MiSeq™

**Inside** you’ll find a fully integrated sequencing solution delivering >85% Q30 bases and run times as fast as 8 hours from sample to data.

**Outside** you’ll find “push button” sequencing, with a streamlined user experience, individually tracked load-and-go reagents, intuitive software interface, and minimal hands-on time.

**The upside** is what you can do with it. Designed around you, MiSeq offers intuitive workflow. The broadest application base. Built-in scalability. The best in next-gen sequencing just got better.

Bring more upside to your next sequencing study. Go to www.illumina.com/MiSeq
HIV From Biology to Prevention and Treatment

Edited by Frederic D. Bushman, University of Pennsylvania School of Medicine, Gary J. Nabel, NIAID, National Institutes of Health, and Ronald Swanstrom, University of North Carolina at Chapel Hill

The worldwide AIDS epidemic makes research on HIV, the disease processes it induces, and potential HIV therapies among the most critical in biomedical science. Furthermore, the basic biology of HIV infections provides a model for a more general understanding of retroviruses and their hosts.

Written and edited by experts in the field, this volume provides a comprehensive review of HIV research, covering everything from the pathogenesis of HIV infection to prevention. Contributors explore the origins and evolution of HIV, the HIV replication cycle, host–virus interactions, host immune responses, and HIV transmission. Vaccines, cell and gene therapies, antiretroviral drugs, microbicides, and behavioral strategies for the treatment and prevention of HIV infections are also explored.

This volume, which includes discussions of social and economic factors that affect HIV transmission and treatment, is an essential reference for virologists, cell and molecular biologists, and immunologists, as well as epidemiologists, physicians, and other public health professionals.

2011, 572 pp., Illus. (95 4C and 4 B&W), index
Hardcover $135


CONTENTS
Preface
Origins of HIV and the AIDS Pandemic
Paul M. Sharp and Beatrice H. Hahn

HIV REPLICATION
HIV: Cell Binding and Entry
Craig B. Wilen, John C. Tilton, and Robert W. Doms
HIV DNA Integration
Robert Craigie and Frederic D. Bushman
Transcriptional and Posttranscriptional Regulation of HIV-1 Gene Expression
Jonathan Karn and C. Martin Stoffel
HIV Assembly, Budding, and Maturation
Wesley I. Sandquist and Hans-Georg Kratzsch
HIV Restriction Factors and Mechanisms of Evasion
Michael H. Malim and Paul D. Bieniasz

HIV TRANSMISSION AND PATHOGENESIS
HIV Transmission
George M. Shaw and Eric Hunter
HIV-1 Pathogenesis: The Virus
Ronald Swanstrom and John Coffin
HIV Pathogenesis: Dynamics and Genetics of Viral Populations and Infected Cells
John Coffin and Ronald Swanstrom

HIV Pathogenesis: The Host
A.A. Lasker, Michael M. Lederman, and Benigno Rodriguez

The Antibody Response against HIV-1
Julie Overbaugh and Lynn Morris

The T-Cell Response to HIV
Bruce Walker and Andrew McMichael

Innate Immune Control of HIV
Mary Carrington and Galili Alter

HIV Latency
Robert F. Siliciano and Warren C. Greene

HIV-1-Related Central Nervous System Disease: Current Issues in Pathogenesis, Diagonos, and Treatment
Serena Spudich and Francisco Gonzalez-Scarano

Nonpathogenic Simian Immunodeficiency Virus Infections
Nichole R. Klatz, Guido Silvestri, and Vincenz Hirsch

THERAPY AND PREVENTION
HIV-1 Antiretroviral Drug Therapy
Eric J. Arts and Tariq J. Hazuda

Novel Cell and Gene Therapies for HIV
Jamie A. Hoxie and Carl F. June

The HIV-1 Epidemic: Low- to Middle-Income Countries
Yiming Shao and Carolyn Williams

The HIV Epidemic: High-Income Countries
Sten H. Vermund and Andrew J. Leigh-Brown

Host Genes Important to HIV Replication and Evolution
Amadio Telenti and Welkin E. Johnson

Vaccine Design for CD8 T Lymphocyte Responses
Richard A. Koup and Daniel C. Donek

Rational Design of Vaccines to Elicit Broadly Neutralizing Antibodies to HIV-1
Peter D. Kwong, John R. Mascola, and Gary J. Nabel

Lessons in Nonhuman Primate Models for AIDS Vaccine Research: From Minefields to Milestones
Jeffrey D. Lifson and Nancy L. Haigwood

Human Immunodeficiency Virus Vaccine Trials
Robert J. O’Connell, Jerome H. Kim, Lawrence Corey, and Nelson L. Michael

Microbicides: Topical Prevention against HIV
Robin J. Shattock and Zeda Rosenberg

HIV Prevention by Oral Preexposure Prophylaxis
Walid Hamieh and Angela Kashuba

Behavioral and Biomedical Combination Strategies for HIV Prevention
Linda-Gail Bekker, Chris Beyrer, and Thomas C. Quinn

Index

www.cshlpress.org
GRNAT

TWO GENOMIC LEADERS ARE TEAMING UP TO PUT THE RNA IN GRANT

REGISTER TODAY FOR THREE RNA-SEQ GRANTS

- Biomarker discovery using whole transcriptome sequencing
- RNA-Seq analysis of FFPE cancer samples
- Developmental coding and non-coding RNA expression

To learn more and download an application, visit:
www.expressionanalysis.com/grant  www.illumina.com/grant

Participation open to all individuals, institutions and organizations. Submission deadline is April 13, 2012.
Get There Faster

Reach your scientific destinations faster with the most accurate Hi-Res Melting® systems on the market.

Our LightScanner systems will take your lab to the next level of high-sensitive mutation screening and genotyping. As the pioneers of both rapid real-time PCR and Hi-Res Melting, Idaho Technology is the only company that offers a complete system capable of superior performance at an affordable price.

**LightScanner Express >>>**

- Rapidly generate high quality gene expression data.
- Specialized for T/A homozygote small amplicon genotyping.
- Genotype samples with greater specificity than hydrolysis probe genotyping at a fraction of the cost.

Proven technology and exceptional customer support from the inventors of rapid PCR, the LightCycler®, and Hi-Res Melting.

Browse our Library of FREE Assays Designs for Hi-Res Melting at www.idahotech.com
Alzheimer disease causes the gradual deterioration of cognitive function, including severe memory loss and impairments in abstraction and reasoning. Understanding the complex changes that occur in the brain as the disease progresses—including the accumulation of amyloid plaques and neurofibrillary tangles—is critical for the development of successful therapeutic approaches.

Written and edited by leading experts in the field, this volume includes contributions covering all aspects of Alzheimer disease, from our current molecular understanding to therapeutic agents that could be used to treat and, ultimately, prevent it. Contributors discuss the biochemistry and cell biology of amyloid β-protein precursor (APP), tau, presenilin, β-secretase, and apolipoprotein E and their involvement in Alzheimer disease. They also review the clinical, neuropathological, imaging, and biomarker phenotypes of the disease; genetic alterations associated with the disorder; and epidemiological insights into its causation and pathogenesis.

This comprehensive volume, which includes discussions of therapeutic strategies that are currently used or under development, is a vital reference for neurobiologists, cell biologists, pathologists, and other scientists pursuing the biological basis of Alzheimer disease, as well as investigators, clinicians, and students interested in its pathogenesis, treatment, and prevention.

Contents
Preface
Deciphering Alzheimer Disease
Dennis Selkoe, Eckhard Mandelkow, and David Holtzman
The Clinical Problem of Symptomatic Alzheimer Disease and Mild Cognitive Impairment
Ronan Tatarnich and David M. Holtzman
The Neuropsychological Profile of Alzheimer Disease
Sandra Weisstaub, Alisa H. Wicklund, and David P. Salmon
Neuropathological Alterations in Alzheimer Disease
Alberto Serrano-Pozo, Matthew P. Frosch, Eliezer Masliah, and Bradley T. Hyman
Brain Imaging in Alzheimer Disease
Keith A. Johnson, Nick C. Fox, Reita A. Sperling, and William E. Klunk
Fluid Biomarkers in Alzheimer Disease
Kay Blevins, Henrik Zetterberg, and Anne M. Fagan
Epidemiology of Alzheimer Disease
Richard Mayer and Javad Sereini
Biochemistry and Cell Biology of Tau Protein in Neurofibrillary Degeneration
Enz-Maria Mandelkow and Eckhard Mandelkow
Frontotemporal Dementia: Implications for Understanding Alzheimer Disease
Michel Goedert, Bernardino Ghetti, and Maria Grazia Spillantini
Biochemistry of Amyloid β-Protein and Amyloid Deposits in Alzheimer Disease
Colin L. Masters and Dennis J. Selkoe
Traficking and Proteolytic Processing of APP
Christian Haass, Christoph Kaiser, Gopal Thannickal, and Sangram Sisodia
Physiological Functions of APP Family Proteins
Ulrike C. Müller and Fumi Zheng
The Genetics of Alzheimer Disease
Rudolph E. Tanzi
Presenilins and β-Secretase: Structure, Function, and Role in Alzheimer Disease
Barb De Strooper, Takeki Idezuki, and Michael S. Wolfe
Apolipoprotein E and Apolipoprotein E Receptors: Normal Biology and Roles in Alzheimer Disease
David M. Selkoe, Joachim Herz, and Goujun Bu
Animal Models of Alzheimer Disease
Frank M. LaFerla and Kim N. Green
Neurotoxicity of Amyloid β-Protein: Synaptic and Network Dysfunction
Lennart Mucke and Dennis J. Selkoe
Inflammation in Alzheimer Disease—A Brief Review of the Basic Science and Clinical Literature
Tony Wyss-Coray and Joseph Rogers
The Ubiquitin—Proteasome System and the Autophagic-Lysosomal System in Alzheimer Disease
Yasuo Hama, Mala Morishima-Kawashima, and Ralph Nixon
Proteolytic Degradation of Amyloid β-Protein
Takatoshi Sato and Malcolm A. Leisring
Neurovascular Dysfunction and Fauxy Amyloid β-Peptide Clearance in Alzheimer Disease
Abhay P. Segrest, Robert D. Bell, and Berislav V. Zlokovic
Treatment Strategies Targeting Amyloid β-Protein
Davide Sembri, Giorghio S. Badi, and Menelaos N. Pangalos
Developing Therapeutic Approaches to Tau, Selected Kinases, and Related Neuronal Protein Targets
Virginia M. Y. Lee, Kurt R. Branden, Michael Huttunen, and John Q. Trojanowski
Symptomatic and Nonamyloid/Tau-Based Pharmacologic Treatment for Alzheimer Disease
Paul S. Aisen, Jeffrey Cummings, and Lon S. Schneider
Alzheimer Disease in 2020
David M. Holtzman, Eckhard Mandelkow, and Dennis J. Selkoe
Index
The Best rRNA Removal Method Just Got Better

Ribo-Zero™ Kits, now in a convenient magnetic format.

Ribo-Zero kits remove >99% of rRNA, more than any other method. They deliver outstanding results with samples that other kits won’t even touch, like partially degraded or FFPE RNA. And now, they’re available in a new magnetic format for added convenience.

No more wasted RNA-Seq reads.

www.epicentre.com/ribozero
2012 Satellite Workshops

Friday, March 16 - Saturday, March 17, 2012
Manual Interpretation of Electron Transfer Dissociation
Mass Spectra of Peptides

Saturday, March 17, 2012
Pathway Analysis in Transcriptomics, Proteomics and Metabolomics
One Day Business Skills Workshop for Core Facility
Directors and Managers
Epigenomics: Design, Implementation and Analysis
for RNA-seq and Methyl-seq Experiments

2012 ABRF Award Lecture
Sponsored by: Waters

Join us Monday, March 19th for Dr. Alan Marshall’s Award Lecture!
Dr. Marshall, the 2012 ABRF Award Recipient, is being honored
for the development of Fourier Transform Ion Cyclotron
Resonance (FT-ICR) Mass Spectrometry.

PLENARY SPEAKERS

Dr. George Church
Harvard University

Dr. Trisha Davis
University of Washington

Dr. Kris Gevaert
Flanders Institute for Biotechnology

Dr. Ram Sasisekharan
Massachusetts Institute of Technology

The Association of Biomolecular Resource Facilities is an international
society dedicated to advancing core and research, biotechnology,
laboratories through education.

Interested in Exhibiting or Sponsoring?
Contact us today to learn about exhibitor and sponsorship opportunities.

Visit us on the web for information, schedules, registration and more!
ABRF2012.ABRF.org

For more information, please contact:
abrfs@courtesyassoc.com
† 202-973-8670 | ☎ 202-331-0111
Accelerating Science: Concept to Clinic

AACR ANNUAL MEETING 2012

March 31 - April 4
McCormick Place West
Chicago, IL

Don’t miss the premier forum for the latest breakthroughs bringing together over 17,000 attendees from over 60 countries. More than 6,000 proffered papers and hundreds of invited talks from leading experts will be presented, covering the full spectrum of cancer research, including basic, translational, clinical, and population research.

NEW in 2012:

• A revised format for the presentation of accepted clinical trials
• New session series titled Current Concepts and Controversies in Diagnostics, Therapeutics, and Prevention
• New poster session on clinical trials in progress
• A regulatory track with sessions on regulatory science and science policy

American Association for Cancer Research
www.aacr.org/AM2012