

## CURRICULUM VITAE

Richard A. Jorgensen

*Positions and Higher Education*

- 1997 – present                      Professor  
     School of Plant Sciences, University of Arizona, Tucson  
     Research Program: Computational biology and cyberinfrastructure development  
     Mechanisms of gene regulation:  
     - Evolution of the epigenome and chromatin proteome  
     - RNA silencing, sense cosuppression and epigenetic mechanisms
- 1991 - 1997                          Research Geneticist  
     University of California, Davis  
     Research Program: RNA silencing, sense cosuppression and epigenetic mechanisms of gene regulation
- 1983 - 1990                          Director, Floriculture Genetic Engineering Research  
     DNA Plant Technology Corp. / Adv. Genetic Sci., Inc., Oakland, Calif.  
     Research Program: Plant genetic engineering:  
     - Molecular genetic engineering of anthocyanin biosynthesis  
     - Transgene stability; discovery of cosuppression  
     - Transgenic method for hybrid seed production
- 1981 - 1983                          Research Geneticist  
     Department of Genetics, University of California, Davis  
     Co-P.I.: Prof. Robert W. Allard  
     Research Program: Molecular evolutionary genetics:  
     - Population genetics of DNA polymorphisms  
     - Molecular dynamics of rRNA gene evolution
- 1978 - 1981                          Postdoctoral Fellow  
     Department of Plant Biology  
     Carnegie Institution of Washington, Stanford, California  
     Advisor: Dr. William F. Thompson  
     Research Subject: Plant molecular genetics:  
     - Molecular dynamics of genome evolution  
     - Physiological regulation of transcripts in shoot development
- 1973 - 1978                          Ph.D., Biochemistry  
     University of Wisconsin, Madison, Wisconsin  
     Advisor: Prof. William S. Reznikoff  
     Research Subject: Bacterial molecular genetics: Gene organization, expression, and evolution in transposons Tn5 and Tn10
- 1969 - 1973                          M.S., Chemistry  
     B.S., Biomedical Engineering  
     Northwestern University, Evanston, Illinois  
     Advisor: Prof. Robert L. Letsinger  
     Research Subject: Nucleic acid biochemistry: Chemical synthesis of phosphoramidate

analogues of ribonucleotides and incorporation into RNA

### ***Honors and Awards***

Bud Antle Endowed Chair for Excellence in Agriculture and Life Sciences, College of Agriculture and Life Sciences, University of Arizona, 2008.

Selected as one of the 'Top 5 Research Articles in The Plant Cell's First 20 Years', 2008 (Napoli et al., 1990).

Outstanding University Achievement, University of Arizona, for leadership of the iPlant Collaborative the largest NSF grant (\$50 million/5 years) ever awarded to the State of Arizona, February, 2008.

Martin Gibbs Medal, American Society of Plant Biologists, July, 2007, for pioneering work leading to the discovery of RNAi.

Inaugural ASPB Fellow, July, 2007 (American Society of Plant Biologists)

AAAS Fellow, February, 2006 (American Association for the Advancement of Sciences)

RNAi Innovator Award, May, 2006, 4<sup>th</sup> International Boston RNAi Conference

### ***Editorial Service***

Editor-in-Chief, *The Plant Cell*, 2003 – 2007

Coeditor, *The Plant Cell*, 2000 – 2003; 2008

Series Editor, *Plant Genetics and Genomics*, Springer Publishing Group, 2006 – 2009

Member, Editorial Board, *Trends in Plant Sciences*, 1999 – 2002

Member, Editorial Board, *Tropical Plant Biology*, 2006 – present

Member, Editorial Board, *Frontiers in Biology in China*, 2006 – present

### ***Organization of Scientific Conferences***

Organizer, "Bringing Plant and Computing Researchers Together to Solve Grand Challenges", Inaugural Conference of the iPlant Collaborative, Cold Spring Harbor, NY, April 7-9, 2008

Session Organizer (Session on "Comparative Genomics and Molecular Evolution"), Eighth International Congress of Plant Molecular Biology, August, 2006

Vice-chair, American Society of Plant Biologists (ASPB) Special Conference, "Plant Genetics 2005", October 12-16, 2005

Member, Conference Organizing Committee, "Rice Functional Genomics 2004", Tucson, AZ, Nov.15-17, 2004

Member, Organizing Committee, "Conference on Evolutionary Genomics", Tucson, AZ, Jan.15-18, 2004

Vice-chair, ASPB Special Conference: "Plant Genetics 2003", October 22-26, 2003

Workshop Chair and Moderator of panel discussion on GMO's, International Genetics Congress, Melbourne, Australia, 7/6/2003.

Member, Program Committee, ASPB Annual Meeting, 1999-2002

Chair, Gordon Research Conference on Plant Cell Genetics and Development, June 11-16, 1995

Vice-chair, Gordon Research Conference on Plant Cell and Tissue Culture, June 13 - 18, 1993

Co-organizer: Banbury Conference on Epigenetic Mechanisms of Gene Regulation, March, 1993

### ***Publication List*** (\*Reviews; °Book chapters)

*Academia (U. of Arizona and UC Davis)*

Petsch, K.A., C. Ma, M.J. Scanlon<sup>1</sup> and R.A. Jorgensen. 2009. Functionally targeted mutagenesis by transitive RNAi. Submitted.

DePaoli, E., A.E. Dorantes-Acosta, J. Zhai, M. Accerbi, D.H. Jeong, B.C. Meyers, R.A. Jorgensen, P.J. Green. 2009. Distinct extremely abundant siRNAs associated with cosuppression in *Petunia*. *RNA*. In press.

Hayden, C.A., and R.A. Jorgensen. 2007. Identification of novel conserved peptide uORF homology

- groups in Arabidopsis and rice reveals ancient eukaryotic origin of select groups and preferential association with transcription factor-encoding genes. *BMC Biology* 5:32.
- Lin, M-K., H. Belanger, Y-J. Lee, E. Varkonyi-Gasic, K-I Taoka, E. Miura, B. Xoconostle-Cázares, K. Gendler, R.A. Jorgensen, B. Phinney, T.J. Lough and W.J. Lucas. FT protein but not *FT* mRNA is present in the phloem sap of flowering cucurbits. 2007. *Plant Cell* 19:1488-1506.
- Müller, AE, Atkinson, RG, Sandoval, RG, and RA Jorgensen. 2007. Microhomologies between T-DNA ends and target sites often occur in inverted orientation and may be responsible for the high frequency of T-DNA-associated inversions. *Plant Cell Rep.* 26:617-630.
- Merchant, S., et al. 2007. The *Chlamydomonas* genome reveals the evolution of key animal and plant functions. *Science* 318(5848):245-50.
- Palenik, B., et al. 2007. The genome sequence of *Ostreococcus lucimarinus*: Tiny Eukaryotes Provide Genomic Insights Into The Paradox Of The Plankton. *Proc. Natl. Acad. Sci.* 104(18): 7705 - 7710.
- Jorgensen R.A., N. Doetsch, A.E. Müller, Q. Que, K. Gendler and C.A. Napoli. 2006. A Paragenetic Perspective on Integration of RNA Silencing into the Epigenome and Its Role in the Biology of Higher Plants. *Cold Spring Harbor Symp. Quant. Biol.* 71:481-485.
- Tuskan, G., et al. 2006. The genome of black cottonwood, *Populus trichocarpa* (Torr. & Gray ex Brayshaw). *Science* 313: 1596-1604.
- Hayden, C.A., Wheeler, T.J., and R.A. Jorgensen. 2005. Evaluating and improving cDNA sequence quality with cQC. *Bioinformatics* 21: 4414 - 4415.
- \*Jorgensen, R.A. 2005. Restructuring the genome in response to adaptive challenge: McClintock's bold conjecture revisited. *Cold Spring Harbor Symp. Quant. Biol.* 69:349-354.
- Kerschen, A., C.A. Napoli, R.A. Jorgensen, and A.E. Muller. 2004. Effectiveness of RNA interference in transgenic plants. *FEBS Letters* 566:223-228.
- \*Jorgensen, R.A. 2003. Sense cosuppression in plants: past, present and future. In: *RNAi: a Guide to Gene Silencing* (ed. G. J. Hannon), Cold Spring Harbor Laboratory Press, pp. 5-21.
- Jorgensen, R.A., Q. Que, and C.A. Napoli. 2002. Maternally controlled ovule abortion results from cosuppression of dihydroflavonol-4-reductase or flavonoid-3', 5'-hydroxylase genes in *Petunia hybrida*. *Functional Plant Biology* 29:1501-1506.
- Pandey, R., A. Muller, CA Napoli, DA Selinger, CS Pikaard, EJ Richards, J Bender, DW Mount, and RA Jorgensen. 2002. Analysis of histone acetyltransferase and histone deacetylase families of Arabidopsis thaliana suggests functional diversification of chromatin modification among multicellular eucaryotes. *Nucleic Acids Research* 30:5036-5055.
- The Arabidopsis Genome Initiative. 2000. Analysis of the genome sequence of the flowering plant Arabidopsis thaliana. *Nature* 408:796-815.
- Que, Q., and R.A. Jorgensen. 1998. Homology-based control of gene expression patterns in transgenic petunia flowers. *Developmental Genetics* 22:100-109.
- Que, Q., H.-Y. Wang, and R.A. Jorgensen. 1998. Distinct patterns of pigment suppression are produced by allelic sense and antisense chalcone synthase transgenes in petunia flowers. *Plant Journal* 13: 401-409.
- \*Jorgensen, R.A., R.G. Atkinson, R.L.S. Forster, and W.J. Lucas. 1998. An RNA-based information superhighway in plants. *Science* 279: 1486-1487.
- Que, Q., H.-Y. Wang, J.J. English, and R.A. Jorgensen. 1997. The frequency and degree of cosuppression by chalcone synthase transgenes are dependent on transgene promoter strength and are reduced by premature nonsense codons in the transgene coding sequence. *Plant Cell* 9:1357-1368.
- Jorgensen, R.A., P.D. Cluster, J. English, Q. Que, and C.A. Napoli. 1996. Chalcone synthase cosuppression phenotypes in petunia flowers: comparison of sense vs. antisense constructs and single copy vs. complex T-DNA sequences. *Plant Molecular Biology* 31:957-973.
- °Jorgensen, R.A., Q. Que, J. English, and H. Wang. 1996. Sense cosuppression of flower color genes: Metastable morphology-based phenotypes and the prepattern-threshold hypothesis. In: V. Russo, R. Martienssen, and A. Riggs, eds., *Epigenetics*, CSHL Press: Cold Spring Harbor. pp. 393-402.
- °Jorgensen, R.A., and C.A. Napoli. 1996. A responsive regulatory system is revealed by sense

- suppression of pigment genes in *Petunia* flowers. In: JP Gustafson and RB Flavell, eds., *Genomes of Plants and Animals: 21st Stadler Genetics Symposium*, Plenum Press: New York. pp. 159-176. (original research)
- Jorgensen, R.A. 1995. Cosuppression, flower color patterns, and metastable gene expression states. *Science* 268: 686-691.
- Robbins, T.P., A.G.M. Gerats, H. Fiske, and R. A. Jorgensen. 1995. Suppression of recombination in wide hybrids of *Petunia hybrida* as revealed by genetic mapping of marker transgenes. *Theoretical and Applied Genetics* 90:957-968.
- Jorgensen, R. 1994. Developmental significance of epigenetic impositions on the plant genome: a paragenetic function for chromosomes. *Developmental Genetics* 15(6): 523-532.
- °Jorgensen, R. 1994. The genetic origins of biosynthesis and light-responsive control of the chemical UV screen of land plants. In: BE Ellis et al, ed., *Genetic Engineering of Plant Secondary Metabolism*, Plenum Press: New York, pp.179-192.
- \*Jorgensen, R. 1993. The germinal inheritance of epigenetic information in plants. *Philosophical Transactions of the Royal Society London Series B* 339:173-181.
- °Jorgensen, R. 1993. Elicitation of organized pigmentation patterns by a chalcone synthase transgene. In: R. Amasino, ed., *Cellular Communication in Plants*. Plenum Press: New York, pp. 87-92.
- Jorgensen, R. 1993. The origin of land plants: a union of alga and fungus advanced by flavonoids? *Biosystems* 31:193-207. (original research)
- °Jorgensen, R. 1993. The modification of horticultural plant phenotypes by direct gene transfer. *Scientia Horticulturae* 55:1-4.
- Taylor, L.P., and R. Jorgensen. 1992. Conditional male fertility in chalcone synthase-deficient petunia. *Journal of Heredity* 83:11-17.
- \*Jorgensen, R. 1992. Silencing of plant genes by homologous transgenes. *AgBiotech News and Information* 4(9): 265N-273N.
- °Jorgensen, R., and J. Mol. 1991. Modulation of flower color and its intensity via directed gene manipulation. In: J. Harding, F. Singh, and J. Mol (eds.) *Genetics and Breeding of Ornamental Species*. Kluwer Academic Publishers: Dordrecht, pp. 309-316.
- DNA Plant Technology Corp. (engineering plant gene expression)*
- \*Dooner, H.K., T.P. Robbins, and R.A. Jorgensen. 1991. Genetic and developmental control of anthocyanin biosynthesis. *Annual Review of Genetics*. 25:173-199.
- Napoli, C., C. Lemieux, and R. Jorgensen. 1990. Introduction of a chimeric chalcone synthase gene into petunia results in reversible co-suppression of expression of homologous genes *in trans*. *Plant Cell* 2:279-289.
- \*Jorgensen, R. 1990. Altered gene expression in plants due to *trans* interactions between homologous genes. *Trends in Biotechnology* 8:340-344.
- \*Mol, J., A. Stuitje, A. Gerats, A. van der Krol, and R. Jorgensen. 1989. Saying it with genes: molecular flower breeding. *Trends in Biotechnology*, 7:148-153.
- Jorgensen, R., C. Snyder, and J. Jones. 1987. T-DNA is organized predominantly in inverted repeat structures in plants transformed with *Agrobacterium tumefaciens* C58 derivatives. *Molec Gen Genet* 207:471-477.
- Jones, J., D. Gilbert, K. Grady, and R. Jorgensen. 1987. T-DNA structure and gene expression in petunia plants transformed by *Agrobacterium tumefaciens* C58 derivatives. *Molec Gen Genet* 207:478-485.
- Jorgensen, R. 1987. A hybrid seed production method based on synthesis of novel linkages between marker and male-sterile genes. *Crop Science* 27:806-810.
- °Jorgensen, R. 1987. Synthetic linkages and genetic stability in transgenic plants: implications for breeding. In: DJ Nevins and RA Jones, eds., *Tomato Biotechnology*. Alan R Liss, Inc.: New York, pp. 179-188.
- Chyi, Y.S., R. Jorgensen, D. Goldstein, S. Tanksley, and F. Loaiza-Figueroa. 1986. Locations of

Agrobacterium-mediated T-DNA insertions in the *Lycopersicon* genome. *Molec. Gen. Genet.*, 204:64-69.

*Postdoctoral research (cont'd while at DNA Plant Technol.) (molecular genetics, population genetics, molecular evolution)*

- Allard, R., M. Saghai-Marooif, Q. Zhang, and R. Jorgensen. 1990. Genetic and molecular organization of ribosomal DNA (rDNA) variants in wild and cultivated barley. *Genetics* 126:743-751.
- Neale, D., M. Saghai-Marooif, R. Allard, and R. Jorgensen. 1988. Chloroplast DNA diversity in populations of wild and cultivated barley. *Genetics* 120:1105-1110.
- Jorgensen, R., and P. Cluster. 1988. Modes and tempos in the evolution of nuclear ribosomal DNA: new characters for evolutionary studies useful at several taxonomic levels. *Annals of Missouri Botanical Garden* 75:1238-1247.
- Jorgensen, R., R. Cuellar, W. Thompson, and T. Kavanaugh. 1987. Structure and variation in ribosomal RNA genes of pea. *Plant Mol Biol* 8:3-12.
- Palmer, J., R. Jorgensen, and W. Thompson. 1985. Chloroplast DNA variation and evolution in *Pisum*: patterns of change and phylogenetic analysis. *Genetics* 109:195-213.
- Saghai-Marooif, M., K. Soliman, R. Jorgensen, and R. Allard. 1984. Ribosomal DNA spacer-length polymorphisms in barley: Mendelian inheritance, chromosomal location, and population dynamics. *PNAS* 81:8014-8018.
- Thompson, W., M. Everett, N. Polans, R. Jorgensen, and J. Palmer. 1983. Phytochrome control of RNA levels in developing pea and mung bean leaves. *Planta* 158:487-500.
- Palmer, J., H. Edwards, R. Jorgensen, and W. Thompson. 1982. Novel evolutionary variation in transcription and location of two chloroplast genes. *Nucleic Acids Research* 10:6819-6832.

*Graduate research (bacterial genetics – transposable elements)*

- Schmidt, F., R. Jorgensen, M. DeWilde and J. Davies. 1981. A specific tetracycline- induced low molecular weight RNA encoded by the inverted repeats of Tn10 (IS10). *Plasmid* 6:148-150.
- Wray, L., R. Jorgensen, and W. Reznikoff. 1981. Identification of the tetracycline resistance promoter and repressor in transposon Tn10. *J Bacteriol* 147(2):297-304.
- Rothstein, S., R. Jorgensen, J.C.-P. Yin, Y. Zang, R. Johnson, and W. Reznikoff. 1981. Genetic organization of Tn5. *Cold Spring Harbor Symp Quant Biol* 45:99-105.
- Berg, D., C. Egner, B. Hirschel, J. Howard, L. Johnsrud, R. Jorgensen, and T. Tlsty. 1981. Insertion, excision and inversion of Tn5. *Cold Spring Harbor Symp Quant Biol* 45:115-123.
- Rothstein, S., R. Jorgensen, K. Postle, and W. Reznikoff. 1980. The inverted repeats of Tn5 are functionally different. *Cell* 19:795-805.
- Jorgensen, R., S. Rothstein, and W. Reznikoff. 1979. A restriction enzyme cleavage map of Tn5 and physical location of a region encoding neomycin resistance. *Molec Gen Genetics* 177:65-72.
- Jorgensen, R., and W. Reznikoff. 1979. Organization of structural and regulatory genes that mediate tetracycline resistance in the Tn10 transposon. *J Bacteriol* 138:705-714.
- Jorgensen, R., D. Berg, B. Allet, and W. Reznikoff. 1979. A restriction enzyme cleavage map of Tn10, a transposon that encodes tetracycline resistance. *J Bacteriol* 137: 681-685.
- °Davies, J., D. Berg, R. Jorgensen, M. Fiandt, P. Courvalin, and J. Sehloff. 1978. Transposable neomycin phosphotransferases. In: J. Drews and G. Hogenauer, eds., *R-Factors: Their Properties and Possible Control*. Springer-Verlag: New York, pp. 101-104.
- °Berg, D., R. Jorgensen, and J. Davies. 1978. Transposable Kanamycin-Neomycin Resistance Determinants. In: D. Schlessinger, ed, *Microbiology*. Am Soc Microbiol: Washington, pp. 13-15.
- °Jorgensen, R., D. Berg, and W. Reznikoff. 1978. Genetic organization in the transposable tetracycline resistance determinant Tn10. In: D. Schlessinger, ed, *Microbiology*. Amer So. Microbiol: Washington, pp. 181-183.

*Patents Issued*

- Jorgensen, R. 1993, 1994. Transformation of plants to introduce closely linked markers. US Patent #'s 5,180,873; 5,278,057.  
 Jorgensen, R., and C. Napoli. 1991, 1993, 1994. Genetic Engineering of Novel Plant Phenotypes. US Patent #'s 5,034,323; 5,231,020; 5,283,184.

*Commentaries and Editorials*

- Jorgensen, R. 2007. The Freedom to Innovate: A Privilege or a Right? *Plant Cell* 19: xxx-xxx. (editorial)  
 Jorgensen, R. 2007. 21<sup>st</sup> Century Plant Biology: Viva la Revolucion? *Plant Cell* 19: xxx-xxx. (editorial)  
 Jorgensen, R. 2007. New features for a new year. *Plant Cell* 19: xxx-xxx. (editorial)  
 Jorgensen, R. 2006. Large-Scale Biology. *Plant Cell* 18: 2095-6. (editorial)  
 Jorgensen, R. 2006. Plant Genomes. *Plant Cell* 18:1099-1099. (editorial)  
 Jorgensen, R.A. 2006. Q and A. *Current Biology* 16:R38-9. (question and answer essay)  
 Jorgensen, R.A., N.V. Raikhel, and D. Ort. 2005. ASPB's Response to NIH's Public Access Policy. *Plant Cell* 17:1637-1637.  
 Jorgensen, R. 2004. Criteria for Publication in *The Plant Cell*. *Plant Cell* 16:1645-1646.  
 Jorgensen, R. 2003. What is *The Plant Cell*? *Plant Cell* 15:1497-1498.  
 Jorgensen, R.A. 2002. Commentary: RNA traffics information systemically in plants. *Proc. Natl. Acad. Sci.* 99:11561-11563.  
 Jorgensen, R.A. 2000. Directed cell-to-cell movement of functional proteins: do transcription factors double as signal molecules in plants? *Science STKE* 58:PE2.  
 Chandler, V.L., and R. Jorgensen. 2000. Silencing *Morpheus* awakens transgenes. *Nature Biotechnology* 18:602-603.  
 Jorgensen, R.A., Q. Que, and M. Stam. 1999. Do unintended antisense transcripts contribute to sense cosuppression in plants? *Trends in Genetics* 15: 11-12.

*Total published articles (all types) = 77*

**Grants, Contracts, and Awards (Total ~ \$70,000,000)**

- NSF Plant Sciences Cyberinfrastructure Collaborative Program, "The iPlant Collaborative: A Cyberinfrastructure-Centered Community for a New Plant Biology"  
 2008-2013, \$50,000,000 total, Principal Investigator, 50% effort (5 subcontractor institutions)  
 Bud Antle Endowed Chair for Excellence in Agriculture and Life Sciences, College of Agriculture and Life Sciences, University of Arizona  
 2008 - 2013 \$40,000 per annum  
 Southwest Consortium on Plant Genetics and Water Resources, "Identification of novel salt tolerance genes in the halophyte *Thellungiella halophila* by Sense-RNAi"  
 2006-2007, \$40,000 total, co-Principal Investigator, 10% effort. (PI: K. Schumaker, UA)  
 NSF Plant Genome Research Program, "Functional Genomics by Sense-RNAi"  
 2005-2009, \$1,600,000 total, Principal Investigator (coPI: Michael Scanlon, Cornell Univ)  
 NSF Plant Genome Research Program, "ChromDB: Integrating Information On Plant Chromatin Proteins and Complexes"  
 2004-2009, \$1,600,000 total, co-Principal Investigator, (PI: C.A. Napoli)  
 ASPB, Institutional Support for Editor-in-Chief (*The Plant Cell*), 2003-2008, \$200,000 total  
 NSF Plant Genome Research Program, "SGER: Functional Genomics Tools Based on Double Standard RNA-mediated Transcriptional and Post-transcriptional Gene Silencing"  
 2003-2004, \$100,000 total, Principal Investigator  
 NSF Developing Country Collaborations in Plant Genome Research (DCC-PGR), "Sense RNAi-based forward genomic analysis of female gametogenesis and maternal development", Supplement to

- Cooperative Agreement No. DBI-9975930.  
2005-2006, \$48,033 total, Principal Investigator (coPI: Jean-Philippe Vielle Calzada, Cinvestav-Irapuato, Mexico)
- NSF Plant Genome Program, 2001- 2004, \$300,000 total. Research Experiences for Teachers (RET);  
Principal Investigator (in four annual supplements to Cooperative Agreement No. DBI-9975930).
- NSF Plant Genome Research Program, “Functional Genomics of Chromatin”  
1999-2004, \$12,000,000 total (including supplements), Principal Investigator (10 co-PI’s; 5 subcontractor institutions; Cooperative Agreement No. DBI-9975930)
- DOE Basic Energy Sciences Program, “Systemic RNA silencing, paramutation, and epigenetic control of gene expression”  
2001 – 2005, \$294,000 total, Principal Investigator
- DOE Basic Energy Sciences Program  
1998 – 2001, \$275,000 total, Principal Investigator
- USDA-NRICGP Plant Genetic Mechanisms Program  
1997 - 1999, \$120,000 total, Principal Investigator
- USDA-NRICGP Plant Genetic Mechanisms Program  
1995 - 1997, \$115,000 total PI: 50% effort  
1992 - 1995, \$195,000 total PI: 50% effort  
1991 - 1992, \$60,000 total PI: 100% effort
- Ministry of Agriculture, Forestry, and Fisheries (Japan), Pioneering Projects in Biotechnology  
1996 - 1999, \$375,000 total PI: 20-50% effort  
1993 - 1996, \$375,000 total PI: 50% effort
- USDA-NRICGP Plant Genetic Mechanisms. Gordon Research Conference on Plant Cell Genetics and Development: Apical Meristems and Primordia  
1995, \$6000
- National Science Foundation, Gordon Research Conference on Plant Cell Genetics and Development: Apical Meristems and Primordia  
1995, \$6000
- National Science Foundation SBIR Program  
1988-1990 \$200,000 PI (Co-PI: C.A. Napoli)  
1987 \$40,000 PI (Co-PI: H.K. Dooner)
- Florigene BV, Research Contract to DNA Plant Technology Corporation  
1988-1991, \$2,400,000
- USDA-CRGO Plant Genetic Mechanisms Program  
1981-1983, \$150,000 total role: PI (Co-PI: RW Allard)
- Carnegie Institution of Washington Postdoctoral Fellowship, 1979-81
- National Science Foundation National Needs Postdoctoral Fellowship, 1978-79
- National Science Foundation Undergraduate Summer Research Program Participant, 1972