

Symposium 7

**Title: Nanoparticles, Colloids and Interfaces in Pharmaceuticals and Drug Delivery Applications**

Chair/Co-Chair: R. Partch, Y. Yi Yan

Chair Assistant: Adrienne Benson

Location: 213 Snell

**Monday June 13, 2005**

Presiding: R. Partch

Paper	Time	Title and Authors
7-01	1:30 - 2:10 PM	Synthesis and Processing of Nanoparticles for Bioengineering Applications J. Y. YING
7-02	2:10 - 2:30 PM	Nanoparticles as Detection Labels for Bioaffinity Assays in Point of Care Testing M. PUGIA
7-03	2:30 - 2:50 pm	Cellular Probes Using Amplified Light Scattering O. Siiman, S.LEDIS
7-04	3:20 - 3:40 PM	Determination of Dissolution Rates of Colloidal Dispersion Prepared from Poorly Water Soluble Drugs Using a Light Scattering Technique N. P. RYDE, J. D. Pruitt
7-05	3:40 - 4:00 PM	PFG-NMR Investigation of Liposome Systems Containing Hydrotrope F. ODEH, N. Heldt, M. Gauger, G. Slack, Y. Li
7-06	4:00 - 4:20 PM	Fabrication of Supraparticles, Janus Microparticles and Microlens Arrays by a Gel Trapping Technique V. N. PAUNOV, O.J. Cayre
7-07	4:20 - 4:40 PM	Bone Tissue Engineering: Towards a Better Understanding of Interfacial Biology D. LICKORISH

7-08            4:40 - 5:00 PM            Surface Modification of Mineral Fillers for Dental Composites and Acrylic Bone Cement  
O. SHAFRANSKA, A. Kokott, V. Tokarev, S. Voronov, G. Ziegler

**Tuesday June 14, 2005**

Presiding: R. Partch

7-09            10:30 - 11:10 AM            Amphiphilic Core-Shell Nanoparticles with Poly(ethylenimine) Shells as Potential Gene Delivery Carriers  
J. Zhu, A. Tang, L. P. Law, M. Feng, K. M. Ho, D. K. L. Lee, F. W. Harris, P. LI

7-10            11:10 - 11:30 AM            Microencapsulation of Pharmaceuticals into Biodegradable Colloids Using Supercritical Carbon Dioxide  
H. Liu, N. Finn, M. Z. YATES

7-11            11:30 - 11:50 AM            Development of a Three-Dimensional Magnetic Navigation and Magnetically Targeted Drug Delivery System  
S. TAKEDA, F. Mishima, S. Nishijima

7-12            11:50 - 12:10 AM            Reversible Assembly/Disassembly Between Two Different Micelle Morphologies Comprised of Cyclodextrin and Ferrocene/Ferrocenium Derivatized Surfactants  
K. Cheng, Y.-M. Lan, Y.-Y.LUK

7-13            12:10 - 12:30 PM            Smart Polymer Core-Shell Nanoparticles for Targeted Drug Delivery  
Y. Y. YANG, S. Q. Liu, L. H. Liu, R. Powell, Y. Wang

7-14            1:30 - 2:10 PM            Labeled Block Copolymer Micelles in the Study of Cellular Internalization  
P. Lim-Soo, S. Sidorov, R. Savic, L. Bronstein, D. Maysinger, A. EISENBERG

7-15            2:10 - 2:30 PM            Synergy of Drugs and Gene Delivery Using Cationic Polymer Core-Shell Nanoparticles

Y. WANG, S. J. Gao, Y. Y. Yang

- 7-16            2:30 - 2:50 PM            Controlled Release of Plasmid DNA from Gold Nanorods Modified with Phosphatidylcholine Induced by Pulsed Near-Infrared Light  
H. Takahashi, Y. Niidome, T. NIIDOME, S. Yamada
- 7-17            3:20 - 3:40 PM            Towards the Development of HFA-based pMDIs for the Delivery of Hydrophilic Drugs: Combined Chemical Force Microscopy, *In-Situ* High-Pressure Tensiometry and Atomistic Computer Simulations  
R. P.S. Peguin, P. Selvan, L. Wu, S.R.P. DA ROCHA
- 7-18            3:40 - 4:00 PM            Hydrogen-bonded Self-assembled Films and Capsules of Thermoresponsive Polymers  
E. KHARLAMPIEVA, V. Kozlovskaya, S. A. Sukhishvili
- 7-19            4:00 - 4:20 PM            Development of Redox-Active Surfaces and Micelles for Biocompatible Systems: Caging Ferrocene in Cyclic Oligosaccharides  
Y.-M. LAN, K. Cheng Y.-Y. Luk
- 7-20            4:20 - 4:40 PM            Self-Assembly of Nanoporous Silica Shapes: Synthesis, Morphogenesis, and Applications  
Y. Y. KIEVSKY, I. Sokolov
- 7-21            4:40 - 5:00 PM            Particle Engineering Technologies for Enhancing Dissolution and Bioavailability  
M. J. JOHNSON, E. J. Elder, J. E. Hitt, J. C. Evans, T. L. Rogers
- 7-22            5:00 - 5:20 PM            Molecular Configuration of ATP in the Interlayer of Hydrotalcite  
H. TAMURA, J. Chiba, M. Ito, T. Takeda, S. Kikkawa

**Wednesday June 15, 2005**

Presiding: TBA

- 7-23            10:00 - 10:20 AM            Modulation of the Binding Dynamics of Guests with Bile Salt

Aggregates with the Addition of Co-Solvents  
C. Yihwa, C. BOHNE

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|------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7-24 | 10:20 - 10:40 AM | Single Surfactant Non-Ionic Microemulsions<br>N. NAOULI, H. L. Rosano                                                                                                                                                                      |
| 7-25 | 10:40 - 11:00 AM | The Use of Pluronic Microemulsions for Drug Detoxification:<br>Investigation of the Interaction Mechanism by NMR<br>Spectroscopy<br>M. Varshney, T. E. Morey, E.G. POWELL, M. James, D. O.<br>Shah, B. M. Moudgil, R. Partch, D. M. Dennis |
| 7-26 | 11:00 - 11:20 AM | Evaluation of AFM for Determining Complexation Forces<br>Between Toxins and Antidote Molecules<br>A. BENSON, E. Powell, R. Partch, I. Sokolov                                                                                              |
| 7-27 | 11:20 - 11:40 AM | Covalent Attachment of Biotin to TiO <sub>2</sub> Nanoparticles<br>L. YE, R. Pelton, M. Brook                                                                                                                                              |
| 7-28 | 11:40 - 12:00 AM | Characterization of the Complexes Between Polyvinylamine and<br>Carboxymethyl Cellulose<br>X. FENG, R. Pelton                                                                                                                              |
| 7-29 | 1:30 - 1:50 PM   | New Concepts for Dialysis Membranes<br>C. J. MCDONALD                                                                                                                                                                                      |
| 7-30 | 1:50 - 2:10 PM   | Development of Supported Lipid Bilayer Cell Membrane<br>Mimics<br>J. M. TUCKER, R. D. Tilton, T. M. Przybycien                                                                                                                             |
| 7-31 | 2:10 - 2:30 PM   | Properties of Monolayers of the Parkinson's Disease-Related<br>Protein Alpha-Synuclein at the Air-Water Interface<br>D. A. Bosco, A. Davis, J. W. Kelly, E. T. POWERS                                                                      |
| 7-32 | 2:30 - 2:50 PM   | Arraying of Intact Liposomes on Patterned Island Surfaces<br>Formed by Micro-contact Printing of Self Assembled<br>Monolayers<br>N. D. KALYANKAR, M. Sharma, C. Maldarelli, D. Calhoun,<br>L. Gilchrist, A. Couzis                         |
| 7-33 | 3:20 - 3:40 PM   | The Effect of Humidity on the Adsorption Kinetics of Lung                                                                                                                                                                                  |

Surfactant at Air-Water Interfaces

Y. Y. ZUO, R. Gitiafroz, E. Acosta, Z. Policova, P. N. Cox,  
M. L. Hair

7-34            3:40 - 4:00 PM            Flow and Particle Transport in a Human Nasal System  
P. ZAMANKHAN, G. Ahmadi, P. K. Hopke, S.-Y. Cheng

7-35            4:00 - 4:20 PM            Particle Deposition in 3-D Asymmetric Human Lung  
Bifurcations  
L. TIAN, G. Ahmadi, A. Mazaheri, P. K. Hopke, S.-Y. Cheng