CURRICULUM VITAE

Philip William Becraft

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Genetics, Development & Cell Biology Dept. and
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Academic Rank: Professor

Education:

B.A. (Botany)	1980	University of Montana, Missoula, MT
M.S. (Agronomy)	1987	Montana State University, Bozeman, MT
Ph.D.(Genetics)	1992	University of California, Berkeley, CA
NSF Postdoc (Molec. Biol.)	1993-5	University of Florida, Gainesville, FL

Academic Appointments:

Professor, Genetics, Development & Cell Biology Dept. and Agronomy Dept., Iowa State University, 2009-present
Associate Professor, Genetics, Development & Cell Biology Dept. and Agronomy Dept., Iowa State University, 2003-2009
Associate Professor, Zoology & Genetics and Agronomy Depts., Iowa State University, 2002-2003
Assistant Professor, Zoology & Genetics and Agronomy Depts., Iowa State University, 1996-2002
NSF Postdoctoral Fellow/Courtesy Assistant Professor, Hort. Sci. Dept., University of Florida, 1993-1995

Honors:

American Association for the Advancement of Science Fellow, 2007
National Academies Education Fellow, 2011
College of Agriculture and Life Sciences Research Excellence Award, 2012

Publications:

Yi, G., Neelakandan, A. K., Gontarek, B., Vollbrecht, E., Becraft, P. W., The *naked endosperm* genes encode duplicate ID domain transcription factors required for maize aleurone differentiation. Plant Physiology (Provisionally accepted pending revisions).

Chettoor, A. M., Yi, G., Gomez, E., Hueros, G., Meeley, R. B., Becraft, P. W., (2014) A putative PORR protein gene is essential for maize kernel development. J Integr Plant Biol. In press, DOI: 10.1111/jipb.12234.

Addis, E. A., Quardokus, K. M., Bassham, D. C., Becraft, P. W., Boury, N., Coffman, C. R., Colbert, J. T., Powell-Coffman, J. A., 2013. Implementing pedagogical change in introductory biology courses through the use of faculty learning communities. J College Science Teaching. 43, 22-29.

Becraft PW (2013) Using transposons for genetic mosaic analysis of plant development. *In* TA Peterson, ed, Plant Transposable Elements: Methods and Protocols. Humana Press, pp 21-42.

Becraft PW, ed (2013) Seed Genomics. Wiley-Blackwell, Ames, IA

Becraft PW (2013) Introduction. *In* PW Becraft, ed, Seed Genomics. Wiley-Blackwell, Ames, IA, pp 1-4

Olsen O-A, Becraft PW (2013) Endosperm Development. *In* PW Becraft, ed, Seed Genomics. Wiley-Blackwell, Ames, IA, pp 43-62

Becraft PW (2012) Endosperm Imprinting: A Child Custody Battle?. Current Biology 22: R93-R95.

Becraft, P.W., and Gutierrez-Marcos, J. (2012). Endosperm development: dynamic processes and cellular innovations underlying sibling altruism. *WIREs Developmental Biology* doi: 10.1002/wdev.31.

Yi, G., Lauter, A. M., Scott, M.P., Becraft, P.W. (2011) The *thick aleurone1* mutant defines a negative regulation of maize aleurone fate that functions downstream of *dek1*. *Plant Physiol*ogy. 156, 1826-1836.

Myers, A.M., James, M.G., Lin, Q., Yi, G., Stinard, P.S., Hennen-Bierwagen, T.A., and Becraft, P.W. (2011). Maize *opaque5* encodes monogalactosyldiacylglycerol synthase and specifically affects galactolipids necessary for amyloplast and chloroplast function. *Plant Cell* 23, 2331-2347.

Becraft, P. W., Yi, G., 2011. Regulation of aleurone development in cereal grains. *J Exp Bot.* 62, 1669-1675.
Salas Fernandez, M. G., Becraft, P. W., Yin, Y., Lübberstedt, T., 2009. From dwarves to giants? Plant height manipulation for biomass yield. *Trends Plant Sci*. 14, 454-461.
Yi, G., Luth, D., Goodman, T. D., Lawrence, C. J., Becraft, P. W., 2009. High-throughput linkage analysis of *Mutator* insertion sites in maize. *Plant J.* 58, 883-892.
Settles, A. M., Holding, D., Tan, B., Latshaw, S., Liu, J., Suzuki, M., Li, L., O'Brien, B., Fajardo, D., Wroclawska, E., Tseung, C.-W., Lai, J., Hunter, C., Avigne, W., Baier, J., Messing, J., Hannah, L. C., Koch, K., Becraft, P., Larkins, B., and McCarty, D. (2007). Sequence-indexed mutations in maize using the UniformMu transposon-tagging population. *BMC Genomics* 8, 116.
Becraft, P. W. (2007). Aleurone cell development. *In* "Endosperm - Development and Molecular biology" (O.-A. Olsen, Ed.), pp. 45-56. Springer.
Cao, X., Costa, L. M., Biderre-Petit, C., Kbhaya, B., Dey, N., Perez, P., McCarty, D. R., Gutierrez-Marcos, J. F., and Becraft, P. W. (2007). Abscisic acid and stress signals induce *Viviparous1* expression in seed and vegetative tissues of maize. *Plant Physiol.* 143, 720-731.
Cao, X., Li, K., Suh, S.-G., Guo, T., and Becraft, P. W. (2005) Molecular analysis of the *CRINKLY4* gene family in *Arabidopsis thaliana*. *Planta* 220, 645-657.
Timmermans, M., Brutnell, T. P., and Becraft, P. W. (2004). 46th Annual Maize Genetics Conference: Unlocking the secrets of the maize genome. *Plant Physiol* 136, 2633-2640.
Lai, J., Dey, N., Kim, C.-S., Bharti, A. K., Rudd, S., Mayer, K. F. X., Larkins, B., Becraft, P., and Messing, J. (2004). Characterization of the maize endosperm transcriptome and its comparison to the rice genome. *Genome Research* 14, 1932-1937.
Becraft, P. W. (2004). Endosperm Development. *In* "Encyclopedia of Plant and Crop Science" (R. M. Goodman, Ed.), pp. 414 - 417. Marcel Dekker, Inc., New York, NY.
Becraft, P. W., Li, K., Dey, N., and Asuncion-Crabb, Y. T. (2002). The maize *dek1* gene functions in embryonic pattern formation and in cell fate specification. *Development* 129, 5217-5225.
Becraft, P. W. (2002). Receptor kinase signaling in plant development. *Annu. Rev. Cell Devel. Biol.* 18, 163-192.
Becraft, P. W., Kang, S.-H., and Suh, S.-G. (2001). The maize CRINKLY4 receptor kinase controls a cell-autonomous differentiation response. *Plant Physiol* 127, 486-496.
Becraft, P. W. (2001). Cell fate specification in the cereal endosperm. *Semin Cell Dev Biol* 12, 387-394.
Becraft, P. W., Brown, R.C., Lemmon, B.E., Opsahl-Ferstad, H.G., Olsen, O.-A. (2001) Endosperm Development. In SS Bhojwani, ed, Current Trends In The Embryology Of Angiosperms, Kluwer, pp 353-374.
Becraft, P. W. and Asuncion-Crabb, Y. (2000) Positional cues specify aleurone cell fate throughout late endosperm development. *Development* 127, 4039-4048.
Jin, P., Guo, T., and Becraft, P. W. (2000). The maize CR4 receptor-like kinase mediates a growth factor-like differentiation response. *Genesis* 27, 104-116.
Becraft, P.W., Chandok, M.R., Asuncion-Crabb, Y.T., Zhang, Y., Cao, X., Li, K., Bendo, E.A., Suh, S.-G. (2000) Signal transduction and cell fate decisions in maize endosperm development. *J. Korean Soc. Hort. Sci.* 18: 646-651.
Timmermans, M., Hudson, A., Becraft, P. W., and Nelson, T. (1999). ROUGH SHEATH2: a Myb-domain factor that represses *knox* homeobox genes in maize leaf and floral primordia. *Science* 284, 151-153.
Becraft, P. W. (1999). Development of the leaf epidermis. *Current Topics in Developmental Biology* 45, 1-40.
Becraft, P. W., Chandok, M. R., Jin, P., Guo, T., Asuncion-Crabb, Y., and Zhang, Y. (1999). The function of the maize CRINKLY4 receptor-like kinase in a growth factor like signaling system. *In* “Symposium of Plant Signal Transduction” (S. K. Sopory and R. Oelmüller, Eds.), New Delhi, India.
Becraft, P. W. (1998). Receptor kinases in plant development. *Trends Plant Sci*. 3, 384-388.
Becraft, P. W., Stinard, P. S., and McCarty, D. R. (1996). CRINKLY4: a receptor kinase with TNFR similarity, involved in maize epidermal differentiation. *Science* 273, 1406-1409.
Schneeberger, R. G., Becraft, P. W., Hake, S., and Freeling, M. (1995). Ectopic expression of the knox homeo box gene rough sheath1 alters cell fate in the maize leaf. *Genes Dev* 9, 2292-2304.
Becraft, P. W. (1995). Intercellular induction of homeotic gene expression in flower development. *Trends in Genetics* 11, 253-255.

Becraft, P. W. and Freeling, M. (1994). Genetic analysis of *Rough sheath1* developmental mutants of maize. *Genetics* 136, 295-311.
Becraft, P. W., and Freeling, M. (1992). Cell interactions in plants. *Current Opinion in Genetics and Development* 2, 571-575.
Becraft, P. W., and Taylor, G. A. (1992). Genetic variation for anther callus inducibility in crosses of highly culturable winter wheats. *Plant Breeding* 108, 19-25.
Becraft, P. W., and Freeling, M. (1991). Sectors of *liguleless-1* tissue interrupt an inductive signal during maize leaf development. *Plant Cell* 3, 801-807.
Becraft, P. W., Bongard-Pierce, D. K., Sylvester, A. W., Poethig, R. S., and Freeling, M. (1990). The *liguleless-1* gene acts tissue specifically in maize leaf development. *Developmental Biology* 141, 220-232.
Becraft, P. W., and Taylor, G. A. (1989). Effects of nucleus, cytoplasm and male sterile nucleus-cytoplasm combinations on callus initiation in anther culture of wheat. *Euphytica* 44, 235-240.

Professional Society Memberships:

American Association for the Advancement of Science
American Society of Plant Biologists

Synergistic Activities:

Maize Genetics Conference Steering Committee, Co-chair, 2011-2012; Chair 2012-2013
Chair, Interdepartmental Genetics Program, 2008-2010
Associate Chair, Interdepartmental Genetics Program, 2006-2008
Organizing Committee Chair,, ISU-PSI Symposium on Plant Receptor Signaling, 2006
Editorial Board Member, *Maydica* 2011 – present
Reviewing Editor, *Frontiers in Plant Science* 2010 – present
Monitoring Editor, *Plant Physiology,* 2002-2007
Grant Panel Service: USDA-NRI Plant Growth and Development 2007, 2008, panel manager 2009, NSF 2001 (Signal Transduction), 2003 (Plant Genome), 2011 (Plant Developmental Systems), DOE Energy Biosciences 1998

Courses Taught:

Principles of Developmental Biology, GDCB 433
Principles of Developmental Biololgy, GDCB/MCDB 533
Plant Growth and Development, GDCB/MCDB 512
Transmission Genetics, GDCB 510
Analytical Genetics, GEN 410
Introductory Biology BIOL 212

Graduate Students Trained

Jin, Ping	M.S.	Agronomy	1999
Zhang, Yuan	M.S.	Molecular Cellular & Developmental Biology	2000
Li, Kejian	M.S.	Molecular Cellular & Developmental Biology	2004
Liu, Juan	M.S.	Molecular Cellular & Developmental Biology	2004
Swain, LaTrice	M.S.	Genetics	2004
Hermon-Cruz, Pedro	Ph.D.	Genetics	2004
Cao, Xueyuan	Ph.D.	Molecular Cellular & Developmental Biology	2005
Chettoor, Antony M.	Ph.D.	Plant Physiology	2009
Seo, Joonbae	M.S.	Plant Physiology	2009
Su, Lixun	M.S.	Plant Physiology	2009
Kir, Gokhan	M.S.	Genetics	2011
Yi, Gibum	Ph.D.	Plant Biology	2012
Sridharan, Krishnakumar	Ph.D.	Genetics	2012
Kir, Gokhan	Ph.D.	Genetics	current
Gontarek, Bryan	Ph.D.	Plant Biology	current

Bossard, Adam	Ph.D.	Genetics	current
Kusnadar, Andree S.	M.S.	Genetics	current

Postdocs Trained

Chandok, Meena R. 1999-2000
Dey, Nrisingha 2001-2004
Neelakanda, Anjanasree K. 2011-present

Visiting Scientists Hosted

Suh, Sang-Gon, Yeungnam University, South Korea
Moon, Yong-Sun, Yeungnam University, South Korea
Anami, Sylvester, Jomo Kenyatta University of Agriculture and Technology, Kenya
Akgun, Ilknur, Süleyman Demirel University, Turkey
Qin, Yuxiang, University of Jinan, China
Chen, Rumei, Chinese Academy of Agricultural Sciences, China