Dieter C. Gruenert, PhD (1949–2016)

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On April 9, 2016, Dr. Dieter Gruenert passed away unexpectedly at his home in California due to cardiac arrest. A researcher well ahead of his time, he was a colleague and friend who left us well before his time. Dieter had published more than 150 articles, held 5 patents, and had given more than 240 invited presentations.

Dieter was born in Dortmund, Germany, in 1949, but immigrated to the United States with his parents in 1954. In 1967, Dieter graduated from North High School and went on to study for a BA in molecular biology at University of Wisconsin—Madison (1972). For his PhD, Dieter moved to University of California (UC)—Berkeley to work with James E. Cleaver, who had established that xeroderma pigmentosum is caused by deficient DNA repair and that the causative agent of skin cancer is DNA damage from solar irradiation in 1968. Together they published seven articles on DNA damage and repair mechanisms [1]. This evolved into a vision to use natural DNA repair mechanisms to induce DNA recombination to correct genomic disease-causing mutations.

After finishing his PhD in biophysics in 1982, Dieter gained a Swiss National Science Foundation Fellowship (1982–1984) to work in the Department of Carcinogenesis at the Swiss Institute for Experimental Cancer Research in Lausanne, Switzerland. In 1986, he returned to California to join the faculty at UC—San Francisco where he focused his research on cystic fibrosis (CF). He developed many of the human CF and non-CF airway epithelial cell lines still used today in CF and airway disease research [2].

Naturally, his research into the mechanisms of CF [3] also led him to investigate ways of treating the disease. In 1992, he became Co-Director of the Gene Therapy Core Center at UCSF, where he pioneered the use of “Small Fragment Homologous Replacement” to directly manipulate the genomic sequence by exploiting the cell’s homologous recombination pathway with small DNA fragments of 200–1000 bp, long before zinc finger, TALE, or CRISPR/Cas nucleases were developed. Dieter showed functional correction of CF in bronchial epithelial cells using this method [4]. He was also interested in DNA delivery using nonviral systems ranging from liposomes, polyamidoamines, polyethyleneimines, and microinjection to electroporation [5].

He was one of the first to demonstrate genetic correction in a disease allele contained in mutant mammalian cell lines. Admittedly, in the late 1980s and early 1990s, many of us thought that although this idea was great in concept, it would not bear fruit because of the technical obstacles. Funding for this kind of approach was not easy to come by, in part, because of hyped “scam” pursuits by competitors.

In 2000, he left UCSF to take a position as a Professor of Medicine and Director of the Division of Human Molecular Genetics at the University of Vermont, and then returned to the San Francisco area in 2003 to take the position of Senior Scientist at the California Pacific Medical Center Research Institute where he established and headed the Stem Cell Research Program in 2005.

At the time of his death, Dieter was a professor of Otolaryngology—Head and Neck Surgery at UCSF and he was a member of the Eli Edythe Broad Center for Regenerative Medicine and Stem Cell Research, the Institute for Human Genetics, the Helen Diller Family Comprehensive Cancer Center, and the Cardiovascular Research Institute at UCSF as well as an Adjunct Professor in the Department of Pediatrics at the University of Vermont. He was still heavily involved in research, scientific publishing, and the scientific community in general. Dieter never gave up on his quest, and now in 2016, genome editing and gene recombination strategies for treating human diseases are one of the hottest and most exciting areas in biomedicine today. In recent years, Dieter had expanded into other scientific interests including unraveling some of the fundamental processes in other genetic disorders, including inherited conditions that resulted in a predisposition to various types of cancers.

Dieter was senior editor for Nucleic Acid Therapeutics on whose board he served from 2010, in addition to his duties for other journals. He was a longstanding, well-known, and active member of the Oligonucleotide Therapeutics Society (OTS), where he was on the Board of Directors from 2008 to 2011 and on the scientific advisory council from 2015 to 2016. He helped organize many scientific meetings for OTS and chaired sessions at these and other conferences, for example, for the American Society of Gene and Cell Therapy, of which he was also a member.

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Thus, most people in the field will be familiar with his publications, have interacted with him in his editorial duties, or used one of his cell lines, even if they did not ever meet him in person. Beyond all his considerable scientific achievements, it is the mentorship that he took such delight in that guarantees his continued influence in the field. For those who had the pleasure of knowing him or being mentored by him, the loss of this kind and generous man is deeply felt. On a personal note, Mark will miss their visits whether it be a last-minute get together in the bay area, an intense scientific discussion at a meeting, or a deserved drink in the pub somewhere in the world after a long day of scientific presentations and discussion. Graham remembers the kind man who at any meeting would willingly take the time to share his unique perspective on the field he cared about so passionately, and the twinkle in his eye as he shared his delight at the recent resurgence of his own personal research endeavors, and his justified pride in his own familial as well as collegiate next generation of scientists.

Our readers are encouraged to visit the online version of this tribute to leave their own remembrances of our friend and colleague. www.oligotherapeutics.org/tribute-dieter-c-gruenert

References