MEDIA RELEASE

Science Education in Singapore Gets Unique Hands-On Holiday Boost

Institute of Bioengineering and Nanotechnology Reaches Out to Parents and Students at Science Camp over the School Holidays

Singapore December 12, 2008: Ninety students and their parents will get the opportunity to try out the Institute of Bioengineering and Nanotechnology’s (IBN) educational Nano-Bio Kits and be introduced to the latest concepts in research at the 1st IBN Science Camp for Parents and Students on Saturday, December 13, from 9:00am to 1:00pm at Biopolis.

The 1st IBN Science Camp for Parents and Students is an IBN Youth Research Program (YRP) event that aims to introduce young Singaporeans and their parents to scientific research at the interface of bioengineering and nanotechnology, and provide them with insights into the biomedical research industry. An overview of the cutting-edge interdisciplinary research performed at IBN will be presented before participants are led on guided tours of the Institute's laboratories. Parents will have the opportunity to learn with their children as they participate in hands-on laboratory sessions using IBN’s Nano-Bio Kits. Since their launch in 2007, these Nano-Bio Kits have already been incorporated in the curriculum of 16 schools and have also been selected for international scientific education and design exhibitions at Tokyo’s Miraikan Museum and New York’s Museum of Modern Art.

Students and their parents will also have the opportunity to meet IBN scientists face-to-face at a unique forum where the Institute’s researchers will interact with the visitors to provide career insights and advice. Students as well as their parents will be able to engage with the scientists about their research, and get a first-hand account of what it means to be a scientist. IBN’s Youth Research Program organizes regular career talks, open houses, seminars, workshops and research attachments for students and teachers. This is the first time that the Institute is inviting parents to join their children in the labs. Since 2003, YRP has reached out to over 23,700 students and teachers in more than 190 schools in Singapore.

“Pursuing science as a career requires a great deal of dedication and commitment. Students who decide to become researchers will benefit from their families’ support and encouragement of their academic training and long-term commitments to their work,” shared IBN Director and YRP Chair, Ms Noreena AbuBakar.

IBN Executive Director and YRP Advisor, Prof Jackie Y. Ying, added, “By involving parents in our Science Camp, we are giving families the opportunity to meet IBN scientists personally and gain insights into research and the passion involved. We hope that our researchers would inspire the students to pursue a career in scientific research.”

About the 1st IBN Science Camp for Students and Parents

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<th>Time</th>
<th>Program Activity</th>
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<td>8.45am</td>
<td>Arrival of guests at Exploration Theatrette, Level 4, The Matrix.</td>
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9.00am - 9.30am  Introduction to IBN's Research Areas by Dr. Andrew Wan.

9.30am - 11.10am  Participants break into small groups for a hands-on workshop with IBN’s Nano-Bio Kits - Thermo-Responsive Hydrogel, Biological Fuel Cell and Dielectrophoresis Chip Kits - in IBN’s laboratories at The Nanos. IBN’s diagnostic Microkit will also be demonstrated.

11.10am - 11.50am  Tea Break

11.50am - 12.50pm  Face to Face with Our Scientists

12.50pm - 1.00pm  Interviews

**Face to Face with Our Scientists – Participating Researchers:**

Prof Jackie Y. Ying, Executive Director  
Research Interests: Materials surface chemistry, energetics, nanostructured materials for catalytic, ceramic and biomaterial applications, nanocomposites, nanoporous materials, nanodevices.

Dr. Wang Shu, Group Leader  Research Interests: Gene delivery/therapy, tissue engineering, neurobiology.

Dr Yiyan Yang, Group Leader  Research Interests: Drug/gene delivery, cancer therapy, polymeric carriers for cell expansion and grafting.

Dr. Su Seong Lee, Team Leader  Research Interests: Asymmetric catalysts, nanobiotechnology, nano-materials, nanobiology.

Dr. Motoichi Kurisawa, Team Leader  Research Interests: Drug/gene delivery, biodegradable hydrogels, injectable systems, tissue engineering, nano-biomaterials.

Dr. Andrew Wan, Team Leader  Research Interests: Biomaterials, tissue engineering.

Dr. Lang Zhuo, Team Leader  Research Interests: Liver cell biology, biological imaging, gene therapy, transgenics.

Dr. Ciprian Iliescu, Senior Research Scientist  Research Interests: Microelectromechanical systems, wearable systems, injectable systems, enabling instrumentation.

Dr. Ni Ming, Research Scientist  Research Interests: Biomaterials, tissue engineering, drug delivery, surface analysis.

Dr Franklin Anariba, Research Scientist  Research Interests: Protein and DNA detection, aggregation-Induced fluorescence, surface chemistry.
Dr Leo Hwa Liang, Research Interests: Disposable integrated biosystems, fluid mechanics of prosthetic heart valves.
Post-Doctoral Fellow

Dr. Emril Mohamed Ali, Research Interests: Biosensors and biodevices, Post-microfluidic systems, organo-electronic devices.
Doctoral Fellow

Siti Nurhanna Riduan, Research Interests: Heterogenous catalysis.
Senior Lab Officer

Suhaila Taher, Research Interests: Biomaterials, drug delivery, artificial organs.
Lab Officer

For information about how to get to IBN, please visit http://yrp.ibn.a-star.edu.sg/gettoibn.php

For more information about the 1st IBN Science Camp for Parents and Students, please contact:
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About IBN's Youth Research Program
http://yrp.ibn.a-star.edu.sg
IBN runs a very active Youth Research Program (YRP) to introduce its cutting-edge scientific research to students and teachers, in an effort to inspire more young Singaporeans to pursue careers in the biomedical sciences industry. The YRP features activities such as career talks, open houses, workshops and research attachments for students and teachers from secondary to tertiary levels. Since its launch in October 2003, over 23,700 students and teachers from 190 schools have participated in the YRP. More than 900 students and teachers have also been attached to IBN for a minimum period of four weeks, during which they received hands-on experience in scientific research under guidance from an IBN researcher. In 2008, IBN launched Club YRP on Facebook, an online network. More information on IBN's Youth Research Program is available at http://yrp.ibn.a-star.edu.sg/ and at Club YRP on Facebook. Photos related to the YRP may be requested from Laura Lau at sslau@ibn.a-star.edu.sg.

About IBN's Nano-Bio Kits
http://www.nano-biokit.com
The Institute of Bioengineering and Nanotechnology (IBN) has specially designed and created Nano-Bio Kits, a teaching resource, to help teachers introduce cutting-edge research in bioengineering and nanotechnology to their 15- to 19-year-old students. These Kits enable students to conduct a series of experiments, which illustrate various scientific concepts and techniques, in their school laboratories using commonly available equipment. The Nano-Bio Kits demonstrate aspects of IBN's research and emphasize practical applications in nanobiotechnology, drug delivery and medical devices. The first three Kits in the series are the Biological Fuel Cell Kit, Thermo-responsive Hydrogel Kit and Dielectrophoresis Chip Kit. Each Kit contains lesson plans, experimental components and instructions in a manual, which equips teachers with background scientific knowledge related to the Kit. Questions are also provided for students to apply the learning points taught in the
lessons. An interactive multimedia CDROM in each Kit provides instructional ideas and slides.

About the Institute of Bioengineering and Nanotechnology

The Institute of Bioengineering and Nanotechnology (IBN) is a member of the Agency for Science, Technology and Research (A*STAR), Singapore. It was established in 2003.

Massachusetts Institute of Technology (MIT) Professor Jackie Yi Ru Ying, 42, was hand-picked by former A*STAR Chairman Philip Yeo to lead the institute as its Executive Director in March 2003. She has been on MIT’s Chemical Engineering faculty since 1992, and was promoted to Professor in 2001. She is among the youngest to be promoted to this rank at MIT. Under her direction, IBN conducts research at the cutting-edge of bioengineering and nanotechnology. Its programs are geared towards linking multiple disciplines across engineering, science and medicine to produce research breakthroughs that will improve healthcare and our quality of life.

IBN’s research activities are focused in the following areas:

- **Drug and Gene Delivery**, where the controlled release of various therapeutics involve the use of functionalized polymers and hydrogels for targeting diseased cells and organs, or for responding to specific biological stimuli.
- **Cell and Tissue Engineering**, where biomimicking materials, stem cell technology and bioimaging are combined to develop novel approaches to regenerative medicine and artificial organs.
- **Pharmaceuticals Synthesis and Nanobiotechnology**, which encompass the efficient catalytic synthesis of chiral pharmaceuticals, and new materials for sustainable technology and alternative energy generation.
- **Biosensors and Biodevices**, which involve nanotechnology and microfabricated platforms for the detection and treatment of diseases, and the synthesis and screening of biologics.

IBN’s innovative research is aimed at creating new knowledge and intellectual properties in the emerging fields of bioengineering and nanotechnology to attract top-notch researchers and business partners to Singapore. Since 2003, IBN researchers have produced a total of 445 papers published/in press, of which 184 were published in journals with impact factor greater than 3. IBN also plays an active role in technology transfer and spinning off companies, linking the research institute and industrial partners to other global institutions. As of October 2008, IBN has filed 637 patent applications on its inventions and the Institute is currently looking for partners for collaboration and commercialization of its portfolio of technologies.

IBN’s current staff strength stands at around 170 scientists, engineers and doctors. With its multinational and multidisciplinary research staff, the institute is geared towards generating new biomaterials, devices, systems, equipment and processes to boost Singapore’s economy in the fast-growing biomedical sector.

IBN is also committed to nurturing young minds, and the institute acts as a training ground for PhD students and undergraduates. In October 2003, IBN initiated a Youth Research Program to open its doors to university students, as well as students and teachers from
various secondary schools and junior colleges. It has since reached out to more than 23,000 students and teachers from over 190 local and overseas schools and institutions.

In 2008, IBN celebrates 5 years of innovative research. For more information, please log on to www.ibn.a-star.edu.sg.

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