European Journal of
Applied Engineering and Scientific Research

Abstract

Cubosomes: liquid-crystalline nanoparticles as a potential bioimaging systems

Jakub Jagielski
Nanobiomedical Centre - Adam Mickiewicz University, Poland

Abstract:
Cubosomes are liquid-crystalline nanoparticles. With two non-intersecting water channels, cubosomes posses plenty of advantages like enhanced stability, biocompability and presence of both hydrophilic and hydrophobic regions. According to that, cubosomes emerge as a great, potential systems for biomedical applications such as bioimaging or drug delivery. One of the main issue of investigations is determination of cytotoxicity in order to define the lethal concentration. In pursuance of defining the cytotoxicity, WST-1 and InCell assays on both MSU and HeLa cells have been conducted revealing modest differences between cell lines. To confirm the presence of cubosomes themselves Cryo TEM (Transmission electron microscopy) and SAXS (Small-angle X-ray scattering) approaches have been used. Next step of our investigations is functionalization cubosomes with graphene quantum nanodots and ZnCuInS/ZnS core/shell quantum nanodots and studies of their properties as potential bioimaging systems.

Biography:
Jakub Jagielski is currently a PhD student in Nanobiomedical Centre of Adam Mickiewicz University in Poznan, Poland. He recently graduated from Poznan Univeristy of Life Sciences, where he had studied Biotechnology – specializing in Genetic Diagnostics. His Master's and Engineer thesis was completed at the Institute of Human Genetics, Polish Academy of Sciences, Poland. During his Master's and Engineer studies, he participated in several conferences, took part in Erasmus + Exchange, during which he had studied Medical Biotechnology at University of Padua, Italy. He had also been an Apprentice in The Maria Skłodowska– Curie Greater Poland Cancer Centre in Poznań, Poland and in Calouste Gulbenkian Foundation in

Oeiras, Portugal. He currently broadens knowledge, focusing on biological aspects of cubosomes applications. Jakub He is an enthusiast of newest technologies and foreign languages.

Publication of speakers:

- Scalable photonic sources using two-dimensional lead halide perovskite superlattices. Dec 2020.
- Phosphorescent k3‐(N^C^C)‐Gold(III) Complexes: Synthesis, Photophysics, Computational Studies and Application to Solution‐Processable OLEDs. Aug 2020.
- Tuning Multicolor Emission from a Single Fluorophore via Controlled Radical Polymerization-Mediated Charge Transfer, May 2020.
- Highly Efficient Green Solution Processable Organic Light-Emitting Diodes Based on a Phosphorescent ‐3-(N^C^C)Gold(III)-Alkynyl Complex. Feb 2020.
- Horizontally Oriented Exciton Dipoles in Solution-Processed Quantum Dot Solids, Nov 2019.

Citation: Jakub Jagielski; Cubosomes: liquid-crystalline nanoparticles as a potential bioimaging systems ; 3D Printing 2020; October 12, 2020; Paris, France.