

CURRICULUM VITAE

PERSONAL INFORMATION

Name: Tsutomu Arie, Ph.D.
Data of Birth: January 25, 1961
Place of Birth: Japan
Sex: Male
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Major field: Plant Pathology

EDUCATION and PROFESSIONAL CARRIER

1984 B.S., Faculty of Agriculture, The University of Tokyo
(Laboratory of Plant Pathology)
1986 M.S., Graduate School of Agriculture, The University of Tokyo
(Laboratory of Plant Pathology)
1989 Ph. D. Graduate School of Agriculture, The University of Tokyo
(Laboratory of Plant Pathology)
1989–1998 Researcher, RIKEN Institute
(1994–1995) Visiting scientist, Cornell University
1998–2000 Senior Researcher, RIKEN Institute
2000– Associate Professor, Faculty of Agriculture, Tokyo University
of Agriculture and Technology (TUAT) (Laboratory of Plant
Pathology)
2011–2016 Professor, Graduate School of Agriculture, Tokyo University of
Agriculture and Technology (TUAT) (Laboratory of Plant
Pathology)
2015–2020 Vice Dean of Graduate School of Agriculture; Advisor of the
President, Tokyo University of Agriculture and Technology
(TUAT)
2017–2020 Distinguished Professor, Graduate School of Agriculture
(Laboratory of Plant Pathology), Tokyo University of
Agriculture and Technology (TUAT)
2019–2020 Vice-President, Tokyo University of Agriculture and
Technology (TUAT)
2020 President of The Phytopathological Society of Japan
2020– Trustee & Vice-President, Professor of Graduate School of
Agriculture (Laboratory of Plant Pathology), Tokyo University
of Agriculture and Technology (TUAT)

AWARDS

- 2010 The Phytopathological Society of Japan Fellowship
'Phylogeny and phytopathogenicity mechanisms of soil borne
Fusarium oxysporum'
- 2019 Pesticide Science Society of Japan Award (on prominent
achievement) '*Fusarium* diseases of cultivated plants, control,
diagnosis, and molecular and genetic studies'

RECENT MAJOR PUBLICATIONS

1. Shinkado S, Saito H, Yamazaki M, Kotera S, Arazoe T, Arie T, Kamakura T (2022) Genome editing using a versatile vector - based CRISPR/Cas9 system in *Fusarium* species. *Sci Rep* 12:16243
2. Ayukawa Y, Asai S, Gan P, Tsushima A, Ichihashi Y, Shibata A, Komatsu K, Rep M, Shirasu K, Arie T (2021) A pair of effectors encoded on a conditionally dispensable chromosome of *Fusarium oxysporum* suppress host-specific immunity. *Com Biol* 4:707
3. Geiser DM, Al-Hatmi AMS, Aoki T, Arie T, Balmas V, Barnes I, Bergstrom GC, Bhattacharyya MK, Blomquist CL, Bowden RL, Brankovics B, Brown DW, Burgess LW, Bushley K, Busman M, Cano-Lira JF, Carrillo JD, Chang H-X, Chen C-Y, Chen W, Chilvers M, Chulze S, Coleman JJ, Cuomo CA, de Beer ZW, de Hoog GS, Del Castillo-Múnera J, Del Ponte EM, Diéguez-Uribeondo J, Di Pietro A, Edel-Hermann V, Elmer WH, Epstein L, Eskalen A, Esposto MC, Everts KL, Fernández-Pavía SP, da Silva GF, Foroud NA, Fourie G, Frandsen RJN, Freeman S, Freitag M, Frenkel O, Fuller KK, Gagkaeva T, Gardiner DM, Glenn AE, Gold SE, Gordon TR, Gregory NF, Gryzenhou M, Guarro J, Gugino BK, Gutierrez S, Hammond-Kosack KE, Harris LJ, Homa M, Hong C-F, Hornok L, Huang J-W, Ilkit M, Jacobs A, Jacobs K, Jiang C, Jiménez-Gasco MM, Kang S, Kasson MT, Kazan K, Kennell JC, Kim H-S, Kistler HC, Kuldau GA, Kulik T, Kurzai O, Laraba I, Laurence MH, Lee T, Lee Y-W, Lee Y-H, Leslie JF, Liew ECY, Lofton LW, Logrieco AF, López-Berges MS, Luque AG, Lysøe E, Ma L-J, Marra RE, Martin FN, Ma SR, McCormick SP, McGee C, Meis JF, Migheli Q, Nor NMIM, Monod M, Moretti A, Mostert D, Mule' G, Munaut F, Munkvold GP, Nicholson P, Nucci M, O'Donnell K, Pasquali M, Pfenning LH, Prigitano A, Proctor RH, Ranque S, Rehner SA, Rep M, Rodríguez-Alvarado G, Rose LJ, Roth MG, Ruiz-Roldán C, Saleh AA, Salleh B, Sang H, Scandiani MM, Scauflaire J, Schmale III DG, Short DPG, Šišić A, Smith JA, Smyth CW, Son H, Spahr E, Stajich JE, Steenkamp E, Steinberg C, Subramaniam R, Suga H, Summerell BA, Susca A, Swett CL, Toomajian C, Torres-Cruz TJ, Tortorano AM, Urban M, Vaillancourt LJ, Vallad GE, van der Lee TAJ, Vanderpool D, van Diepeningen

- AD, Vaughan MM, Venter E, Vermeulen M, Verweij PE, Viljoen A, Waalwijk C, Wallace EC, Walther G, Wang J, Ward TJ, Wickes BL, Wiederhold NP, Wingfield MJ, Wood AKM, Xu J-R, Yang X-B, Yli-Mattila T, Yun S-H, Zakaria L, Zhang H, Zhang N, Zhang SX, Zhang X (2020) Phylogenomic analysis of a 55.1 kb 19-gene dataset resolves a monophyletic *Fusarium* that includes the *Fusarium solani* species complex. *Phytopathology*:10.1094/PHYTO-08-20-0330-LE
4. Saito H, Sasaki M, Nonaka Y, Tanaka J, Tokunaga T, Kato A, Thuy TTT, Vang LV, Tuong LM, Kanematsu S, Suzuki S, Kurauchi K, Fujita N, Teraoka T, Komatsu K, Arie T (2020) Spray-application of non-pathogenic fusaria onto rice flowers controls bakanae disease caused by *Fusarium fujikuroi* in the next plant generation. *Appl Environ Microbiol* 87:e01959-20. Doi:10.1128/AEM.01959-20.
 5. Susilawati L, Iwai N, Komatsu K, Arie T (2021) Biocontrol activity against plant fungal diseases in bacteria isolated from the skin of wild Japanese frogs. *Biol Control* 153:104498 Doi:10.1016/j.biocontrol.2020.104498.
 6. Tsuzuki R, Pintado RMC, Thorndike JAB, Reynoso DLG, Guerra CAA, Abad JCG, Caballero LMA, Zaquinaula MHH, Sierra CU, Cruz OIA, Suna MGE, Sevillano RHB, Arias ICT, Ticona JF, de Baldárrag FC, Pérez ER, Hozumi T, Saito H, Kotera S, Akagi Y, Kodama M, Komatsu K, Arie T (2021). Mutations found in the *Asc1* gene that confer susceptibility to the AAL-toxin in ancestral tomatoes from Peru and Mexico. *Plants* 10:47 Doi:10.3390/plants10010047
 7. Ayukawa Y, Komatsu K, Taga M, Arie T (2018) Cytological karyotyping of *Fusarium oxysporum* by the germ tube burst method (GTBM). *J Gen Plant Pathol* 84:254–261
 8. Nitani T, Akai K, Hasegawa R, Ayukawa Y, Romero Garcia R, Chitose A, Komatsu K, Kikuno H, Natsuaki KT, Arie T (2018) Panama disease of banana occurred in Miyakojima Island, Okinawa, Japan. *J Gen Plant Pathol* 84:165-168
 9. van Dam P, Fokkens L, Ayukawa Y, van der Gragt M, ter Horst A, Brankovics B, Houterman PM, Arie T, Rep M (2017) A mobile pathogenicity chromosome in *Fusarium oxysporum* for infection of multiple cucurbit species. *Sci Rep* 7:9042
 10. Kashiwa T, Kozaki T, Ishii K, Turgeon G, Teraoka T, Komatsu K, Arie T (2017) Sequencing of individual chromosomes of plant pathogenic *Fusarium oxysporum*. *Fungal Genet Biol* 98:46–51
 11. Ayukawa Y, Hanyuda S, Fujita N, Komatsu K, Arie T (2017) Novel loop-mediated isothermal amplification (LAMP) assay with a universal QProbe can detect SNPs determining races in plant pathogenic fungi. *Sci Rep* 7:4253
 12. Kashiwa T, Suzuki T, Sato A, Akai A, Teraoka T, Komatsu K, Arie T (2016) A new biotype of *Fusarium oxysporum* f. sp. *lycopersici* race 2 emerged by a transposon-driven mutation of avirulence gene *AVR1*. *FEMS Microbiol Lett* 363:fnw132
 13. Arazoe T, Miyoshi K, Yamato T, Ohsato S, Arie T, Kuwata S (2015) Tailor-made CRISPR/Cas system for highly efficient targeted gene replacement in the rice blast fungus. *Biotech Bioengineer* DOI 10.1002/bit.25662 (Dec 2015)
 14. Arazoe T, Ogawa T, Miyoshi K, Yamato T, Ohsato S, Sakuma T, Yamamoto T,

- Arie T, Kuwata S (2015) Tailor-made TALEN system for highly efficient targeted gene replacement in the rice blast fungus. *Biotech Bioengineer* 112:1335–1342 (Mar 2015)
3. Inami K1, Kashiwa T, Kawabe M, Onokubo-Okabe A, Ishikawa N, Pérez ER, Hozumi T, Caballero LA, de Baldarrago FC, Roco MJ, Madadi KA, Peever TL, Teraoka T, Kodama M, Arie T (2014) The tomato wilt fungus *Fusarium oxysporum* f. sp. *lycopersici* shares common ancestors with nonpathogenic *F. oxysporum* isolated from wild tomatoes in the Peruvian Andes. *Microbes Environ* 29:200–210
 4. Kaneko I, Iyama-Kadono M, Togashi-Nishigata K, Yamaguchi I, Teraoka T, Arie T (2013) Heterotrimeric G protein β subunit GPB1 and MAP kinase MPK1 regulate hyphal growth and female fertility in *Fusarium sacchari*. *Mycoscience* 54:148–157
 5. Kashiwa T, Inami K, Fujinaga M, Ogiso H, Yoshida T, Teraoka T, Arie T (2013) An avirulence gene homologue in the tomato wilt fungus *Fusarium oxysporum* f. sp. *lycopersici* race 1 functions as a virulence gene in the cabbage yellows fungus *F. oxysporum* f. sp. *conglutinans*. *J Gen Plant Pathol* DOI 10.1007/s10327-013-0471-5
 6. Yamazaki M, Yasuaki Morita, Kashiwa T, Teraoka T, Arie T (2013) *Fusarium proliferatum*, an additional bulb rot pathogen of Chinese chive. *J Gen Plant Pathol* DOI 10.1007/s10327-013-0473-3
 7. Inami K, Yoshioka-Akiyama C, Morita Y, Yamasaki M, Teraoka T, Arie T (2012) A genetic mechanism for emergence of Races in *Fusarium oxysporum* f. sp. *lycopersici*: Inactivation of avirulence gene AVR1 by transposon insertion. *PLoS ONE* 7: e44101
 8. Ashizawa T, Takahashi M, Arai M, Arie T (2012) Rice false smut pathogen, *Ustilaginoidea virens*, invades through small gap at the apex of a rice spikelet before heading. *J Gen Plant Pathol* 78:255–259
 9. Kato A, Miyake T, Nishigata K, Tateishi H, Teraoka T, Arie T (2012) Use of fluorescent proteins to visualize interactions between *Gibberella fujikuroi*, the ‘Bakanae disease’ pathogen, and the biocontrol agent *Talaromyces* sp. KNB-422. *J Gen Plant Pathol* 78:54–61
 10. Kawabe M, Onokubo (Okabe) A, Arimoto Y, Yoshida T, Azegami K, Teraoka T, Arie T (2011) GMC oxidoreductase, a highly expressed protein in a potent biocontrol agent *Fusarium oxysporum* Cong:1-2, is dispensable for biocontrol activity. *J Gen Appl Microbiol* 57:207–217
 11. Stewart JE, Kawabe M, Abdo Z, Arie T, Peever TL (2011) Contrasting codon usage patterns and purifying selection at the mating locus in putatively asexual *Alternaria* fungal species. *PLoS ONE* 6:e20083
 12. Nakajima Y, Saitoh K-i, Arie T, Teraoka T, Kamakura T (2010) Expression specificity of CBP1 is regulated by transcriptional repression during vegetative growth of *Magnaporthe oryzae*. *J Gen Appl Microbiol* 56:437–445
 13. Arie T (2010) Phylogeny and phytopathogenicity mechanisms of soilborne *Fusarium oxysporum*. *J Gen Plant Pathol* 76:403–405

14. Uehara T, Sugiyama S, Matsuura H, Arie T, Masuta C (2010) Resistant and susceptible responses in tomato to cyst nematode are differentially regulated by salicylic acid. *Plant Cell Physiol* 51:1524–1536
15. Aoki K, ..., Arie T (25th of the 31 authors) ... et al. (2010) Large-scale analysis of full-length cDNAs from the tomato (*Solanum lycopersicum*) cultivar Micro-Tom, a reference system for the Solanaceae genomics. *BMC Genomics* 11:210
16. Inami K, Yoshioka C, Hirano Y, Kawabe M, Tsushima S, Teraoka T, Arie T (2010) Real-time PCR for differential determination of the tomato wilt fungus, *Fusarium oxysporum* f. sp. *lycopersici*, and its races. *J Gen Plant Pathol* 76:116–121
17. Izawa M, Takekawa O, Arie T, Teraoka T, Yoshida M, Kimura M, Kamakura T (2009) Inhibition of histone deacetylase causes reduction of appressorium formation in the rice blast fungus *Magnaporthe oryzae*. *J Gen Appl Microbiol* 55:489–498
18. Hirano Y, Arie T (2009) Variation and phylogeny of *Fusarium oxysporum* isolates based on nucleotide sequence of polygalacturonase genes. *Microbe Environ* 24:113–20
19. Aoki N, Moriyama H, Kodama M, Arie T, Teraoka T, Fukuhara T (2009) A novel mycovirus associated with four double-stranded RNAs affects host fungal growth in *Alternaria alternata*. *Virus Res* 140: 179–187

Full list of publications can be seen at

<http://kenkyu-web.tuat.ac.jp/Profiles/4/0000317/profile.html>

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