

Michael J. Thomson

*Professor and HM Beachell Endowed Chair in International Rice Improvement
Dept. of Soil and Crop Sciences, Texas A&M University / Texas A&M AgriLife Research*

Education:

Ph.D. 2002 Plant Breeding, Cornell University
B.A. 1997 Biology and English (*cum laude*), Baylor University

Professional Appointments:

2017-present: Head of the Texas A&M AgriLife Research Crop Genome Editing Lab (CGEL)
2015-present: Professor, Soil and Crop Sciences and H.M. Beachell Rice Chair, Texas A&M University
2013-2015: Senior Scientist, Molecular Genetics; Head of Genotyping Services Lab, IRRI, Philippines
2009-2013: Scientist, Molecular Genetics and Marker Applications, IRRI, Philippines
2005-2008: Post-doctoral fellow; International Rice Research Institute (IRRI), Philippines
2003-2005: NSF International Research Fellow, Indonesian Center for Agricultural Biotechnology
2002-2003: Post-doctoral fellow with Dr. Susan McCouch, Cornell University

Teaching:

SCSC 410. International Agricultural Systems (3 credit lecture)
SCSC 689. Special Topics: Genome Editing in Crop Plants (2 credit lecture)

Research:

My research expertise is in plant molecular breeding with an emphasis on rice genetics and genomics, international agriculture, and optimizing high-throughput CRISPR-based gene editing approaches for efficient gene validation and trait development across a wide range of crops.

Professional Accomplishments:

- 40 refereed journal publications; 60 conference abstracts; 6 book chapters; 1 edited book
- 4,179 Google Scholar citations (H-index = 26), including 14 papers with > 100 citations each
- 35 guest lectures, 30 conference presentations, and 30 invited seminars (past 5 years)
- Set up Crop Genome Editing Lab at Texas A&M for CRISPR-based research and service
- Set up high-throughput SNP genotyping facility at the Genotyping Services Lab at IRRI
- Supervised the genotyping of 26,500 DNA samples leading to 64 million SNP data points at IRRI
- Characterized the *Saltol* QTL for salinity tolerance and transferred into multiple varieties
- Explored beneficial QTLs introgressed from *Orzya rufipogon* in an elite US rice background

Professional Memberships, Leadership Roles and Honors:

- Associate Editor for the Plant Breeding and Biotechnology journal (2014-present)
- Member of the Editorial Board for Theoretical and Applied Genetics (2015-present)
- Member, American Society of Plant Biologists (2011-present)
- Member, Crop Science Society of America (2006-present)
- NSF International Research Fellowship (2003-2005)
- Mentor Recognition; Siemens Foundation (2002-2003)
- Cornell Plant Cell and Molecular Biology Graduate Research Assistantship (1997-2001)

Selected Recent Publications:

- Collard BCY, Gregorio GB, Thomson MJ, Islam MR, Vergara G, Laborte AG, Nissila E, Kretzschmar T, Cobb JN (2019) Transforming rice breeding: re-designing the irrigated breeding pipeline at the International Rice Research Institute (IRRI). **Crop Breed. Genet. Genom.** 1: e19000x.
- Baltazar MD, Ignacio JC, Thomson MJ, Ismail AM, Mendiolo MS, Septiningsih EM (2019) QTL mapping for tolerance to anaerobic germination in rice from IR64 and the aus landrace Kharsu 80A. **Breeding Sci** 69: 227-233.
- Juanillas V, Dereeper A, Beaume N, Droc G, Dizon J, Mendoza JR, Perdon JP, Mansueto L, Triplett L, Lang J, Zhou G, Ratharanjan K, Plale B, Haga J, Leach JE, Ruiz M, Thomson M, Alexandrov N, Larmande P, Kretzschmar T, Mauleon RP (2019) Rice Galaxy: an open resource for plant science. **Gigascience** 8: 1-14
- Thomson MJ, Singh N, Dwiyantri MS, Wang DR, Wright MH, Perez FA, DeClerck G, Chin JH, Malitic-Layaoen GA, Juanillas VM, Dilla-Ermita CJ, Mauleon R, Kretzschmar T, McCouch SR (2017) Large-scale deployment of a rice 6K SNP array for genetics and breeding applications. **Rice** 10:40.
- Kadam NN, Tamilselvan A, Lawas LMF, Quinones C, Bahuguna RN, Thomson MJ, Dingkuhn M, Muthurajan R, Struik PC, Yin X, Jagadish KSV (2017) Genetic control of plasticity in root morphology and anatomy of rice in response to water-deficit. **Plant Physiol.** 174: 2302–2315.
- Dilla-Ermita CJ, Tandayu E, Juanillas VM, Detras J, Lozada DN, Dwiyantri MS, Cruz CV, Mbanjo EG, Ardales E, Diaz MG, Mendiolo M (2017) Genome-wide association analysis tracks bacterial leaf blight resistance loci in rice diverse germplasm. **Rice** 10: 8.
- Gonzaga ZJC, Carandang J, Singh A, Collard BC, Thomson MJ, Septiningsih EM (2017). Mapping QTLs for submergence tolerance in rice using a population fixed for SUB1A tolerant allele. **Mol. Breeding**, 37: 47.
- Ereful N, Liu LY, Tsai E, Kao SM, Dixit S, Mauleon R, Malabanan K, Thomson M, Laurena A, Lee D, Mackay I, Greenland A, Powell W, Leung H (2016) Analysis of allelic imbalance in rice hybrids under water stress and association of asymmetrically expressed genes with drought-response QTLs. **Rice** 9: 50.
- Rahman MA, Thomson MJ, Shah-E-Alam M, de Ocampo M, Egdane J, Ismail AM (2016) Exploring novel genetic sources of salinity tolerance in rice through molecular and physiological characterization. **Ann. Bot.** 117: 1083-1097.
- Pariasca-Tanaka J, Lorieux M, He C, McCouch S, Thomson MJ, Wissuwa M (2015) Development of a SNP genotyping panel for detecting polymorphisms in *Oryza glaberrima/O. sativa* interspecific crosses. **Euphytica** 201: 67-78.
- Thomson MJ (2014) High-throughput SNP genotyping to accelerate crop improvement. **Plant Breeding Biotech.** 2: 195-212.
- Trijatmiko KR, Supriyanta, Prasetyono J, Thomson MJ, Vera Cruz CM, Moeljopawiro S, Pereira A (2014) Meta-analysis of quantitative trait loci for grain yield and component traits under reproductive-stage drought stress in an upland rice population. **Mol. Breeding** 34: 283-295.
- Jagadish SVK, Septiningsih EM, Kohli A, Thomson MJ, Ye C, Redoña E, Kumar A, Gregorio GB, Wassmann R, Ismail AM, Singh RK (2012) Genetic advances in adapting rice to a rapidly changing climate. **J. Agron. Crop Sci.** 5: 360-373.
- Thomson MJ, Zhao K, Wright M, McNally KL, Rey J, Tung CW, Reynolds A, Scheffler B, Eizenga G, McClung A, *et al.* (2012) High-throughput single nucleotide polymorphism genotyping for breeding applications in rice using the BeadXpress platform. **Mol. Breeding** 29: 875-886.