

Tatum Mortimer

Curriculum Vitae

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Education

- 2012–2017 **Ph.D., Microbiology**, *University of Wisconsin-Madison*, Madison, Wisconsin.
Microbiology Doctoral Training Program, Graduated May 2017
- 2008–2012 **B.S., Microbiology and Genetics**, *University of Georgia*, Athens, Georgia.
Summa Cum Laude, Highest Honors, Graduated May 2012

Research Experience

- 2017–present **Postdoctoral Research Fellow**, *Grad Lab*, Department of Immunology and Infectious Diseases, Harvard T.H. Chan School of Public Health, Boston, Massachusetts.
Genomic epidemiology, transmission, antibiotic resistance of *Neisseria gonorrhoeae*
- 2012–2017 **Graduate Research Assistant**, *Pepperell Lab*, Department of Medical Microbiology and Immunology, University of Wisconsin-Madison, Madison, Wisconsin.
Thesis: Roles of Recombination and Selection in Shaping Pathogenic Bacterial Genomes
- 2009–2012 **Undergraduate Research Assistant**, *Sanchez Lab*, Department of Infectious Diseases, University of Georgia, Athens, Georgia.
Molecular epidemiology of *Staphylococcus aureus* in companion animals

Publications

- 2002 Ma KC, **Mortimer TD**, Duckett MA, Hicks AL, Wheeler NE, Sanchez-Buso L, Grad YH. Increased power from conditional bacterial genome-wide association identifies macrolide resistance mutations in *Neisseria gonorrhoeae*. *Nature Communications* 11, 5374.
- 2020 Ma KC*, **Mortimer TD***, Grad YH. Efflux Pump Antibiotic Binding Site Mutations Are Associated with Azithromycin Nonsusceptibility in Clinical *Neisseria gonorrhoeae* Isolates. *mBio* 11.
*contributed equally
- 2020 **Mortimer TD**, Pathela P, Crawley A, Rakeman JL, Lin Y, Harris SR, Blank S, Schillinger JA, Grad YH. The distribution and spread of susceptible and resistant *Neisseria gonorrhoeae* across demographic groups in a major metropolitan center. *Clinical Infectious Diseases*. <https://doi.org/10.1093/cid/ciaa1229>

- 2020 Ma KC*, **Mortimer TD***, Hicks AL, Wheeler NE, SÃ¡nchez-BusÃ¡s L, Golparian D, Taiaroa G, Rubin DHF, Wang Y, Williamson DA, Unemo M, Harris SR, Grad YH. Adaptation to the cervical environment is associated with increased antibiotic susceptibility in *Neisseria gonorrhoeae*. *Nature Communications* 11, 4126.
*contributed equally
- 2020 Hicks AL, Kissler SM, **Mortimer TD**, Ma KC, Taiaroa G, Ashcroft M, Williamson DA, Lipsitch M, Grad YH. Targeted surveillance strategies for efficient detection of novel antibiotic resistance variants. *eLife* 9, e56367.
- 2020 Bohr LL, **Mortimer TD**, Pepperell CS. Lateral gene transfer shapes diversity of *Gardnerella* spp. *Front Cell Infect Microbiol*.
- 2020 Palace, SG, Wang Y, Rubin DHF, Welsh MA, **Mortimer TD**, Cole K, Eyre DW, Walker S, Grad YH. RNA polymerase mutations cause cephalosporin resistance in clinical *Neisseria gonorrhoeae* isolates. *eLife* 9, e51407.
- 2018 Doroshenko A, Pepperell CS, Heffernan C, Egedahl ML, **Mortimer TD**, Smith TM, Busan HE, Tyrrell GJ, Long R. Epidemiological and genomic determinants of tuberculosis outbreaks in First Nations communities in Canada. *BMC Medicine* 16(1):128.
- 2018 **Mortimer TD**, Grad YH. Applications of genomics to slow the spread of multidrug-resistant *Neisseria gonorrhoeae*. *Annals of the New York Academy of Sciences*.
- 2018 **Mortimer TD**, Weber AM, Pepperell CS. Signatures of Selection at Drug Resistance Loci in *Mycobacterium tuberculosis*. *mSystems* 3:e00108-17.
- 2017 **Mortimer TD**, Annis DS, O'Neill MB, Bohr LL, Smith TM, Poinar HN, Mosher DF, Pepperell CS. Adaptation in a Fibronectin Binding Autolysin of *Staphylococcus saprophyticus*. *mSphere* 2:e00511-17.
- 2017 **Mortimer TD**, Weber AM, Pepperell CS. Evolutionary Thrift: Mycobacteria Repurpose Plasmid Diversity during Adaptation of Type VII Secretion Systems. *Genome Biol Evol* 9:398-413.
- 2017 Devault AM*, **Mortimer TD***, Kitchen A, Kiesewetter H, Enk JM, Golding GB, Southon J, Kuch M, Duggan AT, Aylward W, Gardner SN, Allen JE, King AM, Wright G, Kuroda M, Kato K, Briggs DEG, Fornaciari G, Holmes EC, Poinar HN, Pepperell CS. A molecular portrait of maternal sepsis from Byzantine Troy. *eLife* 6:e20983.
*contributed equally
- 2016 Dang UJ, Devault AM, **Mortimer TD**, Pepperell CS, Poinar HN, Golding GB. 2016. Estimation of Gene Insertion/Deletion Rates with Missing Data. *Genetics*:genetics.116.191973.
- 2015 O'Neill MB, **Mortimer TD**, Pepperell CS. Diversity of *Mycobacterium tuberculosis* across Evolutionary Scales. *PLoS Pathog* 11:e1005257.
- 2014 **Mortimer TD**, Pepperell CS. Genomic Signatures of Distributive Conjugal Transfer among Mycobacteria. *Genome Biol Evol* 6:2489-2500.

- 2013 Moncla LH, Ross TM, Dinis JM, Weinfurter JT, **Mortimer TD**, Shultz-Darken N, Brunner K, Capuano S, Boettcher C, Post J, Johnson M, Bloom C, Weiler A, Friedrich T. A novel nonhuman primate model for influenza transmission. PLoS ONE 8:e78750.

Preprints

- 2020 Yahara K, Ma KC, **Mortimer TD**, Shimuta K, Nakayama S, Hirabayashi A, Suzuki M, Jinnai M, Ohya H, Kuroki T, Watanabe Y, Yasuda M, Deguchi T, Eldholm V, Harrison OB, Maiden MCJ, Grad YH, Ohnishi M. Emergence and evolution of antimicrobial resistance genes and mutations in *Neisseria gonorrhoeae*. bioRxiv.
- 2020 Sanchez-Buso L, Yeats CA, Taylor B, Goater R, Underwood A, Abudahab K, Argimon S, Ma KC, **Mortimer TD**, Cole MJ, Grad YH, Martin I, Raphael BH, Shafer WM, Spiteri G, Town K, Wi T, Harris SR, Unemo M, Aanensen DM. A community-driven resource for genomic surveillance of *Neisseria gonorrhoeae* at Pathogenwatch. bioRxiv.

Fellowships

- 2019-2021 National Institute of Allergy and Infectious Diseases NRSA Individual Postdoctoral Fellowship (F32)
- 2014-2017 National Science Foundation Graduate Research Fellowship
- 2012-2013 National Institutes of Health Molecular Biosciences Training Grant (T32) Recipient
- 2008-2012 University of Georgia Foundation Fellowship

Awards and Honors

- 2016 UW-Madison Graduate School Student Research Travel Grants Conference Presentation Award
- 2013 SISIMID Tuition and Travel Scholarship
- 2012 Phi Beta Kappa Honors Society
- 2011 CURO Scholar Distinction
- 2008 Robert C. Byrd Honors Scholarship

Invited Talks

- 2020 **Mathematics and Statistics of Genomic Epidemiology**, *Oral Presentation*, Virtual.
"Adaptation to the cervical environment is associated with increased antibiotic susceptibility in *Neisseria gonorrhoeae*."

Conference Presentations

- 2020 **STD Prevention Conference**, *Oral Presentation*, Virtual.
"The distribution and spread of susceptible and resistant *Neisseria gonorrhoeae* across demographic groups in a major metropolitan center."

- 2020 **The Infectious Diseases Society for Obstetrics and Gynecology Annual Meeting**, *Oral Presentation*, Virtual.
"Loss of function of nitric oxide reductase associated with *Neisseria gonorrhoeae* infection in women"
- 2019 **Applied Bioinformatics and Public Health Microbiology**, *Poster*, Wellcome Genome Campus, UK.
"Genomic epidemiology of *Neisseria gonorrhoeae* in New York City"
- 2016 **Lake Arrowhead Microbial Genomics**, *Oral Presentation & Poster*, Lake Arrowhead, California.
"An ancient emerging infection as a cause of maternal sepsis in Late Byzantine Troy"
- 2016 **ASM Microbe**, *Oral Presentation*, Boston, Massachusetts.
"Adaptation of the Type VII Secretion System"
- 2014 **Evolution**, *Poster*, Raleigh, North Carolina.
"Detecting Distributive Conjugal Transfer in Mycobacteria from Whole Genome Sequences"
- 2011 **4th Congress of European Microbiologists**, *Poster*, Geneva, Switzerland.
"Epidemiology of Equine Staphylococcus aureus in Kentucky and Georgia from 1995-2003"

--- Courses & Workshops

- 2015 Workshop on Evolutionary Systems Biology & Modeling - University of Wisconsin-Madison
- 2015 Open Science Grid User School - University of Wisconsin-Madison
- 2014 Software Carpentry - University of Wisconsin-Madison
- 2013 Summer Institute in Statistics and Modeling in Infectious Diseases (SISMID) - University of Washington
- 2013 Workshop on New Methods for Phylogenomics and Metagenomics- University of Texas at Austin

--- Campus Seminars & Symposia

- 2017 **Perlman Symposium**, *Poster*, Madison, Wisconsin.
"Signatures of positive selection at *Mycobacterium tuberculosis* drug resistance loci"
- 2016 **ComBEE**, *Oral Presentation*, Madison, Wisconsin.
"Using Comparative Genomics and Population Genetics to Study Pathogen Evolution"
- 2016 **Evolution Seminar Series**, *Oral Presentation*, Madison, Wisconsin.
"Adaptation of the Type VII Secretion Systems"
- 2016 **MDTP Student Seminar Series**, *Oral Presentation*, Madison, Wisconsin.
"Mysteries of the Type VII Secretion System in Mycobacteria"
- 2015 **MBTG Seminar Series**, *Chalk Talk*, Madison, Wisconsin.
"Effects of lateral gene transfer on mycobacteria genomes"
- 2014 **MDTP Student Seminar Series**, *Oral Presentation*, Madison, Wisconsin.
"The Ancient Vagina Monologues"

- 2013 **MBTG Seminar Series**, *Literature Review*, Madison, Wisconsin.
"Distributive Conjugal Transfer in *Mycobacterium smegmatis*"
- 2011 **CURO Symposium**, *Oral Presentation*, Athens, Georgia.
"Epidemiology of Equine Staphylococcus aureus in Kentucky and Georgia from 1995-2003"
- 2010 **CURO Symposium**, *Poster*, Athens, Georgia.
"Epidemiology of Equine Staphylococcus aureus in Kentucky and Georgia from 1995-2003"

Teaching Experience

- 2015 Teaching Practicum- Microbial Genetics and Molecular Machines (MICRO 470), University of Wisconsin-Madison

Mentoring

Rotating Graduate Students

- 2020 Jillian Silbert- Systems, Synthetic, and Quantitative Biology PhD Program
- 2020 Sam Zinga- Harvard Medical School MD/PhD Program
- 2020 Maia Mesyngier- Harvard Medical School MD/PhD Program
- 2020 Ellie Rand- Systems, Synthetic, and Quantitative Biology PhD Program

Undergraduates

- 2020-2021 Jessica Zhang- Undergraduate Thesis
- 2020 Michelle Alvarado- NSURP Summer Internship
- 2019 Marissa Duckett- BPH Summer Internship
- 2016 Sam Larson- Bio 152 Independent Research Project, Directed Study
- 2014-2016 Alex Weber- Bio 152 Independent Research Project, Directed Study
- 2015-2016 Hailey Bussan- Directed Study, Microbiology Capstone
- 2014 Marisol Wolf- NSF REU, McNair Scholar

High School Students

- 2017 Tia Parisi- Summer Internship

Service

Professional

- 2014–Present Manuscript Review- *Genome Biology and Evolution*, *Microbial Genomics*, *G3: Genes/Genomes/Genetics*, *Nature Communications*, *International Journal of STD & AIDS*, *Sexually Transmitted Diseases*
- 2019–Present Broad Institute IDMP Seminar Series Planning Committee

- 2016 Peer Reviewer- UW-Madison Research Travel Award
- 2015 Group Leader- UW-Madison ComBEE Python Study Group

Community Outreach

- 2019–2021 Letters to a Pre-Scientist
 - 2019 Presentation for Boston Leadership Institute - Boston, Massachusetts
 - 2016 Women in STEM Symposium - Madison, Wisconsin
- 2013–2016 Expanding Your Horizons - Madison, Wisconsin
 - 2015 Snacks with Scientists - Madison, Wisconsin