



**The Next Generation of Medical Diagnostics:
Applications of Nanotechnology**

4 March 2008

The KAVLI NANOSCIENCE INSTITUTE [KNI] at Caltech

Conference Organizer: **Axel Scherer, Director of the KNI**

Tuesday, 4 March 2008

Hour	Title/Event	Speaker
10:00am – 10:30am	Registration and Coffee	
10:30am – 10:40am	Opening Remarks	Axel Scherer, Ph.D. <i>Bernard A. Neches Professor of Electrical Engineering, Applied Physics, and Physics; Director, KNI</i>
10:40am – 11:30am	Plenary Talk: The New Age of Nanoscale Diagnostics	David Baltimore, Ph.D. <i>Robert Andrews Millikan Professor of Biology; Nobel Laureate</i>
11:30am – 12:45 pm <i>Session I</i> <i>Sensing Technologies with Single Molecule Resolution</i>	Next-Generation Biological Large-Scale-Integration	Michael Roukes <i>Professor of Physics, Applied Physics, and Bioengineering</i>
	Breath-Based Diagnostic Detection of Lung Cancer	Nate Lewis <i>George L. Argyros Professor of Chemistry</i>
	Optofluidic Microscopy – A Method for Building Microscopic Microscopes	Changhuei Yang, Ph.D. <i>Asst. Professor of Electrical Engineering & Bioengineering</i>
	Building Sensors with Single-Molecule Sensitivity	Scott Fraser, Ph.D. <i>Anna L. Rosen Professor of Biology and Professor of Bioengineering; Director, Magnetic Resonance Imaging Center</i>
12:45pm – 1:30pm	Lunch	
1:30pm – 2:15pm <i>Industry Panel</i> <i>Sensing Technologies with Single Molecule Resolution</i>	Panelists:	Christopher Amies, Ph.D. <i>Sr. VP for Advanced Clinical Innovation, Siemens</i>
		Joseph M. Beechem, Ph.D. <i>Vice President Corporate Research Lab & Chief Technology Officer, Invitrogen Corporation</i>
		Frank Narz, Ph.D. <i>Senior Scientist, QIAGEN</i>
		Andre Ruzycky, Ph.D. <i>Vice President, Technology Assessment, Ortho-Clinical Diagnostics, a Johnson & Johnson Company</i>



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2:15pm – 3:15pm <i>Session II</i> Single Cell Analysis and Disease Diagnostics	Technologies for Making <i>In Vitro</i> Diagnostics Cheap	James R. Heath, Ph.D. <i>Elizabeth W. Gilloon Professor & Professor of Chemistry at Caltech; Professor of Molecular & Medical Pharmacology at UCLA; Director, NanoSystems Biology Cancer Center</i>
	Single Molecule Q-Dot-Nanocrystal-Based Medical Diagnostics: Impact on the Future of Medicine	Joseph M. Beechem, Ph.D.
	Integrated Microfluidic Diagnostic Systems	Axel Scherer, Ph.D.
3:15pm – 3:30pm Coffee Break		
3:30pm – 4:15pm <i>Industry Panel</i> Single Cell Analysis and Disease Diagnostics	Panelists:	Craig Adams, Ph.D. <i>Director, Molecular Markers, Beckman Coulter</i>
		Christopher Amies, Ph.D.
		Frank Narz, Ph.D.
		Andre Ruzycky, Ph.D.
4:15pm – 5:00pm	Patient Treatment: The Future of Diagnostic Tools	Richard Cote, M.D., FRCPath <i>Professor of Pathology and Urology; Director, Biomedical Nanosciences Initiative, University of Southern California Keck School of Medicine Norris Comprehensive Cancer Center</i>
	Closing Remarks	Axel Scherer, Ph.D.
5:00pm – 6:00pm Wine and Cheese Reception		
6:30pm Dinner for presenters at the Athenaeum		