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Holland–Frei Cancer Medicine

Tenth Edition

Dedication

The 10th edition of *Cancer Medicine* has grown from the vision and dedication of James F. Holland and his fellow pioneer Emil “Tom” Frei. Jim and Tom were among the founding fathers of medical oncology and life-saving combination chemotherapy for which they shared the Albert Lasker Award for Clinical Medical Research. Jim had originally planned a career in cardiology after graduating from Princeton and Columbia University College of Physicians and Surgeons. When he returned from the United States Army Medical Corps in 1951, he took what was to be a temporary position at Frances Delafield Hospital where he cared for children with leukemia, drawing him to the mission of making pre-curable cancers curable for more than six decades. After conducting research at the National Cancer Institute, he became the chief of medicine at Roswell Park Memorial Institute at the age of 28. With Tom Frei, then at NCI, Jim created the first cancer chemotherapy cooperative trials group, the Acute Leukemia Group B, that became the Cancer and Leukemia Group B (CALGB) and now Alliance for Clinical Trials in Oncology. In 1972, he had represented the United States in a Mission to Russia studying Soviet oncology and training of Soviet oncologists. The next year he established a department of neoplastic diseases at the Tisch Cancer Institute at Mt. Sinai in New York where he was later named a distinguished professor. Having served as the president of the American Association for Cancer Research and the American Society of Clinical Oncology, he inspired the creation of the T.J. Martell Foundation for Cancer Research. With his wife Jimmie Holland, founder of the field of onco-psychiatry, Jim helped to found and nurture AORTIC, the African Organization for Research and Training in Cancer, promoting cancer control and palliation in Africa for more than 25 years. Jim’s contributions to oncologic research extended beyond treatment of leukemia to therapy of breast cancer and to the possible role of viruses in the development of that disease. A master clinician and extraordinary human being, Jim Holland inspired generations of oncologists and the editors of this text with his wisdom and insatiable drive to continue to help people with cancer. He was indeed a giant who we miss, but who will be remembered by everyone who had the privilege of knowing him.

Wun Ki Hong was born in 1942, the sixth of seven children, in a small suburb of Seoul, North Korea. After attending medical school at Yon Sei University, Ki served as a flight surgeon in the Vietnam War prior to training in internal medicine residency at the Boston VA medical center. After completing a medical oncology fellowship at Memorial Sloan Kettering Cancer Center, Ki headed back to Boston in 1976 as chief of oncology and hematology at the Boston VAMC where he led the first clinical chemoprevention studies in solid tumors while launching the VA Larynx preservation study with Greg Wolf. In 1984, he moved to the University of Texas MD Anderson Cancer Center as chief of the head and neck cancer division, soon combined with the lung cancer section to become the first department of lung and head and neck (aerodigestive cancers) in the country. Over a 30-year career at MD Anderson, Ki led as senior author dozens of seminal papers in premiere journals such as the *New England Journal of Medicine*, establishing himself with Bernard Fischer as fathers of clinical cancer chemoprevention. Ki led major collaborative program projects and SPORC grants, establishing a series of biomarker-based clinical trials that helped unlock our understanding of the impact of molecular agents on premalignancies, while providing substantial contributions to targeted therapy. Over the course of his career, Ki Hong mentored a veritable who’s who of lung and aerodigestive track clinical and translational investigators and received numerous major honors. He served as the president of AACR and was one of very few individuals to deliver AACR’s Joseph Burchenal Award and ASCO’s David Karnofsky Lecture in the same academic year. Ki joined the editorial leadership of *Cancer Medicine* for the seventh edition and was remarkably persistent and effective at recruiting many of the world-class authors who have led its chapters. Perhaps even more notable than his stellar scientific contributions was his unstinting devotion to his proteges, trainees and friends, and especially his wife Mihwa, children Burt and Ed, and their families.

We editors who treasure these oncology giants miss them sorely and dedicate this 10th Edition of *Cancer Medicine* to these preeminent leaders in cancer practice, research, education, and training and diversity, equity, and inclusion.

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Preface

Our understanding of cancer at the molecular, cellular, and clinical levels continues to expand. Translation of molecular diagnostics and therapeutics to the clinic has begun to realize the promise of precision medicine with the development and approval of dozens of new targeted drugs, antibodies, and predictive biomarkers. Assimilating this knowledge poses an acute challenge for students, residents, fellows, established practitioners of oncology, and other health care providers. Laboratory-based investigators seeking to translate their discoveries to human application require an accurate overview of clinical oncology, informed by cancer biology. As new diagnostics, therapies, and preventive strategies may now be applicable across multiple disease sites, it is essential that pharmaceutical and biotechnology companies understand the new advances and the unmet needs across the entire field of oncology.

This 10th Edition of *Cancer Medicine* provides a comprehensive synthesis of clinical oncology and the principles underlying approaches to prevention, early detection, diagnosis, and therapeutic management of cancer. Biological hallmarks of cancer and the clinical manifestations of neoplastic diseases are described. Pathways and processes that explain the origin and pathogenesis of neoplasms are presented. Transformational technologies are discussed in depth to improve the understanding of technical procedures such as deep sequencing, methods for measuring

epigenetic modification of DNA and histones, transcriptional profiling, ncRNAs, specific functions of RNAs, proteomics, and metabolomics. The heterogeneity within and between cancers and their metastases is described, and the implications for clinical management are discussed. Quantitative oncology is explained in simple terms, providing an introduction to systems biology, biostatistics, bioinformatics, and novel trial design.

This work includes concise guidelines for the use of both drugs that are approved by the Food and Drug Administrations and novel agents. As in the past editions, there is an emphasis on multidisciplinary patient care including surgical and radiation oncology, psycho-oncology, survivorship, and population science. This volume should be of value to oncologists of every discipline.

The editors have chosen experts who have written authoritatively about the disciplines and diseases covered in their respective chapters. As the world of science and medicine chip away the unknowns of the cancer process and its prevention and therapy, we believe this work will provide a platform for the current status of oncology and will prepare the reader for a critical evaluation of discoveries still to come.

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