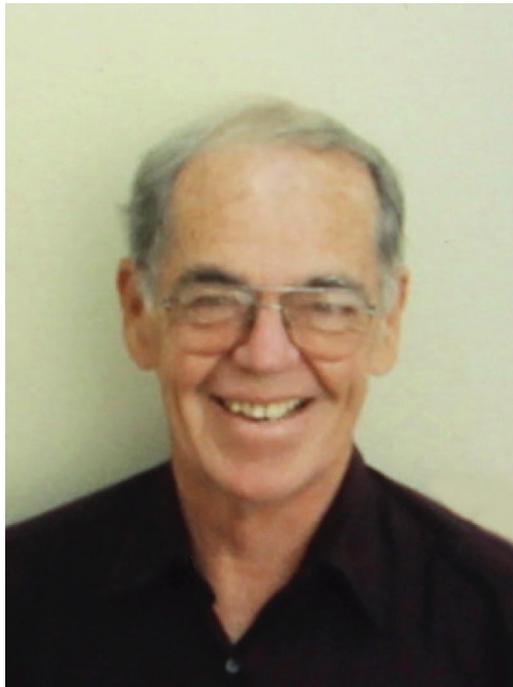


IN MEMORIAM

Robert Blair Painter



We are sad to announce the passing of one of University of California San Francisco's memorable and esteemed researchers, Dr. Robert (Bob) B. Painter, who worked at UCSF from 1965 until retirement. Bob Painter was a professor in the Department of Microbiology, and a researcher in the Laboratory of Radiobiology and Environmental Health, an organized research unit at UCSF funded primarily by the U.S. Department of Energy. Few now know that this small building located between the nursing and dental buildings was the site of important advances in DNA repair and the cellular response to ionizing radiation and other DNA damaging agents; discoveries that were foundational to understanding and treating human cancers. Bob was instrumental in making the "Rad Lab" the special place that it was, and for his influence on a whole generation of young scientists that were mentored by him.

Although he would be the last to tell you, Bob was famous for many key discoveries in the fields of radiation biology and DNA repair. Bob's research laid the groundwork for the fields of DNA repair and the cellular response to DNA damage. In the 1950s, he was part of the team at Brookhaven National Laboratory that first synthesized tritiated thymidine, a radioactive DNA precursor, and used it to study DNA replication (Hughes, Bond, Brecher, Cronkite, Painter, Quastler and Sherman, PNAS 44:476, 1958). This achievement was instrumental in defining and quantifying the cell cycle, and in demonstrating that chromosomes segregated as if they were single double helical DNA molecules. Later at the NASA Ames Research Center, his research on the incorporation of tritiated thymidine into DNA in cells not in the DNA synthesis phase of the cell cycle, called unscheduled DNA synthesis, provided the first evidence that human cells were capable of DNA repair (Rasmussen and Painter, Nature 203:1360, 1964). Bob also used ionizing radiation to demonstrate that the replication of DNA was organized in domains with multiple replicating units (Painter and Rasmussen, Nature 201:162, 1964). After moving to UCSF, he demonstrated that cells from people with the genetic disease ataxia telangiectasia failed to delay DNA synthesis in response to ionizing radiation, termed radioresistant DNA synthesis. This was the first demonstrated that the gene for ataxia telangiectasia, now known to be ATM, was a key player in cell cycle regulation in response to DNA damage

(Painter and Young, PNAS 77:7315, 1980). Other major discoveries in the Rad Lab that can be attributed to his guidance and mentorship, include: the discovery that the human disease xeroderma pigmentosum was due to a defect in DNA repair, which was the first demonstration that DNA repair was involved in human disease; the discovery that ionizing radiation could induce persistent genomic instability; the health effects of incorporated radioisotopes; and the discovery of the alternative pathway for telomere maintenance in human cells, now called the ALT pathway. Bob's role in radiation biology was acknowledged by being awarded the highest honor given by the Radiation Research Society, the Failla Memorial Award, which was presented to him in 1985 at the 33rd RRS annual meeting held in Los Angeles, CA. Bob's Failla lecture was titled "Unsolved Mysteries in Eukaryotic DNA Repair".

Those who knew Bob will never forget the impact that he had on their careers. Bob was an incredible role model and fantastic scientist, who was also a character, and was especially loved by the young scientists at the Rad Lab. Bob could always be counted on for an honest opinion, which was sometimes very direct and not always what the listener wanted to hear. However, all who trained under him knew that under his sometime gruff exterior was a caring and thoughtful person who wanted what was best for them. Some might attribute his outlook on life to the metal plate that had been placed in his head due to a battlefield injury he received while serving in World War II. Others attributed his gentler side to his wonderful wife Norma. Whatever the reason, Bob created an environment where young scientists thrived. The Friday afternoon beer and wine parties held in Bob's lab were a primary gathering place where people met and became friends and collaborators. In this way, Bob served as the focal point that created many friendships and scientific discoveries. Bob and Norma's home was also the site of many late night poker games.

The nurturing side of Bob shown to the young scientists in the laboratory would have come to a surprise to many scientists in the field of radiation biology. Bob standing up in the audience to ask one of his very direct and to the point questions was something every speaker feared. However, his questions always went to the heart of the issue at hand, and invariably focused on key points that had been overlooked or ignored. Bob was so well known for encouraging open and free discussion that the Radiation Research Society initiated the "Painter Debate" which addressed controversial topics at its annual meeting.

Bob will be lovingly remembered as a wonderful person who was also a great scientist.

On behalf of his many friends and former students,

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