

CURRICULUM VITAE

Dr. **Harold Corby Kistler**
USDA/ARS Cereal Disease Laboratory
University of Minnesota
1551 Lindig St.
St. Paul, MN 55108 USA

Telephone: (612) 625-9774
FAX: (651) 649-5054
hckist@umn.edu
ORCID 0000-0001-5312-6297

Education

1983	Cornell University Ithaca, New York	Ph.D. Plant Pathology Minors: Genetics and Toxicology
1975	Kent State University Kent, Ohio	B.S. with honors, Biology

Research Experience

1999- present. Research Geneticist and Adjunct Professor, United States Department of Agriculture, Agricultural Research Service, Cereal Disease Laboratory, and Department of Plant Pathology, University of Minnesota, St. Paul, Minnesota, USA.

1997- 1999. Professor, Graduate Program in Plant Molecular and Cellular Biology, University of Florida, Gainesville, Florida, USA.

1991- 1997. Associate Professor, Graduate Program in Plant Molecular and Cellular Biology, University of Florida, Gainesville, Florida, USA.

1992- 1993. Visiting Professor, Department of Botany and Plant Pathology, Oregon State University, Corvallis, Oregon, USA.

1985- 1991. Assistant Professor, Plant Pathology Department, University of Florida, Gainesville, Florida, USA.

1983- 1985. Postdoctoral Research Associate, Department of Plant Pathology, University of Wisconsin, Madison, Wisconsin, USA.

1978- 1983. Graduate Research Assistant, Department of Plant Pathology, Cornell University, Ithaca, New York, USA.

1976-1977. Research Assistant, Department of Biochemistry, School of Medicine, Case Western Reserve University, Cleveland, Ohio, USA.

Affiliations, Awards and Service

American Association for the Advancement of Science (AAAS). Member 1981-present.
AAAS Fellow, 2015.

American Phytopathological Society (APS). Member 1981-present.
APS Fellow, 2004.
APS Genetics Committee 1992- 1995, 2009-2011.
APS Physiology, Biochemistry, and Molecular Biology Committee 1992-1995. Chairman, 1995.
APS Mycology Committee 1997-2000, 2009-2011.
Associate Editor, Phytopathology 1994-1997.
Associate Editor, Molecular Plant-Microbe Interactions 1997-1999.

Federal Executive Board of Minnesota, Civil Servant of the Year Award, 2003.

Genetics Society of America, Member 2013-present.

Microbiology Society, Editor, Microbiology 2017-2020.

Mycological Society of America. Member, 1994 - present.
MSA Councilor, Genetics/Molecular Biology, 2007-2009.
MSA liaison representative to AAAS, 2016-2019.

International Society for Plant Pathology, Fusarium committee, chair, 2003-2008.

University of Florida (UF) Faculty Senate, 1987-1988.
UF Award of Excellence for Graduate Research. 1998.

University of Minnesota Supercomputing Institute. Associate Fellow, 2011 – present.

Recent publications (2009-2018):

Tang, G., Chen, Y., Xu, J.-R., **Kistler, H.C.**, and Ma, Z. 2018. The fungal myosin I is essential for *Fusarium* toxosome formation. PLoS Pathogens 14(1) e1006827.

Lofgren, L.A., LeBlanc, N.R., Certano, A.K., Nachtigall, J., LaBine, K.M., Riddle, J., Broz, K., Dong, Y., Bethan, B., Kafer, C.W., **Kistler, H.C.** 2018. *Fusarium graminearum*: Pathogen or endophyte of North American grasses? New Phytologist 217: 1203–1212 doi: 10.1111/nph.14894.

Lofgren, L., Riddle, J., Dong, Y., Kuhnem, P.R., Cummings, J.A., Del Ponte, E.M., Bergstrom, G.C., **Kistler, H.C.** 2018. A high proportion of NX-2 genotype strains are found among *Fusarium graminearum* isolates from northeastern New York State. European Journal of Plant Pathology 150: 791-796. doi.org/10.1007/s10658-017-1314-6

LeBlanc, N., Essarioui, A., Kinkel, L., **Kistler, H.C.** 2017. Phylogeny, plant species, and plant diversity influence carbon use phenotypes among *Fusarium* populations in the rhizosphere microbiome. Phytobiomes 1: 150-157.

Jelinski, N.A., Broz, K., Jonkers, W., Ma, L.-J., **Kistler, H.C.** 2017. Effector gene suites in some soil isolates of *Fusarium oxysporum* are not sufficient predictors of vascular wilt in tomato. Phytopathology 107: 842-851.

Boenisch, M.J., Broz, K.L., Purvine, S.O., Chrisler, W.B., Nicora, C.D., Connolly, L.R., Freitag, M., Baker, S.E., **Kistler, H.C.** 2017. Structural reorganization of the fungal endoplasmic

reticulum upon induction of mycotoxin biosynthesis. *Scientific Reports* doi: 10.1038/srep44296

LeBlanc, N., Kinkel, L.L., **Kistler, H.C.**, 2017. Plant diversity and plant identity influence *Fusarium* communities in soil. *Mycologia* 109:128-139. doi: 10.1080/00275514.2017.1281697.

Essarioui, A., LeBlanc, N., **Kistler, H.C.**, Kinkel, L.L., 2017. Plant community richness mediates inhibitory interactions and resource competition between *Streptomyces* and *Fusarium* populations in the rhizosphere. *Microbial Ecology*, 1-11.

van Dam, P., Fokkens, L., Schmidt, S.M., Linmans, J.H.J., **Kistler, H.C.**, Ma, L.-J., Rep, M. 2016. Effector profiles distinguish *formae speciales* of *Fusarium oxysporum*. *Environmental Microbiology* 18, 4087-4102.

Essarioui, A., **Kistler, H. C.** and Kinkel, L.L. 2016. Nutrient use preferences among soil *Streptomyces* suggest greater resource competition in monoculture than polyculture plant communities. *Plant and Soil*: doi: 10.1007/s11104-016-2968-0.

Ipcho, S., Sundelin, T., Erbs, G., **Kistler, H.C.**, Newman, M.-A., Olsson, S. 2016. Fungal Innate immunity induced by bacterial Microbe-Associated Molecular Patterns (MAMPs). *G3: Genes|Genomes|Genetics* 6: 1585-1595.

Guo, L., Zhao, G., Xu, J.-R., **Kistler, H.C.**, Gao, L., Ma, L.-J. 2016. Compartmentalized gene regulatory networks of a pathogenic fungus *Fusarium graminearum*. *New Phytologist* 211: 527–541.

Williams, A.H., Sharma, M., Thatcher, L.F., Azam, S., Hane, J.K., Sperschneider, J., Kidd, B.N., Ghosh, R., Garg, G., Lichtenzveig, J., **Kistler, H.C.**, Shea, T., Young, S., Buck, S.G., Kamphuis, L.G., Saxena, R., Pande, S., Ma, L.-J., Varshney, R.K., Singh, K.B. 2016. Comparative genomics and prediction of conditionally dispensable sequences in legume-infecting *Fusarium oxysporum formae speciales* facilitates identification of candidate effectors. *BMC Genomics* 17:191.

Guo, L., Breakspear, A., Zhao, G., Gao, L., **Kistler, H.C.**, Xu, J.-R., Ma, L.-J. 2016. Conservation and divergence of the cyclic adenosine monophosphate–protein kinase A (cAMP–PKA) pathway in two plant-pathogenic fungi: *Fusarium graminearum* and *F. verticillioides*. *Molecular Plant Pathology* 17: 196-209.

Hofstad, A.N., Nussbaumer, T., Akhunov, E., Shin, S., Kugler, K.G., **Kistler, H.C.**, Mayer, K.F.X., Muehlbauer, G.J. 2016. Examining the transcriptional response in wheat *Fhb1* near-isogenic lines to *Fusarium graminearum* infection and deoxynivalenol treatment. *The Plant Genome* 9 doi: 10.3835/plantgenome2015.05.0032.

Kelly, A.C., Clear, R.M., O'Donnell, K., McCormick, S., Turkington, T.K., Tekauz, A., Gilbert, J., **Kistler, H.C.**, Busman, M., and Ward, T.J., 2015. Diversity of fusarium head blight populations and trichothecene toxin types reveals regional differences in pathogen composition and temporal dynamics. *Fungal Genetics and Biology* 82: 22-31. doi:10.1016/j.fgb.2015.05.016

- Liang, J., Lofgren, L., Ma, Z., Ward, T.J. and **Kistler, H.C.** 2015. Population subdivision of *Fusarium graminearum* from barley and wheat in the upper Midwestern United States. *Phytopathology* 105: 1466 – 1474. <http://dx.doi.org/10.1094/PHYTO-01-15-0021-R>.
- Song, Z., Schlatter, D., Kennedy, P., Kinkel, L.L., **Kistler, H.C.**, Nguyen, N., Bates, S.T. 2015. Effort versus reward: preparing samples for fungal community characterization in high-throughput sequencing surveys of soils. *PLoS ONE* doi: 10.1371/journal.pone.0127234.
- Kistler, H.C.** and Broz, K. 2015. Cellular compartmentalization of secondary metabolism. *Frontiers in Microbiology* 6:68 doi:10.3389/fmicb.2015.00068.
- Varga, E., Wiesenberger, G., Hametner, C., Ward, T. J., Dong, Y., Schöfbeck, D., McCormick, S., Broz, K., Stückler, R., Schuhmacher, R., Krska, R., **Kistler, H. C.**, Berthiller, F. and Adam, G. 2015. New tricks of an old enemy: Isolates of *Fusarium graminearum* produce a novel type A trichothecene mycotoxin. *Environmental Microbiology* doi: 10.1111/1462-2920.12718.
- LeBlanc, N., Kinkel, L.L. and **Kistler, H.C.** 2015. Soil fungal communities respond to grassland plant community richness and soil edaphics. *Molecular Ecology* 70: 188-195. doi:10.1007/s00248-014-0531-1
- Liang, J., Xayamongkhon, H., Broz, K., Dong, Y., McCormick, S.P., Abramova, S., Ward, T.J., Ma, Z.H., **Kistler, H.C.** 2014. Temporal dynamics and population genetic structure of *Fusarium graminearum* in the upper Midwestern United States. *Fungal Genetics and Biology* 73: 83-92.
- Lysøe, E., Harris, L.J., Walkowiak, S., Subramaniam, R., Divon, H.H., Riiser, E.S., Llorens, C., Gabaldón, T., **Kistler, H.C.**, Jonkers, W., Kolseth, A.-K., Nielsen, K.F., Thrane, U., Frandsen, R.J.N. 2014. The genome of the generalist plant pathogen *Fusarium avenaceum* is enriched with genes involved in redox, signaling and secondary metabolism. *PLoS ONE* 9(11): e112703. doi:10.1371/journal.pone.0112703.
- Ma, L.-J., Shea, T., Young, S., Zeng, Q., **Kistler, H.C.** 2014. Genome sequence of *Fusarium oxysporum* f. sp. *melonis* (26406), a fungus causing wilt disease on melon. *Genome Announcements* 2 (4) e00730-14. doi: 10.1128/genomeA.00730-14
- Jonkers, W., Xayamongkhon, H., Haas, M., Olivain, C., van der Does, H.C., Broz, K., Rep, M., Alabouvette, C., Steinberg, C., **Kistler, H.C.** 2014. *EBRI* genomic expansion and its role in virulence of *Fusarium* species. *Environmental Microbiology* doi:10.1111/1462-2920.12331.
- Menke, J., Weber, J., Broz, K., **Kistler, H.C.** 2013. Cellular development associated with induced mycotoxin synthesis in the filamentous fungus *Fusarium graminearum*. *PLoS ONE* 8(5): e63077.
- Ma, L.-J., **Kistler, H.C.**, Rep, M. 2013. Evolution of plant pathogenicity in *Fusarium* species. In *Evolution of Virulence in Eukaryotic Microbes*, ed. L.D. Sibley, B.J. Howlett, J. Heitman: John Wiley & Sons, Inc.

Kistler, H.C., Rep, M., Ma, L.-J. 2013. Structural dynamics of *Fusarium* genomes In: *Fusarium: genomics, molecular and cellular biology*. Eds. Brown, D.W. and Proctor, R.H., Caister Academic Press, Norwich, United Kingdom.

Geiser, D.M., Aoki, T., Bacon, C.W., Baker, S.E., Bhattacharayya, M.B., Brandt, M., Burgess, L.W., Chulze, S., Coleman, J.J., Correll, J.C., Covert, S.F., Crous, P.W., Cuomo, C.A., de Hoog, G.S., Di Pietro, A., Elmer, W.H., Epstein, L., Frandsen, R.J.N., Freeman, S., Gagkaeva, T., Glenn, A.E., Gordon, T.R., Gregory, N.F., Hammond-Kosack, K.E., Hanson, L.E., Jimenez-Gasco, M.D., Kang, S., **Kistler, H.C.**, Kuldau, G.A., Leslie, J.F., Logrieco, A., Lu, G., Lysoe, E., Ma, L., McCormick, S.P., Migheli, Q., Moretti, A., Munaut, F., O'Donnell, K., Pfenning, L.H., Ploetz, R.C., Proctor, R.H., Rehner, S.A., Robert, V.A.R.G., Rooney, A.P., Salleh, B., Scandiani, M.M., Scauflaire, J., Short, D.P.G., Steenkamp, E.T., Suga, H., Summerell, B.A., Sutton, D.A., Thrane, U., Trail, F., van Diepeningen, A., VanEtten, H.D., Viljoen, A., Waalwijk, C., Ward, T.J., Wingfield, M.J., Xu, J., Yang, X., Yli-Mattila, T., Zhang, N., 2013. Letter to the editor: One fungus, one name: Defining the genus *Fusarium* in a scientifically robust way that preserves longstanding use. *Phytopathology* 103:400-408.

Menke, J., Dong, Y., and **Kistler, H.C.** 2012. *Fusarium graminearum* Tri12p influences virulence to wheat and trichothecene accumulation. *Molecular Plant-Microbe Interactions* 25:1408–1418.

Aoki, T., Ward, T.J., **Kistler, H.C.**, O'Donnell, K. 2012. Systematics, phylogeny and trichothecene mycotoxin potential of *Fusarium* head blight pathogens. *Mycotoxins* 62: 91- 102.

Jonkers, W., Dong, Y., Broz, K., **Kistler, H.C.** 2012. The Wor1-like protein Fgp1 regulates pathogenicity, toxin synthesis and reproduction in the phytopathogenic fungus *Fusarium graminearum*. *PLoS Pathogens* 8(5): e1002724.

Jonkers, W., Rodriguez Estrada, A.E., Lee, K., Breakspear, A., May, G., **Kistler, H.C.** 2012. Metabolome and transcriptome of the interaction between *Ustilago maydis* and *Fusarium verticillioides* *in vitro*. *Applied and Environmental Microbiology* 78: 3656-3667.

Rodriguez Estrada, A.E., Jonkers, W., **Kistler, H.C.** and May, G. 2012. Interactions between *Fusarium verticillioides*, *Ustilago maydis*, and *Zea mays*: an endophyte, a pathogen, and their shared plant host. *Fungal Genetics and Biology* 49: 578–587.

Ma, L.-J., **Kistler, H.C.** and Rep, M. 2012. Evolution of plant pathogenicity in *Fusarium* species. In: *Evolution of Virulence in Eukaryotic Microbes*. eds Sibley, L.D., Howlett, B.J. and Heitman, J. pp 485-500, John Wiley & Sons Limited.

Sarver, B.A., Ward, T.J., Gale, L.R., Broz, K., **Kistler, H.C.**, Aoki, T., Nicholson, P., Carter, J., O'Donnell, K. 2011. Novel *Fusarium* head blight pathogens from Nepal and Louisiana revealed by multilocus genealogical concordance. *Fungal Genetics and Biology* 48: 1096- 1107.

Wang, C., Zhang, S., Hou, R., Zhao, Z., Zheng, Q., Xu, Q., Zheng, D., Wang, G., Liu, H., Zhou, X., Ma, J.-W., **Kistler, H.C.**, Kang, Z., and Xu, J.-R. 2011. Functional analysis of the kinome of

the wheat scab fungus *Fusarium graminearum*. PLoS Pathogens 7 (12): e1002460.

Rodriguez Estrada, A.E., Hegeman, A., **Kistler, H.C.** and May, G. 2011. *In vitro* interactions between *Fusarium verticillioides* and *Ustilago maydis* through real-time PCR and metabolic profiling. Fungal Genetics and Biology 48: 874-885.

Lysøe, E., Seong, K., and **Kistler, H.C.** 2011. The transcriptome of *Fusarium graminearum* during the infection of wheat. Molecular Plant-Microbe Interactions 24:995-1000.

Breakspear, A., Pasquali, M., Broz, K., Dong, Y. and **Kistler, H.C.** 2011. *Npc1* is involved in sterol trafficking in the filamentous fungus *Fusarium graminearum*. Fungal Genetics and Biology. 48: 725-730.

Li, Y., Wang, C., Liu, W., Wang, G., Kang, Z., **Kistler, H.C.**, and Xu, J.-R. 2011. The *HDF1* histone deacetylase gene is important for conidiation, sexual reproduction, and pathogenesis in *Fusarium graminearum*. Molecular Plant-Microbe Interactions 24: 487–496.

Lysøe, E., Pasquali, M., Breakspear, A., and **Kistler, H.C.** 2011. The transcription factor *FgStuAp* influences spore development, pathogenicity and secondary metabolism in *Fusarium graminearum*. Molecular Plant-Microbe Interactions 24:54-67.

Gale, L.R., Harrison, S., Ward, T.J., O'Donnell, K., Milus, G., Gale, S.W. and **Kistler, H.C.** 2011. Nivalenol type populations of *Fusarium graminearum* and *F. asiaticum* are prevalent on wheat in southern Louisiana. Phytopathology 101:124-134.

Wang, Y., Liu, W., Hou, Z., Wang, C., Zhou, X., Jonkers, W., Ding, S., **Kistler, H. C.** and Xu, J.-R.. 2011. A novel transcriptional factor important for pathogenesis and ascosporeogenesis in *Fusarium graminearum*. Molecular Plant-Microbe Interactions 24:118-128.

Rep, M. and **Kistler H.C.** 2010. The genomic organization of plant pathogenicity in *Fusarium* species. Current Opinion in Plant Biology. 13:420-426. doi: 10.1016/j.pbi.2010.04.004.

Ma, L.-J., van der Does, C., Borkovich, K., Coleman, J., Daboussi, M.-J., Di Pietro, A., Dufresne, M., Freitag, M., Grabherr, M., Henrissat, B., Houterman, P.M., Kang, S., Shim, W.-B., Woloshuk, C., Xie, X., Xu, J.-R., Antoniw, J., Baker, S.E., Bluhm, B.H., Breakspear, A., Brown, D., Butchko, R., Chapman, S., Coulson, R., Coutinho, P.M., Danchin, E., Diener, A., Gale, L.R., Gardiner, D., Goff, S., Hammond-Kosack, K., Hilburn, K., Hua-Van, A., Jonkers, W., Kazan, K., Kodira, C., Koehrsen, M., Kumar, L., Lee, Y.-H., Li, L., Manners, J., Miranda-Saavedra, D., Mukherjee, M., Park, G., Park, J., Park, S.-Y., Proctor, R., Regev, A., Ruiz-Roldan, C., Sain, D., Sakthikumar, S., Sykes, S., Schwartz, D., Turgeon, B.G., Wapinski, I., Yoder, O., Young, S., Zeng, Q., Zhou, S., Galagan, J., Cuomo, C., **Kistler, H.C.** and Rep, M. 2010. Comparative genomics reveals mobile pathogenicity chromosomes in *Fusarium*. Nature 464: 367-373. doi: 10.1038/nature08850

Kumar, L., Breakspear, A., **Kistler, C.**, Ma, L.-J. and Xie, X. 2010. Systematic discovery of regulatory motifs in *Fusarium graminearum* by comparing four *Fusarium* genomes. BMC

Genomics 2010, 11:208 DOI:10.1186/1471-2164-11-208.

O'Donnell, K., Gueidan, C., Sink, S., Johnston, P.R., Crous, P.W., Glenn, A., Riley, R., Zitomer, N.C., Colyer, P., Waalwijk, C., van der Lee, T., Moretti, A., Kang, S., Kim, H.-S., Geiser, D.M., Juba, J.H., Baayen, R.P., Cromey, M.G., Bithel, S., Sutton, D.A., Skovgaard, K., Ploetz, R., **Kistler, H.C.**, Elliott, M., Davis, M., Sarver, B.A.J. 2009. A two-locus DNA sequence database for typing plant and human pathogens within the *Fusarium oxysporum* species complex. *Fungal Genetics and Biology* 46:936 - 948.

Yli-Mattila, T., Gagkaeva, T., Ward, T.J., Aoki, T., **Kistler, H.C.**, and O'Donnell, K. 2009. A novel Asian clade within the *Fusarium graminearum* species complex includes a newly discovered cereal head blight pathogen from the Russian Far East. *Mycologia* 101: 841 - 852.

Ding, S., Mehrabi, R., Koten, C., Kang, Z., Wei, Y., Seong, K., **Kistler, H.C.** and Xu, J.-R. 2009. The transducin beta like gene FTL1 is essential for pathogenesis in *Fusarium graminearum*. *Eukaryotic Cell* 8: 867-876.

Seong, K., Pasquali, M., Song, J., Hilburn, K., McCormick, S., Dong, Y., Xu, J.-R. and **Kistler, H.C.** 2009. Global gene regulation by *Fusarium* transcription factors *Tri6* and *Tri10* reveals adaptations for toxin biosynthesis. *Molecular Microbiology* 72: 354-367.