

Morphology of Rat Muscle Tissue after Implantation of Delivery System Consisting of Porous Vaterites Doped with Dextran sulfate and Containing Doxorubicin

N. N. Sudareva^{a, b, *}, P. V. Popryadukhin^a, O. M. Suvorova^a, G. Y. Yukina^b, and E. G. Sukhorukova^b

^a*Institute of Macromolecular Compounds, Russian Academy of Sciences, St. Petersburg, 199004 Russia*

^b*Pavlov First St. Petersburg State Medical University, St. Petersburg, 197376 Russia*

**e-mail: nnsas@mail.ru*

This work describes the behavior of a drug delivery system based on porous CaCO₃ vaterites doped with dextran sulfate and containing the anti-cancer antibiotic doxorubicin in muscle tissue for periods from 3 days to 3 months. In the early stages, the toxic effect of doxorubicin on the surrounding muscle tissue and liver was revealed. Over time, the toxic reaction decreased, the site of implantation was delimited by a pronounced connective tissue capsule, its contents underwent bioresorption. Almost complete bioresorption of the delivery system was observed 3 months after the start of the experiment.

Keywords: delivery system, dextran sulfate, doxorubicin, calcium carbonate, bioresorption, muscle tissue, *in vivo* experiment