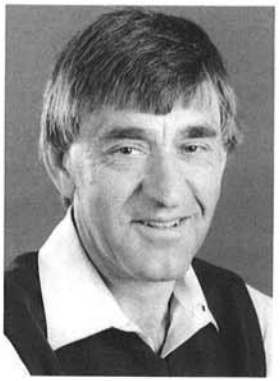
Ruth Allen Award

The Ruth Allen Memorial Fund was established in 1965 by gifts from the estate of Dr. Ruth Allen through the generosity of her heirs: Sam Emsweller, Mabel Nebel, Hally Sax, and Evangeline Yarwood. The award, consisting of a certificate and income from the invested fund, is given for outstanding contributions to the science of plant pathology.

Noel T. Keen



Noel T. Keen was born in Marshalltown, IA. He received his B.S. and M.S. degrees from Iowa State University. In 1968 he received his Ph.D. degree from the University of Wisconsin and was appointed assistant professor at the University of California, Riverside. He was promoted to associate professor in 1972 and to professor in 1978. Dr. Keen served as chair of the department from 1983 to 1989, was made an APS Fellow in 1991, and was appointed the University of California, Riverside, Faculty Research Lecturer for 1996.

Brian J. Staskawicz

Brian J. Staskawicz was born in Boston. He received his B.A. degree from Bates College and his M.S. degree in forestry science from Yale University. In 1980 he received his Ph.D. degree in plant pathology from the University of California, Berkeley. He joined the International Plant Research Institute in 1980 and was appointed assistant professor at Berkeley in 1983. He was promoted to associate professor in 1987 and to professor in 1992. Dr. Staskawicz was a Fulbright Scholar and has been the recipient of an individual McKnight Foundation Award.

Drs. Keen and Staskawicz are recognized for their contributions to understanding of the molecular basis of plant disease resistance. Dr. Keen performed pioneering experiments concerned with the role of phytoalexins in disease resistance and coined the term "elicitor." He was one of the first to propose what has become the current model to explain gene-for-gene specificity, the elicitor-receptor model. Subsequently, Drs. Staskawicz and Keen, along with D. Dahlbeck, were the first to molecularly clone and characterize avirulence genes, using the bacterial pathogen *Pseudomonas syringae* pv. *glycinea*, and to demonstrate gene-for-gene complementarity in bacterial plant-pathogen interactions. In collaboration with J. Sims and other colleagues, the Keen laboratory identified a family of elicitor molecules, the syringolides, produced in response to the avirulence gene D from *P. syringae* pv. *tomato*. These studies have established the occurrence of the elicitor-receptor model in this system and provide an understanding of the precise biochemical function for a bacterial avirulence gene.

In parallel studies on related pathogens, Staskawicz and Keen demonstrated that avirulence genes may be important in determining host species, as well as host cultivar, specificity. This work is conceptually important since it suggests that avirulence genes may operate to control host-pathogen specificity at multiple levels. In addition, Staskawicz and colleagues were the first to demonstrate a molecular mechanism for the evasion of plant host defense when virulent mutants emerge from avirulent pathogen populations. Staskawicz and Keen also have demonstrated that avirulence genes may be important for bacterial virulence.

Keen and Staskawicz first cloned the genes encoding pectate lyase from *Erwinia chrysanthemi*. The Keen lab subsequently characterized these genes and demonstrated that a single pectate lyase gene can endow *Escherichia coli* with soft-rotting ability. In conjunction with the X-ray crystallography group of F. Jurnak at the University of California, Riverside, the Keen laboratory recently discovered that pectate lyase proteins have a previously unknown structure, called the parallel β-helix. This finding is of considerable significance for other proteins that have repeating elements.

Dr. Staskawicz was one of the pioneers in using *Arabidopsis* for plant pathology research, and his laboratory was among the first to isolate and characterize plant disease resistance genes. The cloning and characterization of the *Rps2* gene demonstrated that it represents a class of disease resistance genes found in many unrelated plants.

The innovative research of Staskawicz and Keen has poised the field of plant pathology to make incisive investigations into the mechanisms controlling active disease resistance in plants and to utilize this information for improved disease control.