Van nevar Bush Award

Honors truly exceptional lifelong leaders in science and technology who have made substantial contributions to the welfare of the Nation through public service activities in science, technology, and public policy.

Past recipients of the Vannevar Bush Award include such renowned leaders in science and technology as: Charles Townes, Harold Varmus, Maxine Singer, H. Guyford Stever, Phillip Abelson, Norman Ramsey, Linus Pauling, and James Killian.

www.nsf.gov/nsb/awards/bush.jsp

NSB Public Service Award

Honors individuals who and groups that have made substantial contributions to increasing public understanding of science and engineering in the United States. These contributions may be in a wide variety of areas that have the potential of contributing to public understanding of and appreciation for science and engineering (e.g., mass media, education and/or training programs, entertainment programs).

Past recipients of the NSB Public Service Award include: NUMB3RS, the CBS television drama series; Ira Flatow, Host and Executive Producer of NPR’s "Science Friday"; Alfred P. Sloan Foundation; Bill Nye the Science Guy*; and NOVA, the PBS television series.

www.nsf.gov/nsb/awards/public.jsp

Contact Information:

For questions regarding the National Science Board honorary awards, please email us at: NationalScienceBrd@nsf.gov

Deadline:

Nominations will be accepted until November 3, 2010.

For additional information and to submit nominations, please visit:
www.nsf.gov/nsb/awards/
Quantitative polymerase chain reaction (qPCR) has emerged as a powerful tool in molecular biology laboratories, both in research and in diagnostic settings. Even as qPCR grows in popularity, it is being recognized that there are some challenges associated with the technology, particularly with respect to reproducibility within and between laboratories. Fortunately, many of these limitations can be addressed through a standardized set of best practices. Using the recently published MIQE guidelines as a foundation, our expert panel will address the best practices of qPCR, with the goal of providing researchers with more consistent and reliable data.

DURING THE WEBINAR, THE PANELISTS WILL:
• Provide an overview of the MIQE guidelines.
• Address qPCR applications and primary challenges.
• Outline best practices and assay design to get the best out of your qPCR.
• Describe the essential quality control steps, including nucleic acid quantification.
• Answer your questions during the live Q&A session.

STUDY THE FUTURE OF qPCR
Best Practices, Standardization, and the MIQE Guidelines
WEBINAR
September 30, 2010
12 noon ET, 9 am PT, 4 pm GMT

Quantitative polymerase chain reaction (qPCR) has emerged as a powerful tool in molecular biology laboratories, both in research and in diagnostic settings. Even as qPCR grows in popularity, it is being recognized that there are some challenges associated with the technology, particularly with respect to reproducibility within and between laboratories. Fortunately, many of these limitations can be addressed through a standardized set of best practices. Using the recently published MIQE guidelines as a foundation, our expert panel will address the best practices of qPCR, with the goal of providing researchers with more consistent and reliable data.

DURING THE WEBINAR, THE PANELISTS WILL:
• Provide an overview of the MIQE guidelines.
• Address qPCR applications and primary challenges.
• Outline best practices and assay design to get the best out of your qPCR.
• Describe the essential quality control steps, including nucleic acid quantification.
• Answer your questions during the live Q&A session.

PARTICIPATING EXPERTS

Stephen A. Bustin, Ph.D.
Queen Mary
University of London
London, UK

Gregory L. Shipley, Ph.D.
University of Texas Health Science Center at Houston
Houston, TX

Manju R. Sethi
Thermo Fisher Scientific
Wilmington, DE

REGISTER NOW!
Sign Up At:
www.sciencemag.org/webinar

Sponsored by
Thermo Scientific
Brought to you by the
AAAS/Science Business Office
A university was established in 1907, the philosophy has always been to put...
**RESEARCH HIGHLIGHTS**

Tohoku University is acknowledged as being the birthplace of ideas and inventions that led to the creation of new industries. In 1932, the pioneering work of Kōtarō Honda—the first director of the Institute of Materials Research—led to the invention of ‘KS magnet steel’, at the time the strongest permanently magnetic material. Other innovative contributions include the Yagi–Uda antenna proposed by Hidetsugu Yagi and produced by Shintaro Uda; Fujio Masuoka’s flash memory; and in 2002, the development of the soft laser desorption/ionization method for mass spectroscopic analysis of proteins by Nobel laureate Koichi Tanaka, a graduate of the Tohoku University’s Department of Electrical Engineering.

There are also a myriad of examples of current cutting-edge research at Tohoku University:

**HIDEO OHNO** is the Director of the Center of Spintronics Integrated Systems. In his research on ‘spintronics’ he is devising ways of controlling the spin of electrons to realize new functionalities in semiconductors and metals. Ohno has succeeded for the first time in electrically controlling the magnetic phase of a ferromagnetic material, leading to a new paradigm of low power functional devices. Ohno also fabricated a magnetic tunnel junction device exhibiting an ‘on/off’ resistance difference of 600%—the largest reported to date. These spintronic devices offer a promising route to resolving high power consumption and interconnect delay issues of current integrated circuits.

**KUNIO INOUE** is the Director of the Research Center for Neutrinology Science. In 2005, he observed so-called ‘geoneutrinos’ using the KamLAND antineutrino detector. Geoneutrinos result from the decay of radioactive elements deep within the earth. This new observation will provide a deeper insight into heat generation inside the earth. Inoue is also the head of the ‘Weaving Science Web beyond Particle-Matter Hierarchy’ Global Center of Excellence (GCOE) program launched in 2008. This international and interdisciplinary project aims to formulate a unified understanding of the universe via collaborative research in fields of mathematics, physics, and astronomy.

**YOSHITOMO OKA** is the head of the GCOE on ‘Conquest of Signal Transduction Diseases with Network Medicine’. Oka is renowned for his pioneering work on glucose transport. In collaboration with Hideki Katagiri, Oka discovered that metabolic information is delivered to the brain, which transmits signals to maintain the homeostasis of the whole body also via neuronal routes—metabolic information highways. This concept led to the ‘Network Medicine’ GCOE project for exploring the concept that both the onset and progress of disease are governed by a breakdown of the body’s system of networks. The project members are developing multilevel, temporal, and spatial integration models to investigate unknown links among diseases—the so-called ‘disease’—and consequently innovative diagnostic, therapeutic, and preventive strategies.

**GLOBAL NETWORKS AND SUPPORT FOR INTERNATIONAL STUDENTS**

Enhancing international exchanges and global networks is a high priority for Tohoku University. To promote academic and industrial collaboration globally, it actively participates in three inter-university consortia: APRU (Association of Pacific Rim Universities); T.I.M.E. (Top Industrial Managers for Europe); and AEARU (the Association of East Asian Research Universities). Furthermore, the university has exchange agreements with 445 institutions in 45 countries and regions and has 16 overseas offices in nine countries.

Tohoku University offers excellent support for its international students and researchers. The Center for International Exchange assists international students with Japanese language courses, finds accommodation at both university dormitories and private apartments, and promotes exchanges with local students and the people of Sendai. The university also has a wide range of scholarships for international students including the President Fellowship program launched in April 2010. When it’s time to graduate, the university offers career advice for international students, as well as job fairs and workshops on Japanese culture and communication skills.

**INNOVATIVE EDUCATIONAL PROGRAMS AND STRONG LEADERSHIP**

In 2009, Japan’s Ministry of Education, Culture, Sports, Science and Technology (MEXT) selected Tohoku University as one of 13 centers as part of the Global 30 Project for Establishing Core Universities for Internationalization (G30). The main goal of this initiative is to give international and Japanese students the opportunity to study courses taught in English. “We are seizing this opportunity to promote the internationalization of education,” says Inoue. “We are developing degree programs offered completely in English to meet all international student needs.”

Tohoku University has a history of strong leadership based on its ‘Open Door’ policy. In 1913, it was the first of Japan’s universities to admit female students—Chika Kuroda, Ume Tange, and Raku Makita. Needless to say, Tohoku University is still a leader in supporting female researchers.

Another example is the Chinese writer Lu Xun (1881-1936), who in 1904 was the first foreign student admitted to Sendai Medical College—the predecessor of the School of Medicine at Tohoku University. Later, in 1906 Lu Xun withdrew from medicine to study literature and returned to China where he wrote many influential works, including ‘The True Story of Ah Q’. Lu Xun is also remembered for his story entitled ‘Fujino Sensei’, a fictionalized account of his experiences with his mentor, Professor Fujino, at Tohoku.

Now, in the 21st century, Tohoku University is setting new standards as an open, dynamic, and innovative world-class university. “We welcome talented people from all backgrounds and all over the world to join us,” says Inoue.
Free up your hand with Whatman Klari-Flex™ Bottle-Top Filtration System. Designed for filter sterilization of liquids such as cell culture media, biological fluids and buffers, the Klari-Flex system includes a stable, low-profile pedestal base with a permanent vacuum hose connection. Drop-Connect Technology requires just one hand to connect unit to base. This feature eliminates a time-consuming and inconvenient step in your process – connecting and disconnecting the vacuum to each filter unit. With Klari-Flex, connect the vacuum once and filter unit after unit.

For more information, visit www.whatman.com/KlariFlex.aspx

Three Flexible Ways of Operation

A. Pedestal stand design for maximum convenience
B. Cradle ring for use with existing lab stands
C. Adapter for conventional bottle-top filtration
Integrated solutions from BD

Powerful platforms and flexible solutions that enable your work to flow.

From isolation through production, today BD Biosciences delivers high quality products and services, meeting your needs at every step in the cell-based workflow.

As research moves toward clinical trials and ultimately new cell therapies, you can rely on BD’s proven experience in delivering quality GMP products and services as we deliver the next generation of tools and systems to help you transform disease management in the next decade.

Systematic ExcellenceSM is our commitment to deliver both best-in-class and highly integrated products and services to help you reduce risk and to ensure superior quality in the production of clinical-grade applications.

**BD Systematic ExcellenceSM:** Powering the next generation of tools and systems to transform disease management in the next decade.

Visit us at [bdbiosciences.com/stemcells](http://bdbiosciences.com/stemcells).

For Research Use Only. Not for use in diagnostic or therapeutic procedures.

BD, BD Logo and all other trademarks are property of Becton, Dickinson and Company. © 2010 BD

23-11458-00
Professor Tanke, why is curiosity a building block of life?

Hans Tanke, a researcher and pioneer of digital fluorescence microscopy, is driven by passionate curiosity. He is Head of the Department of Molecular Cell Biology at Leiden University Medical Center, Netherlands, where he gives young scientists creative freedom: this enables them to develop the ethically responsible dedication with which he himself keeps tracking down the building blocks of life.

www.leica-microsystems.com
Phusion® High-Fidelity DNA Polymerase

With Phusion® High-Fidelity DNA Polymerase, there is no need to compromise any aspect of your PCR performance. A superior choice for cloning, this recombinant polymerase has an error rate 50-fold lower than Taq DNA Polymerase, combining extreme precision with unparalleled speed and robustness.

Not all PCR polymerases are created equal

---

**Advantages:**
- Extreme fidelity
- High speed
- Robustness
- High yield
- Specificity

Go to [www.neb.com/phusion](http://www.neb.com/phusion) to find out how Phusion High-Fidelity DNA Polymerase can improve your PCR performance.

---

Amplification of a 3.8 kb fragment from the human beta globin gene clearly illustrates the extreme speed and robustness offered by using Phusion DNA Polymerase. Reactions were performed according to the suppliers' recommendations using varying extension times (shown above gel).

*Phusion is a registered trademark of Finnzymes Oy.*
AAAS is here – connecting government to the scientific community.

As a part of its efforts to introduce fully open government, the White House is reaching out to the scientific community for a conversation around America's national scientific and technological priorities.

To enable the White House's dialogue with scientists, AAAS launched Expert Labs, under the direction of blogger and tech guru Anil Dash. Expert Labs is building online tools that allow government agencies to ask questions of the scientific community and then sort and rank the answers they receive.

On April 12, 2010, AAAS asked scientists everywhere to submit their ideas to the Obama administration and at the same time launched the first of Expert Labs tools, Think Tank, to help policy makers collect the subsequent responses. The result was thousands of responses to the White House's request, many of which are already under consideration by the Office of Science and Technology Policy.

As a AAAS member, your dues support our efforts to help government base policy on direct feedback from the scientific community. If you are not already a member, join us. Together we can make a difference.

To learn more, visit aaas.org/plusyou/expertlabs
Simply better pipetting!
The new electronic pipette Eppendorf Xplorer®

The new electronic pipette Eppendorf Xplorer had been developed for high professional demands. The intuitive handling concept and ergonomic design are setting new standards for precision, reproducibility and simplicity. The turn dial enables easy selection of all basic functions. During development of the Xplorer, Eppendorf had those users in mind who are required to handle complex or lengthy pipetting series without getting lost among the many different volumes or individual steps. So, no more lost time due to complicated programming or rigid procedures.

Instead: accurate selection of parameters, maximum reproducibility of results, fatigue-free work. In addition, the “up is up and down is down™” principle of the innovative multifunction-rocker offers complete control over all pipetting processes. This is always important, whether the application is for the purpose of scientific research or clinical diagnostics.

Whoever has it will protect it.
Eppendorf Xplorer® – the new electronic pipette.

Simply better pipetting:
- Intuitive handling concept
- Optimal ergonomics
- Very high reproducibility

www.eppendorf.com/xplorer

Eppendorf Xplorer® and Eppendorf are registered trademarks of Eppendorf AG. “Up is up and down is down” is a trademark of Eppendorf AG. All rights reserved, including graphics and images. Copyright 2009–2010 by Eppendorf AG.
AUTOMATED CHROMATOGRAPHY

The Octave Chromatography System is an automated chromatography platform designed for preparative-scale purification of chemical and biological compounds. The system is able to continuously process racemates, cell lysates, cell culture supernatants, and other crude fractions to yield grams of highly purified antibodies, proteins, sugars, amino acids, fatty acids, and other large and small molecules in just hours. The compact, versatile, and affordable system brings the benefits of simulated moving bed chromatography to the laboratory benchtop. The Octave System carries eight column positions arranged in series and connected through a proprietary pneumatic valve array. The valve and pump configuration provides ultimate flexibility in programming chromatographic protocols via the intuitive software. All flow paths consist of metal-free biocompatible materials that are also compatible with common organic solvents and clean-in-place solutions. The Octave System is available in two configurations with maximum flow rates up to 10 and 100 milliliter/minute.

Dorton Analytical Ltd
For info: +44-(0)-7872-520670  |  www.dortonanalytical.co.uk

SOLID PHASE EXTRACTION

Strata-X-A polymeric, high-capacity sorbent delivers maximum retention of anionic compounds, for anion/cation exchange separations. The base polymer of the new Strata-X-A is pH-stable and resists deconditioning, providing more flexibility during method development and reducing the potential for errors. Strata-X-A retains acidic analytes in three different ways: π-π and hydrophobic interactions coupled with a strong anion exchange mechanism. The strong ionic bond allows an aggressive organic wash, leaving the eluent free of interference. This sorbent is ideal for a wide variety of liquid chromatography and gas chromatography applications that involve acid analytes including environmental and forensic toxicology. Strata-X-A is offered in 1 mL, 3 mL, and 6 mL tubes for traditional cleanup, 96-well plates for high throughput extractions, and Giga Tubes (12 mL, 20 mL, and 60 mL) for large-volume applications.

Phenomenex
For info: 310-212-0555  |  www.phenomenex.com

CONFOCAL MICROSCOPY

Designed for researchers seeking higher resolution images while working within a tight budget, Leica Microsystems’ True Confocal/True Value Program delivers all of the equipment needed to immediately start using confocal imaging for $99,000. The package includes the Leica TCS SPE II Spectral Confocal with a fully configured upright microscope, objective lens set, three laser lines, and high-performance computer. The Leica TCS SPE II is a high-resolution spectral confocal for daily research. The highly integrated system features durable hardware and the Leica Application Suite Advanced Fluorescence (LAS AF) software platform to ensure smooth, fast operation.

Leica Microsystems, Inc.
For info: 800-248-0123  |  www.leica-microsystems.com

SAMPLE TRACKING

The 2D Barcode Reader is specially designed to provide advanced sample tracking functions on Microlab Star automated liquid handling workstation. The new reader has a compact footprint in a standard carrier size to minimize the required deck space. The reader’s charge-coupled device camera records barcodes in less than 0.5 seconds from a wide range of sample formats including boxes of SBS tubes and biowells in 96-well format. Five labware positions are available on the device. The 2D barcode reader supports a variety of tubes from many manufacturers, in 24-, 48-, 96-, and 384-well configurations. The new reader is ideal for high throughput screening, sample archival, forensics, and work with single-nucleotide polymorphisms and blood samples.

Hamilton
For info: 800-648-5950  |  www.hamiltonrobotics.com

PARP PHARMACODYNAMIC ASSAY

The second generation Poly-ADP-ribose polymerase (PARP) in vivo pharmacodynamic assay accurately measures net poly-ADP-ribose (PAR) levels in cellular extracts and has been used to document differences in PAR levels in human tumor lysates from a variety of tissues, organs, and xenografts. The pharmacodynamic assay uses a validated sample processing regime and a chemiluminescent, sandwich enzyme-linked immunosorbent assay (ELISA) format, with pre-coated 96-stripwell plates. The assay reports PAR levels at high signal-to-noise ratio, with a sensitivity of two picograms/milliliter (pg/ml) and a linear dynamic range to 1000 pg/ml. The new tool provides evidence of drug action on molecular targets and generates baseline values that may be used to stratify patient response to therapy.

AMS Biotechnology
For info: +44-1235-828200  |  www.amsbio.com

Electronically submit your new product description or product literature information! Go to www.sciencemag.org/products/newproducts.dtl for more information. Newly offered instrumentation, apparatus, and laboratory materials of interest to researchers in all disciplines in academic, industrial, and governmental organizations are featured in this space. Emphasis is given to purpose, chief characteristics, and availability of products and materials. Endorsement by Science or AAAS of any products or materials mentioned is not implied. Additional information may be obtained from the manufacturer or supplier.
AAAS Early Career Award for Public Engagement with Science

Nominations are open now through October 15 for the AAAS Early Career Award for Public Engagement with Science. With this new award, AAAS will recognize early-career scientists and engineers who demonstrate excellence in their contribution to public engagement with science activities. The award recipient will receive a monetary prize of $5,000, a commemorative plaque, and complimentary registration and reimbursement of travel expenses to the 2011 AAAS Annual Meeting in Washington, D.C.

For eligibility information and instructions on submitting nominations, visit http://www.aaas.org/go/PESaward.

...how do YOU engage?
New PathScan® RTK Signaling Antibody Array Kits

...from Cell Signaling Technology®

Unparalleled product quality, validation and technical support.

New PathScan® RTK Signaling Antibody Array Kits are slide-based antibody arrays founded on the sandwich immunoassay principle.

- Arrays are produced and optimized in-house, incorporating the highest quality antibodies and ensuring results you can trust.
- Arrays allow the analysis of phosphorylation levels of 39 proteins per assay, saving valuable time and reagents.
- Arrays are designed to detect receptor tyrosine kinases (RTKs) and key downstream signaling molecules, allowing the most comprehensive readout of signaling events.
- Technical support is provided by the same scientists who developed and produce the product, which translates into a thorough, fast and accurate response.
- Chemiluminescent detection kit offers convenient and easy detection without specialized instrumentation.
- Fluorescent detection kit offers a broad linear range for the most accurate quantification.

Above: Analysis of Karpas-299 and K562 cells using the PathScan® RTK Signaling Antibody Array Kit reveals various phosphorylated RTKs and signaling nodes. The fluorescent readout and corresponding quantification were obtained using PathScan® RTK Signaling Antibody Array Kit (Fluorescent Readout) #7949 (middle and upper panels). The chemiluminescent readout was obtained using PathScan® RTK Signaling Antibody Array Kit (Chemiluminescent Readout) #7982 (lower panel).

for more information visit...

www.cellsignal.com

Cell Signaling TECHNOLOGY®


U.S.: 978-467-2300 | E-mail: info@cellsignaling.com