

## PALLAVI SINGH

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### ACADEMIC PROFILE

2006- 2010      **PhD., Cell and Molecular Biology**  
University of Arkansas, Fayetteville, AR

2003- 2005      **MSc., Biotechnology**  
University of Madras, India

2000- 2003      **BSc., Biotechnology**  
Sardar Patel University, India

### RESEARCH EXPERIENCE

2018 - Present      **Assistant Professor**  
Department of Biological Sciences  
Northern Illinois University, DeKalb, IL

2015 - 2018      **Senior Research Associate**  
Department of Microbiology and Molecular Genetics  
Michigan State University, E. Lansing, MI

2011- 2015      **Research Associate**  
Department of Microbiology and Molecular Genetics  
Michigan State University, E. Lansing, MI

2006-2010      **Graduate Research Assistant**  
Cell and Molecular Biology  
University of Arkansas, Fayetteville AR

2004-2005      **Research Trainee**  
Department of Immunology  
National Institute for Research in Tuberculosis, India

### TEACHING EXPERIENCE

2016- 2017      **Instructor**  
Department of Microbiology and Molecular Genetics  
Michigan State University, E. Lansing, MI

2015      **Guest Lecturer**  
Department of Microbiology and Molecular Genetics  
Michigan State University, E. Lansing, MI

2006      **Lecturer**  
Hindustan College of Arts and Science  
University of Madras, Chennai, TN, India

### PUBLICATIONS

1. C. Gendrin, J. Vornhagen, B. Armistead, **P. Singh**, C. Whidbey, S. Merillat, D. Knupp, R. Parker, LM. Rogers, P. Quach, L.M Iyer, L. Aravind, S.D. Manning, DM. Aronoff, L. Rajagopal. A non-hemolytic Group B Streptococcus strain exhibits hypervirulence. (*J Infect. Dis.* 2017 Mar.; 217(6):983-987)
2. L. Degado, **P. Singh**, KT. Scribner and SD. Manning. White-tailed deer's fecal microbiota comparison between pathogenic *Escherichia coli* and *Salmonella* carriers and non-carriers. (*Microb. Ecol.* 2017: 1-11)
3. N. Medugu, KC. Iregbu, R. Parker, J.Plemmons, **P. Singh**, LI Audu, E. Efetie, HD. Davies and SD. Manning. Group B streptococcal colonization and transmission dynamics in pregnant women and their newborns in Nigeria: implications for prevention strategies (*Clin Microbiol and Infec.* 2017; 23(9): 673.e9-673.e16)
4. LA Boughner\* and **P. Singh**\*. Microbial Ecology: Where are we now? (*Postdoc J.* 2016 Nov; 4(11): 3–17.)  
\*Authors contributed equally. Senior/corresponding author.
5. **P. Singh** and SD. Manning. Impact of age and gender on the composition and abundance of intestinal microbial communities in individuals with and without enteric infections. (*Ann. Epidemiol.* 2016;1-6)
6. **P. Singh**, D. Aronoff, H. Dele Davies and SD. Manning. Draft genome of an invasive *Streptococcus agalactiae* isolate lacking pigmentation. (*Genome Announc.* 2016, 4(1):e00015-16.

doi:10.1128/genomeA.00015-16).

7. W. Cha, R. Mosci, SL. Wengert, **P. Singh**, DW. Newton, H. Salimnia, P. Lephart, W. Khalife, LS Mansfield, JT. Rudrick and SD. Manning. Antimicrobial susceptibility profiles of human *Campylobacter jejuni* isolates in Michigan and the association with phylogenetic lineage and disease severity. (*Frontiers in Microbiol.* 2016, 7:589. doi: 10.3389/fcimb.2016.00589).
8. L. Galli, V. Brusa, **P. Singh**, A. Cataldi, SD Manning and G. Leotta. High prevalence of *Escherichia coli* O157:H7 clade 8 isolated from retail meat and butcher shop environment. (*Infect. Genet. Evol.* 2016 doi:10.1016/j.meegid.2016.08.005)
9. C. Venegas-Vargas, S. Henderson, A. Khare, RE. Mosci, JD. Lehnert, **P. Singh**, L. Ouellette, B. Norby, JA. Funk, S. Rust, P. Bartlett, D. Grooms and SD. Manning. Factors associated with Shiga toxin producing *Escherichia coli* shedding in dairy and beef cattle. *Appl. Environ. Microbiol.* 2016, doi:10.1128/AEM.00829-16 AEM.00829-16)
10. **P. Singh**, T. Teal, T. Marsh, J. Tiedje, K.Jernigan, R. Mosci, A. Zell, D. Newton, H. Salimnia, P. Lephart, H. Salimnia, W. Khalife, D. Sundin, RA. Britton, JT. Rudrik, and SD. Manning. Intestinal microbial communities in patients with enteric infections and their family members. (*Microbiome* 2015, 3:45 doi:10.1186/s40168-015-0109-2).
11. **P. Singh**, R. Mosci, JT. Rudrik and SD. Manning. Draft genome sequence of a diarrheagenic *Morganella morganii* isolate (*Genome Announc* 2015, 3(5):e01165-15.)
12. **P. Singh**, Q. Sha, DW. Lacher, J. Del Valle, RE. Mosci, JA. Moore, KT. Scribner and SD. Manning. Characterization of enteropathogenic and Shiga toxin-producing *Escherichia coli* in cattle and deer in a shared agroecosystem. (*Front Cell Infect Microbiol.* 2015, 5:29.)
13. N. Amigo, E. Mercado, A. Bentancor, **P. Singh**, D. Vilte, E. Gerhardt, E. Zotta, C. Ibarra, SD. Manning, M. Larzabal and A.A Cataldi. Clade 8 and clade 6 strains of *Escherichia coli* O157:H7 from cattle in Argentina have hypervirulent-like phenotypes. (*PLoS One.* June 1, 2015 DOI: 10.1371/journal.pone.0127710)
14. **P. Singh** and SD. Manning. Molecular Characterization of Shiga toxin producing *Escherichia coli*. In: DNA methods in Food Safety: *Molecular Typing of Foodborne and Waterborne Bacterial Pathogens*. (eds O. A. Oyarzabal and S. Kathariou), John Wiley & Sons, Ltd, Chichester, UK. 2014 doi: 10.1002/9781118278666.ch12
15. AC. Springman, DW. Lacher, EA. Waymire, SL. Wengert, **P. Singh**, HD. Davies and SD. Manning. Pilus distribution among clonal lineages of group B *Streptococcus*: an evolutionary and clinical perspective. (*BMC Microbiology.*2014, 14:159 DOI: 10.1186/1471-2180-14-159)
16. **P. Singh** and YM. Kwon. Comparative analysis of *Campylobacter* populations within individual market age broilers using fla gene typing method. (*Poult Sci.* 2013 92:2135-2144; doi:10.3382/ps.2012-02615)
17. **P. Singh**, A. Karimi, K. Devendra, PW. Waldroup, KK. Cho, and YM. Kwon. Influence of penicillin on microbial diversity of the cecal microbiota in broiler chickens. (*Poult Sci.* 2013 Jan; 92(1):272-6. doi: 10.3382/ps.2012-02603).
18. **P. Singh**, SL. Foley, R. Nayak and YM. Kwon. Massively parallel sequencing of enriched target amplicons for high-resolution genotyping of *Salmonella* serovars. (*Mol Cell Probes.* 2013 Apr; 27(2):80-5. doi: 10.1016/j.mcp.2012.11.004. Epub 2012 Nov 29).
19. **P. Singh**, AC. Springman, HD. Davies and SD. Manning. Whole Genome Shotgun Sequencing of a colonizing ST17 *Streptococcus agalactiae*. (*J Bacteriol.* 2012 Nov; 194(21):6005. doi: 10.1128/JB.01378-12).
20. **P. Singh**, SL. Foley, R. Nayak and YM. Kwon. Multilocus sequence typing of *Salmonella* strains by high-throughput sequencing of selectively amplified target genes. (*J Microbiol Methods.* Jan 2012; 88 (1):127-33. Epub 2011 Nov 11).
21. **P. Singh**, R. Nayak and YM Kwon. Target-enrichment through amplification of hairpin-ligated universal targets for next-generation sequencing analysis. In: *Methods in molecular biology. High-throughput next generation sequencing: Methods and applications*. Edited by YM Kwon and Steven C. Ricke. (Clifton, N.J.). 2011;733: 267-78.

#### ABSTRACTS FOR PROFESSIONAL MEETINGS

1. Olomu I, Long R, Vyas A, Luellwitz R, **Singh P**, Hoang V and Mulks M. The Influence of Gestational Diabetes on Placental Microbiome. IFPA. Manchester, UK, September 2017
2. B. Nohomovich, S. Wengert, **P. Singh**, J. Rodriguez, and SD. Manning. Bacteriophage in the human gastrointestinal tract and association with infection. AAP/ASCI/APSA Joint Meeting. Chicago, IL. Apr., 2017

3. S. Mukherjee, **P. Singh**, R. Mosci, C. Anderson, JT. Rudrik and SD. Manning. Antimicrobial Resistance in Shiga-toxin producing *Escherichia coli* (STEC) and Non-Typhoidal *Salmonella* in Michigan. Biomolecular Sciences Retreat, Michigan State University, East Lansing, MI, Aug., 2016
4. B. Nohomovich, S. Wengert, **P. Singh**, J. Rodriguez, and SD. Manning. Impact of Intestinal Bacteriophage Communities on growth of enteric pathogens. Molecular Genetics of Bacteria and Phages. Madison, WI. Aug., 2016
5. **P. Singh**, R. Mosci, C. Venegas-Vargus, K. Hussnaetter, H. Selheimer, K. Jernigan, JT. Rudrik, G. Loneragan, J. Funk, B. Norby, S. Rust, P. Bartlett, D. Grooms and SD. Manning. Characteristics of Shiga Toxin Producing *Escherichia coli* (STEC) Isolates Recovered from Dairy and Beef Cattle in Michigan. USDA-NIFA. St. Louis, MO. Jul., 2016
6. S. Mukherjee, **P. Singh**, R. Mosci, C. Anderson, JT. Rudrik and SD. Manning. Antimicrobial Resistance in Shiga-toxin producing *Escherichia coli* (STEC) and Non-Typhoidal *Salmonella* in Michigan. ASMMicrobe. Boston, MA. Jun., 2016
7. **P. Singh**, R. Mosci, M. Moore, K. Jernigan, JT. Rudrik, G. Loneragan and SD. Manning. Variation in the distribution of Shiga toxin-producing *Escherichia coli* O157 genotypes from humans and cattle. ASMMicrobe. Boston, MA. Jun., 2016
8. S. Mukherjee, **P. Singh**, R.E. Mosci, C. Anderson, J.T. Rudrik, and S.D. Manning. Antibiotic Resistance in Shiga Toxin- Producing *Escherichia coli* and Non- Typhoidal *Salmonella* in Michigan, Work in Progress- Department of Microbiology and Molecular Genetics, Michigan State University, East Lansing, MI, April 2016
9. D. Knupp, **P. Singh**, S. Henderson and SD. Manning. Elevated Shiga-toxin production in pathogenic *Escherichia coli* O157:H7 strain containing an additional lambdoid-prophage with host genome. MSU UURAF, E. Lansing, MI. April 2016. 1<sup>st</sup> place poster award
10. S. Mukherjee, **P. Singh**, R. Mosci, JT. Rudrik and SD. Manning. Prevalence of antibiotic resistant Shiga Toxin producing *Escherichia coli* in Michigan. MI-ASM. Ann Arbor, MI. Oct., 2015. 1<sup>st</sup> place poster award.
11. N. Amigo, E. Mercado, **P. Singh**, D. Vilte, E. Gerhardt, E. Zotta, C. Ibarra, S.D. Manning, M. Larzabal, and A.A. Cataldi. Clade 8 and clade 6 strains of *Escherichia coli* O157:H7 from cattle in Argentina have hypervirulent-like phenotypes. VTEC. Boston, MA. Sep., 2015.
12. **P. Singh**, R. Mosci, K. Jernigan, JT. Rudrik, and SD. Manning. Distribution of Shiga toxin-producing *Escherichia coli* O157 clades among patients and cattle in Michigan. MMPC. Indianapolis, IN. Aug., 2015
13. S. Mukherjee, **P. Singh** and SD. Manning. Prevalence of antibiotic resistant Shiga Toxin producing *Escherichia coli* clinical isolates in Michigan. MMPC. Indianapolis, IN Aug., 2015
14. J. Plemmons, N. Medugu, **P. Singh**, R. Parker, KC Iregbu and SD. Manning. Molecular characteristics of group B Streptococcus isolates recovered from mothers and their babies in Nigeria. MMPC. Indianapolis, IN. Aug., 2015
15. S. Mukherjee, **P. Singh**, R.E. Mosci, J.T. Rudrik, and S.D. Manning. Prevalence of Antibiotic Resistant Shiga Toxin producing *Escherichia coli* in Michigan, Biomolecular Sciences Retreat, Michigan State University, East Lansing, MI, August 2015
16. D. Knupp, **P. Singh**, R. Parker, LM Rogers, DM. Aronoff and SD. Manning. Immune evasion in Group B Streptococcus. MSU UURAF. E. Lansing, MI. Apr., 2015
17. Y-A. Yang, **P. Singh**, L. Ouellette, SD. Manning. Genetic Diversity of Shiga Toxin (Stx)-Producing Bacteriophages in *Escherichia coli* Isolated from Cattle in Multiple Herds. American Society for Microbiology Annual Meeting; Boston, MA. June 2014
18. K. Hussnaetter, **P. Singh**, L. Ouellette, JD. Lehnert, L. Pena Cortes, and S.D. Manning. Variation in biofilm formation among Shiga toxin-producing *Escherichia coli* isolated from beef cattle in Michigan. MSU UURAF. E. Lansing, MI. Apr., 2014
19. LM. Rogers, **P. Singh**, E. Salzman, KL. Mason, M. Chames, R. Loch-Carusio, SD. Manning, and DM. Aronoff. Deciphering molecular mechanisms of group B Streptococcal chorioamnionitis. Florence, Italy. *Reprod. Sci. Suppl.*, Abstract T-003. March, 2014
20. **P. Singh**, K. Jernigan, R. Mosci, A. Zell, D. Newton, H. Salimnia, P. Lephart, W. Khalife, JT. Rudrik, SD. Manning. Gut microbial communities of patients with enteric infections. Cyberinfrastructure days. Michigan State University, E. Lansing, MI. Oct., 2013
21. **P. Singh**, K. Jernigan, R. Mosci, A. Zell, D. Newton, H. Salimnia, P. Lephart, W. Khalife, JT. Rudrik, SD. Manning. Intestinal Microbial Communities in Patients with Enteric Infections. American Society for Microbiology Annual Meeting; Denver, CO. May 2013

22. Y-A Yang, **P. Singh**, L. Ouellette, and SD. Manning. Genetic diversity of Shiga toxin-producing bacteriophages in *Escherichia coli* isolated from cattle in Multiple Herds. Phi Zeta Research Day, College of Veterinary Medicine. MSU, E. Lansing, MI. 2013
23. **P. Singh**, K. Jernigan, C. Radek, R. Britton, C. Venegas, S. Rust, P. Bartlett, D. Grooms, SD. Manning. Variation in Microbiota Diversity between Beef and Dairy Cattle. ASM, San Francisco, CA. June 2012
24. C. Venegas, R. Mosci, L. Ouellette, A. Khare, **P. Singh**, S. Rust, P. Bartlett, D. Grooms, SD. Manning. Prevalence of Shiga toxin-producing *Escherichia coli* (STEC) genes by multiplex PCR in cattle and their environment, Michigan 2011. CRWAD. Chicago, IL. Dec. 2011
25. **P. Singh**, A. Karimi, PW. Waldroup, and YM. Kwon 2010. Comparative phylogenetic analysis of gut microbiota of broilers fed with and without antibiotics. J. dairy science 93, 198. Poultry Science Association annual meeting. Denver, CO; July 2010. (Oral Presentation) Award for Excellence
26. **P. Singh** and YM. Kwon. Genetic diversity of *Campylobacter* populations in chicken ceca. Arkansas Association for Food Protection. Fayetteville, AR. Oct., 2009. 2<sup>nd</sup> place poster award.
27. **P. Singh** and YM. Kwon. Genetic diversity of *Campylobacter* populations in chicken ceca. Poultry Science at Poultry Science Association annual meeting. Raleigh, NC. July 2009. Poultry Science. Vol88, Suppl.1:88
28. **P. Singh** and YM. Kwon. Genetic diversity of *Campylobacter* populations in chicken ceca. Third Annual from Abstract to Contract Graduate Research Symposium and Career Networking Event at University of Arkansas, Fayetteville, AR. Feb., 2009.

## INVITED TALKS

1. *The Impact of Microbiome on Host Health*. Northern Illinois University, Department of Biological Sciences. DeKalb, IL. Jan. 16, 2018
2. *The Impact of Intestinal Microbiome on various host systems*. MD Anderson Cancer Center, Houston, TX. Nov. 30<sup>th</sup>, 2017
3. *The Impact of Microbiome on Host Health*. The Pennsylvania State University, Department of Food Science. State College, PA. Nov. 1<sup>st</sup>, 2016
4. *Intestinal microbial communities in patients with enteric infections and characterization of the pathogen population*. University of Michigan – Michigan State University Joint Department Retreat. Kellogg's Biological Station, Hickory Corners, MI. Oct. 17<sup>th</sup>, 2016
5. *The Impact of Microbiome on Host Health*. University of Arizona, Animal and Comparative Biomedical Sciences, Tucson, AZ. Aug 30<sup>th</sup>, 2016
6. *The Impact of Microbiome on the Host Health*. University of Arkansas for Medical Sciences, Little Rock, AR. Feb. 29<sup>th</sup>, 2016
7. *The Impact of Microbiome on Host*. Purdue University, Department of Food Science. W. Lafayette, IN. Feb. 17<sup>th</sup> 2016
8. *Overview of Microbial Pathogenesis*. Presented at the Michigan State University Epidemiology department. E. Lansing, MI. Oct. 7<sup>th</sup>, 2014
9. *The impact of microbiome composition, diversity and function on patients with enteric infections*. Presented at the ERIN CRC annual meeting. Traverse City, MI. Jun. 3<sup>rd</sup>, 2013.
10. *Microbial Communities of Bovine GI tract and Shiga Toxin producing E.Coli*. Presented at the Michigan State University Microbiology and Molecular Genetics Bad Bugs Club. E. Lansing, MI. Oct., 15<sup>th</sup> 2012
11. *Bovine Microbial Communities*. Presented at the STEC Ecology Symposium at Michigan State University. E. Lansing, MI. Nov., 8<sup>th</sup> 2011

## HONORS AND AWARDS

- Postdoc of the Month Award; Journal of Postdoctoral Research, November. 2016.
- Postdoctoral Association Members Travel Award; Michigan State University. 2016.
- Award of excellence; Talk, Poultry Science Association annual meeting. 2010.
- Second place; Poster, Arkansas Association for Food Protection. 2009.
- Indian Women Fellowship, University of Arkansas. 2006-08.

## AFFILIATIONS

- American Society of Microbiology, 2012- current
- International Association of Food Protection, 2016- current
- Poultry Science Association, 2008-2011.
- Post-Doctoral Association at Michigan State University, 2014- 2017

- Elected co-chair of Post-Doctoral Association at Michigan State University, 2015-2016
- National Postdoctoral Association, 2014- 2017
- National Postdoctoral Association, Meetings Committee, Innovation in action subcommittee, 2015-2016
- President, Registered Student Organization; The Natural Path Meditation Group at University of Arkansas, 2008-2010.
- Elected Rep, central committee at N.V. Patel College of pure & applied sciences, 2000-01.

### **ADDITIONAL TRAINING**

- Postdoctoral Teaching Scholar in Pathways to Scientific Teaching Certificate. Sep-Oct, 2014
- Responsible Conduct of Research Series Certificate workshops. Sep. 2014- Feb. 2015
- RNA- Sequencing Workshop. Feb 24-25, 2015
- Software Carpentry Workshop. Jan 27-29, 2015

### **TEACHING**

- Fundamentals of Microbiology (MMG 201), MSU 2017 Summer
- Advanced Microbiology Laboratory (MMG 408), MSU 2015- 2017
- Molecular Cell Biology, HCAS, 2006
- Tissue Engineering, HCAS, 2006
- Microbial Bioprocess Technology, HCAS, 2006
- Bioinformatics, HCAS, 2006
- Immunotechnology Laboratory, HCAS, 2006
- Plant Biotechnology Laboratory, HCAS, 2006
- Animal Biotechnology Laboratory, HCAS, 2006

### **MENTORING**

#### **Graduate student supervision:**

- Babatunde Olawuni (Ph.D., BIOS), NIU (2018)

#### **Undergraduate supervision:**

- Bhumi Shah (BIOS), NIU (2018)
- Edward Allen (BIOS), NIU (2018)
- Anthony Acevedo (BIOS), NIU (2018)

### **LINKS**

- LinkedIn

<https://www.linkedin.com/in/pallavi-singh-783b111a>

- Google Scholar Citations

<https://scholar.google.com/citations?user=x1Yw9DYAAAAJ&hl=en>

- Publons Reviewing

<https://publons.com/author/306928/pallavi-singh#profile>