

# Dr. Tongkun Liu

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## Areas of Research

Molecular mechanisms of flowering; Polyploid breeding;

## Contact Information

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## Research Interests

### Molecular mechanisms of flowering; Polyploid breeding

#### 1. Molecular mechanisms of flowering

Now we are studying the molecular mechanisms of flowering in non-heading Chinese cabbage under natural conditions.

#### 2. Polyploid breeding

Autopolyploids often show growth advantages over their diploid plants. In our studies, We aim to breed new polyploid varieties of non-heading Chinese cabbage to improve the yield, quality, biotic resistance and abiotic resistance.

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## Education Background

**Bachelor:** Nanjing Agricultural University

**Doctor:** Nanjing Agricultural University

**Visiting scholar:** University of Washington, WA, USA

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## Work experience

Lecturer, Nanjing Agricultural University, 2012-2014

Associate Professor, Nanjing Agricultural University, 2015-present

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## The Recent Projects (As a Principal Investigator, P.I)

1. The National Natural Science Foundation of China (31301782), 20014.1-2016.12
  2. The Special fund for China Post Doctoral (2015T80561), 2015.07-2017.06
  3. The Natural Science Foundation of Jiangsu Province (BK20130673; BK20171374), 2013.07-2016.06; 2017.07-2020.06
  4. The independent innovation fund of agricultural science and technology in Jiangsu (CX(19)3122), 2019.07-2021.06
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## Selected Publication(\* Corresponding author)

1. **Liu Tongkun**, Li Ying, Ren Jun, Zhang ChangWei, Kong Min, Song Xiaoming, Zhou JingJing, Hou Xilin\*. Over-expression of *BcFLC1* from non-heading Chinese cabbage (*Brassica campestris* ssp. *chinensis* Makino) enhances tolerance to cold in Arabidopsis. **Biologia Plantarum**, 2013, 57 (2): 262–266.
2. **Liu Tongkun**, Zhang Changwei, Qi Li, Sun FeiFei, Hou Xilin\*. Cloning and expression analysis of a CMS-related gene *BcCoi1* from *Brassica campestris* ssp. *chinensis*. **Russian Journal of Plant Physiology**, 2013, 60(1): 124–130.
3. **Liu Tongkun**, Li Ying, Ren Jun, Qian Yu, Yang XueDong, Duan Weike, Hou Xilin\*. Nitrate or NaCl regulates floral induction in *Arabidopsis thaliana*. **Biologia**, 2013, 68(2): 1–8.
4. **Liu Tongkun**, Dai Wei, Sun FeiFei, Yang XueDong, Xiong Aisheng, Hou Xilin\*. Cloning and Characterization of the Nitrate Transporter Gene *BcNRT2.1* in Non-heading Chinese cabbage. **Acta Physiologiae Plantarum**, 2013, 36(4): 815–823.
5. Song Xiaoming, **Liu Tongkun** (co-author), Duan Weike, Ma QingHua, Ren Jun, Wang Zhen, Li Ying, Hou Xilin\*. Genome-wide analysis of the GRAS gene family in Chinese cabbage (*Brassica rapa* ssp. *pekinensis*), **Genomics**, 2014 , 103 (1) :135-146
6. Li Ying, **Liu Tongkun** (co-author), Duan Weike, Song Xiaoming, Shi GongJun, Zhang JingYi, Deng XiaoHui, Zhang Shuning, Hou Xilin\*. Instability in mitochondrial membranes in Polima cytoplasmic male sterility of *Brassica rapa* ssp. *chinensis*. **Functional & Integrative Genomics**, 2014, 14(2):441-451.
7. **Liu Tongkun**, Li Ying, Zhang Changwei, Duan Weike, Huang Feiyi, Hou Xilin\*. Basic helix–loop–helix transcription factor *BcbHLHpol* functions as a positive regulator of pollen development in non-heading Chinese cabbage. **Functional & Integrative Genomics**, 2014, 14(4):731-739.
8. **Liu Tongkun**, Song Xiaoming, Duan Weike, Huang ZhiNan, Liu GaoFeng, Li Ying, Hou Xilin\*. Genome-wide analysis and expression patterns of NAC transcription factor family under different developmental stages and abiotic stresses in Chinese

cabbage, **Plant Molecular Biology Reporter**, 2014, 32: 1041–1056.

9. **Liu Tongkun**, Qian Yu, Duan Weike, Ren Jun, Hou Xilin, Li Ying\*. *BcRISP1*, isolated from non-heading Chinese cabbage, decreases the seed set of transgenic Arabidopsis. **Horticulture Research**, 2014, 1, 14062
  10. Goralogia GS, **Liu Tongkun**, Zhao Lin, Panipinto PM, Groover ED, Bains YS, Imaizumi T\*. CYCLING DOF FACTOR 1 represses transcription through the TOPLESS co-repressor for photoperiodic flowering in Arabidopsis. **Plant J** 2017, 92 (2), 244–262.
  11. Duan Weike, Zhang HuiJun, Zhang Bei, Wu Xiaoting, Shao Shuaixu, Li Ying, Hou Xilin, **Liu Tongkun**\*. Role of vernalization-mediated demethylation in the floral transition of *Brassica rapa*. **Planta**, 2017, 245: 227–233.
  12. **Liu Tongkun**, Li Ying, Duan Weike, Huang Feiyi, Hou Xilin\*. Cold acclimation alters DNA methylation patterns and confers tolerance to heat and high increases growth rate in *Brassica rapa*. **Journal of Experimental Botany**, 2017, 68 (5):1213-1224.
  13. Huang Feiyi, Wu Xiaoting(co-author), Hou Xilin, Shao Shuaixu, **Liu Tongkun**\*. Vernalization can regulate flowering time through microRNA mechanism in *Brassica rapa*. **Physiologia Plantarum**, 2018, 164(2):204-215.
  14. Huang Feiyi, **Liu Tongkun**(co-author), Wang Jin, Hou Xilin\*. Isolation and functional characterization of a floral repressor, BcFLC2, from Pak choi (*Brassica rapa* ssp. *chinensis*). **Planta**, 2018, 248( 2): 423–435
  15. Li Lin, Wu Peng, Wu Xiaoting, Hou Xilin, Wang Hong, **Liu Tongkun**\*. Molecular Mechanism, Evolution, Expression, and Functional Analyses of MAF/FLC Clade Members in Pak-Choi (*Brassica rapa* ssp. *chinensis*). **Plant Mol Biol Rep.** 2019, 37:334–346.
  16. Zhang Changwei, Wang Huiyu(co-author), Xu Yuanyuan, Zhang Shunning, Wang Jianjun, Hu Bin, Hou Xilin, Li Ying, **Liu Tongkun**\*. Enhanced relative electron transport rate contributes to increased photosynthetic capacity in autotetraploid pak choi. **Plant Cell Physiol.** 2020, 61(4): 761–774
  17. **Liu Tongkun**, Duan Weike, Chen ZhongWen, Yuan Jingping, Xiao Dong, Hou Xilin, Li Ying\*. Enhanced photosynthetic activity in pak choi hybrids is associated with increased grana thylakoids in chloroplasts. **Plant J** 2020, doi: 10.1111/tpj.14893.
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