

## Streszczenie w języku angielskim

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„Polimerowe nośniki leków na bazie *N*-izopropylakrylamidu zawierające ugrupowania steroidowe”

In this work, the synthesis and characterization of new thermosensitive carriers of doxorubicin are presented. The previously developed chain transfer agents Xa and CholX, commercially available monomers (NIPAAm and NVCL), a previously obtained monomer (AcacI), and a new monomer (AcacP) were used to obtain delivery systems. To acquire spatial structures, the obtained polymers were subjected to nanoprecipitation, during which doxorubicin was also encapsulated. In addition, selected polymers were subjected to aminolysis to reduce the dithiocarbonate group to a thiol group, followed by a Michael reaction to attach the fluorescein maleimide derivative. Synthesized compounds and materials were characterized by spectroscopic methods (ATR-FTIR, UV-VIS, NMR, fluorimetry), chromatography (TLC, SEC), microscopy (SEM, TEM), thermal analysis (DSC, TGA) and light scattering methods (DLS, MADLS, ELS). The work was divided into two parts. The first contains research on the synthesis and characterization of polymeric materials. The second contains a description of polymer nanoparticles and their physicochemical and biological properties. Both parts have sections on compounds containing one cholesteryl moiety and structures having 10, 15, or 23 of these moieties.

The influence of the PNIPAAm block length and the terminal group on the agglomeration temperature, cloud point, and solubility in water and aqueous solutions of polymers containing one or more cholesteryl groups was investigated. The role of the order of blocks in the polymer chain in the formation of spatial structures and the interaction with DOX molecules was analyzed. The size, shape, and zeta potential of empty and doxorubicin-loaded systems were determined and compared with literature values. Several biological tests were carried out to check the biocompatibility and toxicity of the obtained polymer nanoparticles to selected normal and neoplastic cells.

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