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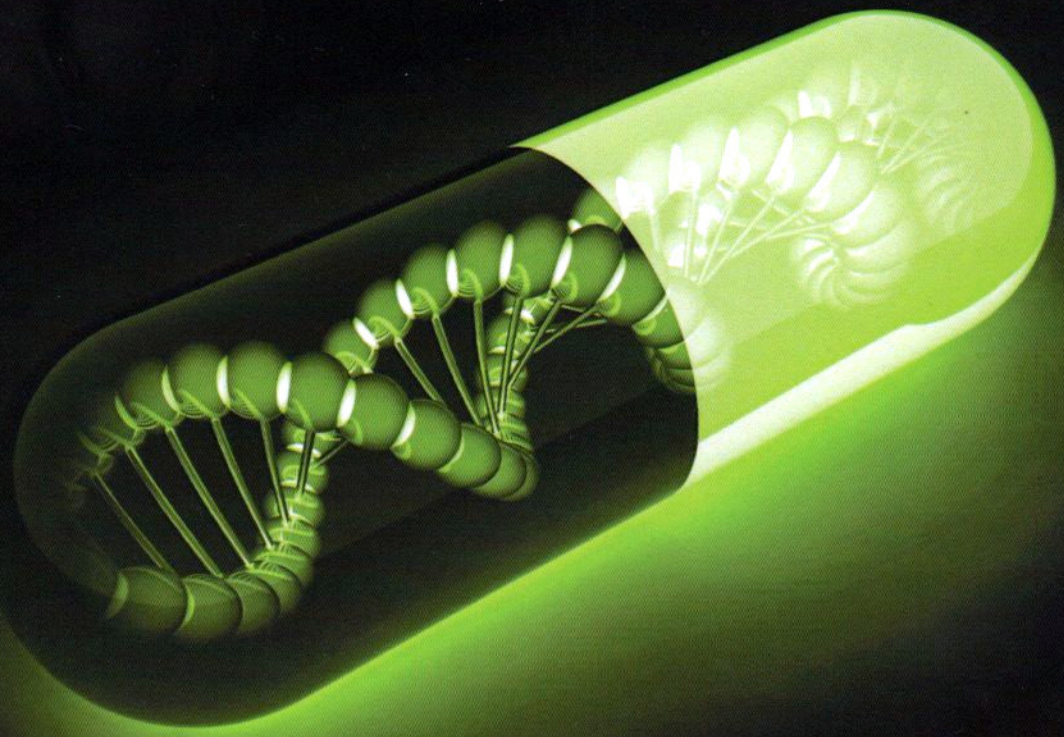

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16:00-16:25	**Title: Nanostructured Surfaces of low-secondary Electron Emission to Prevent Multipactor Effect in High-Power RF Devices in Space** **Isabel Montero,** Instituto de Ciencia de Materiales de Madrid - CSIC, Spain
16:25-16:50	**Title: Motion Control of nano/micro sized ceramics by Nano second pulse field** **Tadachika Nakayama,** Nagaoka University of Technology, Japan
16:50-17:15	**Title: Atomic resolution imaging of topography and surface charges by Kelvin probe force microscopy** **Yasuhiro Sugawara,** Osaka University, Japan
	YRF Session
17:15-17:30	**Title: Polyomavirus based viral nanoparticles: A useful tool for targeting cancer cells affecting protein corona** **Jirina Zackova Suchanova,** Charles University, Czech Republic
17:30-17:45	**Title: Active targeting of breast cancer using Pirarubicin-loaded biodegradable nanocarriers** **Zahra Eskandari,** Yildiz Technical University, Turkey
17:45-18:00	**Title: In-vitro Investigation of Changes in Efficacy and Toxicity of Nano-Paclitaxel during Co-applications with Antioxidant Natural Compounds** **Fatma Kazdal,** Yildiz Technical University, Turkey

Day 2 May 08, 2018

Conference Hall-Sirio

Keynote Forum

	Introduction
09:00-09:30	**Title: Hall effect in bulk-doped organic single crystals** **Masahiro Hiramoto,** Institute for Molecular Science, Japan
09:30-10:00	**Title: Innovative Functional Tungsten Disulfide (WS2) Inorganic Nanotubes (f-INTs-WS2) Novel Non-Toxic Nanoscale Inorganic Polymer-Composite Inorganic "Nanofillers"** **Jean-Paul (Moshe) Lellouche,** Bar-Ilan University, Israel
10:00-10:30	**Title: History of nanosciences** **Philippe Houdy,** Evry Paris Saclay University, France
	Networking and Refreshment Break 10:30-10:45 @ Foye
10:45-11:15	**Title: Spaghetti & Lasagne - synthesis of 1D and 2D nanomaterials** **Gilbert Daniel Nessim,** Bar-Ilan University, Israel

Plenary Session

Sessions: Nano Biotechnology | Nanobiomaterials | Nano Materials Synthesis and Characterisation | Pharmaceutical Nanotechnology | Graphene and its Applications | Nanoengineering | Nanocomposite
Session Chair: Jean-Paul (Moshe) Lellouche, Bar-Ilan University, Israel
Session Co-Chair: Anna L Kameneva, PNRPU, Russia

11:15-11:40	**Title: "Green" synergy of the nanotechnologies and heterogeneous catalysis** **Vera I. Isaeva,** National University of Science and Technology "MISiS", Russia
11:40-12:05	**Title: Thermoacoustic sound projector: Beyond the fundamental efficiency of carbon nanotubes** **Ali E. Aliev,** University of Texas at Dallas, USA
12:05-12:30	**Title: Ferromagnetic Single Crystalline Co nanorods integration in functional nanostructures** **Marc Respaud,** Université de Toulouse, France
12:30-12:55	**Title: Gold nanoparticles for exogenously induced intracellular manipulation** **Marilena Carbone,** University of Rome Tor Vergata, Italy
	Lunch Break 12:55-13:25 @ Edon Restaur
13:25-13:50	**Title: Opportunities and Challenges in Design and Applications of Nano Drug Deliver Systems** **Fatemeh Bahadori,** Bezmialem Vakif University, Turkey

Marilena Carbone, J Nanomater Mol Nanotechnol 2018, Volume 7
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Gold nanoparticles for exogenously induced intracellular manipulation

Magnetic nanoparticles are key building blocks for numerous innovative functional maGold nanoparticles (AuNPs) are extensively used in biomedicine as therapeutic agent, since they can be drug carriers, imaging agents, gene-regulating agents and photoresponsive therapeutics. On the other hand, especially when dealing with intracellular activity, fundamental parameters such as the pH must be taken into account and can be conveniently used to direct the action of the AuNPs. Cancer and normal cells, among other things are characterized by different pH in several intracellular compartments, a difference that can be conveniently used to modulate the action inside the cells of AuNPs. In a reversed perspective, extensive intracellular acidification may be induced by exogenous agents to cause a decrease of pH beyond the tolerance level of cancer cells. This is being implemented by designing tailored molecules which can provide protons release upon light irradiation and are also capable of cell internalization. The outcome is a system that can act as acidifying agent "on command". The monitoring is typically carried out in a non-invasive way, i.e. by infrared spectroscopy. The protons released by irradiation bind the hydrogencarbonate abundant in the cells, to yield the carbonic acid which readily dissociates in H_2O and CO_2 according to the equilibrium:

$HCO_3^- + H^+ - H_2CO_3 H_2O + CO_2$. This has the advantage of an easy monitoring, as the asymmetric stretching of the CO_2 falls in a region free from other absorptions. This method becomes even more effective, when AuNPs are coupled to photoacids, since they possibly provide a more efficient permeation of the cell membrane and a localized concentration of protons, with a consequent local swift decrease of pH. This offers the additional advantage of a carrier for cancer cell recognition. A scheme of the photosensitive compounds conjugated to the AuNPs and the effects on the cells (HEK-293) is reported in Figure1. More complex systems are under investigation, with photoacids coupled to AuNPs, which provide selectivity towards cancer cells as an effect of the irradiation.

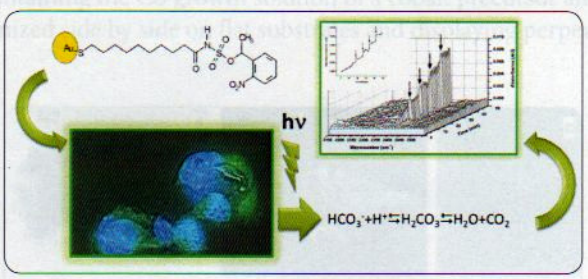

Figure 1: A scheme of the photoacid conjugated to the AuNPs. The nanoparticles were additionally functionalized with a fluorescent agent and dosed to HEK-293. Once the cells are irradiated with UV-light, protons are relesed, decreasing the pH and increasing the yield of CO_2. This effect is 400 times larger for photoacids coupled to AuNPs as compared to non-conjugated ones

Recent Publications

1. Carbone M (2017) Bi-verse relationship between gold nanoparticles and intracellular pH. J. King Saud Univ - Sci. 29(3):284-290.