

## CytImmune Presents Positive Results

CytImmune Sciences have announced the preliminary data of a National Cancer Institute conducted Phase 1 trial of its gold-based treatment, CYT-6091 (Aurimune). CytImmune is a clinical stage nanomedicine company focused on the development and commercialization of multifunctional, tumor-targeted therapies harnessing the unique properties of gold nanoparticles. CYT-6091 (Aurimune), CytImmune's lead drug compound, is recombinant human tumor necrosis factor alpha (TNF) bound to the surface of 27 nanometer PEGylated colloidal gold nanoparticles. While TNF's tumor killing properties are well documented, its clinical use has been severely limited due to unacceptable toxicities.

The Phase 1 clinical trial was designed to investigate whether Aurimune will perform identically in humans as it did in preclinical studies and companion animals and also the whether the fever side effect observed in preclinical studies can be easily managed. Preliminary data from the Phase 1 study indicates that CYT-6091 is seen in tumors, but not in healthy tissue; a positive result. To date the drug has had no effect on renal, liver or immune function and no unexpected serious adverse events have been reported.

For more information see  
[www.cytimmune.com](http://www.cytimmune.com)

WORLD GOLD COUNCIL

## Bioactive Paper Network

In its search for higher-value products, Canada's paper industry is supporting research to develop paper that can detect or kill E. coli in grocery stores and water sources, and airborne germs in hospitals and gold nanoparticles are, perhaps not surprisingly, a key part of the technology.

The partnership of academics and industry is called the Sentinel Bioactive Paper Network. The group is funded by the Natural Sciences and Engineering Research Council, Canada Foundation for Innovation, the Ontario government, and the pulp and paper industry.



Two years into a five-year, \$12-million drive, the network's ideas include hospital face masks and gowns that react to the presence of specific bacteria or viruses, possibly by turning colour, or food packages that tell when food carries salmonella and a simple paper strip that would tell when water is contaminated after a flood or hurricane. To test for pesticides, the labs use gold nanoparticles and, if a certain enzyme is present in a food or water sample, the gold splits off from the rest of its salt molecule turning the paper a deep red-purple.

For more information see <http://www.bioactivepaper.ca>



A member of the SENTINEL network demonstrates an example of bioactive paper

# New Preparation Patent

A new patent application from US researcher Kattesh Katti describes a new preparation technique for producing gold nanoparticles (WO2007027978 A2). The major advantage claimed is that gold nanoparticles may be produced in much less time than traditional preparations, and at temperatures of less than about 30°C. The basic method involves reacting the gold salt with a phosphino amino acid. The full patent can be accessed free of charge via <http://ep.espacenet.com>

## STOP PRESS!

Gold 2009 will take place at the University of Heidelberg between 26-29th July 2009 and will feature all aspects of gold related nanotechnology

# Gold Nanotechnology Special Issue

One of the final chapters of any successful conference is the eventual publication of its content. It is excellent news then that the special issue of *Materials Science and Engineering B*, which is devoted to the latest developments in the science and technology of gold at the nanoscale, has just been published. The papers were selected from presentations made at the Gold 2006 conference held in Limerick, Ireland. The special issue, *Materials Science and Engineering B 140 (2007) 137*, was edited by Michael Cortie, Professor & Director, UTS Institute for Nanoscale Technology, University of Technology Sydney, Australia

# Most Accessed Articles

Gold continues to be one of the most studied materials at the nanoscale ... seven of the **Top Twenty Most Accessed Articles** in the *Journal of Physical Chemistry* during 2006 were related to gold nanotechnology!

The papers were:

### Wet Chemical Synthesis of High Aspect Ratio Cylindrical Gold Nanorods

Nikhil R. Jana, Latha Gearheart, and Catherine J. Murphy  
*J. Phys. Chem. B*; **2001**; 105(19) pp 4065 - 4067; **(Letter)**  
DOI: 10.1021/jp0107964,

### Calculated Absorption and Scattering Properties of Gold Nanoparticles of Different Size, Shape, and Composition: Applications in Biological Imaging and Biomedicine

Prashant K. Jain, Kyeong Seok Lee, Ivan H. El-Sayed, and Mostafa A. El-Sayed  
*J. Phys. Chem. B*; **2006**; 110(14) pp 7238 - 7248; **(Article)**  
DOI: 10.1021/jp057170o

### Monodispersed Core-Shell Fe<sub>3</sub>O<sub>4</sub>-Au Nanoparticles

Lingyan Wang, Jin Luo, Quan Fan, Masatsugu Suzuki, Itsuko S. Suzuki, Mark H. Engelhard, Yuehe Lin, Nam Kim, Jian Q. Wang, and Chuan-Jian Zhong  
*J. Phys. Chem. B*; **2005**; 109(46) pp 21593 - 21601; **(Article)**  
DOI: 10.1021/jp0543429

### Spectral Properties and Relaxation Dynamics of Surface Plasmon Electronic Oscillations in Gold and Silver Nanodots and Nanorods

Stephan Link and Mostafa A. El-Sayed  
*J. Phys. Chem. B*; **1999**; 103(40) pp 8410 - 8426; **(Feature Article)** DOI: 10.1021/jp9917648

### Multipole Plasmon Resonances in Gold Nanorods

Emma Kathryn Payne, Kevin L. Shuford, Sungho Park, George C. Schatz, and Chad A. Mirkin  
*J. Phys. Chem. B*; **2006**; 110(5) pp 2150 - 2154; **(Article)** DOI: 10.1021/jp056606x

### Template-Free Parallel One-Dimensional Assembly of Gold Nanoparticles

Yu Xin Zhang and Hua Chun Zeng  
*J. Phys. Chem. B*; **2006**; 110(34) pp 16812 - 16815; **(Letter)**  
DOI: 10.1021/jp063587y