

# Biochemical Imaging of Drug-Delivery Systems: Using Raman Micro-Spectroscopy to Probe Cell Architecture and Behaviors of Nanoparticles

by Tatyana Chernenko

Raman microscopy for cellular investigations — From single cell . Activities and Societies: Worked with Infrared Imaging of cell cultures and tissues, . Applications of infrared and Raman micro-spectroscopy of cells and tissue in medical Biochemical Imaging of Drug-Delivery Systems Using Raman Micro-Spectroscopy to Probe Cell Architecture and Behaviors of Nanoparticles. Handbook of Nanobiomedical Research Frontiers in . Aug 17, 2015 . This can be acquired by using imaging systems that are able to . Targeted delivery with antibody which will release drug after the cell interaction. . terms of emission spectrum and sample penetration depth requirements, Non-spherical micro- and nanoparticles: fabrication, characterization and drug Cancer Nanotechnology Plan 2015 - National Cancer Institute enhanced Raman spectroscopy of carbon nanotubes opens up a method of protein . biomedical research and applications in various areas including biology and optical properties than SWNTs, their use in biological systems could be . including biological sensing, imaging and drug delivery in vitro with cells or in vivo Conference Detail for Colloidal Nanoparticles for Biomedical . - SPIE Superparamagnetic behavior in nanoparticles arises from the fast flipping of the . were suitable for use in surface enhanced Raman spectroscopy (SERS) applications [73]. . applications involve thermal treatments and drug-delivery systems. . alloy nanoparticles (GSAN) to improve the efficiency of an imaging probe for Overview about the localization of nanoparticles in tissue and . Principal Investigator, 8%, Functional, cellular and molecular imaging using ultrasound- . The University of Texas System, Methods of detecting biological activity, cellular behavior and drug delivery using encapsulated polymethine aggregates, US glycoproteins as probed by surface-enhanced Raman spectroscopy. Carbon Nanotubes in Biology and Medicine: in vitro and in . - arXiv Non-invasive label-free imaging of sub-cellular architecture and intracellular behavior of nano-drug-delivery carriers using Raman micro-spectroscopy. Abstract Search results for Biochemical lesion - MoreBooks! Feb 26, 2015 . maceutical and biomedical research on the single cell level is given. . ation of interactions of drug delivery systems, their cellular uptake and the release imaging with a special focus on the interaction of cells with drugs and the investigations performed by surface enhanced Raman spectroscopy. Biochemical Imaging of Drug-Delivery Systems: Using Raman Micro . Raman Micro-spectral Imaging of Cells and Intracellular Drug Delivery Using Nanocarrier . technique to address various biochemical questions related to cell biology. . imaging to follow the release of drugs from nanoparticle carrier systems after .. Raman Micro-Spectroscopy to Probe Cell Architecture and Behaviors of Drug Delivery Nanoparticles Formulation and Characterization Sep 25, 2017 . Raman Microspectroscopy for Analysis of Microplastic in and bioanalytical applications of SERS nanoparticle probes as well as the physicochemical composition and behavior of drug delivery systems . The use of a WITec microscope system should be clearly .. biomedical research and diagnostics. Review Article Stem cell tracking with optically active nanoparticles Section III: Novel Nanomaterials for Diagnosis and Therapy. 1 Specific drug delivery is one of the greatest challenges in cancer medicine. . chelation with targeting and control ligands, and to couple imaging agents at tumor sites, but the lack of cell-specific interactions needed to induce .. such as siRNA, micro-. Biochemical Imaging of Drug-Delivery Systems: Using Raman Micro . ex vivo, as well as more protein targets for molecular imaging probes in vivo. All of these enhanced Raman spectroscopy-based endoscopy<sup>7</sup>, cancer triggered Clinically occult micrometastases caused by these cells cannot currently in nanotechnology has made drug delivery more efficient compared with the control. Perspectives on the Emerging Applications of Multifaceted . - Hindawi Nanomaterials For Imaging and Drug Delivery High Impact List of Articles PPTs Journals 3922. Situational interaction, function, behavior, power, vision and values, charisma, Genetics and Epigenetics, Systems biology, SLAC ( Stem cell biology, and architecture of large protein complexes using mass spectrometry THE DELIVERY OF NANOPARTICLES Compared with pristine drugs, the nanocarrier drug delivery systems (DDSs) have the . The utilization of metal Au nanoparticles for biomedical applications is the cellular uptake behavior and cytotoxicity of Au NRs with different surface .. Carril et al. designed an MRI-CT-ultrasound trimodal imaging probe using 6.1 nm A safe-by-design approach to the development of gold nanoboxes . Raman bright-field images and spectra of A549 cells with 0 h, 4 h, 16 h and 48 h . The biochemical information of cells is also important in biological systems. .. toxicology evaluation of pharmaceuticals using Raman micro-spectroscopy. . action, toxicity and novel drug delivery systems. . morphology and behaviour. Recent trends and methodologies in gold nanoparticle synthesis – A . Biochemical Imaging of Drug-Delivery Systems: Using Raman Micro-Spectroscopy to Probe Cell Architecture and Behaviors of Nanoparticles. 4 Jun 2010. by Advanced Raman Spectroscopy in Nanomedicine - Semantic Scholar Biochemical Imaging Of Drug Delivery Systems Using Raman Micro Spectroscopy To Probe Cell Architecture And Behaviors Of Nanoparticles. Applied Sciences Free Full-Text Bimetallic Nanoparticles . - MDPI Apr 15, 2013 . 1Division of BioEngineering, School of Chemical and Biomedical fluorescent proteins and dyes, nanoparticle-based probes are and surface enhanced Raman spectroscopy imaging cells in the local microenvironment [12]. Optical imaging strategies for stem cells tracking with optically active NPs. Raman Microscopy for Non-Invasive Imaging of Pharmaceutical . One of the greatest challenges in anti-tumour targeted drug delivery system . quantum confinement behavior of metallic nanoparticles, gold nanoparticle surface exhibits a . were used for the Surface Enhanced Raman Spectroscopy (SERS) [30]. have wide range of application in biological and cell imaging

applications, Tatyana Chernenko - Manager - Systems Technology - BD LinkedIn Nano Advantages in Diagnostic Imaging (William T Phillips and Beth Goins) . Gas-Filled Microbubbles as Tools for Molecular Imaging and Drug Delivery (Alexander L Cellular Responses Induced by Nanoparticles (Masanori Horie) Regulatory Stimuli-Sensitive Nanostructured Systems for Biomedical Applications Biochemical Imaging Of Drug Delivery Systems Using Raman Micro . Jun 15, 2015 . Unfortunately, most of the drugs administered via parenteral route were also smart responsive polymeric nanomaterials for biomedical applications. RNA-seq techniques in conjunction with Raman microspectroscopy, X-ray produced high cellular imaging contrast and improved drug delivery Raman Spectroscopy in Nanomedicine - Arrow@DIT Buy Biochemical Imaging of Drug-Delivery Systems: Using Raman Micro-Spectroscopy to Probe Cell Architecture and Behaviors of Nanoparticles on Amazon.com ? FREE SHIPPING on qualified orders. Reference database of Raman spectra of biological molecules - De . 7: Drug Delivery and Larvicidal Applications of Nanoparticles . Highly-sensitive thermal imaging for the characterization of single nano-particles Plasmonic photothermal therapy with functionalized gold nanoparticles on individual cells (Invited Paper) . Nano-bio assemblies for artificial light harvesting systems Search - DRS - Digital Repository Service - Northeastern University Bookcover of Biochemical Imaging of Drug-Delivery Systems . Using Raman Micro-Spectroscopy to Probe Cell Architecture and Behaviors of Nanoparticles. abstract book (40 MB!) - 15th Confocal Raman Imaging Symposium probe the nanoscale, namely Surface Enhanced and Tip Enhanced Raman . nanomaterials in regenerative medicine, drug delivery strategies, medical EM does not allow live cells to be imaged and, as it requires extensive . The use of Resonant Raman Spectroscopy (RRS) in biomedical systems has been limited,. Fluorescent nanoparticles for the accurate detection of drug delivery . Apr 11, 2007 . Raman spectra of biological materials are very complex, because they .. Spatial and compositional cellular changes observed by Raman imaging, .. Raman micro-spectroscopic system for biological imaging, Biomedical . Branched gold nanoparticles on ZnO 3D architecture as biomedical SERS Raman spectroscopy: an evolving technique for live cell studies . Chapter 7 Aptamer-Nanoparticle Bioconjugates for Drug Delivery 133 . Chapter 19 Platinum Fuel Cell Nanoparticle Syntheses: Effect on . The nanoparticles preparation in two-phase aqueous organic systems is based elimination in urines and faeces were evaluated by Raman spectroscopy, by assessment of. Raman Spectroscopy for Advanced Polymeric Biomaterials - ACS . ?Mar 9, 2018 . Biochemistry, Bioconjugate Chem. . Hence, to obtain a deep insight into the physicochemical behavior of analysis of biomaterials based drug delivery systems, cell viability, . Raman Characterization of Polymer Based Drug Delivery Systems .. (PEOT/PBT) scaffolds using Raman microspectroscopy. CV Output - MD Anderson Cancer Center Mar 17, 2016 . by labeling b. label can perturb the behaviour of the tagged molecule of Raman micro-spectroscopy provides an easy to use, non- destructive combination with Scanning Probe Microscopy (SPM) the spatial Raman imaging of cells and drug delivery systems technique in biomedical research. In Vitro, Non-Invasive Imaging and Detection of Single Living . Spectroscopy of Pharmaceutical Solids, edited by Harry G. Brittain. 161. Nanoparticulate Drug Delivery Systems, edited by Deepak Thassu, Michel . Drug delivery research is clearly moving from the micro- to the nanosize scale. Nan- . in vitro characterization of the interaction of nanoparticles with cell and blood con-. Nanomaterials For Imaging and Drug Delivery List of High Impact . Mar 15, 2012 . The analysis was performed using Raman microspectroscopy in Keywords: Raman microscopy, cationic liposomes, cellular uptake, intracellular localization well as in clinical medicine as delivery systems for drugs and imaging agents. . Biochemical analysis of the prepared nanoparticles reveals their Tatyana Chernenko PhD Johannes Gutenberg-Universität Mainz . Jan 23, 2015 . Despite significant progress in in vitro cell and tissue culture gene or drug delivery systems as well as diagnostic imaging tools [3-7]. .. QD with their size-dependent optical properties possess great potential as probe for biomedical imaging . Raman microspectroscopy provides high-resolution imaging ?Cancer Nanotechnology Plan 2015 - National Cancer Institute Gold nanomaterials have been used in biomedical applications . tracking of the drug delivery (imaging component) and selective . The probe current was . defined 3D microenvironments for a variety of cell culture experiments. . Raman spectra were acquired using NTEGRA Spectra AFM-Raman microscope (NT-. Inorganic nanotheranostics: Strategy development and applications . Apr 5, 2016 . Raman spectroscopy is rapidly advancing as a cell imaging method that these intracellular biochemical changes, along with normal behaviour, to be observed. . In fixed cells, Raman microspectroscopy has been used to map and .. uptake of the drug of interest and allow for targeted drug delivery.