
CURRICULUM VITAE

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PRESENT ADDRESS

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ACADEMIC APPOINTMENTS

2020 – present	Visiting Professor, Michigan State University, MI, USA.
2020 – present	Visiting Associate Professor, Tokyo University of Science, Chiba, Japan.
2015 – 2020	Associate Professor, Tokyo University of Science, Chiba, Japan.

POSTDOCTORAL TRAINING

2010 - 2015 (2014)	Research Scientist, The Ohio State University, Columbus, OH. Post-Doctoral Researcher, RIKEN, Yokohama, Japan)
2005 - 2010	Post-Doctoral Fellow, The Ohio State University, Columbus, OH.
2003 - 2005	Post-Doctoral Researcher, Tokyo University of Science, Tokyo, Japan.
2003	Lecturer of the Venture Business Laboratory, Yokohama National University, Yokohama, Japan.
2001 - 2003	Technology Fellowship of NEDO (New Energy and Industrial Technology Development Organization), Yokohama National University, Yokohama, Japan.

EDUCATION

1996-2001	Ph.D., Bioscience, Graduate School of Biological Science, Nara Institute of Science and Technology, Nara, Japan.
1992-1996	B.Sc., Biological Science, Department of Applied Biological Science, Chemistry, Faculty of Science and Technology, Tokyo University of Science.

PEER REVIEWED PUBLICATIONS

1. Umeyama, M[§], Hirose, J[§], and **Morohashi, K***. (2020). UMEPPI: An ultrasensitive detection method for protein– protein interaction. *MicroPubl. Biol.* 10.17912/micropub.biology.000309. (*corresponding author; § undergraduate student).
2. Umeyama, M[§], and **Morohashi, K*** (2020). Quantitative insight into the combinatorial interactions within MYBBHLH-WD complex in *Arabidopsis thaliana*. *MicroPubl.*

Biol. 10.17912/micropub.biology.000293. (*corresponding author; § undergraduate student)

3. Okamoto, S., Negishi, K., Toyama, Y., Ushijima, T., and **Morohashi, K.** (2020). Leaf trichome distribution pattern in *Arabidopsis* reveals gene expression variation associated with environmental adaptation. ***Plants*** 9:E909. (*corresponding author)
4. Ishihara, H., Sugimoto, K., Tarr, P.T., Temman, H., Kadokura, S., Inui, Y., Sakamoto, T., Sasaki, T., Aida, M., Suzuki, T., Inagaki, S., **Morohashi, K.**, Seki, M., Kakutani, T., Meyerowitz, E.M., Matsunaga, S. (2019). Primed histone demethylation regulates shoot regenerative competency. ***Nat Commun.*** 10:1786.
5. Arai, H., Yanagiura, K., Toyama, Y., **Morohashi, K.** (2019). Genome-wide analysis of *MpBHLH12*, a IIIf basic helix-loop-helix transcription factor of *Marchantia polymorpha*. ***J Plant Res.*** 132:197-209. (* corresponding author)
6. **Morohashi, K.**, Russinova, E. (2019). Towards a next step of the research of regulatory networks in plant growth and development. ***J Plant Res.*** 132:155-157. (* corresponding author)
7. Jones, M.A., **Morohashi, K.**, Grotewold, E., Harmer, S.L. (2019). Arabidopsis JMJD5/JMJ30 acts independently of LUX ARRHYTHMO within the plant circadian clock to enable temperature compensation. ***Front. Plant Sci.*** 10:57.
8. Ilias, I.A., Negishi, K., Yasue, K., Jomura, N., **Morohashi, K.**, Baharum, S.N., Goh, H.H. (2018). Transcriptome-wide effects of expansin gene manipulation in etiolated *Arabidopsis* seedling. ***J Plant Res.*** 132:159-172.
9. Shibata, M., Breuer, B., Kawamura, A., Clark N.M., Rymen, B., Braidwood, L., **Morohashi, K.**, Busch, W., Benfey, P.N., Sozzani, R., and Sugimoto, K. (2018). GTL1 and DF1 regulate root hair growth through transcriptional repression of *ROOT HAIR DEFECTIVE 6-LIKE 4* in Arabidopsis. ***Development*** 145:dev159707.
10. Siarot, L., Toyazaki, H., Hidaka, M., Kurumisawa, K., Hirakawa, T., **Morohashi, K.**, and Aono, T. (2017). A novel regulatory pathway for K⁺ uptake in the legume symbiont *Azorhizobium caulinodans*: *TrkJ* acts as a repressor of *kdpFABC* operon at high extracellular K⁺ concentration. ***Appl Environ Microbiol.*** 83(19):pii: e01197-17.
11. Matsuoka, J.-I., Ishizuna, F., Kurumisawa, K., **Morohashi, K.**, Ogawa, T., Hidaka, M., Saito, K., Ezawa, T., and Aono, T. (2017). Stringent expression control of pathogenic R-body production in legume symbiont *Azorhizobium caulinodans*. ***MBio*** 8(4):pii: e00715-17.

12. Dhillon, T., **Morohashi, K.**, Stockinger, E.J. (2017). *CBF2A-CBF4B* genomic region copy numbers alongside the circadian clock play key regulatory mechanisms driving expression of *FR-H2 CBFs*. ***Plant Mol. Biol.*** 94:333-347.
13. Iwase, A., Harashima, H., Ikeuchi, M., Rymen, B., Ohnuma, M., Komaki, S., **Morohashi, K.**, Kurata, T., Nakata, M., Ohme-Takagi, M., Grotewold, E., and Sugimoto K. (2017). WIND1 promotes shoot regeneration through transcriptional activation of *ESR1* in Arabidopsis. ***Plant Cell*** 29:54-69.
14. Yang, F., Li, W., Jiang, N., Yu, H., **Morohashi, K.**, Ouma, Z.W., Morales-Mantill, D.E., Cano, F.A.G., Mukundi, E., Prad, L.D., Velazquez, R.A., Valentin, J., Mejía-Guerra, M.K., Gary, J., Doseff, A.I., Grotewold, E. (2017). A maize gene regulatory network for phenolic metabolism. ***Mol. Plant*** 10:498-515.
15. Ikeda, K., Kamisuki, S., Uetake, S., Mizusawa, A., Ota, N., Sasaki, T., Tsukuda, S., Kusayanagi, T., Takakusagi, Y., **Morohashi, K.**, Yamori, T., Dan, S., Shiina, I., Sugawara, F. (2015). Ridaifen G, tamoxifen analog, is a potent anticancer drug working through a combinatorial association with multiple cellular factors. ***Bioorg Med. Chem.*** 23(18):6118-24.
16. Chung, D*, Barker, B.M.*, Carey, C.C.* (*co-first author), Merriman, B., Werner, E.R., Lechner, B.E., Dhingra, S., Cheng, C., Xu, W., Blosser, S.J., **Morohashi, K.**, Mazurie, A., Mitchell, T.K., Haas, H., Aaron P., Mitchell, T., and Cramer, R.A. (2014). ChIP-seq and *in vivo* transcriptome analyses of the *Aspergillus fumigatus* SREBP SrbA reveals new insights into fungal hypoxia adaptation and virulence. ***PLoS Pathogen*** 10:e1004487.
17. Zhiponova, M.K*, **Morohashi, K.***, (*co-first author) Vanhoutte, I., Machemer-Noonan, K., Revalska, M., Van Montagu, M., Grotewold, E., Russinova, E. (2014). HLH/bHLH transcription factor network represses cell elongation in *Arabidopsis* via an apparently incoherent feed-forward loop. ***Proc. Natl. Acad. Sci. USA*** 111:2824-2829.
18. Eveland, A.L., Goldshmidt, A., Pautler, M., **Morohashi, K.**, Liseron-Monfils, C., Lewis, M.W., Kumari, S., Hiraga, S., Yang, F., Unger-Wallace, E., Olson, A., Hake, S., Vollbrecht, E., Grotewold, E., Ware, D*, and Jackson, D*. (2014). Regulatory modules controlling maize inflorescence architecture. ***Genome Res.*** 24:431-43.
19. Arango, D*, **Morohashi, K.***, (*co-first author) Yilmaz, A., Kuramochi, K., Parihar, A., Brahimaj, B., Grotewold, E., and Doseff, A.I. (2013). Molecular basis for the action of a dietary flavonoid revealed by the comprehensive identification of apigenin human targets. ***Proc. Natl. Acad. Sci. USA*** 110:E2153-62.
20. Breuer, C., **Morohashi, K.**, Kawamura, A., Takahashi, N., Ishida, T., Umeda, M., Grotewold, E., and Sugimoto, K. (2012). Transcriptional repression of the APC/C activator CCS52A1 contributes to the active termination of cell growth. ***EMBO J.*** 31:4488-4501.

21. Sharma, M., Chai, C., **Morohashi, K.**, Grotewold, E., Snook, M.E., and Chopra, S. (2012). Expression of flavonoid 3'-hydroxylase is controlled by P1 the regulator of 3-deoxyflavonoid biosynthesis in maize. ***BMC Plant Biology* 12**:196.
22. **Morohashi, K.**, Casas, M.I., Falcone Ferreyra, L., Mejía-Guerra, M.K., Pourcel, L., Yilmaz, A., Feller, A., Carvalho, B., Emilianid, J., Rodriguez, E., Pellegrinet, S., McMullen, M., Casati, P., and Grotewold, E. (2012). A genome-wide regulatory framework identifies maize *Pericarp Color1* (*P1*) controlled genes. ***Plant Cell* 24**: 2745-2764.
23. Bolduc, N., Yilmaz, A., Mejia-Guerra, M.K., **Morohashi, K.**, O'Connor, D., Grotewold, E., and Hake, S. (2012). Unraveling the KNOTTED1 regulatory network in maize meristems. ***Genes & Dev.* 26**: 1685-1690. [**F1000 recommendation**]
24. Mejia-Guerra, M.K., Pomeranz, M., **Morohashi, K.**, and Grotewold, E. (2012). From plant gene regulatory grids to network dynamics. ***Biochim Biophys Acta.* 1819**: 454-65.
25. Takami, M., Takakusagi, Y., Kuramochi, K., Tsukuda, S., Aoki, S., **Morohashi, K.**, Ohta, K., Kobayashi, S., Sakaguchi, K., and Sugawara, F. (2011). A screening of a library of T7 phage-displayed peptide identifies E2F-4 as an etoposide-binding protein. ***Molecules.* 16**: 4278-94.
26. **Morohashi, K.*.**, Sahara, H., Watashi, K*, (*co-first author) Iwabata, K., Sunoki, T., Kuramochi, K., Takakusagi, K., Miyashita, H., Sato, N., Tanabe, A., Shimotohno, K., Kobayashi, S., Sakaguchi, K., and Sugawara, F. (2011). Cyclosporin A associated helicase-like protein facilitates the association of Hepatitis C Virus RNA polymerase with its cellular cyclophilin B. ***PLoS ONE* 6(4)**: e18285.
27. Xie, Z., Lee, E. -K., Lucas, J.R., **Morohashi, K.**, Li, D., Murray, J.A.H., Sack, F.D., and Grotewold, E. (2010). Regulation of stomatal lineage cell proliferation by the *Arabidopsis* MYB FOUR LIPS via direct targeting of core cell cycle genes. ***Plant Cell* 22**: 2306-21.
28. Ferreyra, M. L., Rius, S., Emiliani, J., Pourcel, L., Feller, A., **Morohashi, K.**, Casati, P., and Grotewold, E. (2010). Cloning and characterization of a UV-B inducible maize flavonol synthase. ***Plant J.* 62**: 77-91.
29. **Morohashi, K.**, Xie, Z., and Grotewold, E. (2009). Gene-specific and genome-wide ChIP approaches to study plant transcriptional networks. ***Methods in Molecular Biology.*** In *Plant Systems Biology*. Belostotsky, D. (ed) Humana Press , NJ. 553: 3-12.
30. **Morohashi, K** and Grotewold, E. (2009). A Systems Approach Reveals Regulatory Circuitry for *Arabidopsis* Trichome Initiation by the GL3 and GL1 Selectors. ***PLoS Genetics* 5(2)**: e1000396.
31. Zhao, M., **Morohashi, K.**, Hatlestad, G., Grotewold, E., and Lloyd, A. (2008). The TTG1-bHLH-MYB complex controls trichome cell fate and patterning through direct targeting of regulatory loci. ***Development.* 135**: 1991-1999.

32. Aoki, S., **Morohashi, K.**, Sunoki, T., Kuramochi, K., Kobayashi, S., and Sugawara, F. (2007). Screening of paclitaxel-binding molecules from a library of random peptides displayed on T7 phage particles using paclitaxel-photoimmobilized resin. *Bioconjugate Chem.* **18**: 1981-1986.
33. **Morohashi, K.***, Zhao, M*, Yang, M* (co-first author), Nguyen, B., Read, B., Lloyd, A., Lamb, R., and Grotewold, E. (2007). Participation of the *Arabidopsis* basic helix-loop-helix factor GL3 in trichome initiation regulatory events. *Plant Physiol.* **145**: 736-746.
34. Hernandez*, J. M., Feller*, A., **Morohashi, K*** (co-first author), Frame, K., and Grotewold, E. (2007). The basic helix-loop-helix domain of maize R links transcriptional regulation and histone modifications by recruitment of an EMSY-related factor. *Proc. Natl. Acad. Sci. USA.* **104**: 17222-17227.
35. Asada, M., Bayarmaa, G.-A., **Morohashi, K.**, and Hiratsuka, K. (2007). Expression and subcellular localization of pre-rRNA processing factor homologues in higher plants. *Plant Biotechnol.* **24**: 301-306.
36. Saotome, A., Kimura, S., Mori, Y., Uchiyama, Y., **Morohashi, K.**, and Sakaguchi, K. (2006). Characterization of four RecQ homologues from rice (*Oryza sativa* L. cv. Nipponbare). *Biochem. Biophys. Res. Commun.* **345**: 1283-1291.
37. **Morohashi, K***, Arai, T* (co-first author), Saito, S., Watanabe, M., Sakaguchi, K., and Sugawara, F. (2006). A high-throughput phage display screening method using a combination of real-time PCR and affinity chromatography. *Comb. Chem. High Throughput Screen.* **9**: 55-61.
38. Takakusagi, Y., Ohta, K., Kuramochi, K., **Morohashi, K.**, Kobayashi, S., Sakaguchi, K., and Sugawara, F. (2005). Synthesis of a biotinylated camptothecin derivative and determination of the binding sequence by T7 phage display technology. *Bioorg. Med. Chem. Lett.* **15**: 4846-4849.
39. **Morohashi, K.**, Yoshino, A., Yoshimori, A., Saito, S., Tanuma, S., Sakaguchi, K., and Sugawara, F. (2005). Identification of a drug target motif: an anti-tumor drug NK109 interacts with a PNxxxxP. *Biochem. Pharm.* **70**: 37-46.
40. **Morohashi, K.**, Minami, M., Takase, H., Hotta, Y., and Hiratsuka, K. (2003). Isolation and characterization of a novel GRAS gene that regulates meiosis-associated gene expression. *J. Biol. Chem.* **278**: 20865-20873.
41. Bayarmaa, G.-A., **Morohashi, K.**, Takase, H., and Hiratsuka, K. (2003). Identification of novel microsporogenesis-associated genes encoding proteins with a nuclear localization signal. *Plant Biotechnol.* **20**: 137-143.
42. **Morohashi, K.**, Takase, H., Hotta, Y., and Hiratsuka, K. (2000). Large-scale sequencing of meiosis-associated genes from a cDNA library of lily microsporocytes. *Plant Biotechnol.* **17**: 131-135.
43. Mizushina, Y., Yagi, H., Tanaka, N., Kurosawa, T., Seto, H., Katsumi, K., Onoue, M., Ishida, H., Iseki, A., Nara, T., **Morohashi, K.**, Horie, T., Onomura, Y., Narusawa, M., Aoyagi, N., Takami, K., Yamaoka, M., Inoue, Y., Matsukage, A., Yoshida, S., and Sakaguchi, K.

(1996). Screening of inhibitor of eukaryotic DNA polymerases produced by microorganisms. *J. Antibiot.* (Tokyo). **49**: 491-492.

INVITED PUBLICATIONS, BOOK CHAPTERS AND REVIEWS

Mejia-Guerra, M.K., Pomeranz, M.C., **Morohashi, K.**, and Grotewold, E. (2012). From Plant Gene Regulatory Grids to Network Dynamics. *Biochimica et Biophysica Acta*. (In press).

Morohashi, K., Xie, Z., and Grotewold, E. (2009) Gene-specific and genome-wide ChIP approaches to study plant transcriptional networks. *Methods in Molecular Biology*. In *Plant Systems Biology*. Belostotsky, D. (ed) Humana Press , NJ. 553, 3-12.

GRANTS and FUNDING

2018	Grant-in-Aid for Scientific Research on Innovative Areas (18H04631), PI: <u>Morohashi, K.</u> , 2018-2019 (total: approx. \$32,500)
2016	Grant-in-Aid for Scientific Research (KAKENHI). PI: <u>Morohashi, K.</u> , 2016-2019 (total: approx. \$44,000)
2016	Japan Agency for Medical Research and Development (AMED). PI: Ohtani, N., Co-PI: <u>Morohashi, K.</u> , Co-PI: Kawada, N. 2017-2019 (total: approx. \$52,000)
2015	Research Fund of Tokyo University of Science. PI: <u>Morohashi, K.</u> , Co-PI: Kuchitsu, K. 2015-2016 (total: approx. \$110,000) <i>#Awarded seven out of approximately 800 faculty members. I was the only associate professor, though others are full professors.</i>
2013	Systems level analysis of Stewart's wilt disease in maize. SEEDS: The OARDC Research Enhancement Competitive Grants Program. PI: Mackey, D., Co-PI: <u>Morohashi, K.</u> , Co-PI: Wang, G.-L. (total: \$100,000)
2003	Kato Memorial Bioscience Grant for International Research Fellowship

HONORS and AWARDS

2014	Outstanding Oral Presentation - ASPB Midwestern Section Annual Meeting
2001 - 2003	Technology Fellowship of NEDO

PATENTS

Hiratsuka, K., Matsuo, N., Sinmyo, A., **Morohashi, K.** (2004/8/20) Japan 2004-241216

"CAP-INDEPENDENT RNA TRANSLATION EFFICIENCY CONTROLLER AND UTILIZATION OF THE SAME". SHINMYO, Atsuhiko, HIRATSUKA, Kazuyuki, MATSUO, Naoko, **MOROHASHI, Kengo**. Publication Number: WO/2006/019194, International Application No.: PCT/JP2005/015589. Publication Date: 23.02.2006.

Sahara, H., Mori, Y., Takahashi, N., Sato, N., Sugawara, F., Sakaguchi, K., **Morohashi, K.**, Iwabata, K., Watashi, K., Shimotohno, K., Kikuchi, K., Miyashita, H. (2007/8/24) Japan 2007-217755

Sahara, H., Mori, Y., Takahashi, N., Sato, N., Sugawara, F., Sakaguchi, K., **Morohashi, K.**, Iwabata, K., Watashi, K., Shimotohno, K., Kikuchi, K., Miyashita, H. (2010/4/10) 08828474.0-2107 PCR/JP2008065015