In this issue

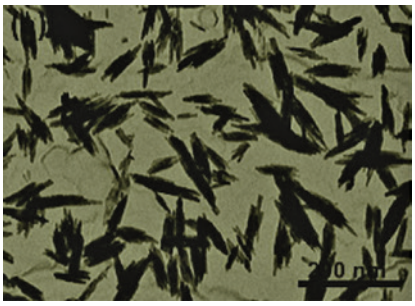
Aneela Anwar, Qudsia Kanwal, Samina Akbar, Aisha Munawar, Arjumand Durrani and Masood Hassan Farooq

Synthesis and characterization of pure and nanosized hydroxyapatite bioceramics

DOI 10.1515/ntrev-2016-0020
Nanotechnol Rev 2017; 6(2): 149–157

Research highlight: Hydroxyapatite nanoparticles are synthesised using low-temperature co-precipitation methods with improved yield, smaller particle sizes and purity levels reaching requirements as bioceramics for bone and teeth replacement applications.

Keywords: bioceramics; hydroxyapatite (HA); nanorods; X-ray diffraction.



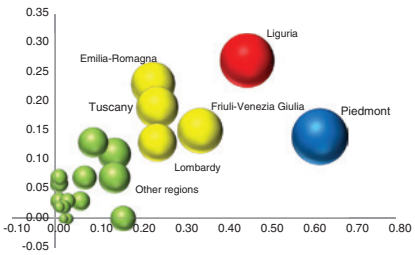
Giuseppe Calignano

Nanotechnology as a proxy to capture regional economic development? New findings from the European Union Framework Programmes

DOI 10.1515/ntrev-2016-0028
Nanotechnol Rev 2017; 6(2): 159–170

Research highlight: This paper aims to reconstruct the number of Italian private, public and public-private participations in the interdisciplinary and potentially irruptive European Union nanotechnology network by assuming that a high share of private organizations and a well-balanced proportion of private and public entities are beneficial for knowledge circulation potentially leading to innovation.

Keywords: European Union Framework Programmes; innovation networks; Italy; nanotechnology; regional economic development.



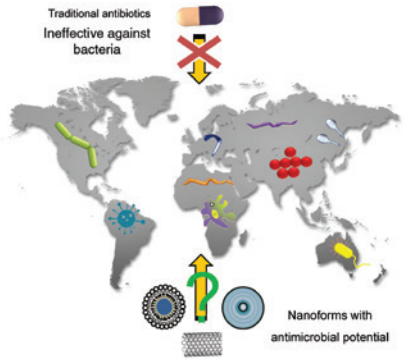
Marlena K. Zielińska-Górska, Ewa Sawosz, Konrad Górski and André Chwalibog

Does nanobiotechnology create new tools to combat microorganisms?

DOI 10.1515/ntrev-2016-0042
Nanotechnol Rev 2017; 6(2): 171–189

Review: In this review, we discuss the documented achievements and concerns associated with broad potential applications of nanoforms in the fight against antimicrobial resistance, still a crucial global issue.

Keywords: antimicrobial resistance; drug delivery; nanobiotechnology; nanoparticles; nanotoxicity.



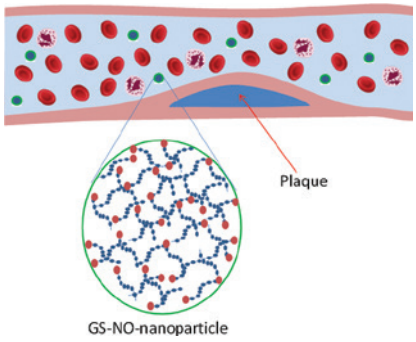
Rehana Yasmin, Mohsin Shah, Saeed Ahmad Khan and Roshan Ali

Gelatin nanoparticles: a potential candidate for medical applications

DOI 10.1515/ntrev-2016-0009
Nanotechnol Rev 2017; 6(2): 191–207

Review: This paper reviews the potential applications of gelatin-based biocompatible nanoparticles as agents for controlled release of nitric oxide (NO), a regulator for the proliferation of vascular smooth muscle cells, which counteract restenosis, a common risk following arterial injuries and surgery such as angioplasty.

Keywords: drug delivery; gelatin nanoparticles (GNPs); medical applications; protein nanoparticles.



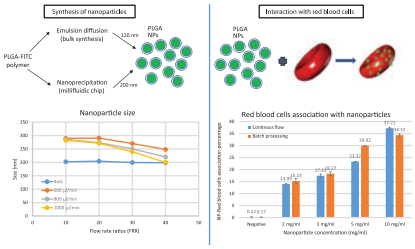
Sumit Libi, Bogdan Calenic, Carlos E. Astete, Challa Kumar and Cristina M. Sabliov

Investigation on hemolytic effect of poly(lactic co-glycolic) acid nanoparticles synthesized using continuous flow and batch processes

DOI 10.1515/ntrev-2016-0045
Nanotechnol Rev 2017; 6(2): 209–220

Research highlight: PLGA nanoparticles made by continuous and batch processes, independent of synthesis method and size, associated with RBCs as a function of concentration but had no hemolytic effect at concentrations lower than 10 mg/ml.

Keywords: millifluidics; nanoparticles-cell interaction; PLGA nanoparticles.



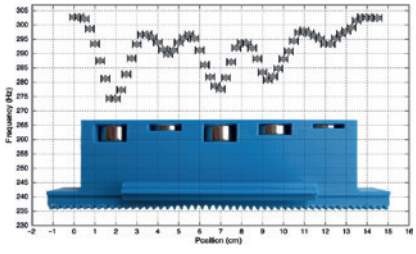
Mario Reimer, Sybille Niemeier, Daniel Laumann, Cornelia Denz and Stefan Heusler

An acoustic teaching model illustrating the principles of dynamic mode magnetic force microscopy

DOI 10.1515/ntrev-2016-0060
Nanotechnol Rev 2017; 6(2): 221–232

Nanotechnology education: A teaching model was developed allowing for visual, acoustic and numerical analysis of a magnetic force microscope taking a line scan of a plane sample in frequency modulation detection mode.

Keywords: acoustic teaching model; education; magnetic force microscopy; scale model; scanning probe microscopy.



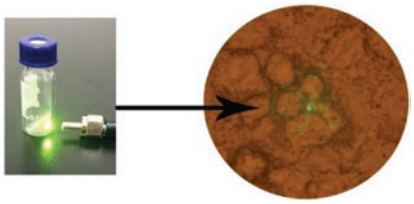
Chenxi Song, Shubiao Zhang, Quan Zhou, Hua Hai, Defeng Zhao and Yunze Hui

Upconversion nanoparticles for bioimaging

DOI 10.1515/ntrev-2016-0043
Nanotechnol Rev 2017; 6(2): 233–242

Review: The advantages of upconversion nanoparticles applied in bioimaging are discussed with focus on equipment and methods for achieving hydrophilicity and biocompatibility. Additionally, safety and toxicity issues are examined.

Keywords: bioimaging; biomaterials; rare-earth; upconversion nanoparticles.



Ewa Karwowska

Antibacterial potential of nanocomposite-based materials – a short review

DOI 10.1515/ntrev-2016-0046
Nanotechnol Rev 2017; 6(2): 243–254

Review: The possibility to influence microbial cells by means of nanoproducts application gives new opportunities to the industry and everyday life.

Keywords: antibacterial applications; antimicrobial activity; nanomaterials.