

Stanford



Daniel DiGiulio

Clinical Instructor, Medicine - Infectious Diseases

CLINICAL OFFICES

- **Infectious Disease**

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ACADEMIC CONTACT INFORMATION

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Bio

CLINICAL FOCUS

- Infectious Disease

ACADEMIC APPOINTMENTS

- Clinical Instructor, Medicine - Infectious Diseases

PROFESSIONAL EDUCATION

- Fellowship: Stanford University Infectious Disease Fellowships (2005) CA
- Residency: Loyola University Internal Medicine Residency (1996) IL
- Internship: St Joseph Hospital Internal Medicine Residency (1994) IL
- Medical Education: Loyola University Stritch School of Medicine (1992) IL
- BS, University of Illinois at Urbana-Champaign , Biology (1988)
- MD, Loyola University Chicago , Medicine (1992)
- Internship, St. Joseph Hospital / Northwestern University , Internal Medicine (1994)
- Residency, Foster G. McGaw Hospital / Loyola University Chicago , Internal Medicine (1996)
- Fellowship, Stanford University , Infectious Diseases (2007)

COMMUNITY AND INTERNATIONAL WORK

- Orientation Leader, Support for International Change, Tanzania, Africa

LINKS

- Relman Lab: DiGiulio: <http://sites.google.com/site/davidrelmanlab/people-2/dan-digiulio>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

My research explores the genetic diversity of human-associated microbiota in health and disease, and the accompanying host transcriptional response. This work relies largely on the application of cultivation-independent methods. An overarching goal of this research is to illuminate stereotypic patterns of microbial community assembly that are associated with specific clinical syndromes. This includes: i) profiling the commensal microbiota in distinct anatomic sites of interest; ii) identifying uncultivated pathogens associated with cryptic infections; iii) enumerating fastidious and minority constituents of polymicrobial infections; and, iv) characterizing perturbations of mixed microbial communities that confer increased disease risk. To achieve these aims, we are using various broad-range molecular approaches, including highly-parallel and quantitative methods, to characterize spatial, temporal and dose-response associations of specific microbial groups with physiologic and pathologic host states. The methodologies I use include, among others, sequence analysis of rDNA clone libraries, real-time quantitative PCR, microbial rDNA-based microarrays, and human cDNA-based microarrays.

The current thrust of my research emphasizes microbial invasion of the amniotic cavity in association with cryptic cases of preterm delivery. We are fortunate to have an ongoing collaboration with the research group of Roberto Romero, MD, Chief, Perinatology Research Branch, NICHD, NIH to investigate - in a broad and comprehensive manner - patterns of microbial prevalence, diversity and abundance that are associated with preterm delivery and its adverse neonatal sequelae. We also seek to characterize, by means of genome-scale transcriptional profiling of the host response, gene expression patterns that are predictive of preterm delivery.

Teaching

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Infectious Diseases (Fellowship Program)

Publications

PUBLICATIONS

- **Replication and refinement of a vaginal microbial signature of preterm birth in two racially distinct cohorts of US women.** *Proceedings of the National Academy of Sciences of the United States of America*
Callahan, B. J., DiGiulio, D. B., Goltsman, D. S., Sun, C. L., Costello, E. K., Jeganathan, P., Biggio, J. R., Wong, R. J., Druzin, M. L., Shaw, G. M., Stevenson, D. K., Holmes, S. P., Relman, et al
2017
- **A microbial perspective of human developmental biology** *NATURE*
Charbonneau, M. R., Blanton, L. V., DiGiulio, D. B., Relman, D. A., Lebrilla, C. B., Mills, D. A., Gordon, J. I.
2016; 535 (7610): 48-55
- **Temporal and spatial variation of the human microbiota during pregnancy** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
DiGiulio, D. B., Callahan, B. J., McMurdie, P. J., Costello, E. K., Lyell, D. J., Robaczewska, A., Sun, C. L., Goltsman, D. S., Wong, R. J., Shaw, G., Stevenson, D. K., Holmes, S. P., Relman, et al
2015; 112 (35): 11060-11065
- **Diversity of microbes in amniotic fluid** *SEMINARS IN FETAL & NEONATAL MEDICINE*
DiGiulio, D. B.
2012; 17 (1): 2-11
- **Microbial invasion of the amniotic cavity in preeclampsia as assessed by cultivation and sequence-based methods** *JOURNAL OF PERINATAL MEDICINE*
DiGiulio, D. B., Gervasi, M., Romero, R., Mazaki-Tovi, S., Vaisbuch, E., Kusanovic, J. P., Seok, K. S., Gomez, R., Mittal, P., Gotsch, F., Chaiworapongsa, T., Oyarzun, E., Kim, et al
2010; 38 (5): 503-513
- **Microbial invasion of the amniotic cavity in pregnancies with small-for-gestational-age fetuses** *JOURNAL OF PERINATAL MEDICINE*

DiGiulio, D. B., Gervasi, M. T., Romero, R., Vaisbuch, E., Mazaki-Tovi, S., Kusanovic, J. P., Seok, K. S., Gomez, R., Mittal, P., Gotsch, F., Chaiworapongsa, T., Oyarzun, E., Kim, et al
2010; 38 (5): 495-502

- **Preterm premature rupture of the membranes: current approaches to evaluation and management** *AMERICAN JOURNAL OF REPRODUCTIVE IMMUNOLOGY*
DiGiulio, D. B., Romero, R., Kusanovic, J. P., Gomez, R., Kim, C. J., Seok, K. S., Gotsch, F., Mazaki-Tovi, S., Vaisbuch, E., Sanders, K., Bik, E. M., Chaiworapongsa, T., Oyarzun, et al
2010; 64 (1): 38-57
- **Microbial invasion of the amniotic cavity in pregnancies with small-for-gestational-age fetuses.** *J Perinat Med.*
DiGiulio DB, Gervasi M, Romero R, Vaisbuch E, Mazaki-Tovi S, Kusanovic JP, Seok KS, Gómez R, Mittal P, Gotsch F, Chaiworapongsa T, Oyarzún E, Kim CJ, Relman DA.
2010; May 20
- **Prevalence and Diversity of Microbes in the Amniotic Fluid, the Fetal Inflammatory Response, and Pregnancy Outcome in Women with Preterm Prelabor Rupture of Membranes.** *Am J Reprod Immunol*
DiGiulio DB, DiGiulio DB, Romero R, Kusanovic JP, Gmez R, Kim CJ, Seok KS, Gotsch F, Mazaki-Tovi S, Vaisbuch E, Sanders K, Bik EM, Chaiworapongsa T, Oyarzn E, Relman DA
2010; 64 (1): 38-57
- **Microbial invasion of the amniotic cavity in preeclampsia as assessed by cultivation and sequence-based methods.** *J Perinat Med*
DiGiulio DB, Gervasi M, Romero R, Mazaki-Tovi S, Vaisbuch E, Kusanovic JP, Seok KS, Gómez R, Mittal P, Gotsch F, Chaiworapongsa T, Oyarzún E, Kim CJ, Relman DA
2010; May 20
- **Majority Rules? Tallying the Microbial Census in an Abscess by Means of Molecular Methods** *CLINICAL INFECTIOUS DISEASES*
DiGiulio, D. B., Relman, D. A.
2009; 48 (9): 1179-1181
- **Majority Rules? Tallying the Microbial Census in an Abscess by Means of Molecular Methods.** *Clin Infect Dis*
DiGiulio DB, Relman DA
2009; 48 (9): 1179-81
- **Microbial Prevalence, Diversity and Abundance in Amniotic Fluid During Preterm Labor: A Molecular and Culture-Based Investigation** *PLOS ONE*
DiGiulio, D. B., Romero, R., Amogan, H. P., Kusanovic, J. P., Bik, E. M., Gotsch, F., Kim, C. J., Erez, O., Edwin, S., Relman, D. A.
2008; 3 (8)
- **Development of the human infant intestinal microbiota** *PLOS BIOLOGY*
Palmer, C., Bik, E. M., DiGiulio, D. B., Relman, D. A., Brown, P. O.
2007; 5 (7): 1556-1573
- **Scedosporium apiospermum soft tissue infection successfully treated with voriconazole: Potential pitfalls in the transition from intravenous to oral therapy** *JOURNAL OF CLINICAL MICROBIOLOGY*
Schaeenman, J. M., DiGiulio, D. B., Mirels, L. F., McClenny, N. M., Berry, G. J., Fothergill, A. W., Rinaldi, M. G., Montoya, J. G.
2005; 43 (2): 973-977
- **Human monkeypox: an emerging zoonosis** *LANCET INFECTIOUS DISEASES*
Di Giulio, D. B., Eckburg, P. B.
2004; 4 (1): 15-25