Bruce Stocker, Salmonella expert and longtime professor, passes away

Stanford Report, September 22, 2004

Bruce Stocker, Salmonella expert and longtime professor, passes away

Colleagues remember Stocker as a devoted, pure scientist

BY MITZI BAKER

Bruce A.D. Stocker, MD, professor emeritus of microbiology and immunology, whose half-century of studying Salmonella bacteria led to the development of new vaccines to prevent the diseases caused by the bacteria, died Aug. 30 at home in Palo Alto. He was 87.

A memorial service for Stocker was held Sunday at the Stanford Faculty Club.

Stocker spent the last 38 years of his life at Stanford, conducting research on Salmonella until a few months before his death. In 2003, when a reporter from The Chronicle of Higher Education asked when he would cease work, he replied, “Whenever I’m compelled to – either I’ll drop dead or become incapacitated by old age.”

Leon Rosenberg, PhD, professor emeritus of microbiology and immunology, said Stocker’s chief contribution to medicine – human as well as veterinary – is the development of well-tolerated, safe and effective Salmonella vaccines based on a thorough understanding of the pathogen’s physiology.

Salmonella encompasses a group of bacteria that cause typhoid fever as well as a number of other less serious but widespread infections. While typhoid fever is well controlled with adequate sanitation, it remains a significant health problem when disruptions of sanitation services occur or in places where such services are lacking. The Centers for Disease Control estimates there are 100,000 or so cases of human Salmonella infection annually in the United States, with about 600 people dying from it.

Several decades ago, vaccines for typhoid fever involved using killed Salmonella bacterial strains given by injection, but such vaccines were uncomfortable, causing local pain, swelling and fever, and they were not always effective. Rosenberg called Stocker “the intellectual leader” in the movement to develop replacements for the killed-bacterial-type vaccines and credits Stocker with engineering strains of live Salmonella that cannot grow in an animal or human. These are now used as a vaccine in livestock.

Stocker also created what has been called a piggyback vaccination by genetically modifying Salmonella flagella – the filaments the bacteria use to move around – with partial replicas of a component of a disease-causing agent. In 1989, Stocker published the first report of this kind of strategy in the journal
Science, showing that vaccination with an altered Salmonella strain could stimulate an immune response in rodents against not only Salmonella, but also other problematic bacteria and viruses such as cholera, malaria and hepatitis B.

"Throughout his long career he maintained a deep commitment to understanding fundamental physiologic and genetic processes as they occur in bacteria," said Rosenberg, "and it is that which enabled him to be so productive when he applied himself to practical matters."

A native of England, Stocker attended King’s College at the University of London and then went on to study pathology in his medical studies at Westminster Hospital Medical School, part of the University of London, earning the equivalent of an American medical degree in 1940. Afterward, he joined the medical branch of the Royal Air Force, serving in India and Burma.

Upon his return to England, Stocker began his lifelong study of Salmonella, first publishing research about the organism in 1949. He was elected a Fellow in the Royal Society of London in 1966, and that same year he left for Stanford to be a professor in the Department of Medical Microbiology. From 1976 until 1981 he was acting chair of the department.

Stocker retired in 1987 at age 70 because of a mandatory retirement law in place at the time. "Retirement" didn’t slow him down, though, his colleagues said. He continued his studies in the lab of Gary Schoolnik, MD, professor of infectious diseases and of microbiology and immunology. He published dozens of journal articles following his switch to emeritus status.

Schoolnik, in a note to his laboratory following Stocker’s death, said, "Bruce was as pure a scientist as I have yet encountered. He pursued science without concern for personal fame or money ... He stayed with the same basic question for over half a century, taking it to deeper levels."

Another colleague, Toby Eisenstein, PhD, professor of microbiology and immunology at Temple University School of Medicine, wrote recently to Stocker’s family: “Bruce was a special person ... His decency in the competitive environment of science was a lesson in how to be a gracious and thoughtful human being.”

Stocker is survived by two daughters, Kate Stocker O’Sullivan and Clare Stocker, and four grandchildren. His wife, Jane, died in 1996.

A lectureship in microbial pathogenesis is being established in his memory. Memorial gifts to the lectureship may be sent to the Office of Medical Development, Stanford University Medical Center, 2700 Sand Hill Road, Menlo Park, CA, 94025; checks should be made payable to Stanford University.