Members of the Human Genome Center at Los Alamos National Laboratory

Rapid Sequencing
Row 1: B. Marrone, H. Nutter, J. Schecker, B. Shera.
Row 2: P. Goodwin, P. Ambrose, D. Keller.
Row 3: C. Wilkerson, J. Martin.

Mapping and Libraries ▼
Row 1: C. Lemanski, J. Graeber, M. Campbell, D. Robinson, E. Campbell, L. Clark, N. Brown, J. Buckingham, K. Dennison, D. Grady, N. Doggett, E. Hildebrand, B. Lobb, D. Bruce, W. Erickson. *Row 2*: L. Deaven, J. Longmire, J. Fawcett.
Not pictured: L. Deusing, A. Ford, J. Gatewood, J. Jett, M. Jones.

Row 1: E. McCanlies, C. Munk, J. Wilson, ▲
M. McCormick, P. Schor, D. McRae, J. Tesmer, L. Meincke. *Row 2*: E. Martinez, B. Marrone, L. Saunders, J. Meyne, M. Wilder, T. Riley, K. Shera, B. Rappaport, B. Wagner, C. Naranjo.
Row 3: B. Moyzis, B. Ratliff.
Not pictured: J. Spuhler, R. Stallings, S. Thompson.

Robotics
Left to right: P. Medvick, T. Beugelsdijk, J. Fowler, D. Trimmer, J. Roybal, R. Roberts.
Not pictured: B. Hollen, M. Kozubal, L. Stovall.

Computation
Left to right: P. Gilna, M. Cinkosky, M. Bridgers, G. Keen, R. Pecherer, J. Fickett, C. Macken, G. Fichant, R. Sutherland, Y. Quentin, G. Redgrave, C. Troup, M. Ijadi, W. Barber.
Not pictured: G. Bell, C. Burks, M. Engle, E. Fairfield, M. Mundt, D. Sorensen, D. Torney.

E. Morton Bradbury received a B.S. in physics and a Ph.D. in biophysics from King's College, University ofLondon, in 1955 and 1958, respectively. After completing his postdoctoral research at Courtauld Research Laboratory, he was appointed head of the Department of Molecular Biology at Portsmouth (England) Polytechnic in 1962, where he remained until his appointment at University of California, Davis, in 1979. He became leader of the Life Sciences Division at Los Alamos National Laboratory in 1988. Bradbury's research has been devoted to understanding whether chromosome organization and chromosome structure are involved in determining how a cell looks and behaves; the structure and function of active chromatin; and the process by which chromosomes condense prior to cell division. In pursuing his investigations, Bradbury has combined the results of measurements derived from the use of a wide range of techniques, including optical spectroscopy, nuclear magnetic resonance, x-ray diffraction, electron diffraction, and neutron diffraction. The recipient of numerous awards and honors, Bradbury has also chaired a number of scientific organizations, including the British Biophysical Society, the International Council for Magnetic Resonance in Biology, and the Neutron/Biology Committee of the Institut Laue Langevin. In addition, Bradbury is a member of HERAC and a member of the HERAC subcommittee on structural biology.

Michael J. Cinkosky joined the GenBank project at the Laboratory in 1984, after earning a B.A. in liberal arts from St. John's College in Santa Fe. He is currently one of the principal investigators for the GenBank project as well as lead designer of the SIGMA genome-map editor being produced by the Human Genome Information Resource at Los Alamos.

Larry L. Deaven earned B.S. and M.S. degrees in genetics from Pennsylvania State University in 1962 and 1964, respectively. He studied cell biology and cytogenetics at the University of Texas M. D. Anderson Hospital and Tumor Institute and received a Ph.D. in biomedical sciences in 1969. In 1971 he joined the Laboratory where he utilized flow cytometry and chromosomal-banding analysis to study the chromosomal rearrangements and changes in DNA content found in the cells of many tumors. He also studied the types of chromosomal damage and ensuing cellular effects induced by products and by-products of energy research and development. In 1983 Deaven became the principal investigator of the National Laboratory Gene Library Project at Los Alamos. The project has produced over fifty different human-DNA libraries from flow-sorted chromosomes. Over 2500 copies of those libraries have been distributed to human-genome research laboratories throughout the world. In 1981 Deaven received the Commemorative Medal of Achievement from the University of Texas M. D. Anderson Hospital and Tumor Institute for his work in cytogenetics and cell biology, and in 1987 he received a Distinguished Performance Award from the Laboratory for his work on DNA-library construction. Outside the Laboratory Deaven enjoys growing flowers, especially species and cultivars of the genus *Clematis*.

Norman A. Doggett earned his B.A. in chemistry from North Carolina State University in 1980 and his Ph.D. in pathology from the University of North Carolina at Chapel Hill in 1986. For three years Doggett was a postdoctoral research fellow in the Department of Genetics at Columbia University. In 1989 he joined the Life Sciences Division of Los Alamos National Laboratory as a staff scientist in the Genetics Group. His major research interests include human-genome organization, physical mapping, and molecular genetic approaches to finding disease genes. Currently he is one of the principal investigators in the project to complete a physical contig map of human chromosome 16 and is a principal investigator of a Laboratory-funded effort to clone the gene for Batten's disease.

James W. Fickett earned his Ph.D. in mathematics from the University of Colorado in 1979 and, after teaching for one year at Texas A&M University, joined the Laboratory's Theoretical Biology and Biophysics Group as a postdoctoral fellow in 1980. He worked until 1987 on the GenBank project, managing the release process and directing most of the software development. In 1986 he and Michael Cinkosky planned the restructuring of GenBank that was to implement the Electronic Data Publishing paradigm. In 1982 he developed TESTCODE, an algorithm for recognition of genes in DNA sequences, which has been incorporated into a number of commercial software packages for sequence analysis. He headed the Human Genome Information Resource in 1987 and again from 1989 to the present and has been section leader for Genome Analysis and Informatics since 1989.

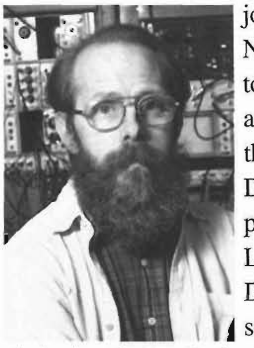
Monica Fink
Administrative Assistant

Carl E. Hildebrand received his M.S. in biophysics in 1968 and his Ph.D. in biophysics in 1970 from Pennsylvania State University. His dissertation focused on the effects of hydrostatic pressure on bacterial protein synthesis using cell-free protein synthesizing systems. After a postdoctoral appointment at Los Alamos National Laboratory, Hildebrand joined the staff of the Laboratory's Genetics Group where his studies were directed toward biochemical and molecular genetic analyses of the response of rodent and human cells to trace metals. Hildebrand was appointed deputy leader of the Genetics Group in 1983. The following year he won a National Research Service Award and was appointed a senior fellow at the Daniel W. Nebert, M.D., Laboratory of Developmental Pharmacology in Bethesda, Maryland. In 1984 he resumed his duties as deputy leader of the Genetics Group and, concurrently, served as associate leader of the Life Sciences Division. In 1989 he was appointed the leader of the Genetics Group. He now serves as a principal investigator in developing the human-genome physical-mapping project and as scientific advisor in the Genomics and Structural Biology Group.

James H. Jett received his B.S. and M.S. in physics from the University of New Mexico and, after serving a stint in the U.S. Navy, earned his Ph.D. in nuclear physics from the University of Colorado at Boulder in 1969. In 1969 he received a postdoctoral appointment in the Physics Division at Los Alamos National Laboratory and later became a staff member of that division. Since 1972 he has been a staff member in the Laboratory's Life Sciences Division. His interests include developing data-analysis and data-interpretation techniques for flow-cytometric and biological data, and developing applications of flow techniques to chromosome analysis and sorting. He has conducted analyses of prophage induction in *Haemophilus influenzae* by ultraviolet light. In addition, he has participated in the design, development, and programming of a computer-based in-vitro radiation-measurement system and contributed to the chromosome-16 mapping effort. Jett has been an Adjunct Associate Professor of Cell Biology at University of New Mexico School of Medicine since 1985.

Richard A. Keller earned his B.A. in chemistry from Allegheny College in 1956 and his Ph.D. in chemical physics from the University of California, Berkeley, in 1961. After teaching a short time at the University of Oregon, Keller worked at the National Bureau of Standards in Washington, D.C. until 1976, when he joined the staff of Los Alamos National Laboratory. He has been leader of the Rapid DNA Sequencing Project since 1988. Keller's research interests are in the development and characterization of new laser-based analytical techniques. His group has been responsible for the detection of small numbers of atomic species by resonance fluorescence, for the development of intracavity absorption spectroscopy, and for the development of optogalvanic spectroscopy. Current projects include resonance ionization mass spectrometry, laser-induced fluorescence of mass-selected ions, and detection of single molecules in fluid solution by an adaption of flow cytometry. Keller was made a Laboratory Fellow in 1983.

John C. Martin received his B.A. in physics from Drury College in 1965 and joined Los Alamos National Laboratory in 1966. He is a staff member in the Cell Growth, Damage, and Repair Group of the Life Sciences Division. His research interests include developing biological applications of fluorescence-detection instrumentation, performing chromosome and DNA analysis and sorting, measuring fluorescence decay, detecting single molecules, and developing rapid DNA-sequencing techniques and fluorescence DNA imaging. In addition to having been awarded numerous patents for his work, Martin received two RD-100 awards and the Los Alamos Patent of the Year Award in 1992 for inventing a method of rapid base sequencing of DNA and RNA. Martin has written extensively for various refereed scientific journals.



Robert K. Moyzis is director of the Center for Human Genome Studies at Los Alamos National Laboratory and is internationally known for his pioneering work on human genome organization. His discovery of the human telomere is a landmark in the history of our understanding of chromosome structure and function. Moyzis is the driving force behind the successful physical-mapping effort at Los Alamos and continues to balance his research and administrative responsibilities in the genome center. He serves on numerous committees that oversee the DOE and NIH Human Genome Project, including the DOE Human Genome Coordinating Committee and the joint NIH-DOE Human Genome Advisory Committee. Moyzis received his B.A. in biology and chemistry from Northeastern Illinois University in 1971 and his Ph.D. in molecular biology from Johns Hopkins University in 1978. Following postdoctoral and faculty appointments in the biophysics division at Johns Hopkins, he moved to Los Alamos National Laboratory in 1983. From 1984 to 1989 Moyzis was the leader of the Laboratory's Genetics Group, assuming his current position as center director in 1989.

E. Brooks Shera received his M.S. in physics from the University of Chicago in 1958 and his Ph.D. in nuclear physics from Case Western Reserve University in 1962. After a postdoctoral appointment at Argonne National Laboratory where he studied beta decay, Shera joined the Physics Division of Los Alamos National Laboratory in 1964. He carried out the first experiments that used slow neutrons to study the Mössbauer effect and pioneered the coincidence method to deduce nuclear energy levels from the gamma radiation that follows neutron capture. When intense beams of muons became available from the Laboratory's LAMPF accelerator, he led an international collaboration that made uniquely precise measurements of nuclear sizes and shapes by studying the spectra of x rays from muonic atoms. He was elected Fellow of the American Physical Society in 1982. Several years ago he became interested in the contributions that physics could make to molecular biology. This interest led to work on techniques for identifying proteins and eventually to development of methods for high-speed DNA sequencing. While not completely forsaking nuclear physics, his main interest is the application of imagination and "classical" and table-top physics to biological problems.

Raymond L. Stallings earned his M.S. from Texas A&M University in 1978 and his Ph.D. from the University of Texas Graduate School of Biomedical Sciences in 1981. After appointments as a research associate at the University of Texas System Cancer Center and as a postdoctoral fellow at Los Alamos National Laboratory, he joined the faculty of the University of Texas, Houston, in 1985. Stalling's early research interests emphasized the mapping, dissection, and analysis of the Chinese hamster genome. He also taught courses in human and somatic-cell genetics at the University of Texas Health Science Center Graduate School of Biomedical Sciences, and in 1987 he became a special member of the faculty of that institution. Also in 1987 he joined the staff of the Life Sciences Division of Los Alamos National Laboratory. He is currently an Associate Professor of Human Genetics at the University of Pittsburgh. Stallings is a member of the American Association for the Advancement of Science and the American Society of Microbiology.