

Molecular Biology & Biotechnology Focus Contents



About Our Cover

Our cover displays a schematic of G-banded late-prophase chromosomes (1000-band stage) of human, chimpanzee, gorilla, and orangutan, arranged from left to right, respectively, for each chromosome number, "to better visualize homology between the chromosomes of the great apes and the human complement" (Yunis & Prakash, 1982, *Science* 215: 1525–1529; reprinted with permission from AAAS).

This amazing page of chromosomes can be used in many ways. When you see it, and know what it represents, what surprises you? What is its most striking feature? What questions does it raise? What information does it show you? What ideas do you get for using it as a teaching tool?

The photograph was scanned at 600 dpi from the original photograph sent to teacher Larry Flammer by Jorge Yunis (Department of Lab Medicine and Pathology, University of Minnesota Medical School, Minneapolis). That photograph was also used by Yunis & Prakash (1982) in their *Science* article, "The Origin of Man: A Chromosomal Pictorial Legacy." And oh, what a legacy! This issue of ABT is focused on molecular biology and biotechnology.

Feature Article

Epigenetics: A Fascinating Field with Profound Research, Clinical, & Public Health Implications

Epigenetics is emerging as one of the most dynamic and vibrant biomedical areas

Richard A. Stein, Devra Lee Davis 213

Research on Learning

Teaching Mitochondrial Genetics & Disease: A GENA Project Curriculum Intervention

Educating high school students about mitochondrial genetics and disease

Ryan A. Reardon, J. Daniel Sharer 224

Using Digital Photography to Supplement Learning of Biotechnology

Learn a way to incorporate digital photography into the laboratory

Fran Norflus 232

Available online at <http://www.nabt.org/websites/institution/index.php?p=692>

Inquiry & Investigation

Proteomics in the Classroom: An Investigative Study of Proteins in Microorganisms

Investigating protein diversity in bacteria

Jon Benskin, Sixue Chen 237

RECOMMENDED
FOR AP Biology

Using Phylogenetic Analysis to Detect Market Substitution of Atlantic Salmon for Pacific Salmon: An Introductory Biology Laboratory Experiment

A molecular biology activity with a practical application

Erica Cline, Jennifer Gogarten 244

How To Do It

Proteomics: Protein Identification Using Online Databases

A bioinformatics activity for advanced high school and college students

Chris Eurich, Peter A. Fields, Elizabeth Rice 250

Determining Annealing Temperatures for Polymerase Chain Reaction

An exercise that helps students understand the biochemical basis of PCR

Angela R. Porta, Edward Enners 256

The Beads of Translation: Using Beads to Translate mRNA into a Polypeptide Bracelet

Do you want to incorporate science, art, and movement? In this activity students become mRNA, move to the ribosome, and design a protein bracelet

Dacey Dunlap, Patricia Patrick 262



Quick Fix

Creating a Double-Spring Model to Teach Chromosome Movement during Mitosis & Meiosis

Looking for a new method to teach chromosome movement?

Peigao Luo 266

Streamlined Strategies to Better Visualize Southern Blotting

A simple way to teach a complex procedure

Derek M. Dean 270

Departments

From the President • The Genes You Know Today May Not Be the Ones You Know

Tomorrow • Donald P. French 208

Guest Editorial • The Continuing Promise of Natural Products for Drug Development • John R. Porter . 210

Biology Today • Unfolding Proteins • Maura C. Flannery, Department Editor 278

Book Reviews • Elizabeth Cowles, Department Editor 283

Classroom Materials Reviews • Chris Monsour, Department Editor 286

Classroom Media Reviews • Roberta Batorsky, Department Editor 288

Sacred Bovines • What Counts as Science • Douglas Allchin, Department Editor 291