

A 3D illustration of a blood vessel with a textured, brownish wall. Several red blood cells are shown in various stages of flow. A small, metallic, insect-like nanorobot with four legs and a central body is positioned near a red blood cell. A white, glowing, S-shaped path is visible on the vessel wall, suggesting a specific route or process.

April 1-4, 2008

Hotel Manoir Des Sables
Quebec



1st Annual Unither
Nanomedical & Telemedical
Technology Conference

The Next Decade's Approach to Medicine



1st Annual **Unither**
Nanomedical & Telemedical
Technology Conference

ThB NBXt DBcsdB 's Approach to MBdicinB

www.unithertechnologyconference.com

Conference Co-Chairs :

Martine Rothblatt, Ph.D.
Presidente directrice generale, Unither Biotech, Inc.

Baruch S. Blumberg, MD, Ph.D.
Senior Advisor to the President, Fox Chase Cancer Center

Tuesday, April 1, 2008- Friday, April 4, 2008

Tuesday, April 1, 2008

4:00 - 6:00 PM Hotel Check-in
6:30 - 9:30 PM Buffet Reception

Wednesday, April 2, 2008 - Nanomedical Technology

7:00 - 8:15 AM Buffet Breakfast

8:30 - 8:45 AM **08S1OR** Opening Remarks - Martine Rothblatt, Ph.D., Conference Co-Chair

8:45 - 10:25 AM **Session 1 - Technology Development Pathways for Medical Nanobots**

8:45 - 9:05 AM **08S1P1** Selmer Bringsjord, Ph.D. - Chair of the Department of Cognitive Science: Rensselaer Polytechnic Institute, "The Logic-Based Route to Medical Nanobots"

9:05 - 9:25 AM **08S1P2** Tad Hogg, Ph.D. - Member of the Research Staff: Hewlett-Packard Laboratories, "Coordinating Microscopic Robots for Medical Applications"

9:25 - 9:45 AM **08S1P3** Ralph C. Merkle, Ph.D. - Senior Research Fellow: Institute for Molecular Manufacturing, "Diamond Mechanosynthesis as a Pathway to Medical Nanorobots"

9:45 - 10:05 AM **08S1P4** Renata G. Bushko, M.S. - Director: Future of Health Technology Institute, "NANOFUTURE 101: Two Major Nanomedicine Events and their Significance: Chromalloyocytes & Diamond Mechanosynthesis"

10:05 - 10:25 AM **08S1QA** Q & A Discussion

10:25 - 10:40 AM Coffee Break

10:40 - 12:20 PM **Session 2 - Medical Reasons to Develop Medical Nanobots**

10:40 - 11:00 AM **08S2P1** Russell J. Mumper, Ph.D. - Director: Center for Nanotechnology in Drug Delivery at the University of North Carolina -Chapel Hill, "Moving Toward Clinical Investigation with Pharmaceutically Engineered Lipid-Based Nanoparticles"

11:00 - 11:20 AM **08S2P2** Rutledge G. Ellis-Behnke, Ph.D. -Associate Professor: University of Hong Kong Faculty of Medicine, "Using Nanotechnology to Repair the CNS: From the Four Ps of Regeneration to Crystal Clear Surgery to In Vivo Non-invasive Imaging of Regenerating Axons"



- 11:20 – 11:40 AM **08S2P3** Alexey Krasnoslobodtsev, Ph.D. – Research Associate: University of Nebraska Medical Center - Department of Pharmaceutical Sciences, “AFM Force Spectroscopy as a Nanotool for Early Detection of Misfolded Protein”
- 11:40 – 12:00 PM **08S2P4** Professor Dennis W. Smith, Jr., Ph.D. – Professor of Chemistry: Clemson University, “Nanomedical Polymer and Composite Science and Technology”
- 12:00 – 12:20 PM **08S2QA** Q & A Discussion
- 12:20 – 1:05 PM Buffet Lunch
- 1:05 – 2:05 PM **08S2SK** **Keynote Speaker**
Baruch S. Blumberg, M.D., Ph.D. – Senior Advisor to the President, Fox Chase Cancer Center “Science on the International Space Station: Past and Future; Hepatitis B Virus. Discovery, the Present, and the Future.”
- 2:05 – 2:35 PM Baruch S. Blumberg, M.D., Ph.D. – Q & A Discussion
- 2:35 – 4:15 PM **Session 3 – Nanomedical Structures and Devices in Development Today**
- 2:35 – 2:55 PM **08S3P1** Brian P. Helmke, Ph.D. – Assistant Professor of Biomedical Engineering: University of Virginia, “Nano-Based Devices for Engineering Cellular Life and Death”
- 2:55 – 3:15 PM **08S3P2** Professor Ales Prokop – Research Professor: Vanderbilt University Department of Chemical Engineering, “Multifunctional Nanoparticulate Vehicles for Targeted Drug Delivery and Systems Biology”
- 3:15 – 3:35 PM **08S3P3** James Leary, Ph.D. – Professor of Nanomedicine: Purdue University & Member of Birck Nanotechnology Center, “Programmable Nanoparticles for Drug/Gene Delivery in Regenerative Nanomedicine”
- 3:35 – 3:55 PM **08S3P4** Christopher S. Brazel, Ph.D., P.E. – Associate Professor: University of Alabama Department of Chemical and Biological Engineering, “Nanomedicine for Diagnosis and Treatment of Cancer: Development of a Nanoplatfrom to Target Cancer Cells and Provide Magnetically-Triggered Combination Chemotherapy and Hyperthermia Therapy”
- 3:55 – 4:15 PM **08S3QA** Q & A Discussion
- 4:15 – 4:30 PM Coffee Break
- 4:30 – 6:10 PM **Session 4 – Nano-Bio Interfaces and Hybrids**
- 4:30 – 4:50 PM **08S4P1** Sang Bok Lee, Ph.D. – Assistant Professor: Department of Chemistry and Biochemistry and Maryland Nanocenter at the University of Maryland, “Silica Nanotubes: Multifunctional Designer Nanoparticles at Nano-Bio Interfaces”
- 4:50 – 5:10 PM **08S4P2** Professor Philip DeShong, Sc.D. – Professor at the University of Maryland and Founder & CSO of SD Nanosciences, Inc., “A Molecular Toolbox of Functionalized Nanomaterials: Constructs for Applications to Drug Delivery”
- 5:10 – 5:30 PM **08S4P3** Challa Kumar, Ph.D. – Group Leader of Nanofabrication: Center for Advanced Microstructures and Devices, “Magnetically Modulated Nano Structures in Medical Diagnosis, Treatment and Tissue Engineering”
- 5:30 – 5:50 PM **08S4P4** Qian Wang, Ph.D. – Professor: University of South Carolina, “Self-Assembly of NanoBiomaterials for Tissue Engineering”



5:50 – 6:10 PM **08S4QA** Q & A Discussion

7:00 – 10:00 PM Dinner at Manoir des Sables

Thursday, April 3, 2008 – Nanomedical & Telemedical Technology

7:00 – 8:00 AM Buffet Breakfast

8:00 – 8:10 AM **08S5OR** Opening Remarks – Baruch S. Blumberg, M.D., Ph.D., Conference Co-Chair

8:10 – 9:50 AM Session 5 – Nanomedical Functionality

8:10 – 8:30 AM **08S5P1** Peter Molnar Ph.D. – Assistant Professor: NanoScience Technology Center at the University of Central Florida, “Hybrid Biological Systems for ‘Functional’ Drug Screening, as In Vitro Disease Models or for Lab-On-a-Chip Applications”

8:30 – 8:50 AM **08S5P2** T. Randall Lee, Ph.D. – Cullen Distinguished Professor of Chemistry: University of Houston, “Shell/Core Nanoparticles: The Evolution of a Revolution in Medicine”

8:50 – 9:10 AM **08S5P3** Mitchel J. Doktycz, Ph.D. – Distinguished Staff Scientist: Oak Ridge National Laboratory – BioSciences Division, “Cell Mimetics for Biochemical Sensing and Actuation”

9:10 – 9:30 AM **08S5P4** Rob Burgess, Ph.D. – President: Medical Nanotechnologies, Inc., “Carbon Nanotube Based Therapeutics”

9:30 – 9:50 AM **08S5QA** Q & A Discussion

9:50 – 10:05 AM Coffee Break

10:05 – 11:45 AM Session 6 – Bodily Integration of Nanomedical Objects

10:05 – 10:25 AM **08S6P1** James J. Hickman, Ph.D. – Director: Nanoscience Technology Center & Professor: University of Central Florida, “Auto-catalytic Ceria Nanoparticles Offer Neuroprotection to Adult Rat Spinal Cord Neurons”

10:25 – 10:45 AM **08S6P2** Beverly A. Rzigalinski, Ph.D. – Professor: Virginia College of Osteopathic Medicine - NanoNeuroLab, “Future Treatment of Oxidative Stress-Related Disorders With Nanotechnology”

10:45 – 11:05 AM **08S6P3** Tihamer Toth-Fejel – Senior Research Engineer: General Dynamics Advanced Information Systems, “From Artificial Kidneys to Respirocytes: DNA Assembling Silsesquioxane Nanocubes for Medical Use”

11:05 – 11:25 AM **08S6P4** Neal Woodbury, Ph.D. – Director of the Center for BioOptical Nanotechnology: Arizona State University Biodesign Institute, “A Rapid Approach to Synthetic Antibody Production”

11:25 – 11:45 AM **08S6QA** Q & A Discussion

11:45 – 12:45 PM Buffet Lunch

Telemedical Technology

12:45 – 1:05 PM **08S6SK** **Keynote Speaker**

Robert C. Bourge, M.D. – Professor and Director, Division of Cardiovascular Disease: University of Alabama, “Potential Uses for Implantable Hemodynamic Monitors”

1:05 – 1:25 PM Q & A Discussion



1:25 – 2:45 PM **Session 7 – Telemedical Devices in Development and Use Today**

1:25 – 1:45 PM **08S7P1** Will Rosellini, JD, MBA, M.S. – CEO: Microtransponder, Inc., “Our Vice President is a Cyborg”

1:45 – 2:05 PM **08S7P2** Dr. Tofy Mussivand, D.Eng., Ph.D., FRSC – Director: Cardiovascular Devices Division at the University of Ottawa Heart Institute, “Telemedicine Applications for Non-Invasive DNA Sampling and Extraction Device”

2:05 – 2:25 PM **08S7P3** Papu Maniar, Ph.D. – Advanced Materials and Nanotechnology: Motorola Corporate Labs, “Mobile Health Ecosystems and the impact on Nanotechnology”

2:25 – 2:45 PM **08S7QA** Q & A Discussion

2:45 – 3:00 PM Coffee Break

3:00 – 4:20 PM **Session 8 – Telemedical Control of Medical Nanobots & Nano-Bio Interfaces**

3:00 – 3:20 PM **08S8P1** Nader Najafi, Ph.D. – President & CEO: ISSYS Sensing Systems, Inc., “Novel Wireless, Batteryless, Implantable Sensors for Chronic Disease Management”

3:20 – 3:40 PM **08S8P2** James Prescott, Ph.D. – Director of Analytical Chemistry: MicroCHIPS, Inc., “Wireless Implantable Devices for Drug Delivery and Biosensing”

3:40 – 4:00 PM **08S8P3** Jaideep Mavoori, Ph.D. – Senior Research Scientist: NeuroVista Corporation, “Neurochips and Telemedical Applications”

4:00 – 4:20 PM **08S8QA** Q & A Discussion

4:20 – 5:40 PM **Session 9 – Merging Telemedicine & Nanotechnology**

4:20 – 4:40 PM **08S9P1** Christopher Phoenix – Co-founder (on sabbatical): Center for Responsible Nanotechnology, “Designing and Controlling Medical Nanorobots”

4:40 – 5:00 PM **08S9P2** Sywert H. Brongersma, Ph.D. – Principal Researcher, WATS: Holst Centre/ IMEC-NL, “Human++: Emerging Technologies for Wireless Autonomous Health Monitoring Devices”

5:00 – 5:20 PM **08S9P3** Julien Ryckaert, Ph.D. – Researcher: Interuniversity Microelectronics Center (IMEC), “UWB Radios: A New Technology Enabling Autonomous Body Area Networks and Patient or Asset Tracking in Hospital Environments”

5:20 – 5:40 PM **08S9QA** Q & A Discussion

5:40 – 6:00 PM **08S9CR** Closing Remarks – Dismissal from Panel Discussions

7:30 – 11:00 PM Closing Banquet at Cavallini Restaurant; 101 Rue Du Moulin, Magog, QC

Friday, April 4, 2008

12:00 PM Hotel Check Out