

Department of Plant Pathology, Kansas State University

Wheat molecular genetics and genomics: cDNA cloning, genomic mapping and expression study of wheat chitinase and glucanase genes from scab resistant variety Sumai 3; colinearity study of *Al-Sh2* orthologous region in wheat, barley, rye, rice, maize and sorghum

Teaching

Epigenetics/Epigenomics (BIOS792; spring semester of odd years), South Dakota State University

Molecular & Microbe Genetics (MICR436; the first half of fall semester) , South Dakota State University

Guest lectures in Advanced Plant Breeding (PS770 2015, South Dakota State University); Molecular Plant Physiology (BIOS664; 2014, South Dakota State University) and Plant Genetics (Agron770; 2007, Kansas State University)

Molecular Genetics, graduates (1994-1996 and 1998-1999), Nanjing Agricultural University, 3 hours/week

Seminar of Plant Genetics and Breeding, graduates (1995-1996), Nanjing Agricultural University, 2 hours/week

Awards

1996 National Science-Technology Promotion Award (Second Class) from Ministry of Agriculture, China. Li shared this award with eight other winners.

1997 National Invention Award (Third Class), China. Li shared this award with eight other winners.

1998 National Science-Technology Advancement Award (First Class) from Ministry of Education, China. Li shared this award with nine other winners.

Professional Activities

Member of American Society of Plant Biologists

Member of Crop Science Society of America

Board editor of journal Plants

Manuscript reviewer for Acta Physiologiae Plantarum, Biomass and Bioenergy, BMC Plant Biology, Gene, Genetics, HortScience, Peptides, Plant Physiology and Biochemistry, Plant Molecular Biology Reporter, Plants, PLoS One, Theor Appl Genet, The Scientific World Journal; and proposal reviewer for the United States-Israel Binational Agricultural Research & Development (BARD) Fund, NSF, and USDA/FAS/OCBD.

Grants

Grants received at SDSU

1. PD Li W. co-PD Xu S, Langham M, Ma Q. 2 2017 1 2019. USDA AFRI. Dissecting the sea wheatgrass genome to transfer biotic stress resistance and abiotic stress tolerance into wheat. \$244,618.
2. PD Li W, co-PD Yang B. 12 2016 11 2019. USDA NIFA-IWYP. CRISPR-based genome editing of grain size regulators for novel variation to increase wheat genetic

physical map and sample sequencing of the homoeologous group-3 chromosomes of wheat. No. 2006-35604-17248. Total \$1,000,000; \$105,750 to Li.

Grants received in China

17. PI **Li W**. National Natural Science Foundation of China. Jan 1998 Dec 2000
Molecular Mapping of agronomic traits on chromosome 5D. Total ¥ 100,000 to Li.

Unfunded Proposals

1. PI W Li, co-PI K Glover. Transfer superior alleles of grain size regulators into South Dakota wheat. South Dakota Wheat Commission. Submitted in 01 2017. Amount requested: \$112,218. Not funded
2. PI W Li, Co-PI Karl Glover. Selection of ABA sensitivity to improve SD spring

Publications in English (*corresponding author)

1. **Li W***, Yang B. 2017. Translational genomics of grain size regulation in wheat. *Theor Appl Genet.* 130:1765-1771.
2. **Li W***, Challa GS, Zhu H, Wei W. 2016. Recurrence of Chromosome Rearrangements and Reuse of DNA Breakpoints in the Evolution of the Triticeae Genomes. *G3 (Bethesda).* 6(12):3837-3847
3. Zhang ZZ, Wei W, Challa GS, Bi C, Trick HN, **Li W***. 2015. *W3* is a new wax locus -diketone, development of glaucousness, and reduction of cuticle permeability in common wheat. *PLoS One* 10(10): e0140524.
4. Zhang Z, Zhu H, Gill BS, **Li W***. 2015. Fine mapping of shattering locus *Br2* reveals a putative chromosomal inversion polymorphism between the two lineages of *Aegilops tauschii*. *Theor Appl Genet* 128:745-755.
5. Gornicki P, Zhu H, Wang J, Challa GS, Gill BS, **Li W***. 2014. The Chloroplast view of the evolution of polyploid wheats. *New Phytologist* 204:704-714.
6. Wang J, **Li W***, Wang W. 2014. Fine mapping and metabolic and physiological characterization of the glume glaucousness inhibitor locus *Iw3* derived from wild wheat. *Theor Appl Genet* 127:831-841.
7. Luo M-C, Gu YQ, You FM, Deal KR, Ma YQ, Hu Y, Huo N, Wang Y, Wang JR, Chen SY, Jorgensen CM, Zhang Y, McGuire PE, Pasternak S, Stein JC, Ware DH, Kramer M, McCombie WR, Kianian SF, Martis MM, Mayer KFX, Sehgal SK, **Li W**, W, Lazo GR, Anderson OD, Dvorak J. 2013. A 4-gigabase physical map unlocks the structure and evolution of the complex genome of *Aegilops tauschii*, the wheat D-genome progenitor. *Proc Natl Acad Sci USA.* 110: 7940-7945.
8. **Li W***, Zhu H, Challa GS, Zhang ZZ. 2013. Non-additive interaction in a single locus causes a very short root phenotype in wheat. *Theor Appl Genet.* 126:1189-1200.
9. Zhang Z, Wang W, **Li W***. 2013. Genetic interactions underlying the biosynthesis and -diketones in wheat and their impact on glaucousness and cuticle permeability. *PLoS ONE* 8(1): e54129.
10. Rawat N, Sehgal SK, Joshi A, Rothe N, Wilson DL, McGraw N, Vadlani PV, **Li W**, Gill BS. 2012. A diploid wheat TILLING resource for wheat functional genomics. *BMC Plant Biology* 12:205.
11. Akhunov E, Sehgal S, Liang H, Wang S, Akhunova A, Kaur G, **Li W**, Forrest K, See D, Simkova H, Hayden M, Luo M, Farris J, Dolezel J, Gill BS. 2012. Comparative analysis of syntenic genes in grass genomes reveals accelerated rates of gene structure and coding sequence evolution in polyploid wheat. *Plant Physiol.* 161: 252-265.
12. Sehgal SK, **Li W**
Chromosome arm-specific BAC end sequences permit comparative analysis of homoeologous chromosomes and genome of polyploid wheat. *BMC Plant Biol.* DOI: 10.1186/1471-2229-12-6422559868
13. Bi C, Chen F, Jackson L, Gill BS, **Li W***. 2011. Expression of lignin biosynthetic genes in wheat during development and upon infection by fungal pathogens. *Plant Mol Biol Rep* 29: 149-161.

14. Huang L, Brooks S, **Li W**

genomic DNA fragments cloned in BAC and BiBAC vectors. Proc. 10th Internl. Wheat Genet. Sym., Sept. 1-6, Paestum, Italy, pp. 293-

Conference Abstracts/Presentations

37. Huang L, Brooks SA, **Li W**, Fellers JP, Trick HN Gill BS. 2003. Map-based cloning of the leaf rust resistance gene *Lr21* in the large polyploid wheat genome. Plant and Animal Genome Conference XI [W277](#)
38. **Li W**, Deal K, Kuraparthi V, Gu Y, Dvorak J, Gill BS. 2003. Anchoring of *Aegilops tauschii* BAC contigs to genetic maps with RFLP and EST markers. Plant and Animal Genome Conference XI [P121](#)

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