

ELISON B. BLANCAFLOR

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EDUCATION

Postdoctoral fellow (Plant Cell Biology), Pennsylvania State University, 1996-1999

Ph.D. (Biology) University of Louisiana, Lafayette, 1996

M.S. (Biology) University of Louisiana, Lafayette, 1993

B.S. (Horticulture) University of the Philippines, 1985

PROFESSIONAL EXPERIENCE

2011-present, **Professor**, Plant Biology Division, The Samuel Roberts Noble Foundation, Ardmore, OK

2006- 2011, **Associate Professor**, Plant Biology Division, The Samuel Roberts Noble Foundation, Ardmore, OK

2002-2006, **Assistant Professor**, Plant Biology Division, The Samuel Roberts Noble Foundation, Ardmore, OK

2004- present, **Adjunct Professor**, Department of Biological Sciences, University of North Texas, Denton, TX

1999-2002, **Senior Research Associate II**, Plant Biology Division, The Samuel Roberts Noble Foundation, Ardmore, OK

1996-1999, **Postdoctoral scholar**, Biology Department, The Pennsylvania State University, University Park, PA

1991-1996, **Teaching Assistant**, Biology Department, University of Louisiana, Lafayette, LA

1988-1991, **Agricultural Supervisor**, Del Monte Phil. Inc. Mindanao, Philippines. A subsidiary of Del Monte Foods USA

1986-1988, **Research Assistant**, Institute of Plant Breeding, University of the Philippines, Los Banos, Philippines

HONORS/AWARDS

Elected to the Honor Society of Phi Kappa Phi, 1993

Honorable mention for a student paper, American Society for Gravitational and Space Biology (ASGSB) meeting, San Francisco, CA, 1994

Elected to Sigma Xi, 1996

University Microfilms International Distinguished Dissertation Award for the Life Sciences Nominee, 1997

2000 Microscopy Society of America Traveling Poster Exhibit Award for the Biological Sciences

2005 Thora W. Halstead Young Investigator's Award, American Society for Gravitational and Space Research

EXTERNAL COMPETITIVE RESEARCH GRANTS AWARDED

Project title: Enhanced labeling techniques to study the cytoskeleton during root growth and gravitropism (Blancaflor, Principal investigator)

Source: National Aeronautics and Space Administration (NASA)-Fundamental Space Biology (NAG 2-1518), Term: 2001-2005

Total award amount: \$255,908

Project title: A single photon confocal laser scanning microscope for multi-spectral imaging of plant cellular processes (Blancaflor, Principal investigator, Dixon, Nelson, Roossinck, May Co-PIs)

Source: National Science Foundation (NSF) Multi-user Instrumentation (DBI-0400580)

Term: 2004-2007

Total award amount: \$339,647

Project title: Amidase-mediated modulation of *N*-acylethanolamine (NAE) signaling in plants

Source: Department of Energy (DOE) Biosciences DE-FG02-05ER15647 (Co-PI with Kent Chapman, University of North Texas)

Term: 2005-2008

Total award amount: \$360,000 (Blancaflor lab \$86,480)

Project title: Supplemental Research Opportunity Award for Dr. Magaly Rincon-Zachary, Midwestern State University to support 3 month sabbatical at the Noble Foundation

Source: National Science Foundation (NSF) Research Opportunities Award (ROA) supplement

Term: Summer 2006

Total award amount: \$22,000

Project title: Regulation of tip growth direction in plants (Blancaflor, Principal Investigator)

Source: Oklahoma Center for the Advancement of Science and Technology (OCAST PSB08-003)

Term: 2008-2010

Total award amount: \$85,180

Project title: MRI: acquisition of a spinning disk confocal microscope for rapid imaging of plant cellular processes (Blancaflor, Principal investigator, Chen, Mysore, Nelson, Co-PIs)

Source: National Science Foundation (NSF) Major Research Instrumentation (MRI) program (DBI-0722635)

Term: 2007-2010

Total award amount: \$378,685

Project title: Actin regulation of Arabidopsis root growth and orientation during space flight (Blancaflor, Principal Investigator; Tang; Nakashima, Co-PIs)

Source: National Aeronautics and Space Administration (NASA)-Biological Research In Canisters (BRIC) for STS-131 Mission (grant number NNX10AF43G)

Term: 2010-2012

Total award amount: \$142,069

Project title: Amidase-mediated modulation of *N*-acylethanolamine (NAE) signaling in plants (Co-PI with Kent Chapman, University of North Texas)
Source: Department of Energy (DOE) Biosciences (DE-FG02-0915647)
Term: 2008-2011
Total award amount: \$ 495,000 (Blancaflor lab - \$197,000)

Project title: DOE Bioenergy Research Centers (\$125 million proposal with Oak Ridge National Lab as the lead organization)
Source of support: US Department of Energy Bioenergy Research Centers
Investigators: Richard A. Dixon, Fang Chen, Richard S. Nelson, Zeng-yu Wang, Michael Udvardi, Yuhong Tang, Elison Blancaflor, Kelly Craven, Malay Saha
Term: 2008-2013
Total award amount: NF (\$8,265,872) Blancaflor lab (\$444,962)

Project title: Cross-talk between actin and auxin in root growth (Blancaflor, Principal Investigator)
Source: Oklahoma Center for the Advancement of Science and Technology (OCAST PSB10-)
Term: 2010-2012
Total award amount: \$89,808

Project title: Amidase-mediated modulation of *N*-acylethanolamine (NAE) signaling in plants (Co-PI with Kent Chapman, University of North Texas)
Source: Department of Energy (DOE) Biosciences (renewal for DE-FG02-05ER15647)
Term: 2011-2014
Total award amount: \$ 540,000 (Blancaflor lab - \$202,000)

Project title: Genomics and modification of switchgrass for improved biomass and recalcitrance (Oak Ridge National Lab, Lead Organization)
Source of support: US Department of Energy Bioenergy Research Centers
Term: 2012-2017
Total Award Amount: \$6,451,099 to Noble Foundation (Tang-Blancaflor labs \$663,430)

Project title: *N*-Acylethanolamine metabolism and the acquisition of photoautotrophy during seedling establishment (Co-PI with Kent Chapman, University of North Texas)
Source: Department of Energy (DOE) Biosciences (renewal for DE-FG02-05ER15647)
Term: 2014-2016
Total award amount: \$ 360,000 (Blancaflor lab - \$132,295)

Project title: Utilizing the Advanced Biological Research System (ABRS) on the International Space Station (ISS) to uncover microgravity's impact on root development and cell wall architecture (Blancaflor, Principal Investigator; Tang; Nakashima Co-PIs)
Source: National Aeronautics and Space Administration (NASA grant number NNX12AM94G)
Term: 2012-2017
Total award amount: \$501,584

Project title: Using chemical genetics to uncover novel regulators of root system architecture and hormone responses in plants (Blancaflor, Principal Investigator)
Source: Oklahoma Center for the Advancement of Science and Technology (OCAST grant PS15-012)
Term: 2015-2017
Total award amount: \$100,000

PUBLICATIONS**Primary Research Articles (peer-reviewed)**

Sparks JA, Kwon T, Renna L, Liao F, Brandizzi F, **Blancaflor EB** (2016) HLB1 is a tetratricopeptide repeat domain-containing protein that operates at the intersection of exocytic and endocytic pathways at the TGN/EE in Arabidopsis. *Plant Cell* 28: 746- 769 doi/10.1105/tpc.15.00794

Srivastava AC, Chen F, Ray T, Pattathil S, Peña MJ, Avci U, Li H, Huhman DV, Backe J, Urbanowicz B, Miller JS, Bedair M, Wyman CE, Sumner LW, York WS, Hahn MG, Dixon RA, **Blancaflor EB**, Tang Y (2015) Loss of function of folylpolyglutamate synthetase 1 alters lignin composition and improves cell wall digestibility in Arabidopsis. *Bioenergy for Biofuels* 8:224 doi10.1186/s13068-015-0403-z

Keereetaweeep J, **Blancaflor EB**, Hornung E, Feussner I, Chapman KD (2015) Lipoxygenase derived 9-hydro(pero)xides of linoleoylethanolamide interact with ABA signaling to arrest root development during *Arabidopsis* seedling establishment. *Plant Journal* 82: 315- 327 doi: 10.1111/tpj.12821

Kwon T, Sparks JA, Nakashima J, Allen SN, Tang Y, **Blancaflor EB** (2015) Transcriptional response of *Arabidopsis* seedlings during spaceflight reveals peroxidase and cell wall remodeling genes associated with root hair development. *American Journal of Botany* 102: 21-35 doi:10.3732/ajb.1400458

Faure L, Cavazos R, Khan BR, Petros RA, Koulen P, **Blancaflor EB**, Chapman KD (2015) Effects of synthetic alkamides on Arabidopsis fatty acid amide hydrolase activity and plant development. *Phytochemistry* 110: 58-71 doi.org/10.1016/j.phytochem.2014.11.011

Teaster ND, Sparks JA, **Blancaflor EB**, Hoagland R. (2015) Interactions of auxinic compounds on Ca²⁺ signaling and root growth in *Arabidopsis thaliana*. *American Journal of Plant Sciences* 6: 2989-3000 doi: 10.4236/ajps.2015.619294.

Dyachok J, Sparks JA, Liao F, Wang Y-S, **Blancaflor EB** (2014) Fluorescent protein-based reporters of the actin cytoskeleton in living plant cells: fluorophore variant, actin binding domain and promoter considerations. *Cytoskeleton* (Holboken) 71:311-327 doi:10.1002/cm.21174

Nakashima J, Liao F, Sparks JA, Tang Y, **Blancaflor EB** (2014) The actin cytoskeleton is a suppressor of the endogenous skewing behavior of *Arabidopsis* primary roots in microgravity. *Plant Biology* (Stuttg) 16: 142-150. doi: 10.1111/plb.12062

Faure L, Nagarajan S, Hwang H, Khan BR, John G, Koulen P, **Blancaflor EB**, Chapman KD (2014) Synthesis of phenoxyacyl-ethanolamides and their effects on fatty acid amide hydrolase activity. *Journal of Biological Chemistry* 289: 9340-9351 doi: 10.1074/jbc.M113.533315

Reyes-Hernández BJ, Srivastava AC, Ugartechea-Chirino Y, Shishkova S, Ramos-Parra PA, Lira-Ruan V, Díaz de la Garza RI, Dong G, Moon J-C, **Blancaflor EB**, Dubrovsky JG (2014) The root indeterminacy-to-determinacy developmental switch is operated through a folate-dependent pathway in *Arabidopsis thaliana*. *New Phytologist* 202:1223- 1236 doi: 10.1111/nph.12757

Nakashima J, Sparks JA, Carver JA Jr., Stephens SD, Kwon T, **Blancaflor EB** (2014) Delaying seed germination and improving seedling fixation: lessons learned during science and payload verification tests for Advanced Plant EXperiments (APEX) 02-1 in space. *Gravitational and Space Research* 2(1) 54-67

Yoo CM, **Blancaflor EB** (2013) Overlapping and divergent signaling pathways for ARK1 and AGD1 in the control of root hair polarity in *Arabidopsis thaliana*. *Frontiers in Plant Science* 4:528. doi:10.3389/fpls.2013.00528

Keereetaweep J, **Blancaflor EB**, Hornung E, Feussner I, Chapman KD (2013) Ethanolamide oxylipins of linolenic acid can negatively regulate *Arabidopsis* seedling development. *Plant Cell* 25: 3824–3840 doi/10.1105/tpc.113.119024

Yoo CM, Quan L, Cannon AE, Wen J., **Blancaflor EB** (2012). AGD1, a class 1 ARF-GAP, acts in common signaling pathways with phosphoinositide metabolism and the actin cytoskeleton in controlling *Arabidopsis* root hair polarity. *Plant Journal* 69:1064–1076 – featured on the cover

Teaster ND, Keereetaweep J, Kilaru A, Wang Y-S, Tang, Y, Tran CN-Q, Ayre BG, Chapman KD, **Blancaflor EB** (2012) Overexpression of fatty acid amide hydrolase induces early flowering in *Arabidopsis thaliana*. *Frontiers in Plant Science* 3:32 doi:10.3389/fpls.2012.00032

Yoo CM, Quan L, **Blancaflor EB** (2012) Divergence and redundancy in *CSLD2* and *CSLD3* function during *Arabidopsis thaliana* root hair and female gametophyte development. *Frontiers in Plant Science* 3:111 doi: 10.3389/fpls.2012.00111

Meckfessel M., **Blancaflor EB**, Plunkett M, Dong Q, Dickstein R (2012) Multiple sequences in MtENOD8 protein target it to the symbiosome including its signal peptide. *Plant Physiology* 159: 299-310

Dyachok J, Zhu L, Liao F, He J, Huq E, **Blancaflor EB** (2011) SCAR mediates light-induced root elongation in *Arabidopsis* through photoreceptors and proteasomes. *Plant Cell* 23: 3610-3626

Srivastava AC, Ramos-Parra PA, Bedair M, Robledo-Hernández AL, Tang Y, Sumner LW, Diaz de la Garza RI, **Blancaflor EB** (2011) The folylpolyglutamate synthetase plastidial isoform is required for postembryonic root development in *Arabidopsis*. *Plant Physiology* 155: 1237-1251

Zhou, C, Han L, Pislaru C, Nakashima J, Fu C, Jiang Q, Quan L, **Blancaflor EB**, Tang Y, Bouton J, Udvardi M, Xia G, Wang Z-Y (2011) From model to crop: Functional analysis of a STAY-GREEN gene in the model legume *Medicago truncatula* and effective use of the gene for alfalfa (*M. sativa*) improvement. *Plant Physiology* 157: 1483-1496

Cotter M, Teaster ND, **Blancaflor EB**, Chapman KD (2011) *N*-Acylethanolamine (NAE) inhibits growth in *Arabidopsis thaliana* seedlings via ABI3-dependent and -independent pathways. *Plant Signaling and Behavior* 6: 671-679.

Ge L, Gou X, Yuan T, Nakashima J, **Blancaflor EB**, Tian HQ, Russell SD (2011) Migration of sperm cells during pollen tube elongation in *Arabidopsis thaliana*: Behavior during transport, maturation and upon dissociation of male germ unit associations. *Planta* 233:325-332

Rincon-Zachary M, Teaster TD, Sparks JA, Valster AH, Motes CM, **Blancaflor EB** (2010) Fluorescence resonance energy transfer sensitized emission of yellowameleon 3.60 reveals root-zone-specific calcium signatures in *Arabidopsis* in response to aluminum and other trivalent cations. *Plant Physiology* 152: 1442-1458

Guo Z, Fujioka S, **Blancaflor EB**, Miao S, Gou X, Li J (2010) TCP1 Controls brassinosteroid biosynthesis by regulating the expression of the key biosynthetic gene *DWARF4* in *Arabidopsis thaliana*. *Plant Cell* 22: 1161–1173

Srivastava AC, Palanichelvam K, Ma J, Steele J, **Blancaflor EB**, Tang Y (2010). Collection and analysis of expressed sequence tags derived from laser capture microdissected switchgrass (*Panicum virgatum* L. Alamo) vascular tissues. *BioEnergy Research* 3: 278-294

Kim S-c, Kang L, Nagaraj S, **Blancaflor EB**, Mysore KS, Chapman KD (2009) Fatty acid –mediated hypersensitivity to abscisic acid and hypersusceptibility to nonhost pathogens in *Arabidopsis* is independent of its catalytic activity. *Journal of Biological Chemistry* 284: 34065-34074

Gomez SK, Javot H, Deewatthanawong P, Torrez-Jerez I, Tang Y, **Blancaflor EB**, Udvardi MK, Harrison MJ (2009) *Medicago truncatula* and *Glomus intraradices* gene expression at the arbuscule-cortical cell interface in arbuscular mycorrhizal symbiosis. *BMC Plant Biology* 9:10

Yoo C-M, Wen J, Motes CM, Sparks JA, **Blancaflor EB** (2008) A class I ADP ribosylation factor-GTPase activating protein is critical for maintaining directional root hair growth in *Arabidopsis*. *Plant Physiology* 147: 1659-1674

Wang Y-S, Yoo C-M, **Blancaflor EB** (2008) Improved imaging of actin filaments in transgenic *Arabidopsis* plants expressing a green fluorescent protein fusion to the C and N termini of the fimbrin actin binding domain 2. *New Phytologist* 177: 525-536

Kang L, Wang Y-S, Uppalapati SR, Wang K, Tang Y, Vadapalli V, Venables BJ, Chapman KD, **Blancaflor EB**, Mysore KS (2008) Overexpression of a fatty acid amide hydrolase compromises innate immunity in *Arabidopsis*. *Plant Journal* 56: 336-349

Bernal AJ, Yoo C-M, Mutwil M, Jensen JK, Hou G, Blaukopf C, Sorensen I, **Blancaflor EB**, Scheller HV, Willats WGT (2008) Functional analysis of the cellulose synthase like genes *CSLD1*, *CSLD2* and *CSLD4* in tip growing *Arabidopsis* cells. *Plant Physiology* 148: 1238-1253

Zhao J, Cheng N-H, Motes CM, **Blancaflor EB**, Moore M, Gonzales N, Padmanaban S, Sze H, Ward JM, Hirschi KD (2008) AtCHX13 is a plasma membrane potassium transporter. *Plant Physiology* 148: 796-807

Guo B, Jin Y, Wussler C, **Blancaflor EB**, Motes CM, Versaw WK (2008) Functional analysis of the *Arabidopsis* PHT4 family of intracellular phosphate transporters. *New Phytologist* 177: 889-898

Teaster ND, Motes CM, Tang Y, Wiant WC, Cotter MQ, Wang Y-S, Kilaru A, Venables BJ, Hasenstein KH, **Blancaflor EB**, Chapman KD (2007) *N*-Acylethanolamine metabolism interacts with abscisic acid (ABA) signaling in *Arabidopsis thaliana*. *Plant Cell* 19:2454-2469

Samuels TD, Ju H-J, Ye C-M, Motes CM, **Blancaflor EB**, Verchot-Lubicz J (2007) Subcellular targeting and interactions among the potato virus X TGB proteins. *Virology* 367: 375-389

Rahman A, Bannigan A, Sulaman W, Pechter P, **Blancaflor EB**, Baskin TI (2007). Auxin, actin, and growth of the *Arabidopsis thaliana* primary root. *Plant Journal* 50: 514-528

Narasimhamoorthy B, **Blancaflor EB**, Bouton JH, Payton ME, Sledge MK (2007) A comparison of hydroponics, soil and root staining methods for evaluation of aluminum tolerance in *Medicago truncatula* germplasm. *Crop Science* 47:321-328

Wang Y-S, Shrestha R, Kilaru A, Wiant W, Venables BJ, Chapman KD, **Blancaflor EB** (2006) Manipulation of *Arabidopsis* fatty acid amide hydrolase expression modifies plant growth and sensitivity to *N*-Acylethanolamines. *Proceedings of the National Academy of Sciences, USA* 103: 12197-12202

- Jones DL, **Blancaflor EB**, Kochian, LV, Gilroy S (2006) Spatial coordination of aluminium uptake, production of reactive oxygen species, callose production and wall rigidification in maize roots. *Plant Cell and Environment* 29: 1309-1318.
- 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* 226: 109-123
- 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* 138: 1853-1865
- 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* 138: 1877- 1895
- 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
- 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
- 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* 39: 113-125 –featured on cover
- 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
- 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
- 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
- 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
- Hou G, Mohamalawari DR, **Blancaflor EB** (2003) Enhanced gravitropism of roots with a disrupted cap actin cytoskeleton. *Plant Physiology* 131:1360-1373
- 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

- 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
- 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
- Mitra R, Krishnamurthy K, **Blancaflor EB**, Payton M, Nelson RS, Verchot-Lubicz J (2003) The potato virus XTGBp2 protein association with the endoplasmic reticulum plays a role in but is not sufficient for viral cell-to-cell movement. *Virology* 312: 35-48- featured on cover
- 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 –featured on cover
- 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.
- Collings DA, Zsuppan G, Allen NS, **Blancaflor EB** (2001) Demonstration of prominent actin filaments in the root columella. *Planta* 212: 392-403
- 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. –featured on cover
- Bibikova TN, **Blancaflor EB**, Gilroy S (1999) Microtubules regulate tip growth and orientation in root hairs of *Arabidopsis thaliana*. *Plant Journal* 17:657-665.
- 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.
- 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.
- 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.
- 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
- 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.
- Blancaflor EB**, Hasenstein KH (1997) The organization of the actin cytoskeleton in vertical and graviresponding primary roots of maize. *Plant Physiology* 113: 1447-1455.
- 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.-featured on cover
- Blancaflor EB**, Hasenstein KH (1995) Time course and auxin sensitivity of cortical microtubule reorientation in maize roots. *Protoplasma* 185: 72-82.

Blancaflor EB, Hasenstein KH (1993) Organization of cortical microtubules in graviresponding maize roots. *Planta* 191: 231-237.

Invited Review Articles/Editor Solicited Addenda/Invited Commentaries

Paez-Garcia Ana, Motes CM, Scheible WR, Chen R, **Blancaflor EB**, Monteros MJ (2015) Root traits and phenotyping strategies for plant improvement. *Plants* 4, 334-355 doi:10.3390/plants4020334. – peer-reviewed

Blancaflor EB, Kilaru A, Keereetaweep J, Khan BR, Faure L, Chapman KD (2014) *N*-Acylethanolamines: lipid metabolites with functions in plant growth and development. *Plant Journal* 79: 568- 583 doi: 10.1111/tpj.12427.- peer-reviewed

Blancaflor EB (2013) Regulation of plant gravity sensing and signaling by the actin cytoskeleton. *American Journal of Botany* 100: 143-152. – peer-reviewed

Chapman KD, **Blancaflor EB** (2011) *N*-acylethanolamine metabolism in plants- a regulatory pathway diverged from endocannabinoid signaling in mammals? *American Society for Biochemistry and Molecular Biology (ASBMB) today* January 2011; 34-35

Srivastava AC, Tang YH, Diaz de la Garza RI, **Blancaflor EB** (2011) The plastidial folylpolyglutamate synthetase and root apical meristem maintenance. *Plant Signaling and Behavior*. 6: 751-754

Kim S-C, Chapman KD, **Blancaflor EB** (2010) Fatty acid amide lipid mediators in plants. *Plant Science* 178: 411-419 – peer-reviewed

Kilaru A, **Blancaflor EB**, Venables BJ, Tripathy S, Mysore KS, Chapman KD (2007) The *N*-acylethanolamine-mediated regulatory pathway in plants. *Chemistry and Biodiversity* 4: 1933-1955

Blancaflor EB, Wang Y-S, Motes CM (2006). Organization and function of the actin cytoskeleton in developing root cells. *International Review of Cytology* 252: 153-198 – featured on the cover

Blancaflor EB, Masson PH (2003) Update on Plant gravitropism. Unraveling the ups and downs of a complex process. *Plant Physiology* 113: 1677-1690 –peer-reviewed

Blancaflor EB (2002) The cytoskeleton and gravitropism in higher plants. *Journal of Plant Growth Regulation* 21: 120-136–peer reviewed- featured on the cover

Blancaflor EB, Gilroy S. (2000) Plant cell biology in the new millennium: new tools and new insights. *American Journal of Botany* 87:1547-1560 – peer-reviewed - featured on the cover

Invited Book Chapters

Dyachok J, Paez-Garcia A, Yoo C M, Palanichelvam K. **Blancaflor EB** (2016). Fluorescence imaging of the cytoskeleton in plant roots. In Gavin, R. H. (Ed.), *Cytoskeleton Methods and Protocols: Methods in Molecular Biology series*. 3rd edition, (pp. 139-153), Totowa, New Jersey: Humana Press.

Chapman KD, **Blancaflor EB** (2010) Fatty acid amide hydrolase and the metabolism of *N*-acylethanolamine lipid mediators in plants. In: Munnik T (Ed.). *Plant Lipid Signaling*. Plant Cell Monographs 16 (pp. 293- 306), Springer Verlag

- Dyachok J, Yoo C M, Palanichelvam K. **Blancaflor EB** (2009). Sample preparation for fluorescence imaging of the cytoskeleton in fixed and living plant roots. In Gavin, R. H. (Ed.), *Cytoskeleton Methods and Protocols : Methods in Molecular Biology series*. 2nd edition (pp. 157-169). Totowa, New Jersey: Humana Press
- Hou G, **Blancaflor EB** (2009) Fern root development. In: Beeckman T (Ed). *Root Development. Annual Plant Reviews series*. (pp. 192-208). Malden, Massachusetts, USA, Blackwell Publishing
- Valster AH, **Blancaflor EB** (2008) Mechanisms of gravity perception in higher plants. In: Masson PH, Gilroy S (eds). *Plant Tropisms*. Ames, Iowa USA, Blackwell Publishing, pp. 3-19
- Blancaflor EB**, Motes CM, Wang Y-S, Kang L, Mysore KS, Chapman KD (2006) N-acylethanolamines: Lipid mediators of plant cytoskeletal organization and response to environmental stress. In: Sanchez F, Quito C, Lopez-Lara IM, Geiger O (eds). *Biology of Plant Microbe Interactions Volume 5*. Minneapolis, Minnesota, APS press, pp. 163-170
- Liu J-Z, **Blancaflor EB**, Nelson RS (2006). The structure of the tobacco mosaic virus replication complex is modulated by the 126-kDa protein and the complex traffics along microfilaments. In: Sanchez F, Quito C, Lopez-Lara IM, Geiger O (eds). *Biology of Plant Microbe Interactions Volume 5*. Minneapolis, Minnesota, APS press, pp. 410-415
- Blancaflor EB**, Chapman KD (2006) 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, pp. 205-219
- 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.
- 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.
- 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-Jeuemaitre(eds.), *Plant Cell Biology, A Practical Approach*, Oxford, Oxford University Press, pp 35-84.
- 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
- Blancaflor EB**, Fasano JM, Gilroy S (1997) Laser ablation of cap cells in primary roots of *Arabidopsis thaliana* provides single cell resolution of the gravity-sensor. In: Lynch J.P., Flores H.E., Eissenstat D. (eds.) *Radical Biology: Advances and Perspectives on the Function of Plant Roots*. American Society of Plant Physiologist. Rockville, Maryland, pp. 343-345.
- 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.

BOOKS EDITED

Plant Gravitropism: Methods and Protocols (2015), **Blancaflor EB** (editor). *Methods in Molecular Biology series*. Totowa, New Jersey: Springer-Humana Press. 323 pp.

PATENTS

KD Chapman, R Shrestha, EB Blancaflor, RA Dixon. NBLE: 010US patent entitled "PLANT FATTY ACID AMIDE HYDROLASES"

AC Srivastava, Y Tang, E Blancaflor. US Patent 20,150,322,448 entitled "METHODS AND COMPOSITIONS FOR ALTERING LIGNIN COMPOSITION IN PLANTS" (Provisional)

INVITED SEMINARS

Annual meeting of the NASA/NSF joint program in Plant Biology Network for Research on Plant Sensory Systems, Timberline Lodge, OR, September, 1997

Gordon Research Conference: Gravitational Effects on Living Systems, Colby-Sawyer College, New London, NH, July, 1998

Biology Department, Illinois Wesleyan University, Bloomington, IL, January 1999

Botany Department seminar series, North Carolina State University, Raleigh, NC, November 2000

Biology Department seminar series, University of North Texas, Denton, TX, October, 2001

34th Committee on Space Research (COSPAR) Scientific assembly, Houston, TX, October, 2002

Biology Department seminar series, Texas Woman's University, Denton, TX, November, 2002

Gordon Research Conference: Mechanotransduction and Gravity Signaling in Biological Systems, Connecticut College, New London, CT, July 2003

Biology Department seminar series, Texas A.M. University, College Station TX, December, 2003

Botany Department seminar series, Oklahoma State University, Stillwater, OK, March, 2004

15th Symposium in Plant Physiology, Pennsylvania State University, State College, PA, May, 2004

Botany Department seminar series, University of Oklahoma, Norman, OK, September, 2004

Department of Environmental and Plant Biology seminar series, Ohio University, Athens, OH, October 2004

School of Biological Sciences seminar series, Washington State University, Pullman, WA, November, 2004

Department of Biology seminar series, Oklahoma Christian University, Oklahoma City, OK, January, 2005

First Symposium on Plant Neurobiology, Florence, Italy, May, 2005

XII International Congress on Molecular Plant Microbe Interactions, Cancun, Mexico, December, 2005

Department of Biology seminar series, Midwestern State University, Wichita Falls, TX, March, 2006

2nd Pan American Workshop on Plant Membrane Biology, South Padre Island, TX, May, 2006

Department of Biochemistry and Molecular Biology seminar series, Oklahoma State University, Stillwater, OK, October, 2006

Department of Horticultural Sciences, Purdue University, West Lafayette, IN, May, 2007

Plant Biology and Botany Meeting, Symposium on ABA and Ethylene, Chicago, Illinois, July, 2007

Department of Biology seminar series, Midwestern State University, Wichita Falls, TX, April, 2008

Society for In Vitro Biology World Congress, Tucson, Arizona, June, 2008

Arkansas EPSCoR for Plant Powered Production (P3) training conference, Withrop Rockefeller Center, Morillon, Arkansas, August, 2008

Department of Biological Sciences seminar series, Western Michigan University, Kalamazoo, Michigan, November, 2008

Plant Biology Graduate Group seminar series, University of California, Davis, California, April, 2009

Gordon Research Conference: Plant Metabolic Engineering, New Hampshire, July, 2009

American Society of Plant Biologist Meeting, Minority Affairs Symposium on Plant Cell Biology, Honolulu, Hawaii, July, 2009

Department of Biological Sciences seminar series, Texas AM University, College Station, Texas, November, 2009

Department of Plant Biology seminar series, University of Vermont, Burlington, Vermont, April, 2010

Department of Biology seminar series, Baylor University, Waco, Texas, March, 2011

Department of Molecular, Cell, and Developmental Biology seminar series, University of Texas, Austin, Texas, April, 2011

Monsanto-Agracetus seminar series. Middleton, Wisconsin, June, 2011

Department of Plant Biology seminar series, Graduate student selected speaker, University of Minnesota, Minneapolis, Minnesota, October, 2011

The XIV National Congress of Biochemistry and Plant Molecular Biology & 7th Symposium Mexico-USA, Campeche, Mexico, November, 2011

International Space Life Science Working Group satellite symposium on "Plants in Space", Freiburg, Germany, August, 2012

Instituto de Biotecnologia seminar series, Universidad Nacional Autónoma de México (UNAM), Cuernavaca, Mexico, August 27, 2012

Departamento de Biología Molecular de Plantas seminar series, Universidad Nacional Autónoma de México (UNAM), Cuernavaca, Mexico, August 29, 2012

Department of Biological Sciences seminar series, East Tennessee State University. Johnson City, Tennessee, March, 2015

Department of Botany seminar series, Graduate student selected speaker, Oklahoma State University, Stillwater, Oklahoma, April, 2015

American Society of Plant Biologist Minisymposium on Plant Space Biology, Minneapolis, Minnesota July, 2015

MSU-DOE Plant Research Laboratory seminar series, Michigan State University, East Lansing, Michigan, October, 2016

INVITED TALKS TO THE GENERAL PUBLIC

Noble Foundation Public Lectures in Science

Title of Talk: Modern microscopes and the marvels of plant motion

Venue: Noble Foundation Kruse Auditorium, Ardmore, Oklahoma

Date: March, 2003

Noble Foundation Profiles and Perspectives Speaker Series

Title of Talk: Tales of Discovery: Boldly going where no mustard plant has gone before

Venue: Ardmore Convention Center, Ardmore, Oklahoma,

Date: September 7, 2010

Creativity World Forum

Title of Talk: Agricultural Innovation. Out of this World Agriculture

Venue: Cox Convention Center, Oklahoma City, Oklahoma, USA

Date: November 16, 2010

Carter County Home and Community Education

Title of Talk: Exploring the hidden world of plant cells and plants colonizing other worlds

Venue: Hardy Murphy Coliseum, Ardmore, Oklahoma

Date: October 27, 2010

College of Science and Mathematics Annual Banquet (keynote speaker)

Title of Talk: Tales of Discovery: Boldly going where no mustard plant has gone before

Venue: Midwestern State University, Wichita Falls, Texas, USA

Date: April 25, 2011

FORMER AND CURRENT POSTDOCTORAL FELLOWS

Dr. Taegun Kwon 2013-present

Dr. Rafeiza Khan 2012- present

Dr. Ana Paez-Garcia 2015- present

Dr. Guichaun Hou, 2002-2004. Currently Associate Research Professor and Director of the Dewel Microscopy Facility, Appalachian State University, Boone, North Carolina

Dr. Yuh-Shuh Wang, 2003- 2007. Currently Senior Research Fellow, University of Tartu, Estonia

Dr. Priit Pechter, 2003- 2004. Currently Research Fellow, University of Tartu, Estonia

Dr. Karuppaiah Palanichelvam- 2007-2008. Currently Head and Associate Professor, Department of Biotechnology, Kalasalingam University, Tamil Nadu, India

Dr. Cheol-Min Yoo- 2004-2015. Currently Biological Scientist II, Gulf Coast Research & Education Center, Institute of Food & Agricultural Science, University of Florida

Dr. Julia Dyachok – 2007- 2012. Currently Research Scientist and Instructor, McDermott Center for Human Growth & Development, University of Texas Southwestern Medical Center, Dallas TX USA

Dr. Li Quan- 2008- 2012. Currently Associate Professor, Biology Department, Northwest A & F University, Xianyang, Shaanxi, China

Dr. Avinash Srivastava – 2008-2013, Currently Research Assistant Professor, Beckman Research Institute, Duarte, California.

Dr. Neal Teaster -2008- 2011, Currently Research Molecular Biologist, United States Department of Agriculture-Agricultural Research Service (USDA-ARS), Dale Bumpers National Rice Research Center, Stuttgart, Arkansas

STUDENTS AND OTHER TRAINEES

J. Alan Sparks, Research Associate 2, 2007-present

Dr. Jin Nakashima, Cellular Imaging Facility Manager, 2008- present

Maira Espinoza, Research Assistant 1, 2014- present

Shahnaj Akhter, Research technician, 2016- present

John Sand, Research technician, 2016- present

Deepti Mohamalawari, 2001- 2003, Former Senior Research Assistant from 2001-2003, Moved to John Hopkins University as a Research Associate. Now currently full-time mom.

Christy Motes, Research Associate, Former Research Associate from 2002-2008, Currently Senior Research Associate, Forage Improvement Division, Noble Foundation

Dr. Aline H. Valster, Former Cellular Imaging Facility Manager from 2006-2008, Currently in a private industry in the Netherlands

Feng-Yan Wu, Research Technician, 2010-2013, Currently in China to join her family

Dr. Magaly Rincon-Zachary, Sabbatical visitor, 2005-2008, Currently Professor, Midwestern State University, Wichita Falls, Texas

Michael Mannas, undergraduate summer intern from the University of Notre Dame, 2008-2009. Currently employed in Houston as a mechanical engineer

Ashley Gravelle, former NSF-Research Experience for Undergraduates (REU) student from Midwestern State University, Wichita Falls, Texas- 2009 - 2010. Currently Ph.D. candidate at University of Texas, Austin

Brittany Parkerson, undergraduate summer intern, 2002-2005 from the University of Oklahoma. Currently a working at the Oklahoma City police department as a Forensic technician

Christian Crowe, undergraduate summer intern from the University of Oklahoma, 2005, whereabouts unknown

Maryann Mikucki, Undergraduate Noble research scholar from the University of Rochester, New York summer 2004. Currently a Ph.D candidate at Roswell Park Cancer Institute. Buffalo, New York

Michelle Boursier, Undergraduate Noble research scholar from the Luther University, Decorah,,Iowa, summer 2010, Currently Ph.D. candidate, University of Wisconsin, Madison

Madison Donica, Undergraduate intern from Oklahoma State University, summer 2010, Currently in medical school at the University of Oklahoma

Phillip Gross, Undergraduate Noble research scholar from Michigan State University, East Lansing, Summer 2013, Currently a Ph.D. student at the University of Georgia

Ryan Dickenson, Undergraduate Noble research scholar from Michigan State University, East Lansing, MI, Summer 2014, Currently applying to Graduate School.

Benjamin Brown, Undergraduate Noble research scholar from Iowa State University, Ames, IA, Summer 2015, Currently applying to Graduate School.

Louise de Bang, one year Graduate student visitor, 2015-2016, University of Copenhagen, Denmark, Currently Ph.D. candidate

Member of the Ph.D. Committee for Neal Teaster (2003-2008), Gabriel Gonzales (2004- present), Sang-Chul Kim (2005-2010) and Bikash Adhikari (2010-2015)-all at the University of North Texas

NOBLE FOUNDATION SERVICES

Plant Biology Division faculty search committee (2011)

Plant Biology Division employee council representative (2000-2002)

Noble Foundation 60th anniversary public tours committee (2005)

Plant Biology seminar series coordinator (2005-2009)

Plant Endophyte faculty search committee (2005)

Faculty search committee for plant signaling cluster- at the University of North Texas (2011)

Co-Lead of the Noble Foundation Plant Growth and Development research cluster (2013-present)

Chair, Crop Physiologist faculty search committee (2016)

MEDIA COVERAGE OF RESEARCH ACTIVITIES

Chen C "Shuttle Discovery Launches with Oklahoma Research Inside" TV Media outlet: News 9 Oklahoma City, Oklahoma, April 2010

Saldana M "Noble Foundation Plants Set to Lift Off on Discovery " TV Media Outlet: Channel 10 KTEN news, February 2010

Downs, D "Local scientist sends plants into space " TV Media Outlet: First 12 news, KXII, February-2010

Levins, S "Plants from Ardmores now in outer space " TV Media outlet: First news 12, KXII, April-2010

Saldana, M "Ardmore Plants Lift Off on Space Shuttle Discovery " TV media outlet: KTEN news, Oklahoma, April-2010

Painter, B "Oklahoma researchers explore out-of-this-world agriculture " Newspaper article: Tulsa World, November 2010

Painter, B "Oklahoma researchers explore out-of-this-world agriculture " Newspaper article: The Oklahoman, November-2010

Banker, P "Researcher discusses space experiment" Newspaper article: The Ardmoresite, September-2010

Banker, P "Out of This World. Noble Foundation scientist sends plants to space " Newspaper article: The Ardmoresite, February 2010

"Noble Foundation's work has world-wide implications" The Ardmoresite Editorial, September, 2010

The Ardmoresite 2010 Year in Review issue (December, 31, 2010) featured our space shuttle experiments as one of top 5 events in February, 2010

Sahr H "Plants in Space" TV Media Outlet: Channel 12 KTEN news, Good day talk show, October, 2015

PROFESSIONAL ORGANIZATIONS

American Society of Plant Biologists

American Society for Gravitational and Space Research

Microscopy Society of America

Oklahoma Microscopy Society

SCIENTIFIC COMMUNITY SERVICES

President, Oklahoma Microscopy Society, 2011-2012

Governing Board, American Society for Gravitational and Space Research, 2011-2014

Associate Editor, *Frontiers in Plant Cell Biology*, 2010-present

Associate Editor, *Gravitational and Space Research*, 2012- present

Associate Editor, *Plant Signaling and Behavior*, 2005- 2010