

CURRICULUM VITAE
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Assistant Professor, Department of Medicine
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Contact Information

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Foreign Languages: French (working knowledge)

Education

1999	B.A./B.Sc. (Honours)	The University of Melbourne Melbourne, Victoria, Australia (Majors: French, Psychology, Genetics, Microbiology)
2005	Ph.D.	The University of Melbourne Melbourne, Victoria, Australia (Thesis title: Identification of virulence genes of <i>Yersinia enterocolitica</i> biotype 1A. Thesis advisor: Prof. Roy Robins-Browne)

Post Graduate Education and Training

2005- 2007	J.N. Peters Bequest Research Fellowship Department of Microbiology and Immunology The University of Melbourne, Melbourne, Victoria, Australia (Research mentor: Prof. Roy Robins-Browne)
2007-2008	Academic Fellow, Center for Vaccine Development, University of Maryland School of Medicine
2008-2010	Post-doctoral Fellow Center for Vaccine Development University of Maryland School of Medicine, Baltimore, Maryland (Research mentors: Myron M. Levine and James E. Galen)

Employment History

Academic Appointments

2010 – 2011	Instructor, Department of Medicine and Center for Vaccine Development, University of Maryland School of Medicine
2012 – present	Assistant Professor, Department of Medicine, Center for Vaccine Development, University of Maryland School of Medicine

Professional Society Memberships

2000 - 2007	General Member, Australian Society for Microbiology
2007 - present	General Member, American Society for Microbiology
2009 - present	General Member, American Society of Tropical Medicine and Hygiene

2011 - present General Member, Infectious Diseases Society of America

Honors and Awards

1996 Australian National University (ANU) Summer Research Scholarship
1997 Cinema Industry Benevolent Fund (CIBF) of Victoria Scholarship
2000-2003 Australian Postgraduate Award (Ph.D. scholarship that includes tuition and living stipends)
2002 University of Melbourne, Melbourne Abroad Postgraduate Travelling Scholarship
2002 University of Melbourne, Department of Microbiology and Immunology, Major Bartlett Travel Scholarship
2005-2006 University of Melbourne, Faculty of Science, J.N. Peters Bequest Research Fellowship
2013 University of Maryland Baltimore, Department of Medicine, Division of Geographic Medicine, Faculty Teacher of the Year Award

Administrative Service

Institutional Service

2011 Served as replacement on the Scientific Review Committee (January meeting) at the Office of Research and Development
2012-present Chief, Molecular Diagnostics and Microbiology Section, Center for Vaccine Development, University Maryland School of Medicine
2014 Full voting member of the Institutional Animal Care and Use Committee (IACUC) of the University of Maryland School of Medicine
2014 – present Alternate member for the Department of Medicine on the School of Medicine Council

National Service

2009-present Reviewer of manuscripts for scientific journals including:
EMBO Molecular Medicine (1X/ 3yrs)
Cellular Microbiology (1X/3 yrs)
Journal of Infectious Diseases (1X/yr)
Emerging Infectious Diseases (1X/3 yrs)
BMC Microbiology (1X/3 yrs)
Pathogens and Disease (1X/3 yrs)
PLOS One (1X/yr)
Vaccine (1X/yr)
Journal of Clinical Microbiology (1X/yr)
Virulence (1X/3 yrs)
PLOS Neglected Tropical Diseases (1X/yr)
Clinical and Vaccine Immunology (4X/yr)
Infection and Immunity (1X/yr)
American Journal of Tropical Medicine and Hygiene (1X/3 yrs)
Microbes and Infection (1X/3 yrs)
The Lancet (1X/3 yrs)
2011 Ad-hoc grant proposal reviewer for the Bill and Melinda Gates Foundation
2014-2016 Member of *Clinical and Vaccine Immunology* Editorial Board

Teaching Service

Courses

- 2000-2003 University of Melbourne, Melbourne, Victoria, Australia
Instructor in the Department of Microbiology and Immunology
Taught microbiology to undergraduate science, medical, dentistry and chemical engineering students. Time commitment: 3 hours to 10 hours per week; 8-12 students per group.
- 2011, 2013, 2015 Center for Vaccine Development, University of Maryland School of Medicine
Coordinated the Vaccinology course PREV 627 and taught 1 class (topic: Typhoid, Paratyphoid and NTS vaccines); classes consisted of ~25 graduate students, postdoctoral fellows, staff. Time commitment: 2 hours per week over Spring semester.

Research supervision

High School students

- 2007 Scott Shuldiner (Summer intern), Center for Vaccine Development, University of Maryland School of Medicine. Time commitment: daily supervision.

Community College students

- 2012 Venant Saague, Baltimore City Community College Life Sciences student.
Performed a research project (250 hours) in the Center for Vaccine Development, University of Maryland School of Medicine. Time commitment: daily supervision.
- 2013 Tasheca Sinclair, Baltimore City Community College Life Sciences student.
Performed a research project (250 hours) in the Center for Vaccine Development, University of Maryland School of Medicine. Time commitment: daily supervision.

Undergraduate students

- 2005 Ho Chow (Honours student), Department of Microbiology and Immunology University of Melbourne, Melbourne, Victoria, Australia. The honours program requires students to conduct a research project in one year. Time commitment: daily supervision over whole year.
- 2006 Catherine Cheng (Honours student), Department of Microbiology and Immunology University of Melbourne, Melbourne, Victoria, Australia. Time commitment: daily supervision over whole year.
- 2011 Samuel Zachary (Summer intern), Center for Vaccine Development, University of Maryland School of Medicine. Time commitment: daily supervision.
- 2012 Samuel Zachary (Summer intern), Center for Vaccine Development, University of Maryland School of Medicine and CVD-Mali. Time commitment: daily supervision.

2014 Ousmane Sow, performed a research project in my laboratory in the Center for Vaccine Development, University of Maryland School of Medicine to gain credit for his University of Maryland College Park degree. Time commitment: daily supervision.

Graduate students (rotation)

2010 Pragnesh Mistry, GPILS Molecular Microbiology and Immunology
2011 Kristin Bornstein, Epidemiology
2015 Courtney Matson, GPILS Molecular Microbiology and Immunology
2016 Brandi Hobbs, GPILS Molecular Microbiology and Immunology
2016 Janhabi Bose, GPILS Molecular Microbiology and Immunology

Graduate students (dissertation)

2013-present Kristin Bornstein, Epidemiology (co-supervised with Myron Levine and Milagritos Tapia)

Graduate students (thesis committee)

2013-present Avital Shimanovich, GPILS Molecular Microbiology and Immunology
2015-present Justyna Jaskewicz, Tufts Cummings School of Veterinary Medicine

Postdoctoral fellows

2011-2013 Adetunke (Mary) Boyd, MD, pediatric infectious disease fellow. Time commitment: daily supervision. Current position: Medical Officer, FDA
2012-2015 Girish Ramachandran, Ph.D., postdoctoral fellow. Time commitment: daily supervision.
2013-present Ellen Higginson, Ph.D., postdoctoral fellow. Time commitment: daily supervision.
2014-present Fabien Fuche, Ph.D., postdoctoral fellow. Time commitment: daily supervision.
2014-2015 Joanna Marshall, Ph.D., postdoctoral fellow. Time commitment: daily supervision.
2014-present Nicolas Hegerle, Ph.D., postdoctoral fellow. Time commitment: daily supervision.
2015-present Irene Kasumba, Ph.D., postdoctoral fellow. Time commitment: daily supervision.

Grant Support

Active Grants

5/14/12 - 10/31/16 (Co-Inv, 7%; PI: Myron M Levine)
"Vaccines to prevent invasive non-typhoidal *Salmonella* infections in infants and young children in sub-Saharan Africa"
Wellcome Trust Translation Award
Annual direct costs: \$888,804
Total Costs: \$3,999,620
Total Indirect Costs: \$0 (Wellcome Trust does not allow for IDC)
Role: Perform genetic engineering of reagent strains for Salmonella conjugate vaccines and provide advice on microbiology and molecular biology studies.

10/9/13 – 9/30/16 (PI, 10%)
"Preparation of the GEMS-1 and GEMS-1A repositories for access by the wider scientific community"
Bill and Melinda Gates Foundation

Annual direct costs: \$427,072
Total Direct Costs \$1,281,216
Total Indirect Costs: \$128,121.6

- 3/1/14-2/28/18 (Project 4 leader, 40%; PI: Myron M Levine)
“*Salmonella* Group C as part of a multivalent *Salmonella* vaccine.
Immunoprophylactic Strategies to Control Emerging Enteric Infections.
Project 4: Vaccine strategy for broad spectrum protection against non-typhoidal *Salmonella*”
Centers of Excellence for Translational Research (CETR)
NIAID/NIH 1 U19 AI109776-01
Annual Direct Costs: \$586,725 (Project 4)
Total Direct Costs: \$3,333,252
Total Indirect Costs: \$1,522,806
Role: Oversee development of Salmonella Group C vaccines (Project 4).
- 11/4/14-11/3/18 (Co-Inv, 13%; PI: Karen Kotloff)
“Rotavirus Vaccine Introduction Impact Studies”
Bill and Melinda Gates Foundation
Annual direct costs: \$4,118,107
Total Direct Costs: \$16,713,304
Total Indirect Costs: \$1,671,330
Role: Oversee laboratory studies (in Baltimore, Kenya, Mali and The Gambia) to determine the impact of rotavirus vaccine on diarrheal pathogens.
- 6/15/15-6/14/17 (Co-Inv, 7%; PI: Alan Cross)
“Development of a prototype *Klebsiella* O polysaccharide conjugate vaccine”
NIAID/NIH R21
Annual direct costs: \$150,000
Total Direct Costs: \$275,000
Total Indirect Costs: \$147,125
*Role: Oversee genetic engineering of reagent strains to purify components of a *Klebsiella pneumoniae* conjugate vaccine.*
- 7/1/15-6/30/17 (Co-Inv, 12%; PI: Raphael Simon)
“Broad spectrum conjugate vaccine to prevent *Klebsiella pneumoniae* (KP) and *Pseudomonas aeruginosa* (PA) wound infections”
Department of Defense
Annual Direct Costs: \$586,715
Total Direct Costs: \$1,407,652
Total Indirect Costs: \$591,408
*Role: Oversee genetic engineering of reagent strains to purify components of a *Klebsiella pneumoniae* and *Pseudomonas aeruginosa* conjugate vaccine and provide overall microbiology and molecular biology support.*
- 09/15/15-09/14/17 (Co-PI, 10%; co-PI's: Alan Cross and Raphael Simon)
“Development of a multivalent vaccine to prevent invasive infections and colonization with *Klebsiella pneumoniae* and *Pseudomonas aeruginosa*”
Nosocomial Vaccine Company

Annual direct costs: \$1,098,283

Total Direct Costs: \$2,196,565

Total Indirect Costs: \$1,043,368

Role: Oversee microbiology and molecular biology components of development of a subunit vaccine that targets Klebsiella pneumoniae and Pseudomonas aeruginosa.

Completed grants

- 3/1/07-2/28/10 (Postdoctoral fellow, 100%; PI: Myron M. Levine)
"Development of a *Salmonella*-based vaccine against SARS"
NIH R01 AI029471
Annual Direct Costs: \$363,400
Total Direct Costs: \$2,512,924
Total Indirect Costs: \$1,218,768
Role: Performed genetic engineering of Salmonella and Shigella to develop a SARS vaccine.
- 3/1/09-2/28/11 (Postdoctoral fellow/Instructor, 30%; PI: James E. Galen)
"Ultra-fast and sensitive detection of non-typhoidal *Salmonella* in human blood samples"
Middle Atlantic Regional Center of Excellence in Biodefense and Infectious Disease (MARCE)
NIAID/NIH 2 U54 AI057168-06
Annual Direct Costs: \$70,150
Total Direct Costs: \$140,300
Total Indirect Costs: \$52,612
Role: Performed microbiology and molecular biology studies to develop a microwave accelerated metal-enhanced fluorescence-based Salmonella diagnostic assay in collaboration with Professor Chris D. Geddes at UMBC.
- 3/1/09-2/28/14 (Postdoctoral fellow/Instructor, 30%; PI: Myron M. Levine)
"Vaccine strategy for broad spectrum protection against non-typhoidal *Salmonella*"
Middle Atlantic Regional Center of Excellence in Biodefense and Infectious Disease (MARCE)
NIAID/NIH 2U54 AI057168-06
Annual Direct Costs: \$198,439
Total Direct Costs: \$992,195
Total Indirect Costs: \$496,098
Role: Performed genetic engineering and tested non-typhoidal Salmonella strains that can serve as live attenuated vaccines and reagent strains for conjugate vaccine production.
- 5/1/11-2/28/14 (PI, 80%)
"Investigation of the pathogenesis of invasive *Salmonella* Typhimurium"
MARCE Mentored Basic Scientist Career Development Award
Middle Atlantic Regional Center of Excellence in Biodefense and Infectious Disease (MARCE)

NIAID/NIH 2U54 AI057168-06
Annual Direct Costs: \$144,000
Total Direct Costs: \$432,000
Total Indirect Costs: \$68,363
Role: Oversaw testing of the pathogenicity of Salmonella Typhimurium strains isolated from blood of febrile Malian children in various in vitro and in vivo assays.

6/1/12 – 5/31/14 (PI, 20%)
“Rapid and sensitive detection of *Salmonella* from blood, food and feces”
NIAID/NIH 1R21AI100168-01
Annual direct costs: \$137,500
Total Direct Costs: \$275,000
Total Indirect Costs: \$80,780
Role: Oversaw microbiology and molecular biology studies to develop a microwave accelerated metal-enhanced fluorescence-based assay to detect Salmonella in blood, stool and feces in collaboration with Professor Chris D. Geddes at UMBC.

11/11/11 – 07/31/15 (Co-Inv, 10%; PI: Myron M Levine)
“Ultra-fast and Sensitive Detection of Typhoidal and Non-typhoidal *Salmonella* in Blood Using Microwave-Accelerated Metal-Enhanced Fluorescence (“MAMEF”)”
Bill and Melinda Gates Foundation
Annual direct costs: \$633,000
Total Direct Costs: \$885,835
Total Indirect Costs: \$51,055
Role: Oversee laboratory studies to develop and field test a highly sensitive Salmonella assay.

09/01/14-08/31/15 (Co-Inv, 5%; PI: Eric Houpt)
“Next generation molecular diagnostic technologies for developing countries”
Bill and Melinda Gates Foundation
Annual direct costs: \$101,859 (for UMB sub-award)
Total Direct Costs: \$101,859
Total Indirect Costs: \$10,186
Role: Oversee isolation of nucleic acids from GEMS stool samples for use in a molecular assay to refine Shigella and ETEC disease burden.

07/23/13 – 07/22/16 (Co-Inv, 5%; PI: Myron M Levine)
“Incorporation of novel attenuating mutations identified in space into the construction of a live bacterial vaccine against enteric fever caused by *Salmonella enterica* serovar Paratyphi B”
National Aeronautics and Space Administration
Annual direct costs: \$326,288
Total Direct Costs \$ \$652,576
Total Indirect Costs: \$345,384
Role: Oversee laboratory studies to develop Salmonella vaccines using mutations identified in Space.

Patents, Inventions and Copyrights

“Broad spectrum vaccine against non-typhoidal *Salmonella*”

Inventors: Myron M. Levine, James Galen, Raphael Simon and Sharon Tennant
US patent 9,050,283

“Broad spectrum vaccine against typhoidal and non-typhoidal *Salmonella* disease”

Inventors: Myron M. Levine, James Galen, Raphael Simon and Sharon Tennant
US patent 9,011,871

“Broad spectrum conjugate vaccine to prevent *Klebsiella pneumoniae* and *Pseudomonas aeruginosa* infections”

Inventors: Raphael Simon, Alan S. Cross and Sharon M. Tennant
Patent application number: PCT/US2015/051032

“Compositions and methods for producing bacterial conjugate vaccines”

Inventors: Raphael Simon, Myron M. Levine and Sharon M. Tennant
US provisional patent application number: 62/146,545

Publications

Peer-reviewed journal articles

1. **Tennant SM**, Skinner NA, Joe A, Robins-Browne RM. 2003. *Yersinia enterocolitica* biotype 1A: Not as harmless as you think. *Adv Exp Med Biol.* 529:125-8.
2. **Tennant SM**, Grant TH, Robins-Browne RM. 2003. Pathogenicity of *Yersinia enterocolitica* biotype 1A. *FEMS Immunol. Med. Microbiol.* 38:127-137. (review)
3. **Tennant SM**, Skinner NA, Joe A, Robins-Browne RM. 2005. Homologues of insecticidal toxin complex genes in *Yersinia enterocolitica* biotype 1A and their contribution to virulence. *Infect. Immun.* 73(10):6860-7.
4. Garmendia J*, Ren Z*, **Tennant S***, Midolli Viera MA*, Chong Y*, Whale A*, Azzopardi K, Dahan S, Sircili MP, Franzolin MR, Trabulsi LR, Phillips A, Gomes TA, Xu J, Robins-Browne R, Frankel G. 2005. Distribution of *tccP* in clinical enterohemorrhagic and enteropathogenic *Escherichia coli* isolates. *J. Clin. Microbiol.* 43(11):5715-20. (* co-first authors)
5. Ogura Y, Ooka T, Whale A, Garmendia J, Beutin L, **Tennant S**, Krause G, Morabito S, Chinen I, Tobe T, Abe H, Tozzoli R, Caprioli A, Rivas M, Browne RR, Hayashi T, Frankel G. 2007. TccP2 of O157:H7 and non-O157 enterohemorrhagic *Escherichia coli* (EHEC): challenging the dogma of EHEC-induced actin polymerization. *Infect. Immun.* 75(2):604-12.
6. **Tennant SM**, Hartland EL, Phumoonna T, Lyras D, Rood JI, Robins-Browne RM, van Driel IR. 2008. Influence of gastric acid on susceptibility to infection with ingested bacterial pathogens. *Infect. Immun.* 76(2):639-45.
7. Leotta GA, Miliwebsky ES, Chinen I, Espinosa EM, Azzopardi K, **Tennant SM**, Robins-Browne RM, Rivas M. 2008. Characterisation of Shiga Toxin-Producing *Escherichia coli* O157 Strains Isolated from Humans in Argentina, Australia and New Zealand. *BMC Microbiol.* 17(8):46.
8. Levy H, Diallo S, **Tennant SM**, Livio S, Sow SO, Tapia M, Fields PI, Mikoleit M, Tamboura B, Kotloff KL, Lagos R, Nataro JP, Galen JE, Levine MM. 2008. PCR method to identify *Salmonella enterica* serovars Typhi, Paratyphi A, and Paratyphi B among *Salmonella* Isolates from the blood of patients with clinical enteric fever. *J Clin Microbiol.* 46(5):1861-6.
9. Cheng C, **Tennant SM**, Azzopardi KI, Bennett-Wood V, Hartland EL, Robins-Browne RM, Tauschek M. 2009. Contribution of the *pst-phoU* operon to cell adherence by atypical

- enteropathogenic *Escherichia coli* and the virulence of *Citrobacter rodentium*. *Infect Immun.* 77(5):1936-44
10. **Tennant SM***, Tauschek M*, Azzopardi K, Bigham A, Bennett-Wood V, Hartland EL, Qi W, Whittam TS, Robins-Browne RM. 2009. Characterisation of atypical enteropathogenic *E. coli* strains of clinical origin. *BMC Microbiol.* 9:117. (* co-first authors)
 11. Galen JE, Pasetti MF, **Tennant SM**, Oliveira-Ruiz P, Szein MB, and Levine MM. 2009. *Salmonella enterica* serovar Typhi Live Vector Vaccines Finally Come of Age. *Immunology and Cell Biology* 87, 400-412 (5 May 2009). (review)
 12. **Tennant SM**, Diallo S, Levy H, Livio S, Sow SO, Tapia M, Fields PI, Mikoleit M, Tamboura B, Kotloff KL, Nataro JP, Galen JE, Levine MM. 2010. Identification by PCR of non-typhoidal *Salmonella enterica* serovars associated with invasive infections among febrile patients in Mali. *PLoS Negl Trop Dis.* 4(3):e621.
 13. **Tennant SM***, Zhang Y*, Galen JE, Geddes, CD, Levine MM. 2011. Ultra-fast and Sensitive Detection of Non-typhoidal *Salmonella* using Microwave-Accelerated Metal-Enhanced Fluorescence ("MAMEF"). *PLoS One* 6(4):e18700. (* co-first authors)
 14. Simon R, **Tennant SM**, Galen JE, Levine MM. 2011. Mouse models to assess the efficacy of non-typhoidal *Salmonella* vaccines: Revisiting the role of host innate susceptibility and routes of challenge. *Vaccine.* 29(32):5094-106.
 15. **Tennant SM**, Wang JY, Galen JE, Simon R, Pasetti M, Gat O, Levine MM. 2011. Engineering and pre-clinical evaluation of attenuated non-typhoidal *Salmonella* strains serving as live oral vaccines and as reagent strains. *Infect. Immun.* 79(10):4175-85.
 16. Simon R, **Tennant SM**, Wang JY, Schmidlein PJ, Lees A, Ernst RK, Pasetti MF, Galen JE, Levine MM. 2011. *Salmonella* Enteritidis Core-O Polysaccharide (COPS) conjugated to H:g,m flagellin as a candidate vaccine for protection against invasive infection with *Salmonella* Enteritidis. *Infect. Immun.* 79(1):4240-9.
 17. Gat O, Galen JE, **Tennant SM**, Simon R, Blackwelder WC, Silverman DJ, Pasetti M, Levine MM. 2011. Cell-associated flagella enhance the protection conferred by mucosally-administered attenuated *Salmonella* Paratyphi A vaccines. *PLoS Negl Trop Dis.* Nov;5(11):e1373. Epub 2011 Nov 1.
 18. Okoro CK, Kingsley RA, Connor TR, Harris SR, Parry CM, Al-Mashhadani MN, Kariuki S, Msefula CL, Gordon MA, de Pinna E, Wain J, Heyderman RS, Obaro S, Alonso PL, Mandomando I, Maclennan CA, Tapia MD, Levine MM, **Tennant SM**, Parkhill J, Dougan G. 2012. Intracontinental spread of human invasive *Salmonella* Typhimurium pathovariants in sub-Saharan Africa. *Nat Genet.* 44(11):1215-21.
 19. Simon R, Wang JY, Boyd MA, Tulapurkar M, Ramachandran G, **Tennant SM**, Pasetti MF, Galen JE, Levine MM. 2013. Sustained protection in mice immunized with fractional doses of *Salmonella* Enteritidis core and O polysaccharide-flagellin glycoconjugates. *PLoS One.* 8(5):e64680.
 20. Ault A*, **Tennant SM***, Gorres JP, Eckhaus M, Sandler NG, Roque A, Livio S, Bao S, Foulds K, Kao SF, Roederer M, Schmidlein P, Boyd MA, Pasetti MF, Douek DC, Estes JD, Nabel GJ, Levine MM, Rao SS. 2013. Safety and tolerability of a live oral *Salmonella* Typhimurium vaccine candidate in SIV-infected nonhuman primates. *Vaccine.* 31(49):5879-88. (* co-first authors)
 21. Boyd MA*, **Tennant SM***, Saague VA, Simon R, Muhsen K, Ramachandran G, Cross A, Galen JE, Pasetti MF, Levine MM. 2014. Serum bactericidal assays to evaluate typhoidal and non-typhoidal *Salmonella* vaccines. *Clin Vaccine Immunol.* 21(5):712-21. (* co-first authors)
 22. Livio S, Strockbine N, Panchalingam S, **Tennant SM**, Barry EM, Marohn ME, Antonio M, Hossain A, Mandomando I, Ochieng JB, Oundo JO, Qureshi S, Ramamurthy T, Tamboura B, Adegbola RA, Hossain MJ, Saha D, Sen S, Faruque ASG, Alonso PL, Breiman RF, Zaidi AKM, Sur D, Sow SO, Berkeley LY, O'Reilly C, Mintz ED, Biswas K, Cohen D, Farag TH,

- Nasrin D, Wu Y, Blackwelder WC, Kotloff KL, Nataro JP, Levine MM. 2014. *Shigella* isolates from the Global Enteric Multicenter Study (GEMS) Inform Vaccine Development. Clin Infect Dis. Oct;59(7):933-41.
23. Simon R, Curtis B, Deumic V, Nicki J, **Tennant SM**, Pasetti MF, Lees A, Wills PW, Chacon M, Levine MM. 2014. A scalable method for biochemical purification of *Salmonella* flagellin. Protein Expr Purif. Oct;102:1-7.
 24. Ramachandran G, Perkins DJ; Schmidlein PJ; Tulapurkar ME; **Tennant SM**. 2015. Invasive *Salmonella* Typhimurium ST313 with naturally attenuated flagellin elicits reduced inflammation and replicates within macrophages. PLOS Negl Trop Dis. 9(1):e3394.
 25. Boyd MA*, **Tennant SM***, Melendez JH, Toema D, Galen JE, Geddes CD, Levine MM. 2015. Adaptation of red blood cell lysis represents a fundamental breakthrough that improves the sensitivity of *Salmonella* detection in blood. (*, co-first authors). Journal of Applied Microbiology 118(5):1199-209.
 26. Perkins DJ, Rajaiah R, **Tennant SM**, Ramachandran G, Higginson EE, Dyson TN, Vogel SN. 2015. *Salmonella typhimurium* co-opts the host Type I Interferon system to selectively restrict innate immune responses and promote pathogenesis. J Immunol 195(5):2461-71.
 27. **Tennant SM**, Levine MM. 2015. Live attenuated vaccines for invasive *Salmonella* infections. Vaccine 33 Suppl 3:C36-41.
 28. **Tennant SM**, Schmidlein PJ, Simon R, Pasetti MF, Galen JE, Levine MM. 2015. Refined live attenuated *Salmonella* Typhimurium and Enteritidis vaccines mediate homologous and heterologous serogroup protection in mice. Infect Immun. Dec;83(12):4504-12.
 29. **Tennant SM***, Toema D*, Qamar F*, Iqbal N, Boyd MA, Marshall JM, Blackwelder WC, Wu Y, Quadri F, Khan A, Aziz F, Ahmad K, Kalam A, Asif E, Qureshi S, Khan E, Zaidi AK and Levine MM. 2015. Detection of typhoidal and paratyphoidal *Salmonella* in blood by real-time PCR. Clin Infect Dis. Nov 1;61 Suppl 4:S241-50. (*, co-first authors)
 30. Tapia MD*, **Tennant SM***, Bornstein K, Onwuchekwa U, Tamboura B, Maiga A, Sylla MB, Sissoko, S, Kourouma, N, Toure A, Malle D, Livio S, Sow SO, Levine MM. 2015. Invasive Non-Typhoidal *Salmonella* Infections in Malian Children: Microbiological and Epidemiologic Features Guide Vaccine Development. Clin Infect Dis. Nov 1;61 Suppl 4:S332-8. (*, co-first authors)
 31. Mandomando I, Bassat Q, Sigaúque B, Massora S, Quintò L, Ácacio A, Nhampossa T, Vubil D, Garrine M, Macete E, Aide P, Saco C, Herrera-León S, Ruiz J, **Tennant SM**, Clara Menéndez C, Alonso PL. 2015. Invasive *Salmonella* infections among children from rural Mozambique, 2001-2014. Clin Infect Dis. Nov 1;61 Suppl 4:S339-45.
 32. Omer SB1, Richards JL2, Madhi SA3, Tapia MD4, Steinhoff MC5, Aqil AR6, Wairagkar N7; BMGF Supported Maternal Influenza Immunization Trials Investigators Group*. 2015. Three randomized trials of maternal influenza immunization in Mali, Nepal, and South Africa: Methods and expectations. Vaccine. 2015 Jul 31;33(32):3801-12. doi: 10.1016/j.vaccine.2015.05.077. Epub 2015 Jun 19. (*Blackwelder W, Bresee J, Coulibaly F, Diallo B, Diallo F, Chen W, Doumbia M, Haidara FC, Keita AM, Klimov A, Kodio M, Kotloff K, Levine MM, Onwuchekwa U, Panchalingam S, Pasetti M, Sanogo D, Sow S, Tapia M, Tamboura B, Teguate I, **Tennant S**, Traore A, Treanor J, Englund JA, Katz J, Kha-try SK, Kuypers J, Labrique AB, LeClerq SC, Mullany LC, Shrestha L, Steinhoff M, Tielsch JM, Adrian PV, Cutland CL, Hugo A, Jones S, Kuwanda L, Klugman KP, Madhi SA, Neuzil KM, van Niekerk N, Nunes MC, Ortiz JR, Simões EA, Treurnicht F, Venter M, Violari A, Weinberg A)
 33. **Tennant SM**, Steele AD, Pasetti MF. 2016. Highlights of the 8th International Conference on Vaccines for Enteric Diseases: The Scottish Encounter to Defeat Diarrheal Diseases. Clin Vaccine Immunol. Mar 2. pii: CVI.00082-16. [Epub ahead of print]

34. Ramachandran G*, **Tennant SM***, Boyd MA, Wang JY, Tulapurkar ME, Pasetti MF, Levine MM, Simon R. 2016. Functional Activity of Antibodies Directed towards Flagellin Proteins of Non-Typhoidal *Salmonella*. PLoS One. Mar 21;11(3):e0151875. (*, co-first authors)
35. Chen WH, Cohen MB, Kirkpatrick BD, Brady RC, Galloway D, Gurwith M, Hall RH, Kessler RA, Lock M, Haney D, Lyon CE, Pasetti MF, Simon JK, Szabo F, **Tennant S**, Levine MM. 2016. Single-dose Live Oral Cholera Vaccine CVD 103-HgR Protects Against Human Experimental Infection With *Vibrio cholerae* O1 El Tor. Clin Infect Dis. Mar 21. pii: ciw145. [Epub ahead of print]
36. Ramachandran G*, Boyd MA*, MacSwords J, Higginson E.E., Simon R, Galen JE, Pasetti MF, Levine MM and **Tennant SM**. 2016. An Opsonophagocytic Assay to Evaluate Immunogenicity of Non-Typhoidal *Salmonella* Vaccines. Clin Vaccine Immunol Mar 30. pii: CVI.00106-16. [Epub ahead of print]. (*, co-first authors)
37. **Tennant SM**, MacLennan CA, Simon R, Martin LB, Khan MI. 2016. Nontyphoidal *Salmonella* disease: Current status of vaccine research and development. Vaccine. 2016 Mar 29. pii: S0264-410X(16)30069-X. doi: 10.1016/j.vaccine.2016.03.072. [Epub ahead of print]
38. Martin LB, Simon R, MacLennan CA, **Tennant SM**, Sahastrabuddhe S, Khan MI. 2016. Status of paratyphoid fever vaccine research and development. Vaccine. Apr 12. pii: S0264-410X(16)30103-7. doi: 10.1016/j.vaccine.2016.03.106. [Epub ahead of print]
39. Ramachandran G, Aheto K, Shirliff ME, **Tennant SM**. 2016. Poor biofilm forming ability and long-term survival of invasive *Salmonella* Typhimurium ST313. Pathogens and Disease. Advance Access published May 23, 2016.
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Submitted or In-Revision Peer-reviewed journal articles

1. Higginson EE, Galen JE, Levine MM and **Tennant SM**. 2016. Microgravity as a biological tool to examine host-pathogen interactions and to guide development of therapeutics and preventatives that target pathogenic bacteria. *Pathogens and Disease.* (in revision)

Non-peer reviewed journal articles

1. MacLennan CA, **Tennant SM**. Comparing the roles of antibodies to nontyphoidal *Salmonella enterica* in high- and low-income countries and implications for vaccine development. *Clin Vaccine Immunol.* 2013 Oct;20(10):1487-90.

Book chapters

1. **Tennant SM**, Muhsen K and Pasetti MF. Gut immunology and oral vaccination. *In* *Molecular Vaccines – from Prophylaxis to Therapy* (editor Matthias Giese), 2013, published by Springer Vienna, pp 59-84.

Major invited speeches

National

1. **Tennant SM**. An ultra-sensitive rapid diagnostic for non-typhoidal *Salmonella* bacteremia and a practical molecular method for serotyping invasive *Salmonella*. Invited to speak by the organizers of the “Invasive nontyphoidal *Salmonella* disease in Africa Symposium” at the 59th American Society for Tropical Medicine and Hygiene meeting, 2010, Atlanta, GA, USA.
2. **Tennant SM**. Live oral vaccines and flagellin based conjugate vaccines to prevent invasive nontyphoidal *Salmonella* infections: reagent strains and moving towards clinical trials. Invited to speak by the organizers of the “Invasive non-typhoidal *Salmonella* infections in sub-Saharan Africa: burden, genomics and progress in vaccine development” symposium at the 62nd American Society for Tropical Medicine and Hygiene meeting, 2013, Washington, DC, USA.

International

3. **Tennant SM**, Simon R, Wang JY, Pasetti M, Ernst RK, Lees A, Galen JE, and Levine MM. Bivalent vaccine strategies for invasive non-typhoidal *Salmonella* infections. Invited to speak by the International Congress on Infectious Diseases and the International Society for Infectious Diseases for the “Invasive Non-typhoid Salmonellosis (iNTS): Increasing Awareness and Future Vaccines” meet-the-expert session at the International congress on infectious diseases meeting, 2014, Cape Town, South Africa.

Preferred communications

National

1. **Tennant SM**, Joe A, Skinner NA, Grant TH and Robins-Browne RM. The hunt for virulence-associated genes of pYV *Y. enterocolitica*. Oral presentation at the Australian Society for Microbiology meeting, 2002, Melbourne, Australia.
2. **Tennant SM**, Joe A and Robins-Browne RM. How do *Y. enterocolitica* biotype 1A escape from host cells? Oral presentation at the joint meeting of the Australian and New Zealand Societies for Microbiology, 2003, Auckland, New Zealand.
3. **Tennant SM**, Joe A and Robins-Browne RM. Homologues of insecticidal toxin complex (*tc*) genes in *Y. enterocolitica* biotype 1A and their contribution to virulence. Poster presentation at the 8th Australian Bacterial Pathogenesis Meeting, 2005, South Stradbroke Island, Queensland, Australia.
4. **Tennant SM**, Zhang Y, Geddes CD, Galen JE, Levine MM. Ultra-Fast and Sensitive Detection of Non-Typhoidal *Salmonella*. Poster presentation at the 110th American Society for Microbiology General Meeting, 2010, San Diego, CA, USA.
5. **Tennant SM**, Ault A, Wang JY, Galen JE, Livio S, Simon R, Pasetti M, Gat O, Gorres JP, Estes J, Eckhaus M, Sandler N, Douek D, Bao S, Foulds K, Nabel G, Rao SS, Levine MM. Preclinical studies of live attenuated non-typhoidal *Salmonella* vaccines including safety in SIV-infected rhesus macaques. Oral presentation at the 15th Annual Conference on Vaccine Research, 2011, Baltimore, MD, USA.
6. **Tennant SM**, Schmidlein P and Ramachandran G. Survival of invasive *Salmonella* Typhimurium strains from Mali, West Africa, in macrophages. Poster presentation at the 4th ASM Conference on *Salmonella*: The Bacterium, the Host and the Environment, 2013, Boston.
7. Ramachandran G, Boyd MA, MacSwords J, Higginson EE, Simon R, Galen JE, Pasetti MF, Levine MM and **Tennant SM**. An Opsonophagocytic Assay to Evaluate Immunogenicity of Non-Typhoidal *Salmonella* Vaccines. Poster presentation at the Annual Conference on Vaccine Research, 2016, Baltimore, MD, USA.

International

8. **Tennant SM**, Joe A, Skinner NA, Grant TH and Robins-Browne RM. *Yersinia enterocolitica* biotype 1A: not as harmless as you think. Poster presentation at the 8th International Symposium on *Yersinia*, 2002, Turku, Finland.
9. **Tennant SM**, Levy H, Galen JE, Levine MM. A PCR method to identify typhoidal and non-typhoidal *Salmonella* isolated from blood and ordinarily sterile body fluids. Oral presentation at the 7th International Conference of Typhoid Fever and Other Invasive Salmonellosis, 2009, Kilifi, Kenya.
10. **Tennant SM**, Wang JY, Galen JE, Simon R, Pasetti M, Gat O, Levine MM. Attenuated non-typhoidal *Salmonella* strains that can serve as attenuated live oral vaccines and as reagent strains for conjugate vaccine production. Oral presentation at the Vaccines for Enteric Diseases Meeting, 2011, Cannes, France.
11. **Tennant SM**, Wang JY, Galen JE, Simon R, Pasetti M, Gat O, Levine MM. Attenuated non-typhoidal *Salmonella* strains that can serve as live oral vaccines and as reagent strains for conjugate vaccine production. Poster presentation at the Malnutrition, Gut-Microbial Interactions and Mucosal Immunity to Vaccines Meeting, 2011, New Delhi, India.
12. **Tennant SM**, Wang JY, Schmidlein P, Toema D, Ramachandran G, Boyd MA, Simon R, Galen JE, Pasetti M, Gat O, Levine MM. Attenuated non-typhoidal *Salmonella* strains as live oral vaccines and as reagent strains for conjugate vaccine production. Oral presentation at

- the 8th International Conference on Typhoid Fever and Other Invasive Salmonellosis, 2013, Dhaka, Bangladesh.
13. **Tennant SM**, Boyd MA, Toema D, Melendez J, Zhang Y, Galen JE, Geddes, CD, Levine MM. New diagnostic approaches to detect *Salmonella* spp. in blood. Oral presentation at the 8th International Conference on Typhoid Fever and Other Invasive Salmonellosis, 2013, Dhaka, Bangladesh.
 14. **Tennant SM**, Wang JY, Schmidlein P, Toema D, Ramachandran G, Boyd MA, Simon R, Galen JE, Pasetti M and Levine MM. Cross protection mediated by live attenuated non-typhoidal *Salmonella* vaccine strains. Oral presentation at the Vaccines for Enteric Diseases Meeting, 2013, Bangkok, Thailand.
 15. **Tennant SM**, Toema D, Marshall JM, Boyd MA, Galen JE and Levine MM. Detection of *Salmonella* Typhi and Paratyphi A by real-time PCR directly from blood. Poster presentation at the 9th International Conference on Typhoid Fever and Other Invasive Salmonellosis, 2015, Bali, Indonesia.
 16. Simon R, **Tennant SM**, Curtis B, Wang JY, Lees A, Pasetti MF, Galen JE, Levine MM. Development of a bivalent Core and O polysaccharide (COPS)-Flagellin glycoconjugate vaccine to protect against invasive infections with non-typhoidal *Salmonella* serovars Enteritidis and Typhimurium. Oral presentation at the 9th International Conference on Typhoid Fever and Other Invasive Salmonellosis, 2015, Bali, Indonesia.
 17. Higginson EE, **Tennant SM**, Galen JE, Pasetti MF and Levine MM. Engineering of a live-attenuated *Salmonella enterica* serovar Paratyphi B vaccine strain. Poster presentation at the Vaccines for Enteric Diseases Meeting, 2015, Edinburgh, Scotland.
 18. Fuche FJ, Ramachandran G, Higginson EE, Raphael Simon R and **Tennant SM**. Reactogenicity of *Salmonella* Newport flagellin prevents its use as a carrier protein in a *Salmonella* Group C conjugate vaccine. Poster presentation at the Vaccines for Enteric Diseases Meeting, 2015, Edinburgh, Scotland.
 19. **Tennant SM**, Simon R., Ramachandran G, Boyd MA, Tulapurkar M, Pasetti MF and Levine MM. Functional capacity of anti-*Salmonella* flagellin antibodies. Poster presentation at the Vaccines for Enteric Diseases Meeting, 2015, Edinburgh, Scotland.