



Center for
Molecular Medicine
& Genetics

Advances

Jerry Feldman, M.D., Ph.D., directs Clinical Genetics integration



Jerry Feldman, M.D., Ph.D.

The opportunity to unify the educational, research and training components of the clinical genetics programs and the Center's growing national reputation brought Jerry Feldman, M.D., Ph.D., to Wayne State.

"The School of Medicine is demonstrating a commitment to further strengthen its patient care, counseling, research and educational/training experience through shared resources and increased collaboration," according to Dr. Feldman. "First and foremost, our focus will continue to be on our patients, providing them the best care we can." An essential component of that will be the integration of multidisciplinary care,

followed by the development of new research protocols, he says.

Dr. Feldman is a pediatrician who has specialized in clinical, molecular and biochemical genetics. He also has a doctorate in human genetics. Ten years ago, Dr. Feldman was recruited to Henry Ford Hospital from Baylor College of Medicine to develop and direct the city's first Molecular Genetics Diagnostic Laboratory devoted exclusively to inherited

continued on page 2

- 3 Clinical Genetics Services
- 4 Symposium honors Dr. Goodman
- 5 Genetic Counselors
- 6 Where are they now
- 7 CMMG News
- 8 Event Calendar

Message from the Director

Honoring one of the nation's leading genetics scientists and welcoming a new director of Clinical Genetics



This is an extraordinary time in genetics as well as at the Center. This spring we will honor Dr. Morris Goodman, one of the top genetics researchers in the nation, at the first annual Mary Webber Parker Distinguished Symposium on April 20. We also welcome Dr. Jerry Feldman, a distinguished clinical geneticist, to integrate our clinical genetics program.

For 40 years, Dr. Morris Goodman has been investigating primate phylogeny. He has made significant contributions to the knowledge of genomic exploration. We invited Dr. Goodman to select the speakers for our first annual symposium. Appropriately, he recommended Dr. Arno Motulsky of the University of Washington, Seattle, and Dr. Caro-Beth Stewart of SUNY, Albany, two outstanding genetics researchers. It is important that the Center and Wayne State University celebrate the contributions of its distinguished faculty and that students appreciate the university's tradition of medical discovery.

Joining us from the neighboring Henry Ford Hospital, Dr. Jerry Feldman will bring a much-needed sense of unification among the various clinical genetics programs. Dr. Feldman has been with us as a part-time faculty member for four years. His full-time contribution will build on the core strengths of each of the clinical genetics programs and create a synergistic effect from integrating its elements.

Sincerely,

George Grunberger, M.D.
Henry L. Brasza Professor
Director, Center for Molecular
Medicine and Genetics

WAYNE STATE
UNIVERSITY

Clinical Genetics Integration

FOCUS

continued from the cover

diseases. In 1996, he was recruited to Wayne State (part-time) to also direct the Molecular Genetics Diagnostic Laboratory in the Department of Pathology. As a clinical geneticist, Dr. Feldman has seen patients and their families in the genetics clinic at Henry Ford Hospital and Children's Hospital of Michigan.

Now, as director of Clinical Genetics Services at Wayne State and The Detroit Medical Center, Dr. Feldman will manage the reorganization of DMC-affiliated clinics.

He is also the program director for the Medical Genetics Residency Training Program for physicians and a laboratory based post-doctoral training program in clinical molecular genetics and cytogenetics. He will also function as the medical director of the Genetic Counseling Graduate Program, which is directed by Anne Greb, M.S. He will

What are clinical genetics services?

Genetics is fast becoming important in the daily practice of medicine. Genetic factors causing common conditions, such as heart disease, diabetes, cancer and

psychiatric disorders, have been identified. Clinical genetics is the provision of comprehensive diagnostic, management, treatment and counseling services to individuals and their families. A team of genetic professionals, including clinical geneticists, genetic counselors, cytogeneticists, biochemical and molecular geneticists provide these services. Specialists, such as neurologists and oncologists, are an essential part of the team in specialty genetics clinics. Advances in molecular technology are making it possible to accurately diagnose genetic disease, provide genetic counseling, and improve the health and management of people affected with genetic conditions.

continue to direct the Molecular Genetics Diagnostic Laboratory in the Department of Pathology. Dr. Feldman's immediate goals include securing grant funding for a molecular pathology-training grant for physicians and post-doctoral students in molecular genetics.

Dr. Feldman received a bachelor of arts degree in biology from Indiana University, a master's degree in medical genetics at the Indiana University School of Medicine and his M.D. and Ph.D. at the Medical College of Virginia. He completed a pediatrics residency and fellowship in genetics at the Baylor College of Medicine in Houston.

Dr. Feldman: Program synergy will result in national leadership

By integrating its clinical genetics programs, the Center will become a "true leader in genetics," according to Dr. Feldman. "The Center for Molecular Medicine and Genetics at Wayne State University has been given the unique opportunity to provide something more than typical medical research centers provide their patients and students," he says.

"Our integration efforts will allow us to develop new services not currently available," explains Dr. Feldman. Current programs will be strengthened through the addition of genetics staff, expanded research and clinical opportunities for students and faculty, and expanded coursework and clinical experience for students.

The coordination of the university's genetics components will not focus on any one component, he stresses. Each will be strengthened. The following changes will occur as a result of the integration:

- Expanded clinical care: Clinical genetics services currently available for individuals and their families will be enhanced in the

prenatal, pediatric, neurology and cancer settings. Staffing for some of these services will be increased. Also, a new adult genetics clinic will be developed. The expanded and integrated clinics will help foster research collaboration. Multidisciplinary care for patients and their families with genetic conditions will benefit existing patients and help to attract new patients.

- More diverse educational experience: Besides the education of doctoral and genetic counseling students, the Center faculty is involved in the education of medical students, residents and fellows. All of these students will realize a more diverse academic experience through the cohesion of educational experiences in genetics and clinical genetics services.
- New technological developments: The technological advances occurring in molecular genetics at various Center research laboratories, such as in the laboratory of Mark Hughes, M.D., Ph.D., will eventually result in the translation of these new technologies into the Molecular Genetics Diagnostic Laboratory. As director of this laboratory, Dr. Feldman's role will be critical to this translational process.

For more information about Clinical Genetics Services or to speak with Dr. Feldman, call (313) 577-6298 or e-mail him at gfeldman@pol.net.



Genetic Counselor Leigh Anne Flore, M.S.



Jerry Feldman, M.D., Ph.D. and Erawati Bawle, M.D.

Clinical Genetics Services at DMC/WSU

Clinical genetics services currently associated with the Center provide care to individuals in prenatal, pediatric, neurology and cancer settings. The genetic services laboratories include cytogenetics, molecular genetics and biochemical genetics.



Erawati Bawle, M.D.

Department of Pediatrics/ Division of Genetics and Metabolic Disorders

Division Chief, Erawati Bawle, M.D.

The responsibility of the Division of Genetics and Metabolic Disorders at Children's Hospital of

Michigan is to recognize genetic disorders and birth defects in infants and children, to understand their significance, to arrange for proper treatment and to help patients and their families understand and cope with the disorder. Besides a general pediatric genetics clinic, additional services include comprehensive and multidisciplinary specialty clinics for children with metabolic disorders and hemophilia. For more information, call (313) 745-4513.



Anthony Johnson, D.O.

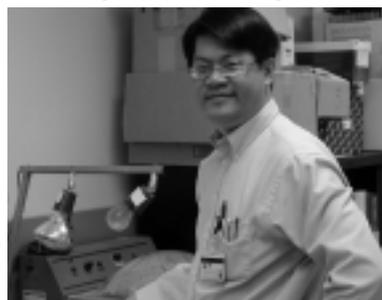
Department of Obstetrics and Gynecology/ Division of Reproductive Genetics

Division Chief, Anthony Johnson, D.O.

The Division of Reproductive Genetics provides genetic counseling and prenatal diagnosis to couples concerned about having a child with a birth defect or inherited condition. The Center for Fetal Diagnosis and Therapy, directed by Mark I. Evans, M.D., based at Hutzel Hospital, is one of only a few comprehensive prenatal diagnostic and fetal therapy programs in the country. An exciting new reproductive genetic technology also available at Wayne State University for families at risk for specific inherited conditions is

called preimplantation genetic diagnosis. Mark Hughes, M.D., Ph.D., is the director of the Preimplantation Genetic Diagnosis Program. Using in vitro fertilization techniques, only fertilized eggs that contain the functioning gene are implanted into the mother's uterus. For more information, call (313) 745-7066.

Department of Neurology/ Neurogenetics Program



James Garbern, M.D., Ph.D.

The Neurogenetics Clinic, directed by **James Garbern, M.D., Ph.D.**, offers patients and their families evaluation, diagnosis, education, genetic counseling and support. It is one of only a few multidisciplinary neurogenetics clinics in the United States that specializes in the area of adults with, or at risk for, inherited neurological conditions. The clinic also provides genetic counseling and predictive testing for individuals at risk for certain late onset conditions such as Huntingtons disease. For more information, call (313) 577-8317.

Cytogenetics Laboratory/ Department of Pathology

Technical Directors, Salah Ebrahim, M.D. and Anwar Mohamed, M.D.

This laboratory offers chromosomal analysis for two main types of samples. One group includes the culture and chromosomal analysis of cancer-related tissues and fluids. The other group includes chromosome studies for prenatal and postnatal diagnosis of genetic syndromes. For more information, call (313) 966-0680.

Karmanos Cancer Institute/Cancer Genetic Counseling Service



Michael Simon, M.D., M.P.H.

Director, Michael Simon, M.D., M.P.H. The Cancer Genetic Counseling Service at the Barbara Ann Karmanos Cancer Institute offers multidisciplinary care to individuals and their families with an inherited susceptibility to cancer. This includes families that have multiple generations with cancer, individuals with early age of onset cancers and individuals with multiple primary cancers. An evaluation includes risk assessment, genetic counseling, genetic testing when indicated, education in early detection techniques and options for cancer screening and prophylaxis. For more information, call (313) 966-7780.

Molecular Genetics Diagnostic Laboratory/ Department of Pathology

Medical Director, Jerry Feldman, M.D., Ph.D and Associate Technical Director, Trieu Vo, Ph.D.

This laboratory offers genetic testing for a wide variety of genetic disorders and non-inherited cancer conditions. Reasons for genetic testing include carrier detection, confirmation of a clinical diagnosis, prenatal diagnosis, presymptomatic and predispositional testing. The determination of a specific genotype in an individual or family member offers opportunity for medical management. For more information, call (313) 993-2631.

First Distinguished Symposium features 'Reconstructing Human Evolution,' honors Dr. Goodman

PROFILE



Morris Goodman, Ph.D.

You can't speak of advances in the understanding of genomic research in human evolution without mentioning the work of Morris Goodman, Ph.D., who has been studying primate phylogeny at Wayne State for 40 years. So to launch the annual Mary Webber Parker Distinguished Symposium, April 20, Dr. Goodman was given the honor of selecting the topic and speakers.

The symposium featured **Dr. Arno Motulsky**, University of Washington, Seattle, and **Dr. Caro-Beth Stewart**, State University of New York, Albany. Dr. Motulsky spoke on "Evolutionary, Historical and Medical Implications of Genetic Diseases Among Ashkenazi Jews." Dr. Stewart's topic was "Identifying Genetic Changes That 'Made Us Human.'" Dr. Goodman also spoke on "The Genomic Record of Humankind's Evolutionary Roots."

Internationally recognized for his work studying the interaction of heredity and environment, Dr. Motulsky has conducted research in diseases common in Jewish populations. He is considered a founder of pharmacogenetics. His research topics include hematological genetics, population genetics of red cell traits, clinical genetics, pharmacogenetics and ecogenetics.

written more than 350 articles and co-authored *Advanced Text of Human Genetics*.

Dr. Stewart's research interests focus on the molecular basis of adaptive evolution, the evolution of protein structure and function and phylogenetic analysis of gene families. She has received several major research awards, including a National Institute of Health grant for "Molecular Phylogeny of Old World Monkey Host Species" and the National Science Foundation's President's Faculty Fellow Award.

She serves on the advisory board of *Genome Biology* and is an editorial board member of *Current Biology and Molecular Pindogenetics and Evolution*.

Dr. Goodman began his research career in zoology at the University of Wisconsin, Madison. He also completed a doctorate degree in Biochemistry at the California Institute of Technology.

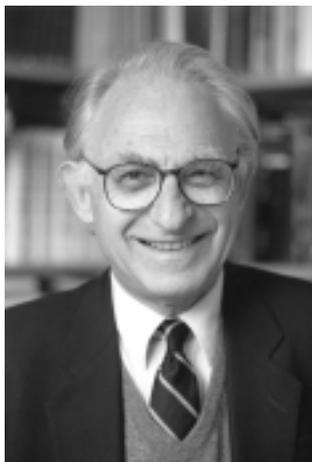
A fellow of the American Academy of Arts and Sciences, Dr. Goodman was elected to the Wayne State University Academy of Scholars in 1979. He was editor-in-chief of *Molecular Biology & Evolution*,



Dr. Caro-Beth Stewart

and has been on the editorial boards of *Genomics*, *Molecular Biology & Evolution*, the *Journal of Molecular Evolution* and *Progress in Scientific Culture*.

Dr. Goodman has organized conferences such as "Molecular Clocks of Evolution" and "Molecular Anthropology: Toward a New Evolutionary Paradigm." He was selected to give the plenary lecture at the XIII Congress in International Primatology Society.



Dr. Arno Motulsky

Dr. Motulsky founded the Division of Medical Genetics in the Department of Medicine at the University of Washington and served as its chief until 1989. He is a founding member of the American Board of Medical Genetics. He has

Genetic counselors have critical roles in research projects

Human genetics research often depends on family participation in research projects. Family recruitment requires well-coordinated clinical genetics services and collaboration between clinicians and researchers.

Research can directly benefit families by providing them access to newly developed tests and specialists familiar with their disorder. Even when there isn't a direct benefit, participating in research can help restore a family's sense of power, and knowing their involvement may someday help others. Families must have realistic expectations about the benefits and limitations of participating in the study. Additionally, their contributions must be voluntary.

Providing genetic counseling and education to research participants is an important aspect of successful family studies. At Wayne State, genetic counselors function as the liaison between families, researchers and clinicians. Besides obtaining informed consent, genetic counselors coordinate the collection of samples, collect and interpret family history information, review medical records, recruit families into research protocols and present research talks to patient support groups and other health care professionals. Also, they are involved in writing grant applications, obtaining IRB approvals and designing research methodology.

The following genetic counselors are involved with Wayne State research projects:

Alicia Salkowski, M.S., works on three different research studies looking for susceptibility genes for common adult onset conditions. The "Abdominal Aortic Aneurysm Study", is directed by **Helena Kuivaniemi, M.D., Ph.D.**, and the "Intracranial Aortic Aneurysm Study" is directed by **Gerardus Tromp, Ph.D.**, both members of CMMG. Each study needs families with two or more affected members who are blood relatives. For more information about these studies, contact **Ms. Salkowski** at (313) 577-9735 or the Web site, <http://cmmg.biosci.wayne.edu/ags>. The "Lung Cancer Genetic Study," directed by **Ann Schwartz, Ph.D.**, at the Karmanos Cancer Institute, needs families with two or more affected members with lung cancer who are blood relatives. For more information about this study, contact Ms. Salkowski at 1-800-KARMANOS, ext. 2017, or the Web site, <http://www.karmanos.org/geneticstudies/lung>.

Karen Krajewski, M.S., participates in two research studies at CMMG and the Department of Neurology examining the mechanisms of demyelination or axonal

loss. One study, directed by **Michel Shy, M.D.**, is a clinical research project to determine the natural history of Charcot-Marie-Tooth (CMT) disease. The other study, directed by **John Kamholz, M.D., Ph.D.**, involves families with a rare genetic disorder of myelination called Pelizaeus-Merzbacher (PMD) disease. For more information on these studies, contact **Ms. Krajewski** at (313) 577-8317, or the Web site, <http://med.wayne.edu/neurology/clinical.htm>.

Robin Gold, M.S., works on two research studies in the area of cancer genetics. Michael Tainsky, Ph.D., is the principal investigator for both studies: "Hereditary Breast/Ovarian Cancer Syndrome: Are You at Risk? The Development and Implementation of a Cancer Genetics Curriculum," and "Identification of Familial Cancer Aggregation using the MDCSS Registry." The studies target high-risk families among specific ethnic groups. Currently, African American and Ashkenazi Jewish families are being recruited. For more information, contact Ms. Gold at 1-800-KARMANOS, ext. 2039.



Dr. James Garbern and Karen Krajewski, M.S.

Center Alumni play major roles in molecular diagnostic laboratories

WHERE ARE THEY NOW

Perhaps the most immediate evidence of the Center's successful mission is its role educating and training leaders in genetics and molecular medicine. Two of its alumni, Kristin Gutridge Monaghan and Trieu Vo, have assumed important roles at the DNA Diagnostic Laboratory at Henry Ford Hospital and Wayne State's Molecular Genetics Diagnostic Laboratory, respectively.



Dr. Kristin Gutridge Monaghan

Dr. Monaghan, a 1995 graduate of the Center's doctoral program in Molecular Biology and Genetics, has completed a fellowship in Clinical Molecular Genetics and Medical Genetics at Henry Ford Hospital and recently became certified in both areas by the American Board of Medical Genetics. She recently became director of the DNA Diagnostic Laboratory at Henry Ford Hospital.

The skills and mentoring she gained at the Center have prepared Dr. Monaghan for her current position – overseeing the day-to-day management of the laboratory, managing its staff of technologists, interpreting laboratory test reports and reporting their results. She is also an active researcher and has been successful in obtaining grant funding.

While most of her work is in the laboratory, Dr. Monaghan also provides genetic counseling for patients in the genetics clinic. "When I came to Wayne State, I knew I wasn't interested only in basic research – I wanted to be involved with people, with testing and with research," she explains. "Because of the wonderful mentors I worked with at Wayne State, I learned I wasn't limited to one area."

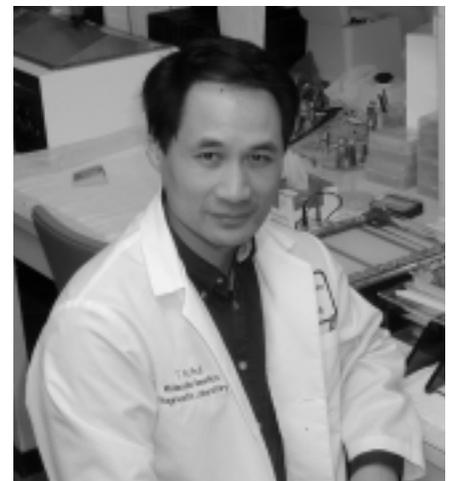
She plans to continue her work in genetics and develop her research interests. She credits Wayne State – her mentor was Leon Carlock, Ph.D. – for helping her achieve her career objectives. "Without the people at Wayne State and Henry Ford, I wouldn't be where I am now."

Dr. Vo is a 1991 graduate of the Center's doctoral program in Molecular Biology and Genetics. He came to Wayne State in 1986 with a bachelor's degree in biology from the University of California, Irvine, where he conducted graduate research with Dr. Carlock. He came to Wayne State along with Dr. Carlock to continue his research and association with the professor.

"I had a very well-rounded experience at Wayne State," explains Dr. Vo. "The variation in faculty – different teaching methods and lab management styles – helped provide that experience. At Wayne State, I didn't feel like just a student. The last two years I actively collaborated with different physicians."

Dr. Vo was initially hired as a research associate in the Molecular Genetics Laboratory in the Department of Pathology when it opened in 1993. He played an active role in the laboratory's growth – from 70 patient samples for three genetic diseases in 1994 to more than 2,200 patient samples for 20 different disorders in 1999. He currently functions as the associate technical director of the lab.

Dr. Vo has achieved certification from the American Board of Medical Genetics in the area of Clinical Molecular Genetics. Of special interest to Dr. Vo is extending his graduate research work in Huntingtons disease through his liaison with physicians and work in the laboratory. "These tests are important diagnostic tools. I can clearly see the clinical-to-patient relationship in the work we're doing."



Dr. Trieu Vo

FACULTY NEWS

Michael S. Simon, M.D., M.P.H. (Department of Internal Medicine), and **Anne E. Greb, M.S.**, received a \$150,000, two-year grant from the Susan G. Komen Breast Cancer Foundation for the project, "Attitude, Cultural and Behavioral Determinants Affecting the Participation of African American Women at Increased Risk of Breast Cancer in Cancer Risk Assessment and Genetic Counseling." Dr. Simon is the project's principal investigator and Greb is the co-principal investigator.

Professors Joseph Kaplan, M.D., and **Minoru Ko, M.D., Ph.D.,** Center associates, have recently had a paper accepted for publication in *Cellular Immunology*. The paper is titled, "Interferon Gamma Receptor Polymorphisms Determine Strain Differences in Accessibility of Activated Lymphocyte NK-Trigging Antigen to Recognition by Self-Reactive NK Cells."

James Marsh, M.D., Professor of Internal Medicine and Chief of its Division of Cardiology and Center associate, was involved in studies that were published in recent editions of the *American Journal of Physiology*, *Molecular and Cellular Biochemistry* and the *Journal of Molecular Cellular Cardiology*. Dr. Marsh has received a five-year, \$750,000 Veterans Administration REAP Award for "Project 2: Insulin and Glucose Regulation of Calcium Channel Transcription."

Dr. Marsh has also received an American Heart Association grant for "Calcium Channel Alpha Subunit Regulation" and a Midwest Affiliate of the American Heart Association grant for "Calcium Channel Regulation by the Beta Subunit."

Kate Sargent, M.S., a Center associate and member of the Karmanos Cancer Institute recently co-authored a chapter titled "Components of a Genetic Cancer Risk Clinic," in *Cancer Genetics for the Clinician*, Gail L. Shaw, editor, Kluwer Academic/ Plenum Publishers, 1999.

STUDENT NEWS

Recent genetic counseling graduates **Barbara Corey, M.S., Alicia Salkowski, M.S.,** and **Carol Baker, M.S.,** have new positions.

Corey is a genetic counselor at the University of Oklahoma School of Medicine, where she sees patients in a general genetics clinic.

Salkowski is a genetic counselor and study coordinator at the WSU School of Medicine. She is involved in an inherited lung cancer project with the Karmanos Cancer Institute's Epidemiology Department and an intracranial and aortic aneurysm project with the Center. She also serves as a patient recruiter for these two studies.

Baker is a first-year medical student at the WSU School of Medicine.

The Center's graduate students, **Sungpil Yoon** and **Xiaoju Wang,** recently attended and presented abstracts at the American Society of Human Genetics annual meeting in San Francisco. Yoon's project was titled "Association of a Polymorphism in the Gene for MMP13 with Atherosclerosis." Wang's project was titled "Physical and Transcript Mapping of the Blau Syndrome Susceptibility Locus."

Individuals needed for research studies

In collaboration with the University of Pennsylvania, the Karmanos Cancer Institute has a protocol screening African-American women, diagnosed with breast cancer at or before age 40, for BRCA1 mutations. The protocol includes genetic counseling and genetic testing. Results will be available to participants. For more information or to make a referral, call **Kate Sargent, M.S.,** genetic services coordinator, Karmanos Cancer Institute, (313) 966-7750.

The WSU Diabetes Clinical Research Program, directed by **George Grunberger, M.D.,** needs volunteers to participate in clinical trials using new medications to treat diabetes. Individuals with diabetes who are over age 18 are being recruited. Qualified patients may receive free medical exams/tests, medications, medical supplies, diabetes education and free dietary counseling. For more information, call (313) 745-8080, fax (313) 993-0903 or visit www.med.wayne.edu/diabetes.

May Events

11 Douglas C. Wallace of Emory University will present "Mitochondrial Disease in Man and Mouse."

25 Eric A. Schon of Columbia University will present "Molecular Genetics of Human Mitochondrial Disease."

June Events

25 Gyula Acsadi of Wayne State University will present "Gene Therapy for Motor Neuron Diseases."

For more information, please contact Li Li, Ph.D., at (313) 577-8749 or via email at lili@med.wayne.edu.

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The online version of the newsletter and other information about CMMG are available at the CMMG Web site: <http://cmmg.biosci.wayne.edu>.

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CMMG's mission is to foster excellence in molecular biology, medicine and genetics towards understanding, diagnosis, treatment and prevention of human diseases.

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