

**JACKIE Y. YING**

EXECUTIVE DIRECTOR

## BIOGRAPHICAL SUMMARY

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Jackie Y. Ying was born in Taipei, and raised in Singapore and New York, and graduated with B.E. *summa cum laude* in Chemical Engineering from The Cooper Union in 1987. As an AT&T Bell Laboratories Ph.D. Scholar at Princeton University, she began research in materials chemistry, linking the importance of materials processing and microstructure with the tailoring of materials surface chemistry and energetics. She pursued research in nanocrystalline materials with Prof. Herbert Gleiter at the Institute for New Materials, Saarbrücken, Germany as NSF-NATO Post-doctoral Fellow and Alexander von Humboldt Research Fellow. Prof. Ying has been on the Chemical Engineering faculty at Massachusetts Institute of Technology (MIT) since 1992, and was promoted to Associate Professor in 1996 and to Professor in 2001. She is currently the Executive Director of the Institute of Bioengineering and Nanotechnology (IBN), Singapore, and an Adjunct Professor of Chemical Engineering at MIT. IBN is a new multidisciplinary national research institute founded in March 2003 to advance the frontiers of engineering, science and medicine; it has grown to over 150 research staff and students under Prof. Ying's leadership.

Prof. Ying's research is interdisciplinary in nature, with a theme in the synthesis of advanced nanostructured materials for catalytic and biomaterial applications. Her laboratory has been responsible for several novel wet-chemical and physical vapor synthesis approaches that create nanocomposites, nanoporous materials and nanodevices with unique size-dependent characteristics. These new systems are designed for applications ranging from the production of fine chemicals and pharmaceuticals, the efficient use of energy and resources, the control and prevention of environmental pollution, the targeted delivery of drugs, proteins and genes, to the generation of biomimetic implants and tissue scaffolds. Prof. Ying has authored over 290 articles, and presented over 330 invited lectures on this subject at international conferences.

Prof. Ying has been recognized with a number of research awards, including the American Ceramic Society Ross C. Purdy Award for the most valuable contribution to the ceramic technical literature during 1993, David and Lucile Packard Fellowship, Office of Naval Research Young Investigator Award, National Science Foundation Young Investigator Award, Camille Dreyfus Teacher-Scholar Award, Royal Academy of Engineering ICI Faculty Fellowship, American Chemical Society Faculty Fellowship Award in Solid-State Chemistry, Technology Review TR100 Young Innovator Award, American Institute of Chemical Engineers (AIChE) Allan P. Colburn Award for excellence in publications, World Economic Forum Young Global Leader, and Chemical Engineering Science Peter V. Danckwerts Lectureship. She was elected a member of the German National Academy of Sciences, Leopoldina in 2005 as the youngest member of the Academy. She was named one of the "One Hundred Engineers of the Modern Era" by AIChE in its Centennial Celebration, and honored with the Great Woman of Our Time Award for Science and Technology by Singapore Women's Weekly. She was the first recipient of the Singapore National Institute of Chemistry-BASF Award in Materials Chemistry. She received the Service to Education Award from the Ministry of Education, Singapore. She led the invention on MicroKit, which received the 2011 Asian Innovation Silver Award from the Wall Street Journal Asia. She is recipient of the International Union of Biochemistry and Molecular Biology (IUBMB) Jubilee Medal in 2012.

Prof. Ying serves on the Advisory Board of the Society for Biological Engineering. She was appointed by the U.S. National Academy of Engineering in 2006 to serve on the blue-ribbon committee that identified the grand challenges and opportunities for engineering in the 21st century. She serves on the Scientific Advisory Board of Molecular Frontiers, a global think tank that promotes molecular sciences.

Prof. Ying is the Editor-in-Chief of *Nano Today*. Under Prof. Ying's leadership, *Nano Today* underwent a successful transition from a magazine to a journal, witnessing major increases in the Impact Factor from 5.929 in 2007 to 11.750 in 2010 (Thomson Reuters *Journal Citation Reports*®). *Nano Today* now ranks 3rd among the 66 journals in the ISI Nanoscience and Nanotechnology category.

In addition, Prof. Ying is Advisory Editor for *Materials Today* and *Molecular and Supramolecular Science*, Honorary Editor of *Biomaterials and Biodevices*, and Associate Editor of *The Nanotechnology and Nanoscience*. She serves on the Honorary Advisory Board of *Journal of Biomaterials and Tissue Engineering*, and the Editorial Board of *Journal of Porous Materials*, *Nanoparticle Science and Technology*, *Journal of Metastable and Nanostructured Materials*, *Journal of Experimental Nanoscience*, *Biomolecular Frontiers*, *International Journal of Molecular Engineering*, *Wiley Interdisciplinary Reviews: Nanomedicine and Nanobiotechnology*, *Materials Science and Engineering C: Materials for Biological Applications*, *Journal of Biomedical Nanoscience and Nanotechnology*, *Nano Research*, *Cambridge Series in Chemical Engineering*, *Macromolecular Bioscience*, *Biomicrofluidics*, *ACS Nano*, *The Open Catalysis Journal*, *Nano: Letters and Reviews*, *Nanoscience and Nanotechnology – Asia*, *American Journal of Nuclear Medicine and Molecular Imaging*, *Nano Energy*, *Nano Energy and Nano Environment*, and *Journal of Molecular and Engineering Materials*. She was Editor for *Advances in Chemical Engineering*, Associate Editor of *Acta Materialia*, *Scripta Materialia* and *Nanostructured Materials*, and Guest Editor for *Materials Science and Engineering A*, *Nanostructured Materials*, *AIChE Journal*, and *Chemistry of Materials*. She served on the Editorial Board of *Journal of Electroceramics*, *Applied Catalysis A: General*, *Journal of Nanomaterials*, *Biomedical Materials: Materials for Tissue Engineering and Regenerative Medicine*, *Canadian Journal of Chemical Engineering*, and *Letters in Organic Chemistry*. She was a member of the International Advisory Board of University of Queensland Nanomaterials Centre (Australia), Leibniz-Institut für Festkörper- und Werkstoffforschung Dresden (Germany), and National Research Council Steacie Institute for Molecular Sciences (Canada). She was a founding member of the Board of Directors of Alexander von Humboldt Association of America.

Prof. Ying is an Honorary Professor of Jilin University (China) and Sichuan University (China), and an Adjunct Professor of National University of Singapore and Nanyang Technological University (Singapore). Prof. Ying has over 120 patents issued or pending, and has served on the Advisory Boards of 6 start-up companies and 1 venture capital fund. One of the spinoff companies that she co-founded, SmartCells, Inc., has developed a technology platform that is capable of auto-regulating the release of insulin therapeutic depending on the blood glucose levels. Merck acquired SmartCells, Inc. in 2010, with potential aggregate payments in excess of \$500 million to further develop this technology for clinical trials.

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