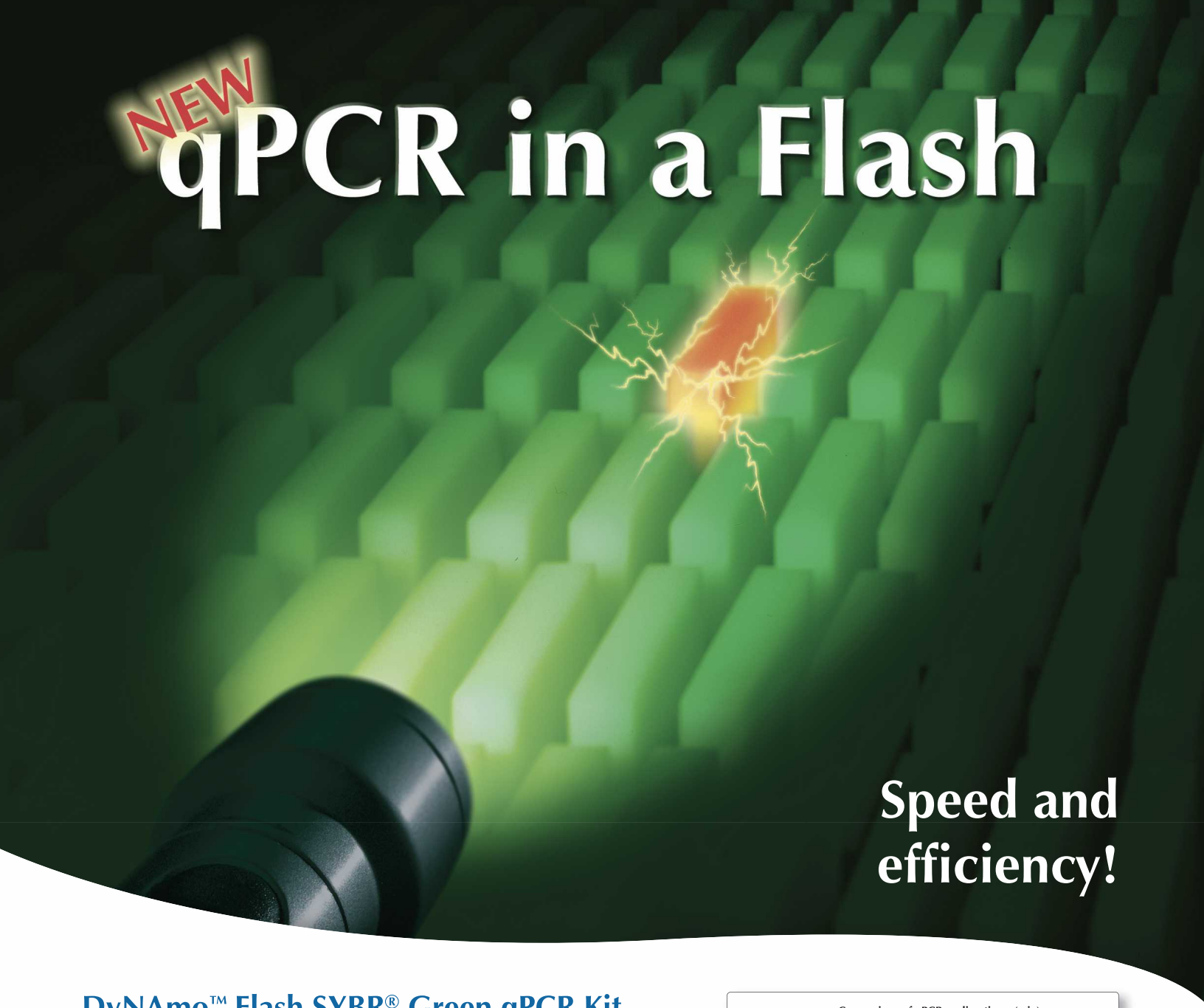

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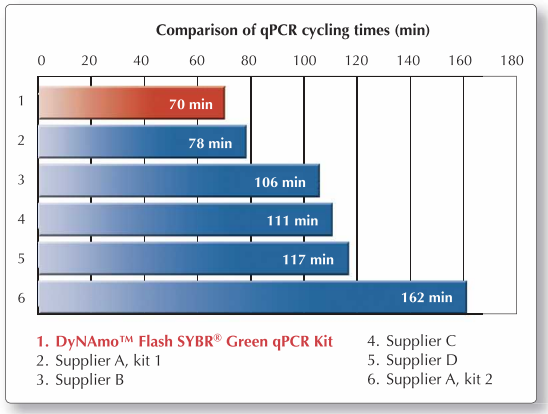

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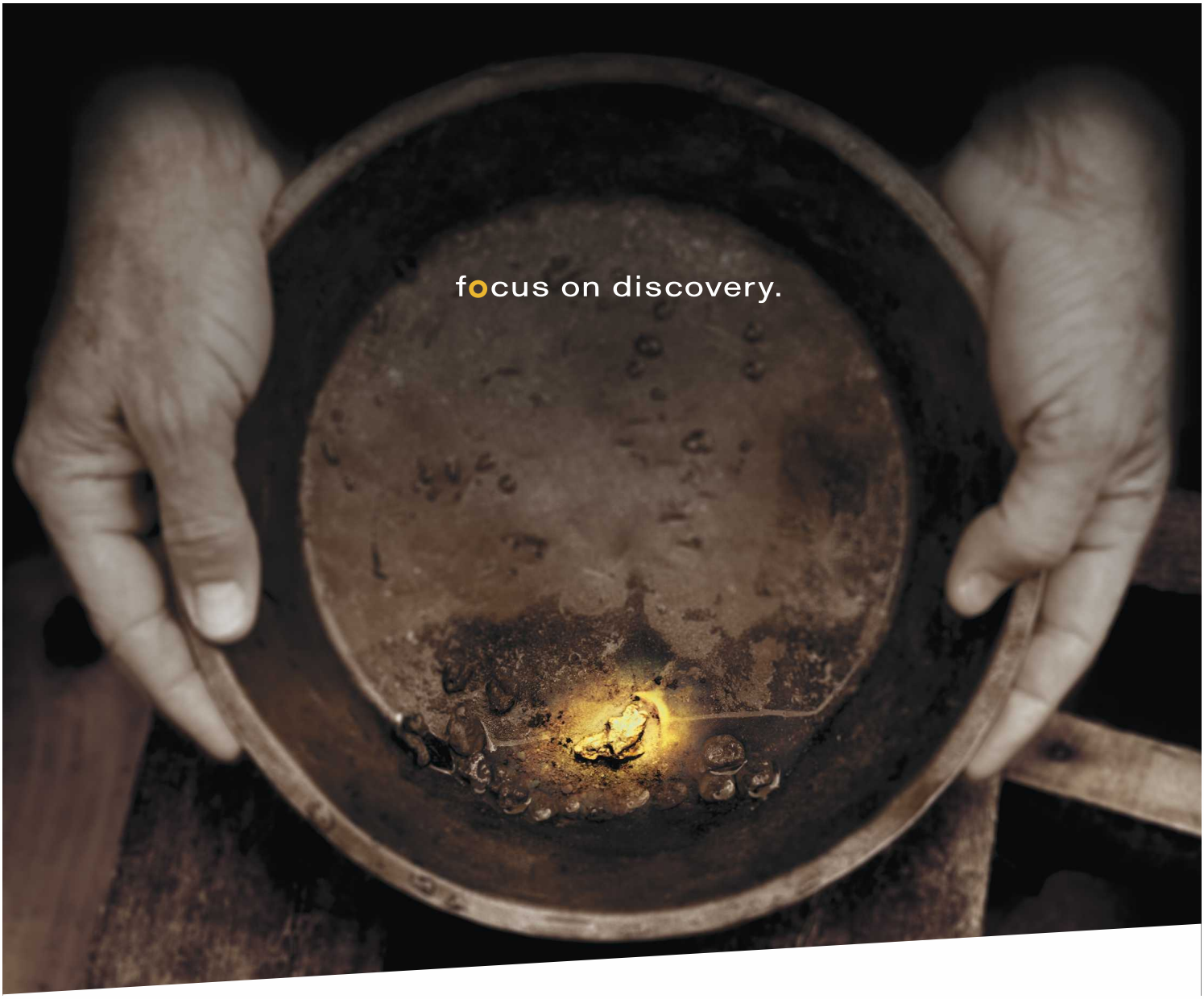

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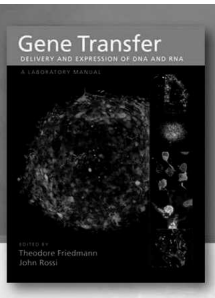

Edited by Theodore Friedmann, *University of California, San Diego,* and John Rossi, *Beckman Research Institute of the City of Hope, Duarte, California*

Understanding gene function and regulation requires rigorous testing in live cells and organisms. Recent advances have provided a variety of new strategies for delivering DNA and RNA into cells and probing their expression, as well as new clinical applications that rely upon the introduction of genetic material. The vast number of available techniques for clinical and laboratory research often makes selecting the optimal method a difficult process. *Gene Transfer: Delivery and Expression of DNA and RNA* provides the first comprehensive guide to technical approaches for delivering nucleic acids into cells and organisms and of ensuring (even manipulating) appropriate expression. The detailed, step-by-step protocols cover a variety of methods, both well established and newly evolving. These include viral and nonviral methods of gene delivery, transgenic approaches, strategies for the regulation of transgene expression, and modification of the host response. The introductory matter to each chapter includes concise technical and theoretical discussions with considerations for selection of the appropriate system and strategies for delivery.

2007, 793 pp., illus., appendix, index
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CONTENTS

NEW from Lucigen

Clone BIG DNA even EASIER!

TIGR had tried several times to make a large insert (AT-rich) Tetrahymena library, but the largest size range we could obtain was 4-6 kb. A library in the pJAZZ vector had an average insert size of 12 kb and some inserts as large as 20 kb. Dr. Robert Coyne, The Institute for Genomic Research (TIGR)

Lucigen's new **BigEasy™ v2.0 Linear Cloning System** makes it a breeze to clone any DNA up to 30 kb. Gaps and finishing costs are dramatically reduced. You get the sequences of key genes and entire genomes much faster, due to the revolutionary pJAZZ™-OC Linear Vector (Figure 1) in the BigEasy v2.0 kits.

- **Perfect for long PCRs, large cDNAs, and 10-20 kb libraries.** Genomes are closed without the need for fosmids (Figure 2).
- **Highest stability cloning system known.** The linear pJAZZ-OC vector avoids insert instability caused by supercoiling in conventional circular vectors.
- **Get every gene & sequence.** Clone even the toughest DNAs, including those with extensive nucleotide repeats and extremely high AT content (Figure 3).
- **No insert size or content bias.** All DNAs are cloned with equal ease.

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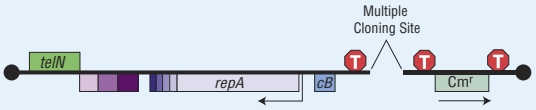

Figure 1. Schematic diagram of the pJAZZ-OC linear vector. repA, replication factor and inducible origin of replication (~2-4 per cell; inducible 5-10 fold); Cmr, chloramphenicol resistance gene; telN, protelomerase gene; cB, replication regulator. Approximate positions of transcription terminators (T) are indicated.

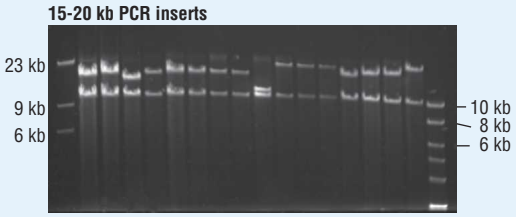

Figure 2. Various 15-20 kb PCR amplification products were cloned into the pJAZZ-OC linear vector.

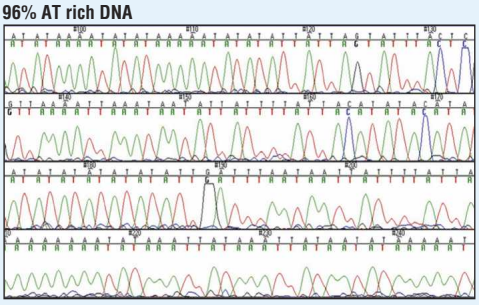

Figure 3. Sequence trace of *Piromyces* DNA successfully cloned in the pJAZZ-OC vector, showing extremely high (96%) AT content. This DNA was unclonable in all other vectors.

BACs without Gaps!

Lucigen's exclusive **Random Shear BAC Library Construction Service** eliminates the problem of under-represented, over-represented, and missing sequences. A Random Shear Library provides complete and even genome coverage, so finishing costs are dramatically reduced. Unlike partial restriction digestion, Random Shear Libraries have equal representation of all sequences, including those with very few or with excessive restriction sites, such as centromeres, telomeres or repeats, that cause gaps in conventional BAC libraries. These gaps are eliminated in Random Shear Libraries (Figure 1). A Random Shear BAC Library is guaranteed to have an average insert size of >100 kb (Figure 2).

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Closing centromeric gaps with a Random Shear BAC Library

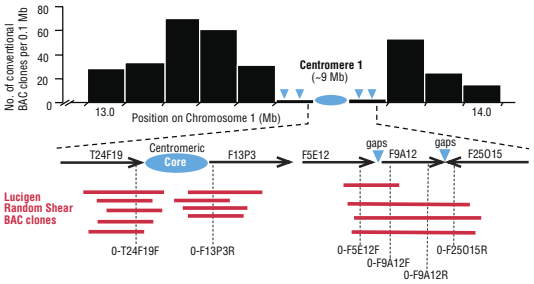

Figure 1. An *Arabidopsis* Random Shear BAC Library (5X coverage) closed several existing centromeric gaps in the published "finished" physical and sequencing map (arrows, known sequences; bars, Random Shear clones).

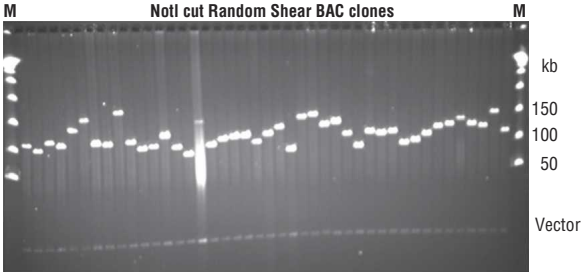

Figure 2. Potato genomic DNA was randomly sheared, size-selected to >100 kb, and cloned into Lucigen's NEW pSMART® BAC vector. DNA from minipreps was digested with NotI to excise inserts. The vector band is visible at 7 kb. Lanes 1 and 45 (M) contain Lambda size markers.

2005/06

2002/03

2000/01

1998/99

1996/97

1995

1993/94

1992

1990/91

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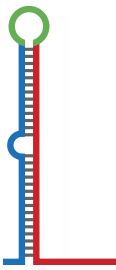

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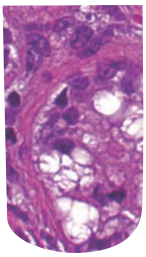

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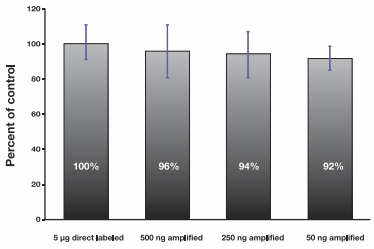

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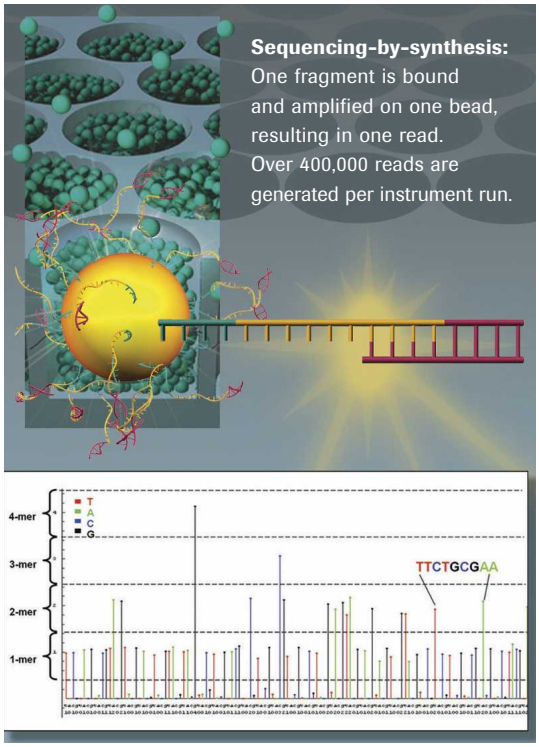

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Jobs in Computational Biology - University of Muenster, Germany

The newly founded Institute for Bioinformatics at the University of Muenster is looking for highly motivated people to work in multidisciplinary group in the area of comparative genomics and systems biology. The official language of the Institute is English. Two positions are currently open but several others for graduate and diploma students are expected to be available in near future.

Scientific Programmer

The ideal candidate will have a master degree in computer science with strong experience in programing (Perl, Python, C++) in UNIX environment (familiarity with Solaris system is a plus). The successful candidate will be responsible to provide programming services for several research projects ongoing in the Institute mostly related to development of specialized databases and creating Web-based user interfaces to these databases. See for example the Database of Evolutionary Distances (http://warta.bio.psu.edu/DED/) or the ScrapYard Database (http://warta.bio.psu.edu/ScrapYard/database.html). This person will also administrate Solaris-based servers and provide help and advise to other members of the Institute.

Postdoctoral Fellow

Research projects might be (but are not limited to) in one of the following areas:

- evolutionary comparative genomics
- evolutionary systems biology
- evolution of alternative splicing
- see http://warta.bio.psu.edu/Research.html for other research projects and current papers

Required qualifications include:

- Ph.D. in bioinformatics or computer science with strong interest in biology
- Fluency in English
- Basic skills in statistics
- Programming skills (in either PERL, C, or PYTHON)
- UNIX literacy
- Motivation and proven ability to carry out bioinformatics research independently
- Good social skills; capacity and willingness to develop teamwork

Expected starting date for both positions is June 2007. Applications should include a CV, list of publications, and addresses of three references.
Candidates are encouraged to send informal inquiries to:

Mr. Wolfgang Garbers
GarberW@mednet.uni-muenster.de
Institute for Bioinformatics
University of Muenster
or
Dr. Wojciech Makalowski
wojmak@uni-muenster.de

Muenster hosts many excellent scientific institutions such as a newly founded Max-Planck Institute for biomedical research and newly founded Institute of Evolution and Biodiversity, a Centre for Nanotechnology, and a great number of specialized research areas. Muenster is a dynamic city with a world-famous heritage center and is located in the middle of the beautiful "Muensterland". It is very lively, last but not least because of the high number of students (around 20% of the residents) and the rich choice of social, cultural and sporting facilities (see www.muenster.de for further details).

Gordon Research Conferences

GRC is holding over 180 meetings in 2007. A few upcoming meetings that may be of particular interest to *Genome Research* readers are listed below.

GENETIC TOXICOLOGY

July 29 - August 3, 2007
Magdalen College, Oxford, United Kingdom
Chair: Antony M. Carr

http://www.grc.org/programs.aspx?year=2007&program=gentox

TOXICOGENOMICS

June 24-29, 2007
Colby-Sawyer College, New London, NH
Chairs: Cindy A. Afshari & Christopher A. Bradfield

http://www.grc.org/programs.aspx?year=2007&program=toxico

EVOLUTIONARY & ECOLOGICAL FUNCTIONAL GENOMICS

July 8-13, 2007
Salve Regina University, Newport, RI
Chair: Greg Wray

http://www.grc.org/programs.aspx?year=2007&program=evolecol

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Bridging Academia and Industry

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Epigenomics & Sequencing 2007

'Chromatin Methylation to Disease Biology & Theranostics'

July 9-10, 2007

Conference Ctr. at Harvard Medical School, Boston, MA,USA

A Unique Theme to Combine Chromatin biology and Diseases with Sequencing Chemistry

SPEAKERS INCLUDE:

- **Craig Peterson** (UMass Medical School)
- **Krishnarao Appasani** (GeneExpression Systems, Inc.)
- **Bradley Bernstein** (Massachusetts General Hospital)
- **Rene Cortese** (Epigenomics AG, Germany)
- **Mukesh Verma** (National Cancer Institute)
- **Laurie Jackson-Grusby** (Children's Hospital Boston)
- **Jeffrey Besterman** (MethylGene Inc. Canada)
- **Alex Meissner** (Whitehead Institute-MIT)
- **Tomas Ekström** (Karolinska Institutet, Sweden)
- **Christopher Adams** (Invitrogen Corp.)
- **Marc Bühler** (Harvard Medical School)
- **Shuji Ogino** (Brigham and Women's Hospital)
- **Stephen Rapko** (Genzyme Biosurgery)
- **Kevin Morris** (The Scripps Research Institute)
- **David Fisher** (Dana-Farber Cancer Institute)
- **Manel Esteller** (Spanish National Cancer Centre, Spain)
- **Amit Meller** (Boston University)

and many more from large Pharma, Biotech Industry & Exhibition.

Poster Abstract Deadline: June 10, 2007

Second International

MicroRNAs Europe 2007

'MicroRNAs: Biology to Development and Disease'

November 1-2, 2007

Peterhouse, Univ. of Cambridge, Cambridge, United Kingdom

A Unique Theme Meeting in the MicroRNomics Field!

SPEAKERS INCLUDE:

Inaugural Speaker: Aaron Klug, 1982 Nobel Laureate (MRCLab, UK)
Keynote Speaker: David Baulcombe (University of Cambridge, UK)
Industry Keynote: Keith McCullagh (Santaris Pharma, Denmark)

- **Minoo Rassoulzadegan** (University of Nice, France)
- **Ramin Shiekhattar** (Centre Regulació Genòmica, Barcelona, Spain)
- **Krishnarao Appasani** (GeneExpression Systems, Inc. USA)
- **Neil Clarke** (GlaxoSmithKline, UK) **A. Enright** (Sanger Inst. UK)
- **E. Miska** (Univ. Cambridge, UK) **S. Kauppinen** (Santaris Pharma)
- **Thomas Thum** (Julius-Maximilians University, Germany)
- **Erik Jan Klok** (Kreatech Biotechnology, The Netherlands)
- **Irina Naguibneva** (CNRS-Andre Lwoff Institut, France)
- **Tamas Dalmay** (University of East Anglia, UK)
- **Pål Sætrom** (Interagon, Norway)
- **Manuel Santos** (University of Aveiro, Portugal)
- **Greg Arndt** (Johnson & Johnson Research, Australia)
- **Joost Sluijter** (University Medical Center, The Netherlands)

and many more from large Pharma, Biotech Industry & Exhibition.

Poster Abstract Deadline: October 1, 2007

Target audience: Graduate students, post-docs, professors, executives, directors, scientists of biotech & pharmaceuticals

Seating is limited to 200! **Register early to guarantee seating!!**

Contact: GeneExpression Systems, Inc. P.O. Box 540170, Waltham, Massachusetts, 02454, USA

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SMITH COLLEGE

Biological Sciences: Developmental Neurobiology
Research Assistant (2 Years, Limited term)

Smith College seeks a research technician to maintain a developmental neurobiology research lab using zebrafish as the model system. Research is focused on 1- axon and glial cell interactions during the wiring of the nervous system, and 2- understanding astroglial development and its relationship with glial specific cancers. The technician will use embryological, molecular, genetic, and pharmacological methods to design and execute experiments, and assist Dr. Michael Barresi and his undergraduate and graduate students in all aspects of the laboratory's research. Added responsibilities include basic laboratory management and maintenance of the Smith College Zebrafish Facility.

Responsibilities: Define the role of Roundabout guidance receptors in forebrain commissure formation. Includes: genetic engineering, microinjections of DNA, RNA and dyes, cell transplantation, immunohistochemistry, and various microscopy methods. Fish Husbandry: Fish feeding, water management, breeding, stock keeping, and maintenance of fish lines (includes PCR genotyping). Laboratory management: oversee maintenance of stock solutions, supply ordering, etc.; Administration: maintain budget of grant by tracking costs of supplies and equipment. Provide technical assistance to all lab members. The nature of responsibilities is subject to change as the research progresses.

Qualifications: B.A. or B.S. plus 3 months of related research experience preferred. Experience with molecular techniques that include DNA purification, PCR, and cloning. Basic computing skills, light microscopy skills, and ability to manipulate small objects under a stereomicroscope are required. Excellent communication, organizational, and interpersonal skills; ability to work some nights and weekends; ability to lift and move items of 50lbs or less. The technician should not have any allergies to fish or aquarium related things. **Preferred Skills:** Some academic and laboratory experience in Developmental Biology and/or Neurobiology. Experience with zebrafish embryology. Skills in website design, filemaker pro, Adobe photoshop, Final Cut, and Microsoft office are desired.

Review of applications will begin immediately. Please submit resume and cover letter to: Research Assistant Search, Smith College, Biological Sciences, Box 2160, 115 Burton Hall, Northampton, MA 01063.

Smith College is an equal opportunity employer encouraging excellence through diversity.

Genome Research seeks an Assistant Editor

Genome Research is an international, continuously published, peer-reviewed journal that focuses on research that provides novel insights into the genome biology of all organisms, including advances in genomic medicine. The journal was launched in August 1995 by Cold Spring Harbor Laboratory (CSHL) Press and is currently ranked fourth among all primary research genetics publications, second in biotechnology, and in the top ten of all biochemistry and molecular biology publications.

Cold Spring Harbor Laboratory Press seeks a scientist interested in making a career in the communication of science to fill the position of Assistant Editor at *Genome Research*.

The applicant must have, or be about to receive, a Ph.D. in the biological sciences, preferably with experience in genetics and genomic science. The successful candidate will assist the Executive Editor of the journal in manuscript selection and negotiation with authors, peer reviewers, and Editorial Board members; commissioning reviews and features; representing the journal at conferences; and identifying emerging trends. Strong communication and organizational skills, creativity, ability to meet deadlines, and the capacity to handle many projects at once are significant requirements. Broad interests in science and experience in the communication of science would be helpful. We seek a team player with energy, enthusiasm, and excellent interpersonal skills who is comfortable interacting with scientists at all levels.

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Multiple Faculty Positions Quantitative & Computational Biology

THE OHIO STATE UNIVERSITY

The newly established Center for Quantitative & Computational Biology (CQCB) at Columbus Children's Research Institute, an affiliate of Columbus Children's Hospital and the Department of Pediatrics of The Ohio State University College of Medicine, is seeking to fill multiple open rank tenure track positions. We are looking for candidates who can extend the quantitative and computational technologies of the Center in creative ways; who are interested in both basic quantitative research and collaborative clinical research; and who seek a highly collaborative, research-focused environment. Appointments at the Assistant, Associate, and Full Professor level are anticipated. Candidates are expected to have a Ph.D. or equivalent degree in a statistical, mathematical or computational field, or an M.D. or Ph.D. in a biomedical field with a quantitative or computational research focus. Generous start-up packages are available.

Established in August, 2006, the mission of the CQCB is to assemble and support a broad range of mathematical, statistical, and computational experts for the purposes of conducting cutting-edge quantitative research, with the ultimate goal of informing and improving clinical care in pediatrics. Building upon existing expertise in statistical modeling in genetics, parallel computing, computational algorithms, and databases, the CQCB will be undergoing a rapid expansion over the next few years, increasing in both scope and size. Noteworthy features of the CQCB include an in-house "R&D" laboratory, providing core support for production level software development, a simulation facility, database support, and a molecular laboratory for testing novel modeling methods. The CQCB currently supports an Apex cluster with 64 computing nodes, each powered by two 2.4 or 2.6 GHz AMD Dual-Core Opteron processors, 16GB memory, and an 80GB hard disk; 4TB network storage systems with built-in RAID5 for redundancy; and gigabit network switch. Expansion of this basic system is scheduled at regular intervals as the CQCB grows. We are scheduled to move into customized space in a new research building early in 2008.

Columbus Children's Hospital is the fifth largest free standing children's hospital in the United States. The Research Institute is housed in a modern 300,000 square foot, dedicated research facility with outstanding shared facilities and core laboratories. Federal grant awards in 2006 exceeded 31 million dollars. The Research Institute is equipped with state-of-the-art transgenic, embryonic stem cell, DNA sequencing, morphology, microarray, and viral vector core facilities. In addition to appointments in the College of Medicine, joint faculty appointments in graduate departments at The Ohio State University are also available. For more information, please visit our website at www.ccri.net. Send correspondence, including curriculum vitae and contact information for three references to vielandv@ccri.net or to: Veronica Vieland, CQCB Director and Search Committee Chair, Columbus Children's Research Institute, 700 Children's Drive Room W4021, Columbus, OH 43205; FAX: (614) 355-2728.

Children's Hospital, Inc. and The Ohio State University are Affirmative Action/Equal Opportunity Employers. Qualified women, minorities, Vietnam-era veterans, disabled veterans and individuals with disabilities are encouraged to apply.

RIBOSOMES: FORM & FUNCTION

International conferences on all aspects of gene expression that involve the ribosome have been held at irregular intervals for more than 30 years. The next conference in this series, "Ribosomes: Form and Function", will occur at the Sea Crest Resort in North Falmouth, MA (Cape Cod), June 3-8, 2007.

The topics covered will include; ribosome genetics and assembly, ribosome structure, all aspects of ribosome function, up to and including the initial phases of protein secretion. The emphasis will be correlating structure with function. A distinguished group of scientists have already agreed to attend. Their presentations will fill about half the available slots for speakers. The remaining speaker slots will be offered to those who submit abstracts that are considered noteworthy by the Program Committee. Poster sessions will also be held.

The organizers are:
Robert Zimmermann (zimmermann@biochem.umass.edu) and
Peter Moore (peter.moore@yale.edu).

Further details about the meeting, including information about how to register for it, are available on line at:
http://www.ribosomes2007.org/.