

LIBO SHAN

DIRECTOR & PROFESSOR

Institute for Plant Genomics and Biotechnology, Norman E. Borlaug Center, Texas A&M AgriLife Research
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EDUCATION/TRAINING

2008	Postdoc	Molecular Biology, Harvard Medical School, USA
2003	PhD	Plant Pathology, Kansas State University, USA
1998	MS	Genetics, Chinese Academy of Sciences, China
1995	BS	Biochemistry, Beijing Normal University, China

POSITIONS & EMPLOYMENT

2017 – Present	Director, Institute for Plant Genomics and Biotechnology (IPGB) Texas A&M AgriLife Research, College Station, TX
2009 – Present	Assistant/Associate/Professor, Department of Plant Pathology and Microbiology Faculty of Molecular & Environmental Plant Sciences Texas A&M University, College Station, TX

OTHER POSITIONS AND PROFESSIONAL MEMBERSHIPS

2014 – Present	Senior Editor, Molecular Plant Pathology
2018 – Present	Guest Editor, Plant Cell
2016, 2017, 2018	Guest Editor, PLoS Pathogens
2013 – Present	Editorial Board, The Arabidopsis Book
2012 – 2014	Editorial Board, Molecular Plant Pathology

HONORS & AWARDS

- Charles Albert Shull Award, American Society of Plant Biologists (ASPB), 2014
- Dean's Outstanding Achievement for Excellence in Early Career Research, College of Agriculture and Life Sciences, Texas A&M University, 2013
- American Society of Plant Biologists Women's Young Investigator Travel Award, 2010
- Don C. Warren Genetic Scholarship, Kansas State University, 2002–2003

SELECTED PUBLICATIONS

- **Shan, L.**, and He, P. (2018) Pipped at the post: pipelicolic acid derivative identified as SAR regulator. **Cell** 173:286-287.
- Huang, Y., Jamieson, P., and **Shan, L.** (2018) The APEX approaches: a unified LRR-RK network revealed. **Trends in Plant Science** 23:372-374.
- Zhou, J., Liu, D., Wang, P., Lin, W., Chen, S., Mishev, K., Lu, D., Kumar, R., Vanhoutte, I., He, P., Russinova, E., and **Shan, L.** (2018) Regulation of *Arabidopsis* brassinosteroid receptor BRI1 endocytosis and intracellular degradation by the E3 ubiquitin ligase PUB12/PUB13-mediated ubiquitination. **Proc Natl Acad Sci U S A.** 115: E1906-E1915.
- Fan, J., Bai, P., Xiong, Y., Ning, Y., Zhang, C., Wang, R., Meng, X., Zhou, J., Wang, M., Park, C.H., Bellizzi, M., Jeon, J.S. **Shan, L.**, and Guo-Liang Wang (2018) The monocot-specific receptor-like kinase SDS2 modulated by the E3 Ligase SPL11 controls cell death and immunity via receptor-like cytoplasmic kinases in rice. **Cell Host & Microbe** 23:498-510.
- Lal, N.K., Nagalakshmi, U., Hurlburt, N.K., Flores, R., Bak, A., Sone, P., Ma, X., Song, G., Walley, J., **Shan, L.**, He, P., Casteel, C., Andrew J. Fisher, A.J., and Dinesh-Kumar, S.P. (2018) Nuclear role of a plant receptor-like cytoplasmic kinase in hormone regulation during innate immunity. **Cell Host & Microbe** 23:485-497.
- Mang H., Feng, B., Hu, Z., Boisson-Dernier, A., Franck, C.M., Meng, X., Xu, G., Wang, T., **Shan, L.**, and He, P. (2017) Differential regulation of two-tiered plant immunity and sexual reproduction by ANXUR receptor-like kinases. **The Plant Cell** 29: 3140–3156.
- Yu, X., Feng, B., He, P. and **Shan, L.** (2017) From chaos to harmony: responses and signaling upon microbial pattern recognition. **Annual Review of Phytopathology.** 55: 109–137.
- Cox, K. L., Meng, F., Wilkins, K. E., Li, F., Wang, P., Booher, N. J., Chen, L. Q., Zheng, H., Gao, X., Zheng, Y., Fei, Z., Yu, J. Z., Isakeit, T., Wheeler, T., Frommer, W. B., He, P., Bogdanove, A. J., and **Shan, L.** (2017) TAL effector-mediated

induction of a SWEET sucrose transporter confers susceptibility to bacterial blight of cotton. **Nat Commun.** DOI: 10.1038/ncomms15588.

- Li, F., Li, M., Wang, P., Cox, K. L., Duan, L., Dever, J.K., **Shan, L.** Li, Z., and He, P. (2017) Regulation of cotton drought responses by a MAP kinase cascade-mediated phosphorylation of GhWRKY59. **New Phytologist** 215: 1462-1475.
- Ma, X., Xu, G., **He, P.**, and **Shan, L.** (2016) SERKING Coreceptors for Receptors. **Trends Plant Sci.** 21: 1017-1033.
- Meng, X., Zhou, J., Tang, J., Li, B., Oliveira, M.V.V., Chai, J., He, P. and **Shan, L.** (2016) Ligand-induced receptor-like kinase complex regulates floral organ abscission in *Arabidopsis*. **Cell Reports** 14: 1330–1338.
- Li, B., Meng, X., **Shan, L.**, and He, P. (2016) Transcriptional regulation of plant pattern-triggered immunity. **Cell Host & Microbe** 19: 641-650.
- de Oliveira, M.V.V., Xu, G., Li, B., de Souza Vespoli, L., Meng, X., Chen, X., Yu, X., de Souza, S.A., Intorne, A.C., de A. Manhães, A.M.E., Musinsky, A.L., Koiwa, H., de Souza Filho, G.A., **Shan, L.**, and He, P. (2016) Specific control of *Arabidopsis* BAK1/SERK4-regulated cell death by protein glycosylation. **Nature Plants** 2: 15218.
- Meng, X., Chen, X., Liu, C., Yu, X., Gao, X., Torii, U. K., He, P. and **Shan, L.**, (2015) Differential function of *Arabidopsis* SERK family receptor-like kinases in stomatal patterning. **Current Biology** 25: 2361-2372.
- Zhou, J., Lu, D., Xu, G., Finlayson, S.A., He, P., and **Shan, L.** (2015) The dominant negative ARM domain uncovers multiple functions of plant U-box E3 ligase PUB13 in *Arabidopsis* immunity, flowering and senescence. **Journal of Experimental Botany** 66: 3353-3366.
- Li, B., Jiang, S., Yu, X., Cheng, C., Chen, S., Cheng, Y., Yuan, J., Jiang, D., He, P., and **Shan, L.** (2015) Phosphorylation of a trihelix transcription repressor ASR3 by MPK4 negatively regulates *Arabidopsis* immunity. **The Plant Cell** 27: 839-856.
- Li, F., Cheng, C., Cui, F., Oliveira, M.V.V., Intorne, A.C., Babilonia, K., Li, M., Chen, X., Ma, X., Xiao, S., Zeng, Y., Fei, Z., Metz, R., Johnson, C.D., Koiwa, H., Sun, W., Li, Z., Filho, G.A.S., **Shan, L.**, and He, P. (2014) Modulation of RNA polymerase II phosphorylation downstream of pathogen perception orchestrates plant immunity. **Cell Host & Microbe** 16: 748–758.
- Lin, W., Li, B., Lu, D., Chen, S., Zhu, N., He, P., and **Shan, L.** (2014) Tyrosine phosphorylation of BAK1/BIK1 mediates *Arabidopsis* innate immunity. **Proc Natl Acad Sci U S A.** 111: 3632-3637.
- Cheng C., Gao X., Feng B., Sheen J., **Shan L.**, He P. (2013) Plant immune response to pathogens differs with changing temperatures. **Nat Commun.** 4:2530. doi: 10.1038/ncomms3530.
- Lin, W., Lu, D., Gao, X., Jian, S., Ma, X., Wang, Z., Mengiste, T., He, P., and **Shan L.** (2013) Inverse modulation of plant immunity and plant development by a receptor-like cytoplasmic kinase BIK1. **Proc Natl Acad Sci U S A.** 110: 12114-12119.
- Cui, F., Wu, S., Sun, W., Coaker, G., Kunkel, B. N, **Shan, L.** (2013) The *Pseudomonas syringae* type III effector AvrRpt2 promotes pathogen virulence via stimulating *Arabidopsis* Auxin/Indole Acetic Acid protein turnover. **Plant Physiology** 162: 1018-1029.
- Gao, X., Chen, X., Lin, W., Lu, D., Niu, Y., Li, L., Cheng, C., McCormack, M., Sheen, J., **Shan, L.**, and He, P. (2013) Bifurcation of *Arabidopsis* NLR Immune Signaling via Ca²⁺-Sensor Protein Kinases. **PLoS Pathog** 9, e1003127.
- Gao, X., Li, F., Li, M., Kianinejad, A., Dever, J., Wheeler, T., Li, Z., He, P., and **Shan, L.** (2013) Cotton GhBAK1 mediates *Verticillium* wilt resistance and cell death. **Journal of Integrative Plant Biology** 55: 586-96.
- Lu, D., Lin, W., Gao, X., Wu, S., Cheng, C., Avila, J., Heese, A., Devarenne, T., He, P., and **Shan, L.** (2011) Direct ubiquitination of pattern recognition receptor FLS2 attenuates plant innate immunity. **Science** 332: 1439-1442.
- Gao, X., Wheeler, T., Li, Z., Kenerley, C., He, P., and **Shan, L.** (2011) Silencing GhNDR1 and GhMKK2 compromised cotton resistance to *Verticillium* wilt. **The Plant Journal** 66: 293-305.
- Lu, D., Wu, S., Gao, X., Zhang, Y., **Shan, L.** and He, P. (2010) A receptor-like cytoplasmic kinase BIK1 associates with flagellin receptor complex to initiate plant innate immunity. **Proc Natl Acad Sci U S A.** 107: 496-501.
- Boudsocq, M., Willmann M. R., McCormack, M., Lee, H., **Shan L.**, He P., Bush, J., Cheng, S., and Sheen J., (2010) Differential innate immune signalling via Ca²⁺ sensor protein kinases. **Nature** 464: 418-422.
- **Shan, L.**, He, P., Li, J., Heese, A., Peck, S. C., Nurnberger, T., Martin, G. B., and Sheen, J. (2008) Bacterial effectors target the common signaling partner BAK1 to disrupt multiple MAMP receptor-signaling complexes and impede plant immunity. **Cell Host & Microbe** 4: 17-27.
- **Shan, L.**, He, P., and Sheen, J. (2007) Intercepting host MAPK signaling cascades by bacterial type III effectors. **Cell Host & Microbe** 1: 167-174.
- He, P., **Shan, L.**, Lin, N.-C., Martin, G., Kemmerling, B., Nurnberger, T., and Sheen, J. (2006) Specific bacterial suppressors of MAMP signaling upstream of MAPKKK in *Arabidopsis* innate immunity. **Cell** 125: 563-575.
- **Shan, L.**, Thara, V.K., Martin, G.B., Zhou, J.-M., and Tang, X. (2000) The *Pseudomonas* AvrPto protein is differentially recognized by tomato and tobacco and is localized to the plant plasma membrane. **The Plant Cell** 12: 2323-2338.