Prof. dr. Zhao Zhang

CONTACT

Yuanyi Building #332, College of Horticulture
China Agricultural University
No.2 Yuanmingyuan West Road
Haidian District, Beijing 100193
China
Tel.: +86-10-62732724
Email: zhangzhao@cau.edu.cn
Website: www.zhangzhaolab.org

RESEARCH

Prof. dr. Zhao ZHANG obtained his Bachelor degree in Plant Biotechnology in the Hogeschool Larenstein in Velp in the Netherlands. The following years, from 2005 to 2007, Zhao continued as an MSc student Plant Biotechnology at Wageningen University. In 2007, Zhao started his PhD research under supervision of Prof. dr. Bart Thomma and Prof. dr. Pierre de Wit in the Laboratory of Phytopathology of the Wageningen University, where he worked on functional analysis of tomato immune receptor Ve1 and its recognition of Verticillium effector Ave1. Now he is appointed a professor at China Agricultural University, Beijing, China, where he continues his research in plant science. He and his team are mainly involved in the areas related to cultivation techniques, resistance mechanisms, and quality improvement of horticultural crops. By the end of 2021, he published more than 37 peer-reviewed articles and book chapters, with over 1900 times of citations and an H-index of 17.

QUALIFICATIONS

BSc

University:	Hogeschool Larenstein, The Netherlands
Date:	31 August 2005
Study:	Plant Biotechnology
Main subjects:	Phytopathology
Supervisor:	Dr. ir. Bart P.H.J. Thomma

MSc

University:	Wageningen University, The Netherlands
Date:	31 August 2007
Study:	Plant Biotechnology
Main subjects:	Phytopathology and Entomology
Supervisor:	Dr. ir. Bart P.H.J. Thomma and Prof. dr. Marcel Dicke

PhD

University:	Wageningen University, The Netherlands
Date:	05 June 2013
Supervisor ('Promotor'):	Prof. dr. Pierre J.G.M. De Wit Prof. dr. Bart P.H.J. Thomma
Title of PhD thesis:	Functional analysis of tomato immune receptor Ve1 and recognition of Verticillium effector Ave1.

OCCUPATIONS

2014-2020:	Associate professor at the Department of Horticulture, China Agricultural University, China
2020-present:	Professor at the Department of Horticulture, China Agricultural University, China

EDITORIAL BOARD MEMBERSHIPS

Editorial board **BMC Plant Biology**

Editorial board **BMC Genomics**

PUBLICATIONS

2021

Fang P, Arens P, Liu X, Zhang X, Lakwani D, Foucher F, Clotault J, Geike J, Kaufmann H, Debener T, Bai Y, **Zhang Z**[#] and Smulders MJM[#] (2021) Analysis of allelic variants of *RhMLO* genes in rose and functional studies on susceptibility to powdery mildew related to clade V homologs. **Theor Appl Genet** 134: 2495-2515

Tian Y, Zhang S, Liu X and **Zhang Z** (2021) Global investigation of TBL gene family in rose (*Rosa chinensis*) unveils RcTBL16 is a susceptibility gene in gray mold resistance. **Front Plant Sci** 12:738880

Liu X, Wang Z, Tian Y, Zhang S, Li D, Dong W, Zhang C[#], **Zhang Z**[#] (2021) Characterization of wall-associated kinase/wall-associated kinase-like (WAK/WAKL) family in rose (Rosa chinensis) reveals the role of RcWAK4 in Botrytis resistance. **BMC Plant Biol** 21:526

2020

Li D*, Liu X*, Shu L, Zhang H, Zhang S, Song Y[#] and **Zhang Z**[#] (2020) Global analysis of the *AP2*/*ERF* gene family in rose (*Rosa chinensis*) genome unveils the role of RcERF099 in *Botrytis* resistance. **BMC Plant Biol** 20:533

Zhang H*, Zhang S*, Zhang H, Chen X, Liang F, Qin H, Zhang Y, Cong R, Xin H[#] and **Zhang Z**[#] (2020) Carotenoid metabolite and transcriptome dynamics underlying flower color in marigold (*Tagetes erecta* L.). **Sci Rep** 10:16835

Yan H, **Zhang Z**, Magnard JL, Boachon B, Baudino S, Tang K (2020) Virus-Induced Gene Silencing in Rose Flowers. **Methods Mol Biol** 2172:223-232

Fang P, Shi S, Liu X, **Zhang Z** (2020) First Report of Alternaria Black Spot of Rose Caused by *Alternaria alternata* in China. **J Plant Pathol** 102: 273

Zhang T, Ren X, **Zhang Z**, Ming Y, Yang Z, Hu J, Li S, Wang Y, Sun S, Sun K, Piao F, Sun Z (2020) Long-read sequencing and de novo assembly of the *Luffa cylindrica* (L.) Roem. genome. **Mol Ecol Resour** 20:511-519

2019

Cao X*, Yan H*, Liu X*, Li D, Sui M, Wu J, Yu H, **Zhang Z** (2019) Detached petal disc assay and virus-induced gene silencing facilitate study of *Botrytis cinerea* resistance in rose flowers. **Hortic Res** 6:136

Liu X, Li D, Zhang S, Xu Y, **Zhang Z** (2019). Genome-wide characterization of the rose (*Rosa chinensis*) WRKY family and role of RcWRKY41 in gray mold resistance. **BMC Plant Biol** 19:522.

Hao Y*, Fang P*, Ma C, White JC, Xiang Z, Wang H, **Zhang Z**[#], Rui Y[#], Xing B (2019) Engineered nanomaterials inhibit *Podosphaera pannosa* infection on rose leaves by regulating phytohormones. **Environ Res** 170:1-6

2018

Liu X*, Cao X*, Shi S, Zhao N, Li D, Fang P, Chen X, Qi W[#], **Zhang Z**[#] (2018) Comparative RNA-Seq analysis reveals a critical role for brassinosteroids in rose (*Rosa hybrida*) petal defense against Botrytis cinerea infection. **BMC Genetics** 19:62

Qi W*, Chen X*, Fang P*, Shi S, Li J, Liu X, Cao X, Zhao N, Hao H, Li Y, Han Y, **Zhang Z** (2018) Genomic and transcriptomic sequencing of *Rosa hybrida* provides microsatellite markers for breeding, flower trait improvement and taxonomy studies. **BMC Plant Biol** 18:119

Shi S*, Duan G*, Li D, Wu J, Liu X, Hong B, Yi M[#], **Zhang Z**[#] (2018) Two-dimensional analysis provides molecular insight into flower scent of *Lilium* 'Siberia'. **Sci Rep** 8:5352.

Yan H*, Shi S*, Ma N, Cao X, Zhang H, Qiu X, Wang Q, Jian H, Zhou N, **Zhang Z**[#], Tang K[#] (2018) Graft-accelerated virus-induced gene silencing facilitates functional genomics in rose flowers. **J Integr Plant Biol** 60:34-44

Cao X, Shi S, **Zhang Z** (2018) First Report of *Botrytis* Leaf Blight on Lily (*Lilium longiflorum*) Caused by *Botrytis cinerea* in Beijing, China. **Plant Dis** 102:1

Qi W, Tinnenbroek-Capel IE, Salentijn EM, **Zhang Z**, Huang B, Cheng J, Shao H, Visser RG, Krens FA, van Loo EN (2018) Genetically engineering *Crambe abyssinica*—A potentially high-value oil crop for salt land improvement. **Land Degrad Dev** 29:1096–1106

2017

Hao Y*, Cao X*, Ma C, Zhang Z, Zhao N, Ali A, Hou T, Xiang Z, Zhuang J, Wu S, Xing B, **Zhang Z**[#], Rui Y[#] (2017) Potential Applications and Antifungal Activities of Engineered Nanomaterials against Gray Mold Disease Agent *Botrytis cinerea* on Rose Petals. **Front Plant Sci** 8:1332

Song Y*, **Zhang Z***, Boshoven JC, Rovenich H, Seidl MF, Jakše J, Maruthachalam K, Liu CM, Subbarao KV, Javornik B, Thomma BP (2017) Tomato immune receptor Ve1 recognizes surface-exposed co-localized N- and C-termini of Verticillium dahliae effector Ave1. **bioRxiv** 103473

2016

Wu J*, Liu Z*, **Zhang Z***, Lv Y, Yang N, Zhang G, Wu M, Lv S, Pan L, Joosten MH, Wang G (2016) Transcriptional regulation of receptor-like protein genes by environmental stress and hormones and their overexpression activities in Arabidopsis. **J Exp Bot** 67:3339-3351

Song Y, **Zhang Z**, Seidl MF, Majer A, Jakse J, Javornik B, Thomma BP (2016) Broad taxonomic characterization of *Verticillium* wilt resistance genes reveals ancient origin of the tomato Ve1 immune receptor. **Mol Plant Pathol** 18:195-209

2015

Qi W, Tinnenbroek-Capel IE, Salentijn EM, Schaart JG, Cheng J, Denneboom C, **Zhang Z**, Zhang X, Zhao H, Visser RG, Huang B, Van Loo EN, Krens FA (2015) Screening for recombinants of *Crambe abyssynica* after transformation by the pMF1 marker-free vector based on chemical selection and meristematic regeneration. **Sci Rep** 5:14003

Before 2015

Zhang Z, Fradin E, de Jonge R, van Esse HP, Smit P, Liu CM and Thomma BP (2013) Optimized agroinfiltration and virus-induced gene silencing to study Ve1-mediated *Verticillium* resistance in tobacco. **Mol Plant Microbe Interact** 26:182-190

Zhang Z, van Esse HP, van Damme M, Fradin E, Liu CM, Thomma BP (2013) Ve1-mediated resistance against *Verticillium* does not involve a hypersensitive response in Arabidopsis. **Mol Plant Pathol** 14:719–727

Fradin EF*, **Zhang Z***, Masini L, van den Berg G, Thomma BP (2014) Functional analysis of the tomato immune receptor Ve1 through domain swaps with its non-functional homolog Ve2. **PLoS One** 9:e88208

Fradin EF, **Zhang Z**, Juarez Ayala JC, Castroverde CD, Nazar RN, Robb J, Liu CM, Thomma BP (2009) Genetic dissection of *Verticillium* wilt resistance mediated by tomato Ve1. **Plant Physiol** 150:320-332

Zhang Z, Song Y, Liu CM, Thomma BP (2014) Mutational analysis of the Ve1 immune receptor that mediates *Verticillium* resistance in tomato. **PLoS One** 9:e99511

Zhang Z and Thomma BP (2013) Structure-function aspects of extracellular leucine-rich repeat-containing cell surface receptors in plants. **J Integr Plant Biol** 55:1212-1223

Zhang Z and Thomma BP (2014) *Agrobacterium tumefaciens* transient expression assay and Virus-induced gene silencing in *Nicotiana tabacum.* **Methods Mol Biol** 1127:173-181

Liebrand TW, van den Berg GC, **Zhang Z**, Smit P, Cordewener JH, America AH, Sklenar J, Jones AM, Tameling WI, Robatzek S, Thomma BP, Joosten MH (2013) The receptor-like kinase SOBIR1/EVR interacts with receptor-like proteins in plant immunity against fungal infection. **Proc Natl Acad Sci USA** 110: 10010-10015

de Jonge R*, van Esse HP*, Maruthachalam K, Bolton MD, Santhanam P, Saber MK, **Zhang Z**, Usami T, Lievens B, Subbarao KV, Thomma BP (2012) Tomato immune receptor Ve1 recognizes effector of multiple fungal pathogens uncovered by genome and RNA sequencing. **Proc Natl Acad Sci USA** 109:5110-5115

Poelman EH*, Zheng S*, **Zhang Z**, Heemskerk NM, Cortesero AM, Dicke M (2011) Parasitoid-specific induction of plant responses to parasitized herbivores affects colonization by subsequent herbivores. **Proc Natl Acad Sci USA** 108:19647-19652

Liebrand TW*, Kombrink A*, **Zhang Z**, Sklenar J, Jones AM, Robatzek S, Thomma BP, Joosten MH (2014) Chaperones of the endoplasmic reticulum are required for Ve1-mediated resistance to *Verticillium*. **Mol Plant Pathol** 15:109-117

Chen X, **Zhang Z**, Visser RG, Vosman B and Broekgaarden C (2014) Constitutive overexpression of the pollen specific gene *SKS13* in leaves reduces aphid performance on *Arabidopsis thaliana*. **BMC Plant Biol** 14:217

Chen X, **Zhang Z**, Visser RG, Broekgaarden C and Vosman B (2013) Overexpression of *Increased Resistance to Myzus persicae 1* (*IRM1*) in *Arabidopsis thaliana* enhances resistance to aphids by affecting their feeding behaviour. **PLoS One** 8:e70914

Wang G, **Zhang Z**, Angenent GC, Fiers M (2011) New aspects of CLAVATA2, a versatile gene in the regulation of Arabidopsis development. **J Plant Physiol** 168:403-407

Ellendorff U, **Zhang Z**, Thomma BP (2008) Gene silencing to investigate the roles of receptor-like proteins in Arabidopsis. **Plant Signal Behav** 3:893-896

* Co-First authorship

Co-Corresponding authorship