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I. General Information

A. Academic Record

Degrees Received	Institution	Dates
B.S. (Biology)	Illinois State University	June, 1972
Ph.D. (Plant Physiology)	Colorado State University	Dec., 1975

B. Dates and Rank of Appointments Held

January 1976 to October 1978, Post-Doctoral Research Associate, MSU/ERDA Plant Research Laboratory, Michigan State University, E. Lansing, MI
October 1978 to July l982, Assistant Professor of Plant Physiology, Department of Horticulture, Purdue University
July l982 to July 1987, Associate Professor of Plant Physiology, Department of Horticulture, Purdue University
July 1987 to July 2002, Professor of Plant Physiology, Department of Horticulture, Purdue University
July 2002 to present, Distinguished Professor of Plant Physiology, Department of Horticulture and Landscape Architecture, Purdue University

C. Membership in Scientific, Professional and Honorary Organizations

The Society of Sigma Xi
Phi Sigma Society
American Society for Plant Physiologists

II. Teaching Effectiveness

A. Courses Taught

Horticulture/Biology 650, Plant Stress Physiology
Horticulture 695, 690W, Horticulture Seminar
Horticulture 650, Somatic Cell Genetics
Horticulture/Biology 650, Plant Gene Expression
Horticulture 590M, Genetic Transformation of Plants by Particle Bombardment
HORT – Plant Biology Program Qualifying Exam Course

B. Courses Where Guest Lecturer

HORT 490 - Current Topics in Horticultural Research--Somatic variability
HORT 404 - Environmental Physiology - Responses of plants to water and salt stress
HORT 513 - Nutrition of Horticultural Crops - Ion transport

HORT 445 - Postharvest Physiology, HORT 652G Postharvest Physiology & Senescence - Fruit structure and development
HORT 650G - Cell & Tissue Culture - Somatic cell genetics
HORT 553 - Plant Growth & Development (Plant Physiology II) - Role of abscisic acid in plant physiology
AGR 530 - Advanced Genetics - Somatic cell genetics
HORT 652D - Nontraditional Methods of Plant Breeding - Somatic cell genetics
HORT 601 - Planning and Presenting Horticulture Research - Introduction to equipment and equipment facilities available to graduate students

III. Publications

A. Refereed Papers

Jensen ME, Bressan RA (1972) Photochemical reduction by isolated chloroplasts of a soybean mutant. Trans. Ill. Acad. Sci. 65:30-34.
Bressan RA, Ross CW, Vandepeute J (1976) Attempts to detect adenosine cyclic - 3':5' monophosphate in higher plants by three assay methods. Plant Physiol. 57:29-37.
Bressan RA, MG Murray, JM Gale, CW Ross (1978) Properties of pea seedling uracil phosphoribosyltransferase and its distribution in other plants. Plant Physiol. 61:442-446
Wilson LG, RA Bressan, P Filner (1978) Light dependent emission of hydrogen sulfide from plants. Plant Physiol. 61:184-189.
Bressan RA, Wilson LG, Filner P (1978) Mechanisms of resistance to sulfur dioxide. Plant Physiol. 61:761-767.
Bressan RA, Wilson LG, LeCureux L, Filner P (1978) Emission of ethylene and ethane by leaf tissue exposed to injurious concentrations of sulfur dioxide or bisulfite ion. Plant Physiol. 63:924-930.
Hood EE, Susan Armour, James D. Ownby, Avtar K. Handa, and Ray A Bressan. (1979) Effect of nitrogen starvation on the level of adenosine 3',5'-cyclic monophosphate in *Anabaena variabilis*. Biochemica et Biophysica Acta. 588:193-200.
Bressan RA, Avtar K. Handa, and Judith Cherniak. (1980) The synthesis of cAMP from 32Pi by *Chlamydomonas rheinhardtii* and its release into the medium. Phytochem. 19:2089-2093.
Bressan RA, Avtar K. Handa, Hartmut Quader, and Philip Filner. (1980) The presence of cAMP in *Poterioochromonas malhamensis*. Plant Physiol. 65:165-170.
Handa AK, Bressan RA (1980) A new assay for cAMP using cAMP dependent protein kinase. Analytical Biochem. 102:332.
Hasegawa PM, Bressan RA, Handa AK (1980) Growth characteristics of NaCl selected and nonselected cells of *Nicotiana tabacum* L. Plant and Cell Physiol. 21:1347-1355.
Bressan RA, Hasegawa PM, Handa AK (1981. Resistance of cultured higher plant cells to polyethylene glycol-induced water stress. Plant Sci. Lett. 21:23-30.
Bressan RA, Lloyd LeCureux, and Philip Filner. (1981) The inheritance of SO_2 resistance in *Cucumis sativus* sp. HortScience 16(3):332.
Handa AK, Bressan RA, Quader M, Filner P (1981) Association of formation and release of cAMP with glucose starvation and subsequent chlorophyll synthesis in *Ochromonas malhamensis*. Plant Physiol. 68:460-463.
Tsai CY, Warren HL, Huber DM, Bressan RA (1981) Interactions between the kernel N sink, grain yield and protein nutritional quality of maize. J. Sci. Food Agric. 34:255-263.
Handa AK, Handa S, Bressan RA, Hasegawa PM (1982) Characteristics of cultured tomato cells after prolonged exposure to medium containing polyethylene glycol. Plant Physiol. 69:514-521.
Jarret RL, Hasegawa PM, Bressan RA (1982) Gibberellic acid regulation of adventitious shoot formation from tuber discs of potato. In Vitro. l7:825-830.
Kim Y-J, Hasegawa PM, Bressan RA (1982) *In vitro* propagation of hyacinth. HortScience. 16:645-647.
Hyndman SE, Hasegawa PM, Bressan RA (1982) A basis for increased rooting from cultured shoots through the use of reduced mineral salts concentrations. HortScience. 17:82-83.
Hyndman SE, Hasegawa PM, Bressan RA (1982) The role of sucrose and nitrogen in adventitious root initiation on cultured rose shoots. Plant Cell Tissue and Organ Culture. 1:229-238.
Bressan RA, Handa AK, Handa S, Hasegawa PM (1982) Growth and water relations characteristics of cultured tomato cells during adjustment to low external water potentials. Plant Physiol. 70:1303-1309.

Bressan PH, Kim Y-J, Hyndman SE, Hasegawa PM, Bressan RA (1982) Factors affecting *in vitro* propagation of rose. Journal of American Horticultural Society. 107:979-990.
Handa AK, Bressan RA, Park M, Hasegawa (1982) The use of plant cell cultures to study production and phytotoxicity of *Alternaria solani* toxin. Physiological Plant Pathology. 21:295-309.
LaRosa PC, Hasegawa PM, Bressan RA (1982) Photoautotrophic Potato Cells: Transition from heterotrophic to autotrophic growth. Physiologia Plantarum. 61:279-286.
Jayaswal RK, Bressan RA, Handa AK, Hasegawa PM (1983) Occurrence of cAMP in the phytopathogenic fungus *Alternaria solani*. Archives of Microbiology. 135:125-129.
Handa S, Bressan RA, Handa AK, Carpita NC, Hasegawa PM (1983) Solutes contributing to osmotic adjustment in cultured cells adapted to water stress. Plant Physiol. 73:834-843.
Handa AK, Bressan RA, Handa S, Hasegawa PM (1983) Clonal variation for tolerance to PEG-induced water stress in cultured tomato cells. Plant Physiol. 72:645-653.
Jayaswal RK, Bressan RA, Handa AK (1984) Mutagenesis of *Erwinia carotovora* subsp. *carotovora* with bacteriophage Mu d1(Apr lac cts62): Construction of his::lac gene fusion. J. Bacteriology. 158:764-766.
Pratt RC, Bressan RA, Hasegawa PM (1985) Genotypic diversity enhances recovery of hybrid and fertile backcrosses of *Phaseolus vulgaris* x *P. acutifolius* A. Gray. Euphytica. 34:329-344.
Jayaswal RK, Bressan RA, Handa AK (1985) Adenylate cyclase from phytopathogenic fungus *Alternaria solani*. FEMS Microbiology Letters. 27:313-318.
Jayaswal RK, RA Bressan, Handa AK (1985) Behavior of bacteriophage P1 in *Erwinia carotovora*. Current Microbiology. 17:73-78.
LaRosa,PC, Handa AK, Hasegawa PM, Bressan RA (1985) Abscisic acid accelerates adaptation of cultured tobacco cells to NaCl. Plant Physiology. 79:138-142.
Binzel ML, Hasegawa PM, Handa AK, Bressan RA (1985) Adaptation of tobacco cells to NaCl. Plant Physiology. 79:118-125.
Singh NK, Handa AK, Hasegawa PM, Bressan RA (1985) Proteins associated with adaptation of cultured tobacco cells to NaCl. Plant Physiol. 79:126-137.
Jayaswal RK, Bressan RA, Handa AK (1985) Effects of a mutation that eliminates UDP glucose pyrophosphorylase on the pathogenicity of *Erwinia carotovora* subsp. *carotovora*. J. Bact. 164:473-476.
Handa S, Bressan RA, Hasegawa PM, Handa AK (1986) Proline accumulation and the adaptation of cultured plant cells to water stress. Plant Physiol. 80:938-945.
Rhodes D, Handa S, Bressan RA (1986) Metabolic changes associated with adaptation of plant cells to water stress. Plant Physiol. 82:890-903.
Kanabus JN, Carpita NC, Bressan RA. (1986) Carbon utilization by carrot cells in culture. Plant Physiol. 82:363-368.
Jayaswal RK, Bressan RA, Charles DJ, Handa AK (1986) Studies on Inc-P plasmids in *Erwinia carotovora* subsp. *carotovora*. FEMS Microbiology Letters. 35:307-312.
Singh NK, LaRosa PC, Handa AK, Hasegawa PM, Bressan RA (1987) Hormonal regulation of protein synthesis associated with salt tolerance in plant cells. Proc. Natl. Acad. Sci. USA. 84:739-743.
Singh NK, Bracker CE, Handa AK, Hasegawa PM, Buckel S, Hermodson MA, Pfankoch E, Regnier FE, Bressan RA (1987) Characterization of osmotin: a thaumatin-like protein associated with osmotic adaptation in plant cells. Plant Physiol. 85:529-536.
LaRosa PC, Hasegawa PM, Rhodes D, Bressan RA. (1987) Abscisic acid stimulated osmotic adjustment and its involvement in adaptation of tobacco cells. Plant Physiol. 85:174-181.
Binzel M, Hasegawa PM, Rhodes D, Handa S, Bressan RA. (1987) Solute accumulation in tobacco cells adapted to NaCl. Plant Physiol. 84:1408-1415.
Binzel, M.L., F.D. Hess, Bressan RA, and P.M. Hasegawa. (1988) Intracellular compartmentation of ions in salt adapted tobacco cells. Plant Physiol. 86:607-614.
Iraki, N.M., Bressan RA, Hasegawa PM, and N.C. Carpita. (1989) Alteration of the physical and chemical structure of the primary cell wall of growth-limited plant cells adapted to osmotic stress. Plant Physiol. 91:39-47.
Iraki, N.M., Bressan RA, and N.C. Carpita. (1989) Extracellular polysaccharides and proteins of tobacco cell cultures and changes in composition associated with growth-limiting adaptation to osmotic stress. Plant Physiol. 91:48-53.
Iraki, N.M., N.K. Singh, Bressan RA, and N.C. Carpita. (1989) Cell walls of tobacco cells and changes in composition associated with reduced growth upon adaptation to water and saline stress. Plant Physiol. 91:54-61.
Dyer, W.B., S.C. Weller, Bressan RA, and K. Herrmann. (1989) Selection and characterization of tobacco cells tolerant to glyphosate. Plant Physiol. 88:661-667.
LaRosa, P.C., N.K. Singh, Hasegawa PM, and R.A. Bressan. (1989) Stable NaCl tolerance of tobacco cells is associated with enhanced accumulation of osmotin. Plant Physiol. 91:855-861.

Singh, N.K., D. Nelson, D. Kuhn, Hasegawa PM, and R.A. Bressan. (1989) Molecular cloning of osmotin cDNA and regulation of its expression by adaptation to low water potential. Plant Physiol. 90:1096-1101.
Schnapp, S.R., Bressan RA, and P.M. Hasegawa. (1990) Carbon use efficiency in tobacco cells adapted to NaCl. Plant Physiol. 93:384-388.
Kononowicz, A.K., K. Floryanowicz-Czekalska, Hasegawa PM, and R.A. Bressan. (1990) Chromosome number and DNA content of tobacco cells adapted to NaCl. Plant Cell Reports. 8:672-675.
Kononowicz, A.K., K. Floryanowicz-Czekalska, Hasegawa PM, and R.A. Bressan. (1990) Chromosome number and nuclear DNA content of plants regenerated from salt adapted plant cells. Plant Cell Reports. 8:676-679.
Pratt, R.C., N.K. Singh, R.E. Shade, and R.A. Bressan. (1990) Isolation and partial characterization of a seed lectin from tepary bean that delays bruchid beetle development. Plant Physiol. 93:1453-1459.
Reuveni, M., A.B. Bennett, Bressan RA, and P.M. Hasegawa. (1991) Enhanced H^+ transport capacity and ATP hydrolysis activity of the H^+-ATPase after NaCl adaptation. Plant Physiol. 94:524-530.
Watad, A.A., M.R. Reuveni, Bressan RA, and P.M. Hasegawa. (1991) Enhanced net K^+ uptake capacity of NaCl-adapted cells. Plant Physiol. 95:1265-1269.
Schnapp, S.R., Bressan RA, W. Curtis, and P.M. Hasegawa. (1991) Estimation of growth yield and maintenance coefficients in batch and semi-continuous culture. Biotechnol. Bioeng. 38:1131-1136.
LaRosa, P.C., D. Rhodes, J.C. Rhodes, Bressan RA, and L.N. Csonka. (1991) Δ^1-pyrroline-5-carboxylic acid reductase is not induced in proline accumulating tobacco cells adapted to NaCl. Plant Physiol. 96:245-250.
Casas, A., Bressan RA, and P.M. Hasegawa. (1991) Cell growth and water relations of the halophyte, *Atriplex nummularia* L. in response to NaCl. Plant Cell Reports. 10:81-84.
Jayaswal, R.K., Handa AK, Bressan RA, J. Cherniak, and P. Filner. (1991) Physiological and heritable changes in cAMP levels associated with changes in flagellar formation in *Chlamydomonas rheinhardtii* (Chlorophyta). J. Phycology. 27:587-591.
Schnapp, S.R., W.R. Curtis, Bressan RA, and P.M. Hasegawa. (1991) Growth yields and maintenance coefficients of unadapted and NaCl adapted tobacco cells grown in semi-continuous culture. Plant Physiol. 96:1289-1293.
Rietveld, R.C., Hasegawa PM, and R.A. Bressan. (1991) Somaclonal variation in tuber disc-derived populations of potato: Evidence of genetic stability across tuber generations and diverse location. Theoretical Appl. Genet. 82:430-440.
Watad, A.A., D. Swartzburg, Bressan RA, S. Izhar, and P.M. Hasegawa. (1991) Stability of salt tolerance at the cell level after regeneration of plants from a salt tolerant tobacco cell line. Physiologia Plantarum. 83:307-313.
Kononowicz, A.K., Hasegawa PM, and R.A. Bressan. (1991) Cell cycle duration in tobacco cells adapted to NaCl. Environmental and Experimental Botany. 32:1-9.
Narasimhan, M.L., M.L. Binzel, E. Perez-Prat, N.K. Singh, Bressan RA, and P.M. Hasegawa. (1991) NaCl regulation of tonoplast ATPase 70-kD subunit mRNA in tobacco cells. Plant Physiol. 97:567-568.
Casas, A.M., D.E. Nelson, K.G. Raghothama, M. Paino D'Urzo, N.K. Singh, Bressan RA, and P.M. Hasegawa. (1992) Expression of osmotin-like genes in the halophyte *Atriplex nummularia*. Plant Physiol. 99:329-337.
LaRosa, P.C., Z. Chen, D.E. Nelson, N.K. Singh, Hasegawa PM, and R.A. Bressan. (1992) Developmental, hormonal and environmental factors that affect transcriptional and post-transcriptional regulation of the osmotin gene. Plant Physiol. 100:409-415.
Nelson, D.E., K.G. Raghothama, N.K. Singh, Hasegawa PM, and R.A. Bressan. (1992) Analysis of structure and transcriptional activation of an osmotin gene. Plant Mol. Biol. 19:577-588.
Reitvelt, R.C., Bressan RA, and P.M. Hasegawa. (1992) Somaclonal variation in tuber disc-derived populations of potato: II. Differential effect of genotype. Theor. Appl. Genet. 87:305-313.
Kononowicz, A.K., D.E. Nelson, N.K. Singh, Hasegawa PM, and R.A. Bressan. (1992) Osmotic Regulation of the osmotin gene promoter. Plant Cell. 4:513-524.
Zhu, J.-K., Bressan RA, and P.M. Hasegawa. (1992) An *Atriplex nummularia* cDNA with sequence homology to the algal caltractin gene. Plant Physiol. 99:1734-1735.
Perez-Prat, E., M.L. Narasimhan, M.L. Binzel, M.A. Botella, Z. Chen, V. Valpuesta, Bressan RA, and P.M. Hasegawa. (1992) Induction of a putative Ca^{2+}-ATPase mRNA in NaCl adapted cells. Plant Physiol. 100:1471-1478.
Zhu, J.-K., J. Shi, Bressan RA, and P.M. Hasegawa. (1993) Expression of an *Atriplex nummularia* gene encoding a protein homologous to the bacterial molecular chaperone DnaJ. Plant Cell. 5:341-349.

Reuveni, M., Bressan RA, and P.M. Hasegawa. (1993) Modification of proton transport kinetics of the plasma membrane H^+-ATPase after adaptation of tobacco cells to NaCl. Plant Physiol. 142:312-318.
Zhu, J.-K., J. Shi, U. Singh, S.E. Wyatt, Bressan RA, Hasegawa PM, and N.C. Carpita. (1993) Enrichment of vitronectin- and fibronectin-like proteins in NaCl-adapted plant cells and evidence for their involvement in plasma membrane-cell wall adhesion. Plant Journal. 3:637-646.
Niu, X., J.-K. Zhu, M.L. Narasimhan, Bressan RA, and P.M. Hasegawa. (1993) Plasma-membrane H^+-ATPase gene expression is regulated by NaCl in cells of the halophyte *Atriplex nummularia*. Planta. (190:433-438.
Zhu, J.-K., Bressan RA, and P.M. Hasegawa. (1993) Loss of arabinogalactin-protein from the plasma membrane of NaCl-adapted cells. Planta. 190:221-226.
Smeda, R.J., Hasegawa PM, P.B. Goldsbrough, N.K. Singh, and S.C. Weller. (1993) A serine to threonine substitution in Q_B protein in potato cells results in atrazine resistance without impairing productivity. Plant Physiol. 103:911-914.
Casas, A.M., A.K. Kononowicz, U.B. Zehr, D.T. Tomes, J.D. Axtell, L.G. Butler, Bressan RA, and P.M. Hasegawa. (1993) Transgenic sorghum plants via microprojectile bombardment. Proc. Natl. Acad. Sci. USA. 90:11212-11216.
Niu, X., M.L. Narasimhan, R.A. Salzman, Bressan RA, and P.M. Hasegawa. (1993) NaCl regulation of plasma membrane H^+-ATPase gene expression in a glycophyte and a halophyte. Plant Physiol. 103:713-718.
Raghothama, K.G., D. Liu, D.E. Nelson, Hasegawa PM, and R.A. Bressan. (1993) Analysis of an osmotically regulated pathogenesis-related osmotin gene promoter. Plant. Mol. Biol. 23:1117-1128.
Zhu, J.-K., Bressan RA, and P.M. Hasegawa. (1993) Isoprenylation of the plant molecular chaperone ANJ1 facilitates membrane association and function at high temperature. Proc. Natl. Acad. Sci. USA. 90:8557-8561.
Chang, P.-F., M.L. Narasimhan, Hasegawa PM, and R.A. Bressan. (1993) Quantitative mRNA-PCR for expression analysis of low-abundance transcripts. Plant. Mol. Biol. Rept. 11:237-248.
Zhu, J.-K., B. Damsz, A.K. Kononowicz, Bressan RA, and P.M. Hasegawa. (1994) A higher plant extracellular vitronectin-like adhesion protein is related to the translational elongation factor-1α. Plant Cell. 6:393:404.
Niu, X., H. Wang, Bressan RA, and P.M. Hasegawa. (1994) Molecular cloning and expression of a glyceraldehyde-3-phosphate dehydrogenase gene in a desert halophyte, *Atriplex nummularia* L. Plant Physiol. 104:1105-1106.
Perez-Prat, E., M.L. Narasimhan, X. Niu, M.A. Botella, Bressan RA, V. Valpuesta, Hasegawa PM, and M.L. Binzel. (1994) Growth cycle stage-dependent NaCl induction of plasma membrane H^+-ATPase mRNA accumulation in de-adapted tobacco cells. Plant Cell Environ. 17:327-333.
Liu, D., K.G. Raghothama, Hasegawa PM, and R.A. Bressan. (1994) Osmotin overexpression in potato delays development of disease symptoms. Proc. Natl. Acad. Sci. USA. 91:1888-1892.
Xu, Y., M. Narasimhan, P.F. (L.) Chang, K.G. Raghothama, Hasegawa PM, and R.A. Bressan. (1994) Plant defense genes are synergistically induced by ethylene and methyl jasmonate. Plant Cell. 6:1077-1085.
Chen, Z., H. Fu, D. Liu, L.P.-F. Chang, M. Narasimhan, R. Ferl, Hasegawa PM, and R.A. Bressan. (1994) A NaCl-regulated plant gene encoding a brain protein homologue that activates ADP ribosyltransferase and inhibits protein kinase C. Plant J. 6:729-740.
Botella, M.A., M.A. Quesada, A.K. Kononowicz, Bressan RA, F. Pliego, Hasegawa PM, and V. Valpuesta. (1994) Characterization and *in situ* localization of a salt-induced tomato peroxidase mRNA. Plant Mol. Biol. 25:105-114.
Grillo, S., A. Leone, Y. Xu, M. Tucci, R. Fracione, Hasegawa PM, L. Monti, R.A. Bressan. (1995) Control of osmotin gene expression by ABA and osmotic stress. Physiol. Plant. 93:498-504.
Thilmony, R.L., Z. Chen, Bressan RA, and G.M. Martin (1995) Expression of the tomato Pto gene in tobacco enhances resistance to *Pseudomonas syringae* pv tobaci expressing avrPto. The Plant Cell 7:1529-1536.
Zhu, J.-K., Hasegawa PM, Bressan RA, and X. Niu (1996) Multiple transcripts of a novel plant calcium-binding protein gene are differentially regulated by developmental and environmental stimuli. Physiologia Plantarum 97:499-506.
Zuker, A., P.-F.L. Chang, A. Ahroni, K. Cheah, W.R. Woodson, Bressan RA, E.A. Watad, Hasegawa PM, and A. Vainstein (1995) Transformation of carnation by microprojectile bombardment. Scientia Horticulturae 64:177-185.
Mitchell, C., L. Sherman, S. Nielsen, P. Nelson, P. Trumbo, T. Hodges, P. Hasegawa, R. Bressan, M. Ladisch, and D. Auslander (1995) Earth benefits of interdisciplinary CELSS-related research by the NSCORT in bioregenerative life support. Adv. Space Res. 18:4/5:23-31.

Zhu, K., J. Heusing, R. Shade, R. Bressan, Hasegawa PM, and L. Murdock (1996) An insecticidal N-acetylaglucosamine-specific lectin gene from *Griffonia simplicifolia* (Legumónosae). Plant Physiol. 110:195-202.
Chang, P.-F.L., K.T. Cheah, M.L. Narasimhan, Hasegawa PM, and R.A. Bressan (1995) Osmotin gene expression is controlled by elicitor synergism. Physiol. Plant. 95:620-626.
Liu, D., M.L. Narasimhan, Y. Xu, K.G. Raghothama, Hasegawa PM, and R.A. Bressan (1995) Fine structure and function of the osmotin gene promoter. Plant Mol Biol 29:1015-1026
Salzman, R.A., Bressan RA, Hasegawa PM, E.N. Ashworth, and B.P. Bordelon (1996) Programmed accumulation of LEA-like proteins during desiccation and cold acclimation of overwintering grape buds. Plant Cell Environ. 19:713-720.
Zhou, J., Y.-T. Loh, Bressan RA, and G.B. Martin. (1995) The tomato gene *Pti1* encodes a serine/threonine kinase that is phosphorylated by Pto and is involved in the hypersensitive response. Cell 83:925-935.
Niu, X., B. Damsz, A.K. Kononowicz, Bressan RA, and P.M. Hasegawa (1996) Tissue specific induction of plasma membrane H^+-ATPase gene expression by NaCl. Plant Physiol. 111:679-686
Abad, L.R., M. Paino D'Urzo, D. Liu, M.L. Narasimhan, M. Reuveni, J.-K. Zhu, X. Niu, N.K. Singh, Hasegawa PM, and R.A. Bressan (1996) Antifungal activity of tobacco osmotin has specificity and involves plasmamembrane permeabilization. Plant Sci. 118:11-23.
Maggio, A., Bressan RA, P.M. Hasegawa and R.D. Locy (1997) Moderately increased constitutive proline does not alter osmotic stress tolerance. Physiol Plant 101:240-246.
Ping, X., A. Watad, D.-J. Yun, Hasegawa PM, R.A. Bressan (1997) An expedient and reliable method to identify gene constructs in *Agrobacterium* vectors. Plant Tissue Culture and Biotechnology 3:1, 37-40.
Ping, X., J. Ling, D. Li, Hasegawa PM, R.A. Bressan (1999) Identification of a novel binding protein to the osmotin promoter. Science in China, 1-8.
Raghothama, K.G., A. Maggio, M.L. Narasimhan, A.K. Kononowicz, G. Wang, M. Paino D'Urzo, Hasegawa PM, R.A. Bressan. (1997) Tissue specific activation of the osmotin gene by ABA, C_2H_4 and NaCl involves the same promoter region. Plant Mol Biol 34:393-402.
Yun, D.-J., Y. Zhao, J.M. Pardo, M.L. Narasimhan, B. Damsz, H. Lee, L.R. Abad, M.P. D'Urzo, Hasegawa PM, R.A. Bressan (1997) Stress proteins on the yeast cell surface determine resistance to osmotin, a plant antifungal protein. Proceedings of the National Academy of Science. 94:7082-7087.
Niu, X., K. Lin, Hasegawa PM, Bressan RA, S.C. Weller (1997) Transgenic peppermint (*Mentha x piperita* L.) plants obtained by co-cultivation with *Agrobacterium tumefaciens.* Plant Cell Reports 17:165-171.
Casas, A.M., A.K. Kononowicz, U.B. Zehr, L. Zhang, T.G. Haan, D.T. Tomes, Bressan RA, P.M. Hasegawa (1997) Approaches to the genetic transformation of sorghum. EUCARPIA
García-Ríos, M., T. Fujita, P.C. LaRosa, R.D. Locy, J.M. Clithero, Bressan RA, and L.N. Csonka (1997) Cloning of a polycistronic cDNA from tomato encoding γ-glutamyl phosphate reductase. Proceedings of the National Academy of Science. 94:8249-8254.
Chang, P.-F.L., Y. Xu, M.L. Narasimhan, K.T. Cheah, M.P. D'Urzo, B. Damsz, A.K. Kononowicz, L. Abad, Hasegawa PM, and R.A. Bressan. (1997) Induction of pathogen resistance and pathogenesis-related genes in tobacco by a heat-stable *Trichoderma mycelial* extract and plant signal messengers. Physiol. Plant. 100:342-352.
Casas, A.M., A.K. Kononowicz, T.G. Haan, L. Zhang, D.T. Tomes, Bressan RA, P.M. Hasegawa. (1997) Transgenic sorghum plants obtained after microprojectile bombardment of immature inflorescences. In Vitro Cell. Dev. Biol. 33:92-100.
Watad, A.A., D.-J. Yun, T. Matsumoto, X. Niu, Y. Wu, A.K. Kononowicz, Bressan RA, and P.M. Hasegawa. (1998) Microprojectile bombardment-mediated transformation of *Lilium longiflorum*. Plant Cell Reports 17:262-267.
Koiwa, H., R.E. Shade, K. Zhu-Salzman, L. Subramanian, L.L. Murdock, S.S. Nielsen, Bressan RA, P.M. Hasegawa. (1997) Phage display selection can differentiate insecticidal activity of soybean cystatins. Plant J. 14:371-379.
Salzman RA, Tikhonova I, Abad LR, Hasegawa PM, Bressan RA, Bordelon BP (1998) Coordinately controlled accumulation of antifungal proteins and hexoses comprises a synergistic defense response in grape. Plant Physiol. 117:465-472.
Yun D-J, Ibeas JI, Lee H, Coca MA, Narasimhan ML, Uesono Y, Hasegawa PM, Pardo JM, Bressan RA (1998) Osmotin, a plant antifungal protein, subverts signal transduction to enhance fungal cell susceptibility. Molecular Cell 1:807-817.
Xu P, Narasimhan ML, Samson T, Coca MA, Huh G-H, Zhou J, Martin GB, Hasegawa PM, Bressan RA (1998) A nitrilase-like protein interacts with GCC box DNA-binding proteins involved in ethylene and defense responses. Plant Physiol. 118:867-874.

Zhu-Salzman K, Shade RE, Koiwa H, Salzman RA, Narasimhan M, Bressan RA, Hasegawa PM, Murdock LL (1998) Carbohydrate binding and resistance to proteolysis control insecticidal activity of *Griffonia simplicifolia* lectin II. Proceedings of the National Academy of Science. 95:15123-15128.

Zhu-Salzman K, Salzman RA, Koiwa H, Murdock LL, Bressan RA, Hasegawa PM (1998) Ethylene negatively regulates local expression of plant defense lectin genes. Physiol Plant 104:365-372.

Pardo JM, Reddy MP, Yang S, Maggio A, Huh G-H, Matsumoto T, Coca MA, Paino-D'Urzo M, Koiwa H, Yun D-J, Watad AA, Bressan RA, Hasegawa PM (1998) Stress signaling through Ca^{2+}/calmodulin-dependent protein phosphatase calcineurin mediates salt adaptation in plants. Proc Natl Acad Sci 95:9681-9686.

Salzman RA, Fujita T, Zhu-Salzman K, Hasegawa PM, Bressan RA (1999) An improved RNA isolation method for plant tissues containing high levels of phenolic compounds or carbohydrates. Plant Mol Biol Reporter 17:11-17.

Li X, Niu X, Bressan RA, Weller SC, Hasegawa PM (1999) Highly efficient plant regeneration of Native Spearmint (*Mentha spicata* L.). In Vitro Cell Develop Biol-Plant 35:333-338

Niu X, Li X, Veronese P, Bressan RA, Weller SC, Hasegawa PM (2000) Factors affecting *Agrobacterium tumefaciens*-mediated transformation of peppermint. Plant Cell Reports 19:304-310.

Koiwa H, D'Urzo MP, Zhu-Salzman K, Ibeas J.I., Shade RE, Murdock LL, Bressan RA, Hasegawa PM (2000) An in-gel assay of a recombinant western corn rootworm (*Diabrotica virgifera virgifera*) cysteine proteinase expressed in yeast. Anal. Biochem 282:153-155.

Koiwa H, Shade RE, Zhu-Salzman K, D'Urzo MP, Murdock LL, Bressan RA, Hasegawa PM (2000) A plant defensive cystatin (soyacystatin) targets cathepsin L-like digestive cysteine proteinases (DvCALs) in the larval midgut of western corn rootworm (*Diabrotica virgifera virgifera*). FEBS Lett 471:67-70.

Amaya I, Botella MA, de la Calle M, Medina MI, Heredia A, Bressan RA, Hasegawa PM, Quesada MA, Valpuesta V (1999) Improved germination under osmotic stress of tobacco plants overexpressing a cell wall peroxidase. FEBS Lett 457:80-84.

Xu P, Ling J, Li D, Hasegawa PM, Bressan RA (1999) Identification of a novel DNA binding protein to osmotin promoter. Science in China 1-8.

Niu X, Li X, Veronese P, Bressan RA, Weller SC, Hasegawa PM (2000) Factors affecting *Agrobacterium tumefaciens*-mediated transformation of peppermint. Plant Cell Rept 19:304-310.

Coca, M.A., Damsz, B., Yun, D.-J., Hasegawa PM, Bressan, R.A., Narasimhan, M,L, (2000) Heterotrimeric G-proteins of a filamentous fungus regulate cell wall composition and susceptibility to a plant PR-5 protein. Plant J 22:61-69.

Koiwa, H., Paino D'Urzo, M., Zhu-Salzman, K, Ibeas, J.I., Shade, R.E., Murdock, L.L., Bressan, R.A., Hasegawa, P.M. (2000) An in-gel assay of a recombinant Western Corn Rootworm (*Diabrotica virgifera virgifera*) cysteine proteinase expressed in yeast. Anal. Biochem. 282:153-155.

Ibeas, J.I., Lee, H., Damsz, B., Prasad, D.T., Pardo, J.M., Hasegawa PM, Bressan, R.A., Narasimhan, M.L. (2000) Fungal cell wall phosphomannans facilitate the toxic activity of a plant PR-5 protein. Plant J. 23:375-383.

Ibeas, J.I., Yun, D.-J., Damsz, B., Narasimhan, M.L., Uesono, Y., Ribas, J.C., Lee, H., Hasegawa PM, Bressan, R.A., Pardo, J.M. (2001) Resistance to the Plant PR-5 protein osmotin in the model fungus *Saccharomyces cerevisiae* is mediated by the regulatory effects of SSD1 on cell wall composition. Plant J. 25:275-280.

Li, X., Gong, Z., Koiwa, H., Niu, X., Espartero, J., Zhu, X., Veronese, P., Ruggiero, B., Bressan, R.A., Weller, S.C., Haseawa, P.M. (2001) *Bar* expressing peppermint (*Menha* X *Piperita* L., var. Black Mitcham) plants are highly resistant to the glufosinate herbicide Liberty. Mol. Breeding 8:109-118.

Maggio, A., Consiglio, F., Joly, R.J., Haseawa, P.M., Bressan, R.A. (2001) Unraveling the functional relationship between root anatomy and plant salt tolerance. Austral. J. Plant Physiol. 28:999-1004.

Koiwa, H., Paino D'Urzo, M., Machleidt, I., Zhu-Salzman, K., Shade, R.E., An, H., Murdock, L.L., Machleidt, W., Bressan, R.A., Hasegawa, P.M. (2001) Phage display selection of hairpin loop soyacystatin variants that mediate high affinity inhibition of a cysteine proteinase. Plant J 14:371-379.

Matsumoto, T.K., Pardo, J.M., Takeda, S., Bressan, R.A., Hasegawa, P.M. (2001) Tobacco and *Arabidopsis SLT1* mediate salt tolerance of yeast. Plant Mol. Biol. 45:489-500

Gong, Z., Koiwa, H., Cushman, M.A., Ray, A., Bufford, D., Kore-eda, S., Matsumoto, T., Zhu, J., Cushman, J., Bressan, R.A., Hasegawa, P.M. (2001) Genes that are uniquely stress-regulated in salt overly sensitive (*sos*) mutants. Plant Physiol. 126:1363-1375.

Narasimhan, M.L., Damsz, B., Coca, M.A., Ibeas, J.I., Yun, D-J., Pardo, J.M., Hasegawa PM, Bressan, R.A. (2001) A plant defense response effector induces microbial apoptosis. Mol. Cell 8:921-930.

Rus, A., Yokoi, S., Sharkhuu, A., Reddy, M., Lee, B., Matsumoto, T.K., Koiwa, H., Zhu, J-K., Bressan, R.A., Hasegawa, P.M. (2001) AtHKT1 is a salt tolerance determinant that controls Na^+ entry into plant roots. PNAS 98:14150-14155.

Huh, G.-H., Damsz, B., Matsumoto, T.K., Reddy, M.P., Rus, A.M., Ibeas, J.I., Narasimhan, M.L., Bressan, R.A., Hasegawa, P.M. (2002) Salt causes ion disequilibrium-induced programmed cell death in yeast and plants. Plant J 29:649-659.

Yokoi, S., Quintero, F.J., Cubero, B., Ruiz, T., Bressan, R.A., Hasegawa PM, Pardo, J.M. (2002) Differential expression and function of *Arabidopsis thaliana* NHX Na^+/H^+ antiporters in the salt stress response. Plant J 30:529-539.

Koiwa, H., Barb, A.W., Xiong, L., Li, F., McCully, M.G., Lee, B.-H., Sokolchik, I., Zhu, J.H., Gong, Z., Reddy, M., Sharkhuu, A., Manabe, Y., Yokoi, S., Zhu, J.-K., Bressan, R.A., Haseawa, P.M. (2002) C-terminal domain phosphatase-like family members (AtCPLs) differentially regulate *Arabidopsis thaliana* abiotic stress signaling, growth and development. Proc Natl Acad Sci (USA) 99:10893-10898.

Xiong, L., Lee, H., Ishitani, M., Tanaka, Y., Stevenson, B., Koiwa, H., Bressan, R.A., Hasegawa PM, Zhu, J.-K. (2002) Repression of stress-responsive genes by FIERY2, a novel transcriptional regulator in *Arabidopsis*. Proc Natl Acad Sci (USA) 99:10899-10904.

Maggio, A., Miyazaki, S., Veronese, P., Fujita, T., Ibeas, J.I., Damsz, B., Narasimhan, M.L., Hasegawa PM, Joly, R.J., Bressan, R.A. (2002) Does proline accumulation play an active role in stress-induced growth reduction? Plant J 31:699-712.

Matsumoto, T.K., Ellsmore, A.J., Cessna, S.G., Low, P.S., Pardo, J.M., Bressan, R.A., Hasegawa, P.M. (2002) An osmotically induced cytosolic Ca^{2+} activates calcineurin signaling to mediate ion homeostasis and salt tolerance of *Saccharomyces cerevisiae*. J Biol Chem 277:33075-33080.

Zhu, J., Z. Gong, C. Zhang, C. P. Song, B. Damsz, G. Inan, H. Koiwa, J.-K. Zhu, P.M. Hasegawa and R.A. Bressan. (2002) OSM1/SYP61: A syntaxin protein in Arabidopsis controls abscisic acid-mediated and non-abscisic acid-mediated responses to abiotic stress. Plant Cell. 14:3009-3028.

Maggio, A., M. G. McCully, K. Kerdnaimongkol, R. A. Bressan, P.M. Hasegawa and R.J. Joly. (2002) Hydrogen Peroxide and the Ascorbic Acid Cycle are Up-Stream Components in the ABA-Mediated Signal Transduction System Leading to Stress-Induced Stomatal Closure. Functional Plant Biol. 29:845-852.

Maggio, A., M. G. McCully, K. Kerdnaimongkol, R. A. Bressan, P.M. Hasegawa and R.J. Joly. (2002) Hydrogen Peroxide and the Ascorbic Acid Cycle are Up-Stream Components in the ABA-Mediated Signal Transduction System Leading to Stress-Induced Stomatal Closure. *Functional Plant Biol.* 29:845-852.

Zhu-Salzman, K., P. K. Hammen, R. A. Salzman, H. Koiwa, Bressan RA, L.L. Murdock and P.M. Hasegawa. (2002) Calcium modulates protease resistance and carbohydrate binding of a plant defense legume lectin, Griffonia simplicifolia lectin II (GSII). Comparative Biochemistry and Physiology Part B. 132:327-334.

Veronese, P., M. L. Narasimhan, R. A. Stevenson, J. K. Zhu, S.C. Weller, K.V. Subbarao and R.A. Bressan. (2003) Identification of a locus controlling Verticillium disease symptom response in Arabidopsis thaliana. Plant Journal. 35:574-587.

Koiwa, H., F. Li, M. G. McCully, I. Mendoza, N. Koizumi, Y. Manabe, Y. Nakagawa, J. Zhu, A. Rus, J.M. Pardo, R.A. Bressan and P.M. Hasegawa. (2003) The STT3a Subunit Isoform of the Arabidopsis Oligosaccharyltransferase Controls Adaptive Responses to Salt/Osmotic Stress. Plant Cell. 15:2273-2284.

Schmid, M., N. H. Uhlenhaut, M. Demar, R. A. Bressan, D. Weigel and J.U. Lohmann. (2003) Dissection of floral induction pathways using global expression analysis. Development. 130:6001-6012.

Coca, M. A., K. K. Kim, B. Damsz, J. M. Pardo, R.A. Bressan and M.L. Narasimhan. (2003) PHO36, a yeast homolog of human adiponectin receptor, controls osmotin-induced apoptosis. Molecular Cell. (submitted).

Veronese, P., M. T. Ruiz, M. A. Coca, A. Hernandez-Lopez, H. Lee, J.I. Ibeas, B. Damsz, J.M. Pardo, Hasegawa PM, R.A. Bressan and M.L. Narasimhan. (2003) In defense against pathogens. Both plant sentinels and foot soldiers need to know the enemy. Plant Physiology. 131:1580-1590.

Narasimhan, M. L., H. Lee, B. Damsz, N. K. Singh, J.I. Ibeas, T.K. Matsumoto, C.P. Woloshuk and R.A. Bressan. (2003) Overexpression of a cell wall glycoprotein in *Fusarium oxysporum* increases virulence and resistance to a plant PR-5 protein. The Plant Journal. 36:390-400.

Fujita, T., Maggio, A., García-Ríos, M., Stauffacher, C., Bressan, R.A., Csonka, L. Identification of regions of the γ-glutamyl kinase from tomato involved in allosteric regulation by proline. J. Biol. Chem. 278:14203-14210.

Min, K., S. C. Ha, P. M. Hasegawa, R. A. Bressan, D.-J. Yun and K.K. Kim. (2004) Crystal structure of osmotin, a plant antifungal protein. *Proteins:* Structure, Function, and Genetics. 54:170-173.

Salzman, R. A., H. Koiwa, J. I. Ibeas, J. M. Pardo, P.M. Hasegawa and R.A. Bressan. (2004) Inorganic cations mediate antimicrobial activity of PR5 proteins through cell surface glycans. Molecular Plant Microbe Interactions. 17:780-788.

Ruggiero, B., H. Koiwa, Y. Manabe, T. M. Quist, G. Inan, F. Saccardo, R.J. Joly, Hasegawa PM, R.A. Bressan and A. Maggio. (2004) Uncoupling the Effects of ABA on Plant Growth and Water Relations: Analysis of sto1/nced3, an abscisic acid-deficient but salt stress-tolerance mutant in Arabidopsis. Plant Physiol. 136:3134-3147.

Zhu, J. , H. Shi, B. Lee, B. Damsz, S. Cheng, V. Stirm, J.-K. Zhu, P.M. Hasegawa and R.A. Bressan. (2004) Mutation of an Arabidopsis homeodomain transcription factor gene, HOS9, demonstrates its essential role in regulation of the plant growth, development and stress tolerance. Proc. Natl. Acad. Sci. 101:9873-9878.

Zhu, J., H. Shi, B.-H. Lee, B. Damsz, S. Cheneg, V. Stirm, J.-K. Zhu, P.M. Hasegawa and R.A. Bressan (2004) An *Arabidopsis* homeodomain transcription factor gene, HOS9, mediates cold tolerance through a CBF-independent pathway. Proc. Natl. Acad. Sci. (USA) 101:9873-9878.

Inan, G., H. Zhang, P. Li, Z. Wang and Z. Cao, C. Zhang, T.M. Quist, S.M. Goodwin, J. Zhu, H. Shi, B. Damsz, T. Charbaji, Q. Gong, S. Ma, M. Fredricksen, D.W. Galbraith, M.A. Jenks, D. Rhodes, Hasegawa PM, H.J. Bohnert, R.J. Joly, Bressan RA, J.-K. Zhu (2004) Salt Cress (*Thellungiella halophila*): A halophyte and cryophyte Arabidopsis relative model system (ARMS) and its applicability to molecular genetic analyses of growth and development of extremophiles. Plant Physiol. 135:1718-1737.

Min, K., S. C. Ha, P. M. Hasegawa, R. A. Bressan and D.-J. Yun, K.K. Kim (2004) Crystal structure of osmotin, a plant antifungal protein. Proteins: Structure, Function, and Genetics. 54:170-173.

Schmid, M., N. H. Uhlenhaut, M. Demar, R. A. Bressan and D. Weigel, J.U. Lohmann (2004) Dissection of floral induction pathways using global expression analysis. Development 130:6001-1012.

Salzman, R. A., H. Koiwa, J. I. Ibeas, J. M. Pardo and Hasegawa PM, R.A. Bressan (2004) Inorganic cations mediate antimicrobial activity of PR5 proteins through cell surface glycans. Molecular Plant Microbe Interactions. 17:574-587.

Koiwa, H., S. Hausmann, W.Y. Bang, A. Ueda, N. Kondo, A. Hiraguri, T. Fukuhara, J.D. Bahk, D.J. Yun, Bressan RA, P.M. Hasegawa and S. Shuman (2004) Arabidopsis C-terminal domain phosphatase-like 1 and 2 are essential Ser-5-specific C-terminal domain phosphatases. Proc. Natl. Acad. Sci. (USA). 101:14539-14544.

Quist, T. M., S. Yokoi, R. A. Bressan, P. M. Hasegawa and R.J. Joly (2004) Differential regulation of plasma membrane aquaporin transcripts in Arabidopsis in response to environmental stress: Proposed roles for aquaporins in regulating plant water balance. Recent Res. Devel. Biochem. 5:19-29.

Amirhusin, B., R.E. Shade, H. Koiwa, Hasegawa PM, Bressan RA, L.L. Murdock and K. Zhu-Salzman (2004) Soyacystatin N inhibits proteolysis of wheat alpha-amylase inhibitor and potentiates toxicity against cowpea weevil. J. Economic Entm. 97:2095-2100.

Ruggiero, B., H. Koiwa, Y. Manabe, T. M. Quist and G. Inan, F. Saccardo, R.J. Joly, Hasegawa PM, Bressan RA, A. Maggio (2004) Uncoupling the Effects of ABscisic Acid on Plant Growth and Water Relations: Analysis of *sto1/nced3*, an Abscisic Acid-Deficient but Salt Stress-Tolerant Mutant in Arabidopsis. Plant Physiol. 136:3134-3147.

Rus A, Lee BH, Munoz-Mayor A, Sharkhuu A, Miura K, Zhu J-K, Bressan RA, Hasegawa PM (2004) AtHKT1 Facilitates Na^+ Homeostasis and Controls K^+ Nutrition in planta. Plant Physiol. 136:2500-2511.

Wang, Z.-L., P.-H. Li, M. Fredricksen, Z.-Z. Gong, C.S. Kim, C. Zhang, H.J. Bohnert, J.-K. Zhu, Bressan RA, Hasegawa PM, Y.-X. Zhao, H. Zhang (2004) Expressed sequence tags from Thellungiella halophila, a new model to study plant salt-tolerance. Plant Science 166:69-616.

Narasimhan, M.L., M.A. Coca, J. Jin, T. Yamauchi, Y. Ito, T. Kadowaki, K.K. Kim, J.M. Pardo, B. Damsz, Hasegawa PM, D.-J. Yun and R.A. Bressan (2005) Osmotin is a homolog of mammalian adiponectin and controls apoptosis in yeast through a homolog of mammalian adiponectin receptor. Mol. Cell. 17:171-180.

Miura, K., Rus, A., Sharkhuu, A., Yokoi, S., Karthikeyan, A.S., Raghothama, K.G., Baek, D., Koo, Y.D., Jin, J.B., Bressan, R.A., Yun, D.-J., Hasegawa, P.M. (2005) The *Arabidopsis* SUMO E3 ligase SIZ1 controls phosphate deficiency responses. Proc. Natl. Acad. Sci. USA 102:7760-7765.

Chen, X., M. Goodwin, X. Liu, R. A. Bressan and M.A. Jenks. (2005) Mutation of the RST1 locus of Arabidopsis revewal an association of cuticular wax with embryo development. Plant Physiol. 139:909-919.

Lalitha, S., Shade, R.E., Murdock, L.M., Hasegawa PM, Bressan, R.A., Nielsen, S.S. (2005) Comparison of chemical characteristics of three soybean cysteine proteinase inhibitors. J. Agric. Food Chem. 53:1591-1597.

Lalitha, S., Shade, R.E., Murdock, L.L., Bressan, R.A., Hasegawa PM, Nielsen, S.S. (2005) Effectiveness of recombinant soybean cysteine proteinase inhibitors against selected crop pests. Comparative Biochem Physiol Part C 140:227-235.

Zhu, J., Shi, H., Lee, B.-h., Damsz, B., Cheng, S., Stirm, V., Zhu, J.-K., Hasegawa PM, Bressan, R.A. (2004) An *Arabidopsis* homeodomain transcription factor gene, *HOS9*, mediates cold tolerance through a CBF-independent pathway. Proc. Natl. Acad. Sci. USA 101:9873-9878.

Zhu, J., Verslues, P.E., Zheng, X., Lee, B.-h., Zhan, X., Manabe, Y., Sokolchik, I., Zhu, Y., Dong, C.-H., Zhu, J.-K., Hasegawa PM, Bressan, R.A.. (2005) *HOS10* encodes a novel R2R3-type MYB transcription factor essential for cold acclimation in plants. Proc. Natl. Acad. Sci. USA. 102:9966-9971.

Karthikeyan, A.R., K.G. Raghothama, K.D. Koo, Bressan RA, D.-J. Yun, P.M. Hasegawa. (2005) The Arabidopsis SUMO E3 ligase SIZ1 controls phosphate deficiency responses Proc. Natl. Acad. Sci. USA. 102:7760-7765.

Kapoor, A., M. Agarwal, A. Andreucci, X.W. Zheng, Z.Z. Gong, Hasegawa PM, RA Bressan, J-K Zhu (2005) Mutations in a conserved replication protein suppress transcriptional gene silencing in a DNA-methylation-independenet manner in Arabidopsis Current Biol. 15:1912-1918.

Maggio A, J-K Zhu, PM Hasegawa, RA Bressan (2006) Historical Perspective Essay. Osmogenetics: Aristotle to Arabidopsis. Plant Cell 18:1542-1557.

Rus, A.M., R.A. Bressan, P.M. Hasegawa (2005) Unraveling salt tolerance in crops. Nature Genetics 37:1029-1030.

Karthikeyan, A.S., K.G. Raghothama, Y.D. Koo, R.A. Bressan, D.-J. Yun, P.M. Hasegawa (2005) The Arabidopsis SUMO E3 ligase SIZ1 controls phosphate deficiency responses. Proc. Natl. Acad. Sci. USA 102:7760-7765.

Schmid, M., N.H. Uhlenhaut, M. Demar, R.A. Bressan, D. Weigel, J.U. Lohmann (2004) Dissection of floral induction pathways using global expression analysis. Development 130:6001-1012.

Maggio, A., Zhu J.K., Hasegawa P.M., Bressan R.A. (2006) Osmogenetics: Aristotle to Arabidopsis. Plant Cell 18:1542-1557.

Koiwa H., Bressan R.A., Hasegawa P.M. (2006) Identification of plant stress-responsive determinants in arabidopsis by large-scale forward genetic screens. J. Exp. Bot. 57:1119-1128.

Bang W, Kim S, Ueda A, Vikram M, Yun D, Bressan RA, Hasegawa PM, Bahk J, Koiwa H (2006). *Arabidopsis* carboxyl-terminal domain phosphatase-like isoforms share common catalytic and interaction domains but have distinct *in planta* functions. Plant Physiol. 142:586-594.

Yoo CY, Miura K, Jin JB, Lee J, Park HC, Salt DE, Yun D-J, Bressan RA, Hasegawa PM (2006) SIZ1 SUMO E3 Ligase Facilitates Basal Thermotolerance in Arabidopsis Independent of Salicylic Acid. Plant Physiol. 142:1548-1558.

Yoo CY, Miura K, Jin JB, Lee Y, Park HC, Salt DE, Yun D-J, Bressan RA, Hasegawa PM (2006) SIZ1 small ubiquitin-like modifier E3 ligase facilitates basal thermotolerance in Arabidopsis independent of salicylic acid. Plant Physiol 142:1-11.

Perrella G, Cremona G, Consiglio F, Errico A, Bressan RA, Conicella C (2006) Screening for mutations affectig sexual reproduction after activation tagging in Arabidopsis thaliana. J Appl Genet 47:109-111.

Maggio A, Bressan RA (2006) Storia delle relazioni piñata-acqua: dalla fisica alla biologia. Italus Hortus 13:42-52.

Rosado A, Schapire AL, Bressan RA, Harfouche AL, Hasegawa PM, Valpuesta V, Botella MA (2006) The *Arabidopsis* Tetratricopeptide Repeats Containing Protein TTL1 Is Required for Osmotic Stress Responses and ABA Sensitivity. Plant Physiol. 142:1113-1126.

Lee J, Nam J, Park HC, Na G, Miura K, Jin JB, Yoo CY, Baek D, Kim DH, Jeong JC, Kim D, Lee SY, Salt DE, Mengiste T, Gong Q, Ma S, Bohnert HJ, Kwak S-S, Bressan RA, Hasegawa PM, Yun D-J (2006) Salicylic acid-mediated innate immunity in Arabidopsis is regulated by SIZ1 SUMO E3 ligase. Plant J 49:79-90.

Wang X, Gao Z, Bressan RA, Weller SC, Li X (2007) Highly efficient in vitro regeneration of peppermint (Mentha piperita L.) via shoot organogenesis.

Zhu J, Jeong J, Shi H, Sokolchik I, Zhu J-K, Yun D-J, Hasegawa PM, Bressan RA (2007) A WD40 protein is important for histone deacetylation and freezing tolerance in Arabidopsis.

Zhu J, Koo YD, Zhu J-K, Jenney, Jr. FE, Adams MWW, Zhu Y, Yun D-J, Hasegawa PM, Bressan RA (2007) An enhancer mutant of the *Arabidopsis salt overly sensitive 3* connects ion homeostasis to the oxidative stress response. Mol. Cell Biol. 27:5214-5224.

Oh D-H, Gong Q, Ulanov A, Zhang Q, Li Y, Ma W, Yun D-J, Bressan RA, Bohnert HJ (2007) Sodim stress in the halophyte *Thellungiella halophila* and transcriptional changes in a *thsos1*-RNA interference line. J Integrative Plant Biol. 49:1-13.

Inan G, Goto F, Jin JB, Rosado A, Koiwa H, Shi H, Hasegawa PM, Bressan RA, Maggio A, Li X (2007) Isolation and characterization of shs1, a sugar-hypersensitive and ABA-insensitive mutant with multiple stress responses. Plant Mol Biol 65:295-309

Sridhar VV, Kapoor A, Zhang K, Zhu J, Zhao T, Hasegawa PM, Bressan RA, Zhu J-K (2007) Control of DNA methylation and heterochromatic silencing by histone H2B deubiquitination. Nature 447:735-738.

Miura K, Jin JB, Lee J, Yoo CY, Stirm V, Miura T, Bressan RA, Yun D-J, Hasegawa PM (2007) SIZ1-Mediated Sumoylation of ICE1 Controls CBF3/DREB1A Expression and Freezing Tolerance in Arabidopsis. Plant Cell 19:1403-1414.

Kim JI, Sharkhuu A, Li P, Jeong JC, Baek D, Lee SY, Blakeslee JJ, Murphy AS, Bohnert, HJ, Hasegawa PM, Yun DJ, Bressan RA (2007) Activation of the Arabidopsis *HYPERTALL1(HYT1/YUCCA6)* locus affects several auxin-mediated responses. Plant Phys 145:722-735.

Manabe Y, Bressan RA, Li F, Koiwa H, Sokolchik I, Maggio A (2008) The Arabidopsis kinase-associated protein phosphatase regulates adaptation to Na^+ stress. Plant Physiol. 146:612-622.

Chung J-S, Zhu J-K, Bressan RA, Hasegawa PM, Shi H (2008) Reactive oxygen species mediate Na^+-induced SOS1 mRNA stability in Arabidopsis. Plant J 53:554-464.

Jin JB, Jin YH, Lee J, Miura K, Yoo CY, Kim W-Y, Van Oosten M, Hyun Y, Somers DE, Lee L, Yun D-J, Bressan RA, Hasegawa PM (2008) The SUMOE3 ligase, *AtSIZ1*, regulates flowering by controlling a salicylic acid-mediated floral promotion pathway and through affects on *FLC* chromatin structure. Plant J. 53:530-540

Zhu J, Jeong J, Zhu,Y, Sokolchik I, Miyazaki S, Zhu J-K, Hasegawa PM, Bohnert HJ, Shi**,** H., Yun, D.-J., and Bressan, R.A. (2008) Involvement of *Arabidopsis* HOS15 in histone deacetylation and cold tolerance. Proc. Natl. Acad. Sci. USA. 105:4945-4950.

Hernandez A, Yiang X, Nieto PM, Bressan RA, Hasegawa PM, Pardo PM (2009) Mutants of the Arabidopsis thaliana cation/H^+ antiporter AtNHX1 conferring increased salt tolerance in yeast. Journal of Biological Chemistry 284:14276-14285.

Cubero B, Nakagawa Y, Jian X-Y, Miura K, Li F, Raghothama KG, Bressan RA, Hasegawa PM, Pardo JM (2009) The phosphate transporter PHT4;6 is a determinant of salt tolerance that is localized to the Golgi apparatus of *Arabidopsis*. Mol Plant 2:535-562.

Oh D-H, Zhang Q, Hwang S-M, Li Y, Lee SY, Zhao Y, Bahk JD, Hasegawa PM, Bressan RA, Yun D-J, Bohnert HJ (2009) The salt tolerance locus SOS1 is essential for control of sodium routing and partitioning in a Halophyte. Plant Physiol. (in revision – conditionally accepted)

Quist TM, Sokolchik I, Shi H, Joly RJ, Bressan RA (2009) *HOS3*, an ELO-like gene, inhibits ABA and implicates a S-1-P/ceramide control system for abiotic stress responses in *Arabidopsis thaliana*. Molecular Plant 2,138-151.

Wang X, Gao Z, Bressan RA, Weller SC, Li X (2009) Highly efficient in vitro adventitious shoot regeneration of peppermint (Mentha x piperita L.) using internodal explants. In Vitro Cell Dev Biol-Plant 45:435-440.

Rosado et al. (2009) The sorting of plant vacuolar c-terminal propeptide containing protein is regulated by the ribosomal RPL4 family. Plant Cell (submitted)

Cho, Song-Bong, Bressan RA, Yun D-J (2009) The Dof transcription factor AtDof 5.1 regulates leaf dorsoventrical identity via promoting revolute transcription. (completed manuscript)

Cheong MS, Park HC, Hong MJ, Lee J, Choi W, Jin JB, Bohnert HJ, Lee SY, Bressan RA, Yun D-J (2009) Specific domain structures control abscisic acid-, salicylic acid-, and stress-mediated SIZ1 phenotypes. Plant Physiol 151:1930-1942.

Narasimhan, ML; Bressan, RA; D'Urzo, MP, et al. (2009) Unexpected Turns and Twists in Structure/Function of PR-Proteins that Connect Energy Metabolism and Immunity. Plant Innate Immunity 51:439-489.

Oh D-H, Leidi E, Zhang Q, Hwang S-M, Li Y, Quintero FJ, Jiang X, Paino D'urzo M, Lee SY, Zhao Y, Bahk JD, Bressan RA, Yung D-J, Pardo JM, Bohnert HJ (2009) Loss of Halophytism by Interference with SOS1 Expression. Plant Physiol 151:210-222:

Mang HG; Laluk KA; Parsons EP, Kosma DK, Cooper BR, Park HC, AbaQamar S, Boccongelli C, Miyazaki S, Consiglio F, Chilosi G, Bohnert HJ, Bressan RA, Mengiste T, Jenks MA (2009) The Arabidopsis RESURRECTION1 Gene Regulates a Novel Antagonistic Interaction in Plant Defense to Biotrophs and Necrotrophs. Plant Physiol 151:290-305.

He XJ; Hsu YF; Pontes O, Zhu JH, Lu J, Bressan RA, Pikaard C, Wang C-S, Zhu J-K (2009). NRPD4, a protein related to the RPB4 subunit of RNA polymerase II, is a component of RNA polymerases IV and V and is required for RNA-directed DNA methylation. Genes & Dev 23:318-330.

Oh DH, Zahir A, Yun DJ, Bressan RA, Bohnert HJ (2009) SOS1 and halophytism. Plant Signal Behav 4:1081-1083.

Leidi EO, Varragán V, Rubio L, El-Hamdaoui A, Ruiz MT, Cubero B, Fernández JA, Bressan RA, Hasegawa PM, Quintero FJ, Pardo JM (2010) The AtNHX1 exchanger mediates potassium compartmentation in vacuoles of transgenic tomato. Plant J 61:495-506.

Kim H-S, Kim SJ, Abbasi N, Bressan RA, Yun D-J, Yoo S-D, Kwon S-Y, Choi S-B (2010) The DOF transcription factor Dof5.1 influences leaf axial patterning by promoting Revoluta transcription in Arabidopsis. Plant J 64:524-535.

Oh, D-H, Dassanayake M, Haas JS, Kropornika A, Wright C, d'Urzo, MP, Hong H, Ali S, Hernandez A, Lambert GM, Inan G, Galbraith DW, Bressan RA, Yun D-J, Zhu J-K, Cheeseman JM, Bohnert HJ (2010) Genome Structures and Halophyte-Specific Gene Expression of the Extremophile Thellungiella parvula in Comparison with Thellungiella salsuginea (Thellungiella halophila) and Arabidopsis. Plant Physiol 154:1040-1052.

Park HC, Kim H, Koo SC, Park HJ, Cheong MS, Hong H, Baek D, Chung WS, Kim DH, Bressan RA, Lee SY, Bohnert HJ, Yun DJ (2010) Functional characterization of the SIZ/PIAS-type SUMO E3 ligases, OsSIZ1 and OsSIZ2 in rice. Plant Cell Environ 33:1923-1934.

Orsini F; D'Urzo MP; Inan G, Serra S, Oh DH, Mickelbart MV, Consiglio F, Li X, Jeong JC, Yun DJ, Bohnert HJ, Bressan RA, Maggio A (2010) : A comparative study of salt tolerance parameters in 11 wild relatives of Arabidopsis thaliana. J Exp Bot 61:3787-3798.

Zhu, JH; Verslues, PE; Zheng, XW, Lee Bh, Zhan XQ, Manabe Y, Sokolchik I, Zhu YM, Dong CH, Zhu JK, Hasegawa PM, Bressan RA (2010) HOS10 encodes an R2R3-type MYB transcription factor essential for cold acclimation in plants (Retraction of vol 102, 9966, 2005). Proc Natl Acad Sci USA 107:13972-13972.

Perrella G, Consiglio MF, Aiese-Cigliano R, Cremona G, Sanchez-Moran E, Barra L, Errico A, Bresan RA, Franklin FCH, Conicella C (2010) Histone hyperacetylation affects meiotic recombination and chromosome segregation in Arabidopsis. Plant J 62:796-806.

Lee H, Damsz B, Woloshuk CP, Bressan RA, Narasimhan ML (2010) Use of the plant defense protein osmotin to identify Fusarium oxysporum genes that control cell wall properties. Eukaryotic Cell 9:558-568.

Oh D-H, Lee SY, Bressan RA, Yun D-J, Bohnert HJ (2010) Intracellular consequences of SOS1 deficiency during salt stress. J Exp Bot 61:1205-1213.

Rosado A, Sohn EJ, Drakakaki G, Pan S, Swidergal A, Xiong Y, Kang B-H, Bressan RA, Raikhel NV (2010) Ausin-mediated ribosomal biogenesis regulates vacuolar trafficking in *Arabidopsis*. Plant Cell 22:143-158.

Cheong MS, Park HC, Bohnert HJ, Bressan RA, Yun DJ (2010) Structural and functional studies of SIZ1, a PIAS-type SUMO E3 ligase from Arabidopsis. Plant Signal Behav. 5:567-569.

Oh DH, Zahir A, Cheol PH, Bressan RA, Yun DJ, Bohnert HJ (2010) Consequences of SOS1 deficiency. Plant Signal Behav. 5:766-768.

Orsini F, D'Urzo MP, Inan G, Serra S, Oh, DH, Mickelbart MV, Consiglio F, Li X, Jeong JC, Yun DJ, Bohnert HJ, Bressan RA, Maggio A (2010) A comparative study of salt tolerance parameters in 11 wild relatives of *Arabidopsis thaliana*. J Exp Bot. __:3787-3798.

Oh DH, Dassanayake M, Haas JS, Kropornika A, Wright C, D'Urzo MP, Hong H, Ali S, Hernandez A, Lambert GM, Inan G, Galbraith DW, Bressan RA, Yun DJ, Zhu JK, Cheeseman JM, Bohnert HJ (2010) Genome Structures and Halophyte-Specific Gene Expression of the Extremophile *Thellungiella parvula* in Comparison with *Thellungiella salsuginea* (*Thellungiella halophile*) and *Arabidopsis*. Genome Analysis, Vol. 154, pp. 1-13.

Kim HS, Kim SJ, Abbasi N, Bressan RA, Yun DJ, Yoo SD, Kwon SY, Choi SB (2010) The DOF transcription factor Dof5.1 influences leaf axial patterning by promoting Revoluta transcription in Arabidopsis. Plant J 64:524-535.

Choi W, Baek D, Oh DH, Park J, Hong H. Kim WY, Bohnert HJ, Bressan RA, Park HC, Yun DJ (2011) NKS1, Na^+- and K^+-sensitive 1, regulates ion homeostasis in an SOS-independent pathway in Arabidopsis.

B. Review or Symposium Articles

Hasegawa, P. M., R. A. Bressan, S. Handa, and A. K. Handa. 1983. Tolerance to water stress in higher plant cells. In Proceedings of Symposium on Somatic Cell Genetics: Prospects for development of stress tolerance. HortScience. 19:371-377.

Filner, P., H. Rennenberg, J. Sekiya, R. A. Bressan, L. G. Wilson, L. LeCureux, and T. Shimei. 1983. Biosynthesis and emission of hydrogen sulfide by higher plants. In Gaseous Air Pollutants and Plant Metabolism. Koziol and Whatley. Eds. Butterworths. pp. 291-312.

Handa, A. K., R. A. Bressan, S. Handa, and P. M. Hasegawa. 1983. Tolerance to water salt stress in cultured cells. In Proceedings of the IV International Congress of Plant Tissue and Cell Culture. Tokyo, Japan. pp. 471-474.

Handa, A.K., Bressan RA, A.G. Korty, R.K. Jayaswal, and D.J. Charles. 1985. Isolation and characterization of pectolytic nonpathogenic mutants of *Erwinia carotovora* subsp. *carotovora*. In UCLA Symposium on Plant Genetics. M. Freeling, Ed. A.R. Liss, New York. pp. 755-769.

Bressan, R.A., N.K. Singh, Handa AK, A. Kononowicz, and P.M. Hasegawa. 1985. Stable and unstable tolerance to NaCl in cultured tobacco cells. In UCLA Symposium on Plant Genetics. M. Freeling, Ed. A. R. Liss, Inc. New York. pp. 755-769.

Hasegawa, P. M., R. A. Bressan, and A. K. Handa. 1986. Cellular mechanisms of salinity tolerance. In Basic Research Ideas and Opportunities for Horticulture in Stress Physiology. Hortscience. 21:1317-1324.

Rietveld, R., P. M. Hasegawa, and R. A. Bressan. 1987. Genetic variability in plants regenerated from tuber discs of potato. In Biotechnology in Agriculture and Forestry Vol. 3, Potato. Y.P.S. Bajaj, Ed. Springer Verlag, Berlin. pp. 392-407.

Handa, A.K., Bressan RA, L. Lee, D.J. Charles, R.K. Jayasawal, J. Chin, and J.L. Bennetzen. 1987. Characterization of pathogenecity genes of *Erwinia carotovora*. In Molecular Genetics of Plant-Microbe Interactions. D.A. Verma, N. Brisson, Eds. Martinus Nijhoff Pub. pp. 66-72.

Bressan, R.A., N.K. Singh, Handa AK, R. Mount, J. Clithero, and P.M. Hasegawa. 1987. Stability of altered genetic expression in cultured plant cells adapted to salt. In Drought Resistance in Plants, Physiological and Genetic Aspects. Commission of the European Communities. E. Porceddu, Ed. Luxembourg, pp. 41-58.

Singh, N.K., D. Nelson, P.C. LaRosa, C.E. Bracker, Handa AK, Hasegawa PM, and R.A. Bressan. 1989. Osmotin: a thaumatin-like protein associated with adaptation of plant cells to osmotic stress. In Biochemical and Physiological Mechanisms of Tolerance to Environmental Stress. J. Cherry, Ed. Springer Verlag, Berlin. pp. 67-87.

Singh, N.K., P.C. LaRosa, D. Nelson, N. Iraki, N.C. Carpita, Hasegawa PM, and R.A. Bressan. 1989. Reduced growth rate and changes in cell walls of plant cells adapted to NaCl. In Biochemical

and Physiological Mechanisms of Tolerance to Environmental Stress. J. Cherry, Ed. Springer Verlag, Berlin. pp. 174-194.

Binzel, M.L., F.D. Hess, Bressan RA, and P.M. Hasegawa. 1989. Mechanisms of plant adaptation to salinity in cultured glycophyte cells. In Biochemical and Physiological Mechanisms Associated with Environmental Stress Tolerance in Plants. J.H. Cherry, Ed. Springer-Verlag, Berlin. pp. 139-157.

Bressan, R.A., D.E. Nelson, N.M. Iraki, P.C. LaRosa, N.K. Singh, Hasegawa PM, and N. C. Carpita. 1989. Reduced cell expansion and changes in cell walls of plant cells adapted to NaCl. In Environmental Injury to Plants. F. Katterman, Ed. Academic Press, New York. pp. 137-171.

Hasegawa, P.M., M.L. Binzel, M. Reuveni, A.E. Watad, and R.A. Bressan. 1990. Physiological and molecular mechanisms of ion accumulation and compartmentation contributing to salt adaptation of plant cells. In Horticulture Biotechnology. Bennet, O'Neil, Allen, Eds. pp. 295-304.

Carpita, N.C., N.M. Iraki, N.K. Singh, Bressan RA, Hasegawa PM, M. Reuveni, M. Binzel, P.C. LaRosa, D. Nelson, R. Rietveld, and S. Schnapp. 1991. Cellular mechanisms of salt and water stress tolerance in plants. Scien. Hort. 280:341-352.

Bressan, R.A. and A.K. Handa. 1991. Chapter 24: Molecular genetics and the plant physiologist. In Plant Physiology. C.W. Ross, F.B. Salisbury, Eds. Wadsworth, Belmont, Calif. Fourth Edition. pp. 531-548.

Casas, A., Bressan RA, Hasegawa PM, N.K. Singh, and D.E. Nelson. 1991. Molecular mechanisms of salinity tolerance. In Symposium International Biosaline Conference. Agadir, Morocco. In Press.

Zhu, J.K., R.K. Raghothama, M. Narasimhan, Hasegawa PM, and R.A. Bressan. 1993. Osmotic responsive genes. Academic Press, London. In press.

Kononowicz, A.K., K.G. Raghothama, A.M. Casas, M. Reuveni, A.-E. A. Watad, D. Liu, Bressan RA, and P.M. Hasegawa. 1993. Osmotin: Regulation of gene expression and function. In Plant Responses to Cellular Dehydration During Environmental Stress. Sixteenth Annual Symposium in Plant Physiology. T.J. Close, E.A. Bray Eds, American Assoc. of Plant Physiologists, Rockville, MD. pp. 144-158.

Hasegawa, P.M., Bressan RA, D.E. Nelson, Y. Samaras and D. Rhodes. 1994. Tissue culture in the improvement of salt tolerance in plants. p. 83-125. *In*: Yeo A.R., Flowers T.J. (eds) Soil Mineral Stresses. Approaches to Crop Improvement. Monographs on Theoretical and Applied Genetics, Vol. 21. Academic Press, London.

Zhu, J.-K., Bressan RA, and P.M. Hasegawa. 1994. Determination of protein isoprenylation *in vitro* and *in vivo*. p. 31-39. In: D. Galbraith, D. Bourque and H. Bohnert (eds), Methods in Cell Biology-Plant Biology. Academic Press, New York.

Kononowicz, A.K., K.G. Raghothama, A.M. Casas, D.E. Nelson, D. Liu, M.L. Narasimhan, P.C. LaRosa, N.K. Singh, Bressan RA, and P.M. Hasegawa. 1994. Structure, regulation, and function of the osmotin gene. In Biochemical and Cellular Mechanisms of Stress Tolerance in Plants. J.H. Cherry, Ed. NATO-ASI Series. Springer-Verlag, Berlin. In press.

Casas, A.M., A.K. Kononowicz, Bressan RA, and P.M. Hasegawa. 1995. Cereal transformation through particle bombardment. In Plant Breeding Reviews. 13:235-264.

Kononowicz, A.K., A.M. Casas, D.T. Tomes, Bressan RA, and P.M. Hasegawa 1995. New vistas are opened for sorghum improvement by genetic transformation. African Crop Sci J 3:171-180.

Samaras, Y., Bressan RA, L.N. Csonka, M.G. García-Ríos, M. Paino D'Urzo, and D. Rhodes. 1995. Proline accumulation during drought and salinity.

Niu, X., Bressan RA, Hasegawa PM, and J. Pardo 1995. Ion homeostasis in NaCl stress environments. Plant Physiol 109:735-742.

Kononowicz, A.K., K.T. Cheah, M.L. Narasimhan, L.L. Murdock, R.E. Shade, M.J. Chrispeels, E. Filippone, L. Monti, Bressan RA, P.M. Hasegawa. Developing a transformation system for cowpea (*Vigna unguiculata* L. Walp.). International Cowpea Workshop (IITA, In press).

Pardo, JM, I. Mendoza, R. Prieto, F.J. Quintero, A. Rodriquez-Navarro, S. Yang, D.J. Yun, I. Amaya, S. Takeda, A. Maggio, M. Paino D'Urzo, P.M. Hasegawa and R.A. Bressan 1996. Cloning salt tolerance genes by insertional mutagenesis tagging and gene complementation. P 101-113 In: Physical Stresses in Plants: Genes and Their Products. S. Grillo and Aleone (Eds).

Yun, D.-J., Bressan RA, and P.M. Hasegawa 1997. Plant antifungal proteins. Plant Breeding Rev 14:39-88

Koiwa, H., R.A. Bressan and P.M. Hasegawa 1997. Expression of proteinase inhibitor genes-host plant//insect interaction. Trends Plant Science 2:379-384

Zhu, J.K., P.M. Hasegawa and R.A. Bressan 1997. Molecular aspects of osmotic stress in plants**.** Critical Rev Plant Sci 16:253-277

Bressan, R.A., Hasegawa PM, M. Drew. 1998. Chapter 14 Environmental stress *Plant Physiology* Textbook by: Taiz and Zeigler.

Bressan, R.A., Hasegawa PM, J.M. Pardo 1998. Plants use calcium to resolve salt stress. Trends Plant Sci 3:411-412

Caruso, C., L. Bertini, M. Tucci, C. Caporale, L. Leonardi, F. Saccardo, Bressan RA, P. Veronese and V. Buonocore. 1999. Isolation and characterization of wheat cDNA clones encoding PR4 proteins. DNA Sequence 10:301-307

Koiwa, H., R.A. Bressan and P.M. Hasegawa (2000) Regulation of plant defense against herbivorous pests. In: D. Michaud (ed) Biotechnology Intelligence Unit 3: Recombinant proteinase inhibitors in plants, Academic Press, New York, pp. 65-79

Bressan, R.A., Hasegawa, P.M. (2000) Plant cellular and molecular responses to high salinity. Annu Rev Plant Physiol Plant Mol Biol 51:463-499

Hasegawa, M., R. Bressan, J.M. Pardo (2000) The dawn of plant salt tolerance genetics. Trends in Plant Sci 5:317-319.

Bohnert, H.J. and Bressan, R.A. (2001) Abiotic stresses, plant reactions, and new approaches towards understanding stress tolerance. Crop Science: Progress and Prospects. (In press)

Matsumoto, T., Bressan RA, Hasegawa PM, J.M. Pardo (2001) Salt stress tolerance of plants. Yeast as a model molecular genetic system for identification of functional tolerance determinants. Plant Breeding Reviews. In press

Bohnert, H.J., Ayoubi, P., Borchert, C., Bressan, R.A., Burnap, R.L., Cushman, J.C., Cushman, M.A., Deyholos, M., Fischer, R., Galbraith, D.W., Hasegawa, P.M., Jenks, M., Kawasaki, S.L, Koiwa, H., Kore-eda, S., Lee, B.-H., Michalowski, C.B., Misawa, E., Nomura, M., Ozturk, N., Postier, B., Prade, R., Song, C.-P., Tanaka, Y., Wang, H., Zhu, J.-K. (2001) A genomics approach towards salt stress tolerance. Plant Physiol. Biochem. 39:1-17.

Weller, S.C., Bressan, R.A., Goldsbrough, P.B., Fredenburg, T.B., Hasegawa, P.M. (2001) The effect of genomics on weed management in the 21st century. Weed Sci. 49:282-289.

Veronese, P., Li, X., Niu, X., Weller, S.C., Bressan, R.A., Hasegawa, P.M. (2001) Bioengineering mint crop improvement. Plant Cell Tissue Organ Culture 64:133-144

Bressan, R.A., Zhang, C., Zhang, H., Hasegawa, P.M., Bohnert, H.J., Zhu, J.-K. (2001) Learning from the Arabidopsis experience. The next gene search paradigm. Plant Physiol 127:1354-1361

Maggio, A., Consiglio, F., Joly, R.J., Haseawa, P.M., Bressan, R.A. (2001) Unraveling the functional relationship between root anatomy and plant salt tolerance. Aust J Plant Physiol 28:999-1004

Locy, R.D., Hasegawa, P.M., Bressan, R.A. (2002) Chapter 25 – Stress Physiology. *In* L. Taiz and E. Zeigler, Plant Physiology, 3rd Edition, Sinaver Associates, Inc., Sunderland.

Maggio, A., Joly, R.J., Hasegawa, P.M., Bressan, R.A. (2003) Can the quest for drought tolerant crops avoid Arabidopsis any longer? *In*: Sham S. Goyal, Surinder K. Sharma, and D. William Rains (eds), Crop Production in Saline Environments. Haworth Press, Inc. New York. pp. 99-129

Teusink, R.S., Rahman, M., Bressan, R.A., Jenks, M.A. (2002) Cuticular waxes on Arabidopsis *thellungiella* close relatives *Thellungiella halophila* and *Thellungiella parvula.* Int. J. Plant Sci. 163:309-315

Matsumoto, T.K., Bressan, R.A., Hasegawa, P.M., Pardo, J. (2002) Yeast as a molecular genetic system for improvement of plant salt tolerance. Plant Breeding Reviews. *John Wiley & Sons, Inc*.. New York. J. Janick. 22:389-426

Maggio, A., Matsumoto, T.K., Hasegawa, P.M., Pardo, J.M., Bressan, R.A. (2002) The long and winding road to halotolerance genes. Salinity: Environment – Plants – Molecules. *Kluwer Academic Publishers*. The Netherlands. A. Lauchli, U. Luttge, pp. 505-533

Maggio, A. , R. A. Bressan, B. Ruggiero, L. Xiong and S. Grillo. (2003) Salt tolerance: Placing advances in molecular genetics of salt tolerance into a physiological and agronomic context. Abiotic Stresses in Plants. *Kluwer*. Dordrecht. Luigi Sanita di Toppi and Barbara Pawlik-Skowronska. pp. 53-69.

Quist, T. M. , S. Yokoi, R. A. Bressan, P. M. Hasegawa and R.J. Joly. (2004) Differential regulation of plasma membrane aquaporin transcripts in Arabidopsis in response to environmental stress: Proposed roles for aquaporins in regulating plant water balance. Recent Res. Devel. Biochem.. 5:19-29.

Bressan, R. A. and S. C. Weller. (2004) GMO Biotechnology and the Future of Farming. Agricultural Biotechnology and Society. . . (accepted).

Bressan, R.A., J. Zhu and P.M. Hasegawa (2004) HOS9 mediated cold acclimation outside the CBF regulon. R. Irwin. ISB News Report. October, 2004.

Botella, M.A., A. Rosado, R.A. Bressan and P.M. Hasegawa 2005. Plant adaptive responses to salinity stress. Accepted.

R. A. Bressan, S. C. Weller 2004. Agricultural Biotechnology and Society. GMO Biotechnology and the Future of Farming. Accepted.

Shi, H., Bressan RA, P.M. Hasegawa and J.-K. Zhu 2004. Plant Nutritional Genomics. Sodium.

Hasegawa, P.M. and R.A. Bressan 2005. Cellular and molecular genetic mechanisms of salt and osmotic stress tolerance

Bressan, R.A., H.J. Bohnert and P.M. Hasegawa 2005. Advances in Plant Biochemistry and Molecular Biology. Genetic engineering for salinity stress tolerance. Bohnert, H.J. and H.T. Nguyen. Vol. 1. Bioengineering and Molecular Biology of P.

Bohnert, H.J., R.A. Bressan and P.M. Hasegawa 2005. Functional genomics of plant salinity tolerance. Functional Plant Genomics . Dario Leister. Haworth Press. Cologne.

Amtmann, A., H.J. Bohnert and R.A. Bressan 2005. Abiotic stress and plant genome evolution. Search for new models. Plant Physiol. Vol. 138. Pgs. 1-4.

Zhu, J.-K., Bressan RA, Hasegawa PM, J.M. Pardo and H.J. Bohnert 2005. Success Stories in Agriculture. Salt and Crops - Salinity Tolerance. Anne Datko.

Shi, H. and R.A. Bressan 2005. Methods in Molecular Biology. RNA Extraction. J.M. Martinez-Zapater and J. Salinas. Humana Press, Inc.. Totowa, New Jersey. Vol. 83.

Bohnert HJ, Bressan RA, Hasegawa PM (2006) Genetic basis of ion homeostasis and water deficit. In: Drought Adaptation in Cereals. Ribaut J.-M. ed. Haworth Press, Inc. pp. 551-582

Bressan RA, Bohnert HJ, Hasegawa, PM (2007) Genetic engineering for salinity stress tolerance. In: Advances in Plant Biochemistry and Molecular Biology. Vol. I. Bioengineering and Molecular Biology of Plant Pathways. WD Nex and NG Lewis, Eds.

Lee J, Miura K, Bressan RA, Hasegawa PM, Yun D-J (2007) Regulation of plant innate immunity by SUMO E3 ligase. Plant Signaling & Behavior 2:e1-e2.

Bressan RA, Thomashaw M, Bohnert H. Book: Plant Drought Tolerance: LAST CHANCE. Cambridge University Press, Cambridge, U.K.

Bressan RA. PR Proteins: Their unexpected functions. IN: Advances in Botanical Research. Ed. LC Van Loon.

IV. Invited Lectures Presented at Regional, National, International Society Meetings, or at Other Institutions

Bressan, R. A. Resistance to SO_2 and the role of higher plants in the global sulfur cycle. Univ. of Tenn. CARL Oak Ridge, Tenn. 1978.

Bressan, R. A. Mechanisms of resistance to SO_2 in higher plants. Dept. of Horticulture, Univ. of Minn., Minneapolis, MN. 1978.

Bressan, R. A. Mechanisms of resistance to SO_2 and other environmental stresses of higher plants. Dept. of Horticulture, Purdue University. W. Lafayette, IN. 1978.

Bressan, R. A. New selection techniques for plants resistant to environmental stresses using ethane emission. Purdue University. W. Lafayette, IN. 1979.

Bressan, R. A., P. M. Hasegawa, and A. K. Handa. Resistance to water and salt stress of plant cells grown *in vitro*. Tissue Culture Association Annual Meeting, St. Louis, MO. 1980.

Bressan, R. A. Resistance of cultured higher plant cells to PEG-imposed water stress and salt stress. Dept. of Horticulture, Purdue University. W. Lafayette, IN. 1980.

Bressan, R. A. Resistance of higher plant cells to PEG-induced water stress and salt stress. Dept. of Agronomy, Univ. of Illinois. Urbana, Ill. 1980.

Bressan, R. A. The use of tissue culture in plant selection and breeding. Symposium on Tolerance of Plants to Environmental Stress, University of Minn. Minneapolis, MN. 1981.

Bressan, R. A. Phenotypic variability in plant tissue culture. ASHS Annual Meeting, Atlanta, Georgia. 1981.

Bressan, R. A. Resistance to salt and water stress through somatic cell selection. Dept. of Botany and Plant Pathology, Purdue University. W. Lafayette, IN. 1981.

Bressan, R. A. Selection for agriculturally useful plants using tissue culture techniques. Zoecon Research Inst., Palo Alto, Calif. 1982.

Bressan, R. A. Selection for agricultural useful plants using tissue culture techniques. Stauffer Chem. Co., Richmond, CA. 1982.

Bressan, R. A. Phenotypic variability during tissue culture propagation of horticultural plants: problems and uses. Tissue Culture Association Annual Meeting, San Diego, CA. 1982.

Bressan, R. A. Selection for agriculturally useful plants using tissue culture techniques. ARCO Cell Research Center, Dublin, California. 1982.
Bressan, R. A. Resistance of cultured higher plant cells to PEG-induced water stress. Plant Research Lab, Michigan State University, East Lansing, Michigan. 1983.
Bressan, R. A. Selection for agriculturally useful plants using tissue culture techniques. Native Plants, Inc., Salt Lake City, Utah. 1983.
Bressan, R. A. Apparent stability of NaCl tolerance in cultured tobacco cells and regenerated plants. Horticulture Department, Purdue University. W. Lafayette, IN. 1983.
Bressan, R. A. Cellular tolerance to water and salt stress in mesophytes. Stress Physiology Symposium ASPP. Fort Collins, CO. 1983.
Bressan, R. A. Tolerance to salt stress in cultured plant cells. Hebrew University of Jerusalem, Jerusalem, Israel. 1983.
Bressan, R. A. Proteins associated with adaptation of cultured plant cells to NaCl stress. Gordon Conference on Plant Stress Physiology, Tilton, NH. 1984.
Bressan, R. A. Characteristics of cultured plant cells adapted to high levels of NaCl and plants regenerated from adapted cells. Keystone Conference on Molecular Biology of Stress, Keystone, CO. 1984.
Bressan, R. A. Changes in cultured plant cells associated with adaptation to NaCl. Department of Biology, Washington University, St. Louis, MO. 1984.
Bressan, R. A. Changes in cultured plant cells associated with adaptation to NaCl. Shell Development Co., Modesto, CA. 1984.
Bressan, R. A. Cell clones with stable tolerance to NaCl from cultured tobacco cells. Native Plants, Inc., Salt Lake City, Utah. 1985.
Bressan, R. A. Changes in cultured plant cells associated with adaptation to NaCl. Dept. of Agronomy, Texas A and M University, College Station, TX. 1985.
Bressan, R. A. Stable and unstable tolerance to NaCl in cultured tobacco cells. UCLA Symposium on Plant Genetics, Keystone, Colorado. 1985.
Bressan, R. A. Cellular mechanisms of salinity tolerance. Symposium on Stress ASHS, Blacksburg, VA. 1985.
Bressan, R. A. Adaptation of cultured plant cells to NaCl Stress. USDA Symposium on Water Resources, Lake Arrowhead, CA. 1986.
Bressan, R. A. Role of cell walls in adaptation of cultured plant cells to NaCl stress. Plant Environmental Stress Symposium, Norwich, England. 1987.
Bressan, R. A. Stable and unstable phenotype changes in plant cells adapted to NaCl stress. CST Symposium on Biotic and Abiotic Plant Stress, Lafayette, Indiana. 1987.
Singh, N. K. and R. A. Bressan. Molecular cloning of osmotin, a protein associated with adaptation of plant cells to NaCl stress. Plant Environmental Stress Symposium, Norwich, England. 1987.
Bressan, R. A. Biochemical and genetic changes associated with adaptation of plant cells to NaCl stress. Biology Dept., Ill. State University, Normal, Ill. 1987.
Bressan, R. A. The role of ion exclusion/transport and cell growth in tolerance to NaCl. Dept. Botany, Colorado State University, Ft. Collins, CO. 1988.
Bressan, R. A. Molecular responses associated with NaCl tolerance at the cell level in plants. Dept. of Biochemistry, University of Arizona, Tucson, Arizona. 1988.
Bressan, R. A., P. M. Hasegawa, and N. C. Carpita. Reduced cell expansion and changes in cell walls of cells adapted to NaCl. ACS Meeting, Toronto, Canada. 1988.
Bressan, R. A. Molecular cloning of osmotin gene and regulation of its expression by ABA and adaptation to osmotic stress. Monsanto Plant Molecular Biology Group, Monsanto Co., St. Louis, MO. 1989.
Bressan, R. A. and P. M. Hasegawa. Expression of stress resistance traits in cultured cells. Rockefeller Foundation Symposium, Bellagio, Italy. 1989. (Abstract only)
Singh, N. K., P. M. Hasegawa, and R. A. Bressan. Molecular cloning of osmotin gene and regulation of its expression by ABA and adaptation to osmotic stress. International Conference on Current Developments in Salinity and Drought Tolerance of Plants, Tando Jam, Pakistan. 1990. (Abstract only)
Bressan, R. A. and P. M. Hasegawa. Osmotin: A protein associated with osmotic adaptation. PBC Plant Stress Symposium, University of Guelph, Guelph, Canada. 1989.
Bressan, R. A. and P. M. Hasegawa. Molecular cloning of osmotin and regulation of its expression by ABA and adaptation to osmotic stress. Univ. of Tennessee, Knoxville, Tenn. 1989.
Carpita, N. C., P. M. Hasegawa, and R. A. Bressan. Cellular mechanisms of salt and water stress tolerance in plants. Milan, Italy. 1989.
Bressan, R. A. Regulation of the osmotin gene during adaptation of plant cells to osmotic stress. Workshop on the Joint Biotech Cowpea Program. Agronomy Institute, University of Naples, Portici, Italy. 1989.
Bressan, R.A. Transformation of cowpea embryos with *Agrobacterium* vectors. Workshop on the Joint Biotech Cowpea Program, Agronomy Institute, University of Naples. Portici, Italy. 1989.

Bressan, R.A. Strategies for the isolation of insect tolerance genes and transfer to cowpea. Workshop on the Joint Biotech Cowpea Program, Agronomy Institute, Univ. of Naples. Portici, Italy. 1989.
Bressan, R.A. Osmotic stress tolerance in plant cells: What are the genes telling us? Dept. Botany, Colorado State University, Ft. Collins, CO. 1989.
Bressan, R.A. Osmotic stress tolerance in plant cells: What are the genes telling us? Department of Biochemistry, University of Arizona, Tucson, AZ. 1989.
Bressan, R.A. Osmotic stress tolerance in plant cells: What are the genes telling us? Department of Botany, University of Oklahoma. 1989.
Bressan, R.A. Structure/function analysis of the osmotin gene NCR 144/NCR 155. Annual Meeting. West Lafayette, IN. 1989.
Singh, N.K. and R.A. Bressan. Regulation of gene expression in plant cells during adaptation to osmotic stress. Canadian Society of Plant Physiologists Meeting, Montreal, Canada. 1990.
Bressan, R.A. Contributions of PAPA to *V. vexillata* resistance: Another opportunity for biotechnology? Joint Cowpea Biotechnology Workshop, W. Lafayette, IN. 1990.
Bressan, R.A. Osmotically regulated genes. Joint Cowpea Biotechnology Workshop, W. Lafayette, IN. 1990.
Bressan, R.A. Considerations of spatial and temporal expression of insect resistance genes. Joint Cowpea Biotechnology Workshop, W. Lafayette, IN. 1990.
Bressan, R.A. Regulation of the osmotin gene and adaptation of plant cells to osmotic stress. Dow Elanco Conference, Purdue University. W. Lafayette, IN. 1990.
Bressan, R.A. Regulation of expression of the osmotin gene by osmotic stress. McKnight Project Retreat, Turkey Run State Park, IN. 1990.
Bressan, R.A. Biotechnology and biocontrol of insect management. Purdue C.A.R.E.T. Conference, Purdue University. W. Lafayette, IN. 1990.
Bressan, R.A. Genetic transformation of cowpea for nutritional improvement. NSCORT Technical Review Meeting, W. Lafayette, IN. 1991.
Bressan, R.A. Adaptation to osmotic stress and the regulation of the osmotin gene. Department of Agronomy, University of Illinois. Urbana, Ill. 1991.
Bressan, R.A. Developmental, hormonal and environmental regulation of the osmotin gene. International Plant Molecular Biology Conference, Tucson, Arizona. 1991.
Casas, A., Hasegawa PM, and R.A. Bressan. Osmotin-like genes in the halophyte *Atriplex nummularia*. International Salinity Conference, Agadir, Morocco. 1991.
Bressan, R.A. Advances in genetic transformation of plants. Science Forecast Presentation, Purdue University. W. Lafayette, IN. 1991.
Bressan, R.A., P.H. Bressan, A.K. Kononowicz, and P.M. Hasegawa. Attempts to transform cowpea embryo and bud meristem with *Agrobacterium*. Joint Cowpea Biotechnology Workshop, Naples. Italy. 1991.
Bressan, R.A., A.K. Kononowicz, P.H. Bressan, and P.M. Hasegawa. Transformation of cowpea embryo and bud meristem by particle bombardment. Joint Cowpea Biotechnology Workshop, Naples, Italy. 1991.
Bressan, R.A., Hasegawa PM, and M. Narasimhan. Construction of bean α-amylase inhibitor and wheat germ agglutinin genes for *Agrobacterium* and particle bombardment transformation. Joint Cowpea Biotechnology Workshop, Naples, Italy. 1991.
Bressan, R.A., Transformation of cowpea with the BEX gene for improved sulfer amino acid content of protein. NSCORT Technical Review Meeting. W. Lafayette, IN. 1992.
Bressan, R.A. Osmotic regulation of plant defense genes. Presidents Symposium , ASPP Meeting, Pittsburgh, Penn. 1992.
Bressan, R.A. Oh osmotin, oh osmotin, how sweet art thou? Department of Horticulture, Purdue University. W. Lafayette, IN. 1992.
Bressan, P.H., Bressan RA, Hasegawa PM, M. Narasimhan, A. Kononowicz, and E. Filippone. Transformation of cowpea callus and plants with bean α□-amylase inhibitor. Bari, Italy. 1992.
Bressan, R.A. and P.M. Hasegawa. Molecular aspects of drought stress. Gordon Conference on Plant Molecular Biology, Andover, Mass. 1992. (Abstract only).
Bressan, R.A. Osmotically regulated plant defense genes. Michigan State University. E. Lansing, MI. 1993.
Bressan, R.A., P.M. Hasegawa. Osmotin a novel approach toward fungal pathogen resistance to improve biomass production. Midwest Plant Biotechnology Consortium Meeting. Chicago, IL. 1993.
Bressan, R.A. Disease resistance in potato resulting from overexpression of a plant defense gene. Monsanto Corp. St. Louis, MO. 1993.
Bressan, R.A. Transformation of cowpea. Joint Cowpea Biotechnology Workshop. W. Lafayette, IN. 1993.
Bressan, R.A. Osmotic regulation of plant defense genes. Dow Elanco/Purdue Colloquium - Building the Foundation. West Lafayette, IN. 1993.
Bressan, R.A. Transformation of cowpea with the bean α-amylase inhibitor gene. Joint Cowpea Biotechnology Conference. W. Lafayette, IN. 1993.

Bressan, R.A. Osmotic regulation of plant defense genes. Auburn Univ., Auburn, AL. 1994.
Bressan, R.A. Osmotic regulation of plant defense genes. Tuskeegee Univ., Tuskeegee, AL. 1994.
Bressan, R.A. Osmotic regulation of plant defense genes, Virginia Polytechnic Institute, Blacksburg, VA. 1994.
Bressan, R.A. Transformation of cowpea and potato for nutritional improvement. NSCORT Seminar. Purdue Univ., W. Lafayette, IN. 1994.
Bressan, R.A. Molecular crop improvement for CELSS. NSCORT Site Review. W. Lafayette, IN. 1994.
Bressan, R.A. Osmotically regulated genes. Gordon Conference, Tilton, NH. 1994.
Bressan, R.A. Genetic transformation of sorghum. Sorghum Biotechnology Workshop, College Station, Texas. 1994.
Bressan, R.A., P.M. Hasegawa. Antifungal activity of tobacco osmotin on various fungi in vitro. Plant Biotechnology Consortium Meeting, Chicago, IL 1994.
Bressan, R.A. Osmotically regulated plant defense genes: Structure and function. Colorado State University, Ft. Collins, CO. 1995.
Bressan, R.A., P.M. Hasegawa. Antifungal activity of tobacco osmotin on various fungi in vitro. Illinois State University, Normal, Illinois. 1995.
Bressan, R.A. Pathogenic Related Proteins of Family 5: Structure and function. Fourth International Conference on Pathogenesis Related Proteins. Kolne, Germany. 1995.
Bressan, R.A. Osmotically regulated plant defense genes: Structure and function. Conference on Interactions Between Plant Cells and Their Environment. Denver, Colorado. 1995.
Bressan, R.A. Antifungal activity of tobacco osmotin on various fungi *in vitro*. National Aflatoxin Elimination workshop. St. Louis, MO. 1994.
Bressan, R.A., P.M. Hasegawa. Isolation of pathogenesis-related (PR) proteins and strategies for screening/selection of PR proteins with antifungal activity against *Aspergillus flavus* group fungi. National Peanut Foundation Symposium. Atlanta, GA. 1995.
Kononowicz, A., Bressan RA, P.M. Hasegawa. Status of sorghum biotechnology workshop on biotechnology and biosafety risk assessment in an African perspective. Nairobi, Kenya. 1995.
Bressan, R.A. Expression and function of plant defense genes. U. of Viterbo, Viterbo, Italy. 1995.
Bressan, R.A. The osmotin gene family: structure and function. U. of Naples, Portici, Italy. 1995.
Bressan, R.A. Trapping salt tolerance genes using yeast and Chlamydomonas: Symposium on tolerance of plants to the physical environment. Maratea, Italy, 1995.
Bressan, R.A. Osmotically regulated plant defense genes: Structure and function. Colorado State University, Dept. Biology, Ft. Collins, CO. 1995.
Bressan, R.A. Ion homeostasis and salinity tolerance in plants. Colorado State University, Dept. Botany, Ft. Collins, CO. 1995.
Bressan, R.A., P.M. Hasegawa. Antifungal activity of tobacco osmotin on various fungi in vitro. Illinois State University, Dept. Biology, Normal, Illinois. 1995.
Bressan, R.A. Pathogenic Related Proteins of Family 5: Structure and function. Fourth International Conference on Pathogenesis Related Proteins. Kloster Irsee, Germany. 1995.
Bressan, R.A. Improving antifungal genes for use against Aspergillus flavus group fungi. Aflatoxin Elimination Workshop, Atlanta Georgia, 1995.
Bressan, R.A. Mechanism of action of PR-5 protein. Monsanto Corp., Chesterfield MO, 1995.
Bressan, R.A. Fungal genes controlling sensitivity to PR-5 toxic proteins. Pioneer Corp. Johnston, Iowa, 1995.
Bressan, R.A. Gene expression and osmotic tolerance in plants. Gordon Conferences. Tilton, NH, 1996.
Bressan, R.A. The potential use of PR genes in transgenic disease resistant plants. Dow Elanco Corp. Greenfield, Indiana, 1996.
Bressan, R.A. Genes conditioning resistance of fungi to PR-5 proteins. Dept. of Plant Sciences, University of Arizona. Tucson, Arizona, 1996.
Bressan, R.A. Calcineurin genes from yeast can regulate salinity tolerance in plants. Environmental Stress Symposium., Kanazawa, Japan, 1996.
Bressan, R.A. The mechanism of action of PR-5 antifungal proteins. Research Association for Biotechnology, Tokyo, Japan, 1996.
Bressan, R.A. On the Biotech Road to Eliminate Pesticides from our Environment. Purdue University, School of Agriculture, Science in Agriculture, 1996, Symposium for High School Science Teachers.
Bressan, R.A. The role of CaN in stress tolerance in yeast and higher plants. Dept. of Biology, Colorado State University, 1997.
Bressan, R.A. The mechanism of action of PR-5 antifungal proteins. ENEA, Rome, Italy, 1997.
Bressan, R.A. The mechanism of action of PR-5 antifungal proteins. University of Viterbo, Viterbo, Italy, 1997.
Bressan, R.A. The mechanism of action of PR-5 antifungal proteins. University of Naples, Portici, Italy, 1997.
Bressan, R.A. The plant antifungal protein osmotin acts through signal transduction mediated cell death. Pioneer Hi-Bred Corp. Johnston, Iowa, 1997.

Bressan, R.A. Antifungal proteins and disease resistance in plants. Dow Elanco Corp. Indianapolis, IN, 1997.
Bressan, R.A. The role of calcineurin in Salinity tolerance in Plants. University of Georgia, Athens, GA, 1997.
Bressan, R.A. Antifungal proteins against *Aspergillus* which ones work and which ones don't and why. Aflatoxin Workshop. Memphis, Tenn., 1997.
Bressan, R.A. Osmotin A Trojan Horse in the Plant's Strategic Defense Initiative. Department of Horticulture and Landscape Architecture, Purdue University, 1997.
Bressan, R.A. Transformation Methods, A Contemporary Need in the Genetic Improvement of Plants. North Central Forest Experiment Station Workshop, Purdue University, 1997.
Bressan, R.A. The Philosophy of Academic Success. Department of Horticulture and Landscape Architecture Retreat, Purdue University, 1997.
Bressan, R.A. The antifungal protein osmotin uses signal transduction subversion to enhance its toxicity. Ohio University, Athens, Ohio, 1998.
Bresan, R.A. Genes controlling susceptibility to osmotin in target fungi. University of Seville, Seville, Spain, 1998
Bressan, R.A. Genes controlling susceptibility to osmotin in target fungi. John Innes Inst., Norwich, England, 1998.
Bressan, R.A. Gene expression and salinity tolerance. Gordon Conference, Oxford, England, 1998.
Bressan, R.A. Mechanism of action of PR-5 antifungal proteins. Univ. of Tokyo, Tokyo, Japan, 1998.
Bressan, R.A. Ion homeostasis and salinity tolerance. Tokyo Stress Tolerance Symposium. Tokyo, Japan, 1998.
Bressan, R.A. The osmome project. NSF Genomics Meeting, Washington, D.C., 1998.
Bressan, R.A. PR-5 proteins and their specificity of action. Univ. of Arizona, 1998.
Bressan, R.A. Plant defense proteins and host pathogen recognition specificity. Michigan State Univ., 1999.
Bressan, R.A. PR-5 proteins messengers of program cell death in fungi. Univ. of Arizona, 1999.
Bressan, R.A. Progress on the stress genomics project. Purdue Horticulture and Landscape Architecture Department Retreat, W. Lafayette, IN, 1999.
Bressan, R.A. The role of antiporters in plant salinity tolerance. Univ. of Naples, Botanical Society, Naples, Italy, 1999.
Bressan, R.A. The future of plant stress genomics. Univ. of Naples, Portici, Italy, 1999.
Bressan, R.A. PR-5 proteins - messengers of program cell death in Fungi. Univ. of Naples, Portici, Italy, 1999.
Bressan, R.A. PR-5 proteins messengers of program cell death in Fungi - ENEA, Rome, Italy, 1999.
Bressan, R.A. Host-pathogen interactions and plant PR-5 proteins. Chinese Institute of Genetics, Beijing, China, 1999.
Bressan, R.A. Host-pathogen interactions and plant PR-5 proteins. Chinese Botanical Society, Beijing, China, 1999.
Bressan, R.A. Host-pathogen interactions and plant PR-5 proteins. Jinan Univ., Jinan, China, 1999.
Bressan, R.A. Host-pathogen interactions and plant PR-5 proteins. Chinese Academy of Science, Shanghai, China, 1999.
Bressan, R.A. The molecular basis of salt tolerance in plants. Jinan Univ., Jinan, China, 1999.
Bressan, R.A. Antifungal protein from plants messengers of the cell death program. The McCoy Distinguisehd Lecture. Purdue Univ., W. Lafayette, IN, 1999.
Bressan, R.A. Looking forward to the full immunity response of mint to *Verticillium*. Mint Research Council Meeting, Las Vegas, NV, 2000.
Bressan, R.A. Summary of the responses of plants to free radicle injury. Gordon Conference on Salinity, Tilton, N.H. 2000.
Bressan, R.A. A genomic scale evaluation of salinity tolerance mutants in Arabidopsis. Symposium on Cell Fate and Development. Capri, Italy, 2000.
Bressan, R.A. Salt sensitive mutants from Arabidopsis insertion mutagenesis. University of Naples, Portici, Italy, 2000.
Bressan, R.A. Agricultural biotechnology: Past, Present and Future. International Conference on Biotechnology for Africa, Dakar, Senegal, 2001.
Bressan, R.A. Defending Plants Against Pathogens: Both sentinels and soldiers need to know the enemy. University of Arizona. Tucson, AZ, 2001.
Bressan, R.A. Defending Plants Against Pathogens: Both sentinels and soldiers need to know the enemy. Auburn University, Auburn, Alabama, 2001.
Bressan, R.A. Post-Arabidopsisi genomics. Danforth Center Symposium. St. Louis, MO, 2001.

Bressan, R.A. A genomic scale evaluation of salinity tolerance mutants in Arabidopsis. Symposium on Plant Environmental Interactions Institute of Bioagricultural Science Academia Sinica, Taipei, Taiwan, 2001.

Bressan, R.A. A genomic scale evaluation of salinity tolerance mutants in Arabidopsis. Juan March Conference on Abiotic Stress. Madrid Spain, 2001.

Bressan, R.A. A genomic scale evaluation of salinity tolerance mutants in Arabidopsis. ENEA Rome Italy, 2001.

Bressan, R.A. A genomic scale evaluation of salinity tolerance mutants in Arabidopsis. Instituto Zoologica, Naples, Italy, 2001.

Bressan, R.A. Importance of salinity and drought tolerance research to social and economic stability. Jinan Normal University, Jinan, China, 2002.

Bressan, R.A. A new dimension in salt tolerance research: A halophyte genetic model system. Jinan Normal University, Jinan, China, 2002.

Bressan, R.A. A genomic scale evaluation of salinity tolerance using insertion tag mutagenesis. Beijing Genetics Institute, Beijing, China, 2002.

Bressan, R.A. New salt sensitive mutants of *Arabidopsis thaliana* and *Thellingiella halophila*. Beijing Ag University, Beijing, China, 2002.

Bressan, R.A. Agricultural Biotechnology: past, present and future. American Embassy, Rome, Italy, 2002.

Bressan, R.A. GMOs and their potential impact on Italian and European Agriculture. American Consulate, Naples, Italy, 2002.

Bressan, R.A. Cowpea transformation for Africa: The mistakes of the past and opportunities for the future, Capri, Italy, 2002.

Bressan, R.A. Osmotic stress tolerance identifying the genetic determinants by insertion mutagenesis. Cornell University, Ithaca, New York, 2002.

Bressan, R.A. Insertion tagged mutants with altered stress tolerance. International Symposium on Plant Genomics and Agrobiotechnology. Beijing, China, 2002.

Bressan, R.A. Insertion tagged mutantions affecting salt tolerance. University of Cuernavacca, Cuernavacca, Mexico, 2002.

Bressan, R.A. Genomics scale evaluation of T-DNA mutagenesis based mutants with altered salinity tolerance. International Arabidopsis Meeting, Seville, Spain, 2002.

Bressan, R.A. Cloning genes for abiotic stress tolerance from T-DNA insertion mutants of Arabidopsis. Gordon Research Conference on Salinity Tolerance. Oxford, UK, 2002

Bressan, R.A. Abiotic and biotic stress tolerance genes from forward genetic screening. Cornell University, Ithaca, NY, 2002.

Bressan, R.A. Verticillium tolerance genes: From *Arabidopsis* to Mint. MIRC Meeting, Las Vegas, Nevada, 2003.

Bressan, R.A. Genes involved in signal transduction of stress adaptation. University of Arizona, Tucson, Arizona, 2003.

Bressan, R.A. Genes controlling tolerance to cold desiccation and salinity tolerance. University of Glasgow, Glascgow, Scotland, 2003.

Bressan, R.A. Abiotic stress tolerance genes. Indo-US Agricultural Biotechnology Conference Nutritional Enhancement and Abiotic Stress Tolerance. New Delhi, India, 2003

Bressan, R.A. Biotic and abiotic stress tolerance genes. University of Fribourg, Fribourg, Switzerland, 2003.

Bressan, R. A. , P. M. Hasegawa and S. C. Weller. Vhs-1 - a myc transcription factor and its role in resistance to Verticillium dahliae. *MIRC Meeting.* Las Vegas, NV. 2003.

Bressan, R. A. , P. M. Hasegawa and S. C. Weller. The future of biotechnology in agriculture. *MIRC Meeting.* Las Vegas, NV. 2003.

Bressan, R. A. and P. M. Hasegawa. A genomic scale analysis of salt tolerance genes in Arabidopsis. University of Glasgow, Glasgow, Scotland. 2003.

Bressan, R. A. and P. M. Hasegawa. Genetic determinants of abiotic stress tolerance. New Delhi, India. 2003.

Bressan, R. A. and P. M. Hasegawa. A genomic scale analysis of salt tolerance genes in Arabidopsis. University of Berne, Berne, Switzerland. 2003.

Bressan, R. A. and P. M. Hasegawa. A genomic scale analysis of salt tolerance genes in Arabidopsis. University of Fribourg, Fribourg, Switzerland. 2003.

Bressan, R. A. and P. M. Hasegawa. Drought tolerance genes. *Rockefeller Meeting: The Use of Plant Architecture Genes for Drought Tolerance.* Bellagio, Italy. 2003.

Bressan, R. A. and P. M. Hasegawa. Osmotin and its role in PCD of microorganisms. University of Salerno, Salerno, Italy. 2003.

Bressan, R. A. Arabidopsis mutants and genes controlling abiotic stress tolerance. University of Arizona, Tucson, AZ. 2003.

Bressan, R. A. The Prince and the Pope - The future of world-wide acceptance of GMO's. *MIRC Meeting.* Las Vegas, Nevada. 2004.

Bressan, R. A. Introduction to Genomics/Global Gene Expression in Plant Responses to Abiotic Stresses. *Keystone Conference.* Santa Fe, NM. 2004.

Bressan, R. A. A Global Genome Wide Search for Genes Controlling Tolerance to Abiotic Stresses. Research Institute, Cuernavaca, Mexico. 2004.

Bressan, R. A. Genes controlling abiotic and biotic stress tolerance in plant. *Deptartment of Plant Biology.* University of California, Riverside, CA. 2004.

Bressan, R. A. Toward Commercialization of Abiotic Stress Tolerance Genes. Dow Life Sciences, Indiainapolis, IN. 2004.

Bressan, R. A. Biochemical, Physiological and Genetic Approaches to Abiotic Stress Tolerance in Plants. *UIUC Meeting*, Johnston, Iowa. 2004.

Bressan, R. A. Zero Distance Marker Assisted Breeding in Mint. *MIRC Annual Meeting*. Las Vegas, NV. 2005.

Bressan, R.A. Metabolomics and Temperature Stress. *Gordon Research Conference*. Ventura, CA. 2005.

V. Training Graduate Students, Postdoctoral Fellows, etc.

A. Major Professor

R. K. Jayaswal - Molecular approach to study the pathogenicity of *Erwinia carotovora* subsp. *carotovora*. Ph.D. (1985) Associate Professor, Illinois State Univ., Normal, Illinois

R. C. Pratt - A physiological genetic approach for improving stress tolerance in *Phaseolus vulgaris* L. via gene transfer from *Phaseolus acutifolius* A. Gray (1985) Ph.D. Associate Professor, Ohio State Univ., Wooster Ohio

C. Lopez-Peralta (with P. M. Hasegawa) - Tolerance of tomato genotypes to osmotic stress in culture. (1984) Ph.D. Professor, Chapingo State University, Mexico

P. C. LaRosa - The role of plant hormones in adaptability to stress (1988). Ph.D. Postdoctorate - USDA Lab, Beltsville, MD

R. Rietveld - Phenotypic variability in somatic cells of potato (1988). Ph.D. Owner - Rietveld Agricultural Consulting, Wendall, Idaho

D. Nelson - Isolation and characterization of genes affecting salt tolerance in plants (1991). Ph.D. Postdoctorate, Max Planc Institute Cologne, Germany/Univ. Arizona, Biochemistry Dept./Monsanto Corp.

Xi Yu - Isolation and characterization of mitochondrial genes involved in salt tolerance (1994). Ph.D. Postdoctorate, Univ. Ind. Medical School, Indianapolis, IN

Dong Liu - Involvement of the osmotin gene in stress adaptation (1995). Ph.D. Postdoctorate, Univ. California at San Diego, Dept. Biology/Dow Life Science Corp.

Linda Chang - Membrane protein alterations in osmotic stress adapted cells and plants (1995). Ph.D. Associate Prof., Univ. Taipei, Taiwan

Zutang Chen - Membrane and cell wall protein changes during osmotic adaptation (1995). Ph.D. Postdoctorate, Univ. of Tennessee, Medical School, Memphis, TN/Cedar Sainai Hospital, Los Angeles, California

Teresa Samsun - Insect Resistance Genes (2000). Ph.D.

Ron Salzman - Cation mediated inhibition of PR-5 proteins. (2000) Ph.D.

H.S. Lee - Structural Analysis of PR-5 Antifungal Proteins. (2001) Ph.D.

J. Hua Zhu (salt mutants) (2004) Ph.D.

G. Inan (halophytic Arabidopsis mutants) (2005) Ph.D.

Hyunggon Mang - Ph.D. (2008)

Jeong Im Kim - Ph.D. (2009)

Mi Sun Cheong - Ph.D. (2009)
Michael Van Oosten - Ph.D. (2009)
Hee Jin Park - Ph.D.(2010)

B. Committee Member

L. Lee (Bot) - N Metabolism of maize mutants (Graduate Ph.D. 1981)
M. Culley (Ent) - Physiology of bean beetle feeding (Graduate MS. 1981)
J. Holmson (Bot) - Mech. of action of anti-tubulin herbicides (Graduate Ph.D. 1982)
B. Kelly (Hort) - Carbon metabolism in regenerated roots (Graduate Ph.D. 1982)
L. Virts (Biol) - Early events in Agrobacterium transformations (Graduate Ph.D. 1985)
M. Binzel (Hort) - Salt resistance in cultured cells (Graduate Ph.D. 1987)
N. Iraki (Bot) - Cell wall biochemistry in cell enlargement (Graduate Ph.D. 1987)
E. Shea (Bot) - Cell wall biosynthesis (Graduate Ph.D. 1988)
S. Schnapp (Hort) - Carbon utilization in cultured cells (Graduate Ph.D. 1988)
W. Kozinski (Forestry/Hort) - Glyphosate tolerance in bindweed biotypes (Graduate Ph.D. 1989)
D. Brunk (Hort) - Glycine betaine-role in osmotic stress tolerance in maize (Graduate Ph.D. 1989)
J. Chiu (Hort) - *E. carotovora* cloning pathogenicity genes (Graduate Ph.D. 1989)
M. L. Mendum (Hort) - Tolerance to heavy metal stress (Graduate MS. 1989)
R. Mayer (Hort) - Isolation of proteins involved in adaptation of cow pea cells to high temperature stress (Graduate MS 1989)
R. Smeda (Hort) - Atrazine resistant cells-mechanism of resistance (Graduate Ph.D. 1990)
J. Heusing (Ent) - Cathepsin type proteinase from insect gut (Graduate Ph.D. 1991)
K. Zhu (Ent 1991) α-amylase inhibitor genes from Taro/Griffonia (Graduate Ph.D. 1997)
C. Yerkes (Hort 1991) - Molecular mechanism of Triazine resistance (Graduate Ph.D. 1995)
X. Niu (Hort 1990) - Salt tolerance and ATPase gene expression (Graduate Ph.D. 1994)
J.K. Zhu (Hort) - Adhesion proteins and genes from plants (Graduate Ph.D. 1994)
A. Wood (Hort) - Drought induced genes in sorghum (Graduate Ph.D. 1994)
J. Westwood (Hort) - Biology of glyphosate tolerance in bindweed (Graduate Ph.D. 1994)
K. Heuss (Hort) - Glutamate decarboxylase induction by stress (Graduate Ph.D. 1992)
C. Liu (HORT) – Tomato disease molecular genetics (Graduate Ph.D. 1993)
A. Maggio (Hort) – Proline metabolism and salt tolerance (Graduate Ph.D. 1999)
S. Cessna (Chem)Ca^{++} mediated salt stress signal (Graduate Ph.D. 2000)
W.B. Shim (Botany)Aflatoxin biosynthesis mutants (Graduate Ph.D. 2000)
T. Matsumoto (Hort) Salt tolerance molecular genetics (Graduate Ph.D. 2000)
Roger Thilmony (Agronomy) Pto-mediated gene expression (Graduate Ph.D. 1997)
X. Tang (Hort) Pto controlled gene expression (Graduate Ph.D. 1999)
T. Bhargava (Biology) PR gene expression in cereals (Graduate Ph.D. 1999)
J. Lawrence (Food Science) CPI from bean species (Graduate M.S. 1998)
H. Wang (Botany) Aflatoxin metabolism-molecular genetics 1999-
D. Halterman (Agronomy) PTO mediated gene expression (Graduate Ph.D. 2000)
Y. Tao (Biology)Nuclear localization signaling in plants (Graduate Ph.D. 1999)
B. Reily (Agronomy)Pto diversity in tomato species 1997-2001
Y. Valez Acendo (Biology) Bacteria mutants for ion transport 1998-2002
Jitae Wang (P. Low-Chemistry) MAP Kinase/Oxidative burst 1998-2002
S. Yang (Hort) Plant molecular genetics 1998-2003
W. Bundithya (Hort) PO4 uptake transporters 1999-2003
Xia Li (Hort) Mint transformation 1999-2003
A. Sharkhuu (Hort) Salt tolerant mutants 2000-2009

C. Postdoctorate Associates (including collaborating projects)

A.K. Handa 1979-1981
S. Handa 1980-1987
M. Jain 1981-1982
N.K. Singh 1982-1987
C. Orser 1985-1987
J. Kanabus 1985-1987
D. Charles 1985-1987
M. Reuveni 1987-1989
M. Binzel 1987-1989
P.C. LaRosa 1988-1990
J. Hanquier 1988-1990

A. Casas 1988-1993
S.R. Schnapp 1989-1991
S. Grillo 1991
K.G. Raghothama 1990-1992
C. Osuala 1991-1992
M. Paino D'Urzo 1992-
U. Zehr 1992-1994
M. Wang 1993-1994, 1996
J. Kapusta 1993-1994
L. Todd 1993-1995
Y. Zhao 1993-1995
R. Prieto 1994-1995
M.A. Botella 1994-1995
T. Fujita 1994-1998
Dae-Jin Yun 1994-1998
L. Zhang 1994-1997
M. Wang 1994-1997
I. Ibeas 1997-1999
L. Kui 1997-1998
Maria Coca 1998-2000
G. Gong 1999-2000
A. Maggio 1998-1999
K. Zhu 1997-1999
R. Salzman 1999-2000
Teresa Ruiz 1999-2000
Augustine Hernandes 1999-2000
B. Ruggiero 1998-2004
M. Narasimhan 1989-present
B. Damsz 1993-2007
H. Koiwa 1997-2001
P. Veronese 1998-2001
A. Rus 1999-2005
S. Yokoi 1999-2005
Y. Nakagawa 2001-2006

D. Visiting Students

M. Reuveni 1985-1986
E. Perez-Pratt 1988-1990
M.A. Botella 1991-1992
Jerome Salse 1999

E. Visiting Scientists

Y.J. Kim (Korean Govt.) 1980-1982
N.K. Singh (USDA) 1988
A. Kononowicz (USDA) 1985
N.K. Singh (USDA) 1989
A. Kononowicz (IITA) 1990
S. Grillo (IITA) 1990
I. Ilahi (Fulbright) 1991
F. Saccardo (Italian Government) 1991
O. Chambliss (Auburn U.) 1991
R. Rao (Italian Government) 1992
J.M. Pardo (Spanish Government) 1992
T.N. Prabha (Indian Government) 1992
G.G. Li (Chinese Govt.) 1993
I. Mendoza (Spanish Govt.) 1993-1995
J. Pardo (USDA) 1993-1995
Y. Li (Chinese Govt.) 1993-1994
A. Watad (BARD) 1994-1995
Kheng T. Cheah (Singapore Labs, Inc.) 1994-1995
Yongqing Niu (Chinese Govt.) 1994-1995

Satomi Takeda (Japanese Govt.)1994-1995
Joaquin Espartero (Spanish Govt.) 1994-1996
Ping Xu (Rockefeller)1994-1996
Iraida Amaya (Spanish Govt.) 1994-1996
M. Housonai 1994-1995
I. Amaya 1994-1995
Amir Zuker 1994-1995
C. Caruso (Italian Govt.) 1997
M. Reddy (India Govt.) 1996-1997
P. Veronese (Italian Govt.) 1996-1997
P. Prasad (Indian Gov't) 1998
R. Locy (Sabattical) 1999
F. Consiglio (Italian Govt.) 1998
S. Grillo (Italian Govt.) 2001
T. Charbaji (Intnl. Atomic Energy, Syrian Govt.) 2001

F. Committee Service - I have served on several Department and University-wide committees including Department of Graduate Admissions and Curriculum, several departmental faculty position search committees, and the University Scholarship and Grievance committees.

VI. Competitive Research Grants and Awards Received

Selection of water stress tolerant cells from cell culture. AES Fellowship. 1978-1981. $13,500.
The effect of water stress on nitrate reductase in tomato. David Ross Fellowship. 1978-1981. $13,500.
Selection of disease resistance in maize and potato through the use of tissue culture. AES Program Improvement Funds. January 1, 1979 - December 31, 1981. $180,000 (with P. M. Hasegawa and R. L. Nicholson).
The role of cAMP and cAMP analogues in the regulation of carbon metabolism in plants. USDA competitive Grant. Sept. 1, 1979 - August 30, 1982. $60,000.
Resistance to water and salt stress through somatic cell selection. BARD. Oct. 1980 - Oct. 1983. $179,000 (with P. M. Hasegawa and Avtar Handa).
Selection for herbicide tolerant potato plants. Title XII. 1980-1982. $10,000 (with Avtar Handa, P.M. Hasegawa).
A physiological selection parameter for the improvement of drought resistance in bean and tomato. AES Fellowship. 1981-1983. $13,500.
Measure of the modulation of solute and metabolite pools in the cytosol and vacuole of plant cells. Binational Science Foundation. 1981-1983. $70,000 (with P. M. Hasegawa, N. C. Carpita, A. K. Handa, D. Delmer, H. R. Lerner, and A. Poljakoff-Mayber).
Salt shock and salt tolerance proteins of higher plant cells. David Ross Fellowship. 1982-1984. $13,500.
Plant Cell and Tissue Culture Research. AES Program Improvement Funds. 1982-1984. $90,000 (with P. M. Hasegawa and A. K. Handa).
Regulation of protein and mRNA metabolism in salt tolerant and intolerant cultured higher plant cells. DOE. 1983-1986. $240,000 (with P.M. Hasegawa and A.K. Handa and with Native Plants, Inc.).
Salinity stress and carbon metabolism in roots of plants differing in stress resistance. BARD. 1983-1985. $150,000 (with N.C. Carpita and A. Poljakoff-Mayber).
Development of tissue culture systems to produce important plant secondary natural products. Showalter Trust. 1983-1984. $30,000 (with P. Heinstein, Hasegawa PM, and A.K. Handa).
Genetic engineering of tobacco cells to achieve osmotolerance by overproduction of proline. CST. 1985-1987. $150,000 (with S. Gelvin and L. Csonka).
Characterization of the role of a stress protein gene(s) in salt and water stress tolerance in plants. USDA. 1985-1988. $165,000 (with A.K. Handa and D. Kuhn).
Isolation and characterization of enzymes for proline synthesis in plants adapted to salt stress. USDA. 1985-1988. $100,000 (with L. Csonka and D. Rhodes).
Molecular cloning and characterization of expression of genes involved in salt stress tolerance in plants. David Ross Fellowship 1986-1988 $13,500.
Purchase of Equipment for Plant Stress Biology Research. NSF. 1986. $75,000 (with P. M. Hasegawa, J. H. Cherry, A. K. Handa, C. A. Mitchell, and S. C. Weller).
Isolation and modification of genes involved in salt stress tolerance in plants. CST. 1986. $55,000 (with A.K. Handa and D. Kuhn).
Seed lectins as chemical defenses against bruchid beetles. David Ross Fellowship 1986-1988 $13,500 (with L. Murdock and D. Shade).
Morphogenesis of *Vigna* - Title XII USAID program improvement funds (RISP project). 1987-1988. $18,000 (with P.M. Hasegawa).

Genetic engineering of tobacco cells to achieve osmotolerance by overproduction of proline. CST. 1988. $43,000 (with S. Gelvin and L. Csonka).

Incorporation of resistance to pod borer and pod bugs into cowpea. AID/USDA/CSRS. 1988. $90,000 (with Hasegawa PM, L. Kitch, and L. Murdock).

Identification and isolation of a mitochondrial gene(s) conferring salt tolerance to plant mitochondria. David Ross. 1988. $13,000.

Identification and isolation of a mitochondrial gene(s) conferring salt tolerance to plant mitochondria. USDA. 1988-1990. $90,000 (with N.K. Singh).

Morphogenesis of *Vigna*. Title XII USAID program improvement funds. 1988-1989. $12,000 (with P.M. Hasegawa).

Interspecific hybridization of cowpea, cowpea gene transformation. IITA. 1989-1992. $450,000 (with Hasegawa PM, L. Murdock, and D. Shade)

Transformation of Vigna. Title XII Program Improvement Funds. 1989-1990. $15,000.

Characterization of morphological, physiological and biochemical mechanisms associated with drought resistance in *Sorghum Bicolor*. McKnight Foundation. 1989. $750,000. (with J.D. Axtell, J. Cherry, J. Bennetzen, D. Rhodes, G. Ejeta, L. Csonka, N.C. Carpita, E. Ashworth, P. Goldsbrough, Hasegawa PM, and R. Joly).

Cell wall proteins and growth under saline stress. USDA. 1990-1992. $85,000 (with N.C. Carpita).

Characterization of the involvement of the osmotin gene in adaptation to NaCl by glycophytes and halophytes. NSF. 1990-1993. $236,000 (with H. Bohnert).

Transfer of osmotically (drought and salt stress) regulated genes to rice. Rockefeller Foundation. 1990-1994. $80,000 (with P.M. Hasegawa).

Regulatory properties of a salt-induced gene in glycophytes and halophytes: David Ross Grant. 1990. $13,500.

Alternative Insect Management Systems (AIMS). Purdue Crossroads90 Grant. 1991-1994. $90,000 (with L. Murdock, D. Shade, and P.M. Hasegawa).

Sorghum Research at Purdue. Pioneer International. 1991-1994. $120,00 (with L. Butler and P.M. Hasegawa).

Molecular cloning of soybean cysteine proteinase inhibitor for insect resistance. USDA. 1991. $195,000 (with Suzanne Nielsen and P.M. Hasegawa).

Improvement of digestability and nutritional quality of common bean with traditional plant breeding, molecular biology and food technology. CRSP. 1991-1995. $600,000 (with MSU and U. Costa Rica) ($185,000 to Purdue with S. Nielsen, A. Mason, S. Kenyan, and P.M. Hasegawa).

Sorghum Research at Purdue. Pioneer International. 1992-1994. $165,000 (with L. Butler, Hasegawa PM, and J. Axtell).

Characterization of morphological, physiological and biochemical mechanisms associated with drought resistance in *Sorghum Bicolor*. McKnight Foundation. 1992-1995 (renewal). $750,000 (with J.D. Axtell, J. Bennetzen, D. Rhodes, G. Ejeta, L. Csonka, N.C. Carpita, E. Ashworth, P. Goldsbrough, Hasegawa PM, and R. Joly).

Regulation of H^+-ATPase genes in a glycophyte and a halophyte. USDA. 1992-1994. $120,000 (with P.M. Hasegawa).

The possible involvement of extracellular matrix proteins in cell wall/membrane adhesion and in Ca/calmodulin regulated metabolism of plant cells adapted to osmotic stress. USDA. 1992-1994. $120,000 (with P.M. Hasegawa).

Cowpea Transformation. IITA. 1992. $50,000 (with P.M. Hasegawa and L. Murdock).

Isolation of osmotin-like antifungal genes and analysis of their structural activity. Midwest Biotechnology Consortium (Pioneer/Peanut Council/Monsanto). 1993. $200,00 (with P.M. Hasegawa)

Osmotin and osmotin-like proteins, novel sources of phytopathogenic fungal resistance for tomato, carnation and petunia. BARD. 1993. $50,000.

Resistance to aflatoxin producing *A. flavus* group fungi in transgenic peanut plants overproducing osmotin and osmotin-like proteins. USDA Cooperative. 1993-1994. $20,000 (with P.M. Hasegawa).

Cloning of the genes encoding α-glutamyl kinase and glutamyl-PO4 reductase genes for tomato. USDA 1993-1996. $195,000 (with L.N. Csonka).

Development of a sorghum transformation system. Consortium for Plant Biotechnology Research (DOE). 1994-1995. $226,000 (with P.M. Hasegawa and J. Axtell).

Identification of osmotin and osmotin-like proteins that are effective antifungal agents against *A. flavus* group fungi. USDA Cooperative. 1994-1995. $35,000 (with P.M. Hasegawa).

Transformation of mint with the osmotin gene. National Mint Council. 1994-1997. $138,000 (with S. Weller and P.M. Hasegawa).

Sorghum Transformation Project. Pioneer International. 1994-1997. $640,000 (with P.M. Hasegawa and J. Axtell).

Co-ordinate regulation and function of osmotically-induced plant defense genes. USDA . 1994-1997. $149,000 (with Hasegawa PM, M. Narasimhan).

Functional analyses of ANJ1, a higher plant homolog of the bacterial heat shock protein and molecular chaperone DnaJ. - NSF. (with P.M. Hasegawa). $170,000 - 1995

USDA Cooperative - Isolation of Pathogenesis-Related (PR) Proteins and Strategies for Screening/Selection of PR Proteins with Antifungal Activity Against *Aspergillus flavus* Group Fungi - (with Mike Hasegawa) $20,000 - 1995

Northrup King Corp - Discovery of novel anti insect proteins and genes. (with L. Murdock, S. Nielsen) $460,000 - 1995

USDA/NRICGP - Lectins and lectin genes as defenses against insects - (with L. Murdock) $160,000 - 1995

National Needs Fellow Program - Plant resistance to insects through biotechnology - (with P. Dunn, Hasegawa PM, G. Martin, C. Murdock, S. Nielsen, R. Shade, J. Stuart). $80,000 - 1995

Pioneer Hi-Bred - Freight-train genes: Multi-heterodomain cysteine protease inhibitors for corn rootworm management through genetic engineering. (with L Murdock). $60,000 - 1995-1996

USDA - Isolation of antifungal proteins and strategies for developing mutated versions of the antifungal protein osmotin with improved antifungal activity against *Aspergillus flavus* group fungi. (Hasegawa PM, R.A. Bressan). $36,000 - 1996

USDA Biotech program - Exploiting antifungal protein and commercial fungicide synergisms to reduce fungicide use. (with Bressan RA, Hasegawa PM, M.L. Narasimhan). $199,276 - 1996

USDA/NRICGP - Co-ordinate Regulation and Function of Osmotically-Induced Plant Defense Genes, 1994 to 1997 - $149,000 (with P.M. Hasegawa).

USDA/NRICGP - ANJ1 Proteins, A Novel Class of Plant DnaJ-Like Chaperones that Are Involved in Thermal Adaptation, 1995 to 1998 - $170,000 (with P.M. Hasegawa).

BARD - Osmotin and osmotin-like proteins, novel sources of phytopathogenic fungal resistance for tomato and carnation and petunia, 1996 to 1999 - $300,000 ($150,000 to Hort) (with P.M. Hasegawa and Abd Watad).

Exploiting antifungal protein and commercial fungicide synergisms to reduce fungicide use. USDA Biotech program - 1996-97 - $150,000 (with Hasegawa PM, M.L. Narasimhan).

Cysteine proteinase inhibitors for control of western corn rootworm. USDA Biotech program - 1996-1997 - $180,000 ($90,000 to Hort) (with S.S. Nielsen and with P.M. Hasegawa)

Sorghum stem borer and root and stalk rot disease resistance through genetic transformation. Rockefeller Foundation - 1996-1997 - $60,000 (with P.M. Hasegawa)

Sorghum transformation. Pioneer Hi-Bred International - 1996-1997 - $240,000 (with P.M. Hasegawa)

Improving commercial mint varieties through biotechnology. Mint Council - 1997-2000 - $366,000 (Weller, Bressan, Hasegawa)

Isolation of wheat seed proteins with substantial antifungal activities against *Aspergillus flavus*. USDA - 1997-1998 - $30,000 (Bressan, Hasegawa)

Salt tolerance of plants expressing calcineurin - USDA/NRICGP - 1997-1999 - $110,000 (Hasegawa, Bressan, Pardo).

Exploiting antifungal protein and commercial fungicide synergisms to reduce fungicide use. USDA Biotech program - 1996-98 - $150,000 (RA Bressan, PM Hasegawa and ML Narasimhan)

Cysteine proteinase inhibitors for control of western corn rootworm. USDA Biotech program - 1996-1998 - $180,000 ($90,000 to Hort) (SS Nielsen, PM Hasegawa and RA Bressan)

Isolation of wheat seed proteins with substantial antifungal activities against *Aspergillus flavus*. USDA - 1998 - $25,000 (RA Bressan, PM Hasegawa)

Molecular evolution of cysteine proteinase inhibitors - PRF Grant - 1998-2000 - $22,000

Genes controlling cytotoxicity of osmotin, a plant defense protein – NSF MCB98-8551 - 1998-2001, $300, 000 (RA Bressan, PM Hasegawa, ML Narasimhan).

Genomics of plant stress tolerance – NSF DBI-9813360, 1998-2002, $2,250,000 to Purdue University (RA Bressan, PM Hasegawa)

Improved Surimi processing through bioengineering of proteinase inhibitors - USDA/National Research Initiative Competitive Grants Program, 1998 – 2000, $73,830 to Purdue University (PM Hasegawa, RA Bressan)

Enhanced SCN Resistance through Metabolic Engineering of Cysteine Proteinase Inhibitors – Indiana Soybean Board #98-210, 1998-2000, $173,000

Tomato Genomics – NRICGP/ARP, Purdue University, 9, 1998 - $162,000

Mint Industry Research Council #0YX74, 04/01/2003 - 03/31/2005, $7,500.00

Enhanced Salt Stress Tolerance In Tomato Futuragene, Inc. - U.S. Department of Agriculture #0YW96, 07/20/2003 - 11/20/2004. $25,000.00 ($25,000.00 Requested).

Travel and Fungicide Field Plot Expenses - Mint Industry Research Council #0YW25, 04/01/2003 - 03/31/2005. $15,000.00

Genes Controlling SOS1 mRNA Stability in Response to Abiotic Stresses - Cooperative State Research Service - U.S. Department of Agriculture, 09/01/2004 - 08/31/2008, $132,000.00

Michael VanOosten - Ross Graduate Fellowship/Assistantship #B165H, 08/16/2004 - 08/15/2005. $15,022.00

Thellungiela halophila (salt cress), a halophyte and cryophyte arabidopsis relative as a genetic model to identify stress adaptation determinants #0GZ28 - National Science Foundation 01/01/2005 - 07/31/2005. $6,000.00

Thellungiela halophila (salt cress), a halophyte and cryophyte arabidopsis relative as a genetic model to identify stress adaptation determinants #0GY79 - Futuragene, Inc. 09/01/2004 - 02/28/2006. $100,000.00

Thellungiela halophila (salt cress),a halophyte and cryophyte arabidopsis relative as a genetic model to identify stress adaptation determinants #0GC81 - National Science Foundation 08/01/2004 - 07/31/2005. $176,116.00

Genes controlling susceptibility of phytopathogenic fungi to osmotin, a plant defense protein #0GB84 - National Science Foundation 05/01/2004 - 04/30/2005. $180,000.00

Molecular genetic improvement of cowpeas #KYM59 - Michigan State University - Agency for International Development 09/30/2002 - 09/29/2007. $66,052.00

Futuragene Gift Account #B59P4 - Futuragene, Inc. 08/01/2004 - 12/31/2005. $904,000.00

Salinity: An Impediment to Crop Production – Trask Trust Fund 7/1/02 - 6/30/03, $41,858

Gyeongsang National University – 1/1/06 - 12/31/13, $466,800

D-Helix Inc., Gift Account – 10/1/06 - 99/99/99, $218,416

PR5K Gene Expression in Rice: Effect on Cell wII Composition, Biomass, Yield and Quality, D-Helix, Inc., Award No. 08105069 – 4/1/08 - 3/31/09, $100,000

King Abdullah University of Science and Technology – 1/1/09 - 12/31/10, $360,000

VII. Other evidence of Regional, National, or International Recognition

Organizer and co-convener of Session in Depth on Somatic Cell Selection and Crop Productivity. Annual Meeting Tissue Culture Association. 1980. St. Louis, MO.

Organizer and convenor of Session in Depth on Plant Cell - Microorganism Interactions. Annual Meeting Tissue Culture Association. 1981. Washington, DC.

Organizer and convenor of Session in Depth on Plant Cell Physiology and Metabolism. Annual Meeting Tissue Culture Association. 1982. San Diego, CA.

Chairperson, Workshop on Osmoregulation. Annual Meeting American Society Plant Physiologists. 1982. Urbana, Illinois.

Co-convenor, Roundtable Discussion on Phenotypic variability in plant cell cultures - genetic bases. Annual Meeting Tissue Culture Association. 1982. San Diego, California.

Chairman, Program Committee Annual Meeting. Tissue Culture Association .1983. Orlando, Florida.

Convenor, Session in Depth on Stress Physiology. Annual Meeting Tissue Culture Association. 1983. Orlando, Florida.

Co-chairman, Program Committee Annual Meeting. Tissue Culture Association. 1984. Houston, Texas.

Co-convenor, Symposium Session on Plant Metabolism and Tissue Culture. Annual TCA Meeting. Houston, TX. 1984.

Presided Plant Stress Physiology Session. ASPP Meeting. Davis, CA. 1984.

Member USDA Competitive Grants Panel for Environmental Stress. 1985.

Appointed Editorial Board Plant Physiology. 1985.

Appointed Editorial Board In Vitro, Plant Section. 1990.

Member USDA Competitive Grants Panel for Environmental Stress. 1992.

Appointed to new Editorial Board of Plant Physiol. 1992-1999.

Discussion Leader, Gene Expression, Gordon Conference. 1996.

Member USDA Competitive Grants Environmental Stress Panel. 1996.

Discussion Leader Oxidative Stress Gordon Conference . 2000.

Member IFAS review panel. 2000.

Participant USAID Planning Meeting for Cereal Genomics El-Batan, Mexico. 2001.

Discussion Leader Oxidative Stress Gordon Conference. 2002.

Member USDA Competitive Grants Environmental Stress Panel. 1996.

Member IFAS Review Panel. 2000.

Member USDA Internal Review Panel. 2000.

Participant USAID Planning Meeting for Cereal Genomics El-Batan, Mexico, 2001.

Reviewed several books and manuscripts for ASHS, Plant Physiology, Science, BBA, Crop Science, Plant J., Plant Cell, Physiologia Plant., Plant Cell and Environ., Plant Cell Reports, PNAS, Plant Mol. Biol., among others

Reviewed several proposals for USDA Competitive Grants, NSF, DOE, BARD, among others

Awards:

Sigma Xi Student Research Award - 1972

Alumni Achievement Award, Illinois State University - 1995
Herbert Newby McCoy Award, Purdue University - 1999