

## Dr. Vernon Maino



On September 9, 2018, Vernon Maino, fondly known to all as Skip, passed away peacefully in the presence of his beloved family. Skip was one of the pioneering R&D leaders to join the newly created Becton Dickinson Monoclonal Center in 1981, formed to advance the application of monoclonal antibodies and flow cytometry in cellular analysis as it pertained basic research, clinical discovery, and eventually clinical diagnostics. As a young scientist, it was very clear that he was to one of those unique individuals who could produce high quality research and embrace technology. This, in the 1970's and 1980's, was to become a model for a new generation of scientists who could embrace the world of fast-evolving technology and bring it to bear on contemporary

research questions facing biomedical scientists. With a strong background in microbiology and biochemistry, he entered the world of T cell immunology at National Jewish Hospital at a time when the discipline was in its youth. He was surrounded by pioneers in this rapidly growing field, such as his mentor Howard Grey, Jacques Chiller and Henry Claman. His interactions with these pioneers gave him a strong scientific base in cellular immunology for his long-term research efforts in both HIV disease and in the later years, immunotherapy in cancer. Skip's scientific career spanned five decades, from pre-doctoral and post-doctoral research at UCSD, Univ. of Rochester, Mill Hill, in London, and National Jewish Hospital and Research Center. His research programs bridged investigations of the functional properties of leucocyte surface proteins and intracellular effector molecules, with a technical emphasis on how to most effectively and efficiently apply flow cytometry-based cellular analysis to explore pathogenetic mechanisms in AIDS and cancer. One of his most notable achievements was to apply the rigor of standardization to flow cytometric applications, especially in the area of intracellular cytokines. Always evolving, in his later career, Skip recognized the importance of "big data", the value of flow cytometry as a data-rich technology, and worked with several leading data scientists to utilize flow cytometry in biomarker discovery.

In his 34 years at BD, Skip established a productive basic research laboratory and mentored a growing core of scientists, as he shepherded them into that difficult pathway of both pursuing fundamental scientific understanding but combined with developing standardized products that could then better enable both basic and clinical research activities. Skip was the epitome of how to bridge the two worlds of academic research and the commercialization of new products that can better aid in the management of patients with various diseases. He did this by both maintaining a productive output of over 80 peer reviewed scientific publications, continued active collaborations with clinical research scientists in several laboratories in the US and the UK, and by participation as a project leader in several NIH funded grant applications. Skip became Scientific Director in R&D at BD, and was recognized as a BD Fellow, for his pre-eminence in the field of cellular immunology.

His scientific fields of emphasis might be best characterized as:

- Flow Cytometry analysis of intracellular cytokine activations and cell signaling;
- Standardization of multi parameter FACS analysis;
- Antigen specific T cell responses in infectious diseases; primarily HIV, CMV and Tb;
- T cell immunity in Cancer
- Application of big data approaches to cytometric biomarker discovery.

In Skip's honor, the Vernon "Skip" Maino, PhD, Memorial Fellowship (Fund #6557) has been established to aid young researchers working on myelodysplastic syndrome (MDS) and related hematologic malignancies at the Moores Cancer Center at UC San Diego Health. Philanthropic gifts can be made online on the UC San Diego Foundation giving pages for Fund #6557, linked here: <https://espi.ucsd.edu/make-a-gift?id=0f234549-641e-406b-8ce6-5496613a8301>

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