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Formal Education Ph.D. Biology, 1996, University of Louisiana at Lafayette
Postdoctoral training, Plant Cell Biology, 1996-1999, Pennsylvania State University
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Publications

Plant gravitropism

1. Shin H, Shin H-S, Guo Z, Blancaflor EB, Masson PH, Chen R (2005) Complex regulation of Arabidopsis AGR1/PIN2-mediated root gravitropic response and basipetal auxin transport by catharidin-sensitive protein phosphatases. *Plant Journal* 42: 188-200
2. Hou G, Kramer VL, Wang Y-S, Chen R, Perbal G, Gilroy S, Blancaflor EB (2004) The promotion of gravitropism in Arabidopsis roots upon actin disruption is coupled with the extended alkalization of the columella cytoplasm and a persistent lateral auxin gradient. *Plant Journal* 31: 113-125
3. Hou G, Mohamalawari DR, Blancaflor EB (2003) Enhanced gravitropism of roots with a disrupted cap actin cytoskeleton. *Plant Physiology* 131:1360-1373
4. Blancaflor EB, Masson PH (2003) Update on Plant gravitropism. Unraveling the ups and downs of a complex process. *Plant Physiology* 113: 1677-1690
5. Blancaflor EB, Hou G, Mohamalawari DR (2003) The promotive effect of latrunculin B on gravitropism of maize roots is concentration dependent. *Advances in Space Research* 31:2215-2220
6. Blancaflor EB (2002) The cytoskeleton and gravitropism in higher plants. *Journal of Plant Growth Regulation* 21: 120-136
7. Fasano JM*, Swanson SJ*, Blancaflor EB*, Dowd PE, Kao T-h., Gilroy S (2001) Changes in root cap pH are required for the gravity response of the Arabidopsis root. *Plant Cell* 13: 907-921. *joint first authors
8. Blancaflor EB, Fasano JM, Gilroy S (1999) Laser ablation of root cap cells: Implications for models of graviperception. *Advances in Space Research* 24:731-738.
9. Hasenstein KH, Blancaflor EB, Lee JS (1999) The microtubule cytoskeleton does not integrate auxin transport and gravitropism in maize roots. *Physiologia Plantarum* 105:729-738.
10. Blancaflor EB, Fasano, J.M., Gilroy S. (1998). Mapping the functional roles of cap cells in the response of Arabidopsis primary roots to gravity. *Plant Physiology* 116: 213-222
11. Legue V, Blancaflor EB, Wymer C, Fantin D, Perbal G, Gilroy S (1997) Cytoplasmic free calcium in Arabidopsis roots changes in response to touch but not gravity. *Plant Physiology* 114: 789-800.
12. Blancaflor EB, Hasenstein KH (1997) The organization of the actin cytoskeleton in vertical and graviresponding primary roots of maize. *Plant Physiology* 113: 1447-1455.
13. Hasenstein KH, Kuznetsov OA, Blancaflor EB (1996) Induction of root curvature by magnetophoresis and cytoskeletal changes during the graviresponse. In: Kaldeich B. (ed.) *Proceedings of the Sixth European Symposium on Life Sciences Research in Space*. European Space Agency, Noordwijk, The Netherlands, pp. 71-74
14. Blancaflor EB, Hasenstein KH (1993) Organization of cortical microtubules in graviresponding maize roots. *Planta* 191: 231-237.

Root Biology/Development

1. Hou G, Hill JP, Blancaflor EB (2004) Developmental anatomy and auxin response of lateral root formation in *Ceratopteris richardii*. *Journal of Experimental Botany* 397: 685-693
2. Collings DA, Zsuppan G, Allen NS, Blancaflor EB (2001) Demonstration of prominent actin filaments in the root columella. *Planta* 212: 392-403
3. Blancaflor EB (2000) Cortical actin filaments potentially interact with cortical microtubules in regulating polarity of cell expansion in primary roots of maize (*Zea mays* L.). *Journal of Plant Growth Regulation* 19: 406-414
4. *Bibikova TN, *Blancaflor EB, Gilroy S (1999) Microtubules regulate tip growth and orientation in root hairs of *Arabidopsis thaliana*. *Plant Journal* 17:657-665. *joint first authors
5. Blancaflor EB, Hasenstein KH (1995) Time course and auxin sensitivity of cortical microtubule reorientation in maize roots. *Protoplasma* 185: 72-82

N-Acylethanolamines (NAE) and plant development

1. Blancaflor EB, Chapman KD (2005) Similarities between endocannabinoid signaling in animal systems and N-acylethanolamine metabolism in plants. In: Baluška F, Mancuso S, Volkmann D (eds). *Communication in Plants – Neuronal Aspects of Plant Life*. Heidelberg, Germany, Springer-Verlag (in press)
2. Motes CM, Pechter P, Yoo C-M, Wang Y-S, Chapman KD, Blancaflor EB (2005) Differential effects of two phospholipase D inhibitors, 1-butanol and N-acylethanolamine (NAE), on in vivo cytoskeletal organization and *Arabidopsis* seedling growth. *Protoplasma* (in press)
3. Blancaflor EB, Hou G, Chapman KD (2003) Elevated levels of N-Lauroylethanolamine, an endogenous constituent of desiccated seeds, disrupt normal root development in *Arabidopsis thaliana* seedlings. *Planta* 217: 206-217

Cell Biology of Plant-Microbe Interactions

1. Liu J-Z, Blancaflor EB, Nelson RS (2005) The tobacco mosaic virus 126 kD protein, a constituent of the virus replication complex, alone or within the complex aligns with and traffics along microfilaments. *Plant Physiology* (in press)
2. Ju H-J, Samuels TD, Wang Y-S, Blancaflor EB, Payton M, Mitra R, Krishnamurthy K, Nelson RS, Verchot-Lubicz J (2005) The potato virus X TGBp2 movement protein associates with ER-derived vesicles during virus infection. *Plant Physiology* (in press)
3. Kirshnamurthy K, Heppler M, Mitra R., Blancaflor EB, Payton M., Nelson RS, Verchot-Lubicz J. (2003) The potato virus X TGBp3 associates with the ER network for virus cell-to-cell movement. *Virology* 309: 135-151
4. Xu P., Blancaflor EB, Roossinck MJ (2003) In spite of induced multiple defense responses, tomato plants infected with cucumber mosaic virus D satellite RNA succumb to systemic necrosis. *Molecular Plant Microbe Interactions* 16: 467-476
5. Mitra R, Krishnamurthy K, Blancaflor EB, Payton M, Nelson RS, Verchot-Lubicz J (2003) The potato virus X TGBp2 protein association with the endoplasmic reticulum plays a role in but is not sufficient for viral cell-to-cell movement. *Virology* 312: 35-48
6. Blancaflor EB, Zhao L, Harrison MJ (2001) Microtubule organization in root cells of *Medicago truncatula* during development of an arbuscular mycorrhizal symbiosis with *Glomus versiforme*. *Protoplasma* 217: 154-165

Fluorescent Probes and Microscopy Techniques

1. Wang Y-S, Motes CM, Mohamalawari DR, Blancaflor EB (2004) Green fluorescent protein fusions to Arabidopsis fimbrin 1 for spatio-temporal imaging of F-actin dynamics in roots. *Cell Motility and the Cytoskeleton* 59: 79-93
2. Achnine L, Blancaflor EB, Rasmussen S, Dixon RA (2004) Co-localization of L-phenylalanine ammonia-lyase and cinnamate 4-hydroxylase for metabolic channeling in phenylpropanoid biosynthesis. *Plant Cell* 16: 3098-3109
3. Fricker M.D., Parsons A, Tlaka M., Blancaflor EB, Gilroy S., Meyer A., Plieth C. (2001) Fluorescent probes for living plant cells. In: C. Hawes & B. Satiat-Jeunemaitre(eds.), *Plant Cell Biology, A Practical Approach*, Oxford, Oxford University Press, pp 35-84.
4. Blancaflor EB, Hasenstein K.H. (2000) Methods for detection and identification of F-actin organization in plant tissues. In: Staiger C, Baluška F, Volkmann D, Barlow PW, (eds). *Actin: A Dynamic Framework for Multiple Plant Cell Functions*. Dordrecht, The Netherlands: Kluwer Academic Publishers, pp. 601-618.
5. Blancaflor EB, Gilroy S. (2000) Plant cell biology in the new millennium: new tools and new insights. *American Journal of Botany* 87:1547-1560
6. Blancaflor EB, Hasenstein K.H. (2000) Glycerol permeabilization improves F-actin visualization in vibratome-sectioned roots. *Microscopy and Microanalysis* 6 (Suppl 2: Proceedings): 470-471.
7. Fricker MD, Plieth C, Knight H, Blancaflor EB, Knight MR, White NS, Gilroy S (1999) Fluorescence and luminescence techniques to probe ion activities in living plant cells. In: Mason W.T. (ed.). *Fluorescent and Luminescent Probes for Biological Activity*, 2nd edition, Academic Press, London pp. 569-596

Plant Response to Abiotic Stress

1. Zhang J-Y, Broeckling CD, Blancaflor EB, Sledge MK, Sumner LW, Wang Z-Y (2005) Overexpression of WXP1, a Medicago truncatula AP2 domain containing transcription factor gene, increases cuticular wax accumulation and enhances drought tolerance in transgenic alfalfa (*Medicago sativa*). *Plant Journal* 42:689-707
2. Blancaflor EB, Jones DL, Gilroy S (1998) Alterations in the cytoskeleton accompany aluminum-induced growth inhibition and morphological changes in primary roots of maize. *Plant Physiology* 118:159-172
3. Blancaflor EB, Hasenstein KH (1995) Microtubule orientation and growth of Zea mays roots subjected to osmotic stress. *International Journal of Plant Sciences* 156: 774-783