

Gordon Wayne Dewald, PhD

Dr. Gordon Wayne Dewald, 66, pioneering clinical cytogeneticist, researcher, teacher, and devoted husband, father, grandfather, and brother, died the evening of Friday, February 26, 2010 after a long courageous battle with acinar cell pancreatic cancer.

Dr. Dewald was a native of North Dakota. He grew up in Dawson and Jamestown, and married Laurel Ann Havelick on August 16, 1964 in Jamestown, where they met several years earlier at Jamestown High School. They were happily married for more than 45 years. He earned a BS at Jamestown College in 1965, and an MS in biology in 1968 and a PhD in cytogenetics in 1972 at the University of North Dakota (UND) in Grand Forks.



Like many of his contemporaries, his early training in cytogenetics employed non-banding chromosome staining methods and focused on organisms other than humans. His MS research established the karyotype of two subspecies of muskrats. His PhD research focused on meiotic studies of two species of bluestem prairie grasses. Dr. Dewald began his career in human cytogenetics at the beginning of the "banding era" as a part-time employee in the Pathology Department of UND during the completion of his graduate studies. In this capacity he developed Q- and G-banding methods and used them to study patient specimens referred to the state cytogenetic laboratory.

In 1972, Dr. Dewald moved his family to Rochester, Minnesota, to begin a fellowship with Dr. Hymie Gordon in the Department of Medical Genetics at Mayo Clinic. His mission was to create a modern clinical cytogenetics laboratory for congenital disorders and to develop a computer-based videodensitometric method to digitize and analyze human chromosomes. His early publications predominately reflect his efforts to: 1) develop chromosome banding techniques and implement modern cytogenetics into clinical practice, 2) define the embryological derivation of chimeras, 3) study the origin and behavior of structural abnormalities of X and Y chromosomes, and 4) automate chromosome analysis of human chromosomes. Much of his research was supported by a Basil O'Connor starter research grant from the March of Dimes. By 1973 this laboratory for congenital disorders was fully operational and Dr. Dewald was named as its director.

Under his leadership, the caseload and test menu of the Mayo Clinic Cytogenetics laboratory grew significantly, and the complexity of patient needs became unusually challenging. Over the years, Dr. Dewald taught countless fellows/residents in medical genetics, hematology and pathology, and annually delivered numerous lectures in the Mayo Medical School. In recognition of his efforts to train over 400 successful technologists, and for his numerous contributions to cytogenetics and to the Association of Genetic Technologists (AGT), he was awarded a lifetime achievement award by AGT in 2002. He also received an Outstanding Scientist/Physician Award in 2007 from the Mayo School of Health Sciences for his efforts in education and for his role in developing a formal cytogenetic technologist education program at Mayo Clinic.

Dr. Dewald was always interested in methods to ensure competence of laboratory personnel, validation of laboratory procedures, creating meaningful laboratory patient reports, and developing novel methods to improve laboratory efficiency. To accomplish these goals he often discussed these issues with pathologists, hematologists and his colleagues in cytogenetics. This interest was valuable to Dr. Dewald when he became a leader in the cytogenetics quality assurances program of the Great Lakes Regional Genetics Group (1986-2000). These interests and experiences also served him well when he was invited in 1985 to be a founding member of a new committee of the College of American Pathologists (CAP) to create a national proficiency testing program in cytogenetics. He served on this committee for 20 years and was instrumental

in the evolution of the CAP/ACMG (American College of Medical Genetics) proficiency testing program that exists today.

Beginning in 1975, Dr. Dewald became interested in chromosome abnormalities in malignant disorders. His early cytogenetic work on pleural effusions earned him a Research Career Development award from the National Cancer Institute (1978-1983). After 1979, his enthusiasm and opportunities for this subject grew significantly because cytogenetic studies of hematological malignancies became a major part of his clinical practice. His reputation for cytogenetic studies of malignant disorders led to invitations to participate in several International Workshops on Chromosomes in Leukemia and Lymphoma. These workshops helped to establish correlations between certain chromosome abnormalities and specific hematological malignancies. Dr. Dewald's own research in multiple myeloma, chronic lymphocytic leukemia, lymphoma, chronic myeloproliferative disorders and myelodysplastic syndromes further demonstrated the utility of cytogenetic studies in the workup of patients with hematological malignancies. Dr. Dewald promoted cytogenetic studies of malignant disorders through his role as chair of the Scientific Committee in the Chronic Myeloid Leukemia National Study Group (1995-1999), chair of cytogenetics in the Eastern Cooperative Oncology Group (1995-2006), chair of cytogenetics in the Chronic Lymphocytic Leukemia Research Consortium (2003-2006), and vice chair of the Cytogenetic Working Group to study Myelodysplasia (MDS) formed by the MDS Foundation (2005-present).

The emergence of techniques to visualize chromosome loci using fluorescent-labeled DNA probes (FISH) became important in the 1990's, and Dr. Dewald was a pioneer in this field. Through his work in Mayo Clinic cytogenetics and interactions with commercial companies, Dr. Dewald developed novel FISH probes and methods for many important clinical conditions and helped to make them widely available to the cytogenetic community. In addition, he became well known through his publications and lectures for his efforts to validate new FISH assays and the implementation of this technology into routine clinical practice. He helped to formally define validation of FISH methods for clinical practice in his capacity as vice-chair of the National Committee for Clinical Laboratory Standards subcommittee established for this purpose (1998-2000), and his continual interactions with the ACMG and CAP. These are some of the ways in which he was instrumental in the development of methods to validate and standardize FISH techniques worldwide.

Mayo Clinic has rewarded Dr. Dewald for his 35 years of successful work in many ways. He was a professor in the Mayo Clinic College of Medicine; Medical Genetics and Laboratory Medicine. He was the founder and first Chair of the Division of Laboratory Genetics (includes laboratories of cytogenetics, molecular genetics, biochemical genetics and fertility testing) at Mayo Clinic, serving in this capacity for 12 years (1992-2003). In 1996, the Department of Laboratory Medicine and Pathology awarded him a distinguished career award for his contributions to the field. Dr. Dewald was elected President of the Sigma Xi Mayo Clinic Chapter (2005-2006) by his peers, served on the board of the Mayo Medical School, helped to introduce cost-effective genetic testing strategies within Mayo Clinic, and participated in many other important functions of Mayo Clinic.

Mayo Clinic's principle maxim is "the needs of the patient come first". This concept has been fundamental in the way that Dr. Dewald practiced clinical cytogenetics. In addition, the primary goal of his research projects was been to change clinical practice for the improvement of patient care. Dr. Dewald published over 270 papers on his research, lectured in many countries and will be remembered for sharing his expertise in clinical cytogenetics by cytogeneticists and physicians worldwide.