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1962-1965	University of Singapore, B.Sc. in Botany and Biochemistry
1967	A.M. in Biology, Harvard University
1969	Ph.D. in Biology, Harvard University
1969-1971	Lecturer, Biochemistry Department, University of Singapore Medical School
1971-1973	Research Associate, Cell Biology Department, The Rockefeller University
1973-1977	Assistant Professor, Cell Biology Department, The Rockefeller University
1977-1981	Associate Professor, Cell Biology Department, The Rockefeller University
1981-1988	Professor and Head, Laboratory of Plant Molecular Biology, The Rockefeller University
1988-present	Andrew W. Mellon Professor and Head, Laboratory of Plant Molecular Biology, The Rockefeller University

Honors

1965-1967	Fulbright Fellow, U.S. Government Exchange Program
1966-1967	Harvard Arts and Sciences Fellowship, Harvard University
1967-1969	Maria Moors Cabot Foundation Fellowship, Harvard University
1967-1971	National Institutes of Health Research Career Development Award
1988	Appointed Andrew W. Mellon Professor, The Rockefeller University
1988	Elected Fellow of The Royal Society, UK
1992	Gadsby Flying Fellow, The Sainsbury Laboratory, John Innes Institute, UK
1998	Elected Fellow, Singapore National Academy of Science, Singapore

Alternate Plant Transformation Strategies Using Chemical-Inducible Promoters

Present methods for *Agrobacterium*-mediated plant transformation generally employ an antibiotic selectable marker to distinguish transgenic from non-transgenic plant regenerants. Because of concerns over the use of antibiotic resistance genes in the field, we sought to develop alternate plant transformation strategies that would obviate the use of such genes. We have previously constructed a chemical-inducible expression system (GVG) that is responsive to dexamethasone (DEX)¹. This GVG system consists of a hybrid transcription factor that, after activation by DEX, induces transcription of target genes placed downstream of cis-acting DNA elements. We have used this system to conditionally express the isopentenyl-transferase gene (*ipt*) from the Ti-plasmid of *Agrobacterium tumefaciens*. In the presence of DEX, expression of *ipt* promoted shoot regeneration from tobacco and lettuce leaf discs on hormone-free media². Over 40% of the transgenic tobacco shoots developed a strong root system within 20 days of transfer to root-inducing media without DEX. With very few exceptions (< 2%), the morphology of the transgenic tobacco plants appeared normal. The plants could be transferred easily to soil and they developed normal leaves, flowers, and seeds. We have used this combined system to transfer multiple transgenes (35S-luc and NOS*hpt*) into tobacco, and segregation analysis demonstrated that the transgenes were inherited along with GVG-*ipt* in a 3-1 manner. Moreover, *ipt* expression can be reversibly induced by DEX in the F1 progeny. Our results demonstrate the feasibility of using a chemical-inducible *ipt* to promote transgenic regenerants and recover transgenic plants without the use of antibiotic resistance markers. Extending this method further should allow selection of transformants using conditioned expression of plant genes to promote development of shoots, roots, embryos, or other plant organs.

1. Aoyama, T, et al. *The Plant J.* 11: 605-612 (1997).

2. Kunkel, T., et al. *Nature Biotechnology* 17: 916-919 (1999).