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Abstract (600 word limits)

Apoferritin cage nanostructure as the anthracycline delivery system

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Cancer diseases are undoubtedly the most complex diseases known to humanity and one of the greatest problems of the 21st century. The continuous increase in cancer cases is a serious problem in the sphere of prophylaxis and treatment. According to the WHO data, in 2012, the number of newly diagnosed cancer cases was as high as 14 million and the estimated number of new cases per year will increase to 22 million over the next twenty years. During the same period, deaths are projected to increase from 8.2 million to 13 million per year. The strategy of treating cancer is based on three basic methods: tumor removal, toxic chemotherapy and radiotherapy. The most developed method is chemotherapy. However, many anticancer drugs are causing serious side effects. To address the problems with conventional drugs and improve their pharmacological properties, drug-delivery systems (DDS) have been designed for a number of drug-carrier platforms including synthetic (silica, polymers) and natural (lipids, proteins, oligosaccharides) nanocarriers. The most recent development in designing DDS have been focused upon the protein-based nanomedicine platform, due to merits that include high biocompatibility, biodegradability, high solubility, and ease of surface modification. One of the most investigated classes of protein-nanocages is ferritin, which in biological system is used to store iron and to keep it from building to toxic levels in cells.

Biography (200 word limit)

Katarzyna Kurzatkowska received her Ph.D. degree in chemistry in 2009 from the Department of Chemistry of Nicolaus Copernicus University in Torun, Poland. She holds a position of assistant professor at Department of Biosensors in the Institute of Animal Reproduction and Food Research of Polish Academy of Sciences in Olsztyn. From 18 October 2009 to 17 October 2010, she was worked as a Marie Curie fellow at the Department of Biophysical Chemistry and Molecular Oncology in the Institute of Biophysics Academy of Sciences of the Czech Republic, in laboratory of Prof. Emil Paleček. She was on postdoctoral position at the Department of Chemistry, State University of New York at Potsdam, NY, USA. in laboratory of prof. Maria Hepel in 2015 and 2017. Her current interests have been focused on developing theranostic targeted drug delivery nanocarriers.

References (With Hyperlink)

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The APO-Drug Nanocages were prepared by disassembly/reassembly process via pH method. The pH-dependent anthracyclines release was determined using fluorescence spectroscopy.

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