

## Tejpal Gill, Ph.D.

### CONTACT INFORMATION:

Research Assistant Professor,  
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### EDUCATION:

- 2013-2019      Research Fellow, National Institute of Arthritis and Musculoskeletal and Skin Diseases  
*Research Focus:* Involvement of gut microbiota in pathogenesis of spondyloarthritis as studied in a rat model of HLA-B27  
*Mentor:* Robert A. Colbert, M.D., Ph.D.
- 2010-2013      Postdoctoral Scholar, Case Western Reserve University  
*Research Focus:* To determine the effects of reactive oxygen species on T-cell activation threshold in the gut.  
*Mentor:* Alan D. Levine, Ph.D.
- 2005-2010      Ph. D. in Biotechnology, Institute of Himalayan Bioresource Technology, (CSIR), Palampur, H.P. India. Submitted to Guru Nanak Dev University, Amritsar, India.  
*Ph.D. Thesis:* Expression studies of some genes encoding antioxidant enzymes in *Arabidopsis thaliana*  
*Mentor:* Paramvir S. Ahuja, Ph.D.
- 2002-2004      M.S. in Botany, Guru Nanak Dev University, Amritsar, INDIA.
- 1999-2002      B.S. in Botany, Guru Nanak Dev University, Amritsar, INDIA.

### AWARDS AND HONORS:

- 2019      Best Poster, NIAMS Intramural Research Program Retreat
- 2017      NIH Fellows Award for Research Excellence (FARE recipient)
- 2016      Best Postdoctoral Oral Presentation, NIAMS Scientific Meeting
- 2015      Best Poster, NIAMS Intramural Research Program Retreat
- 2008      Nominee for Council of Scientific Industrial Research-Senior Research Fellowship in Life Sciences, India
- 2004      Nominee for University Grants Commission- National Entrance Test Lectureship in Life Sciences. June 2004.
- 2004      Gold medalist in Master of Science (Honors School) May 2004

### PROFESSIONAL MEMBERSHIPS:

- 2017-2019      Student Member, American College of Rheumatology (ACR)
- 2020      Member, ACR
- 2018-present      Member, Spondylitis Association of America (SAA)

### TEACHING AND PROFESSIONAL EXPERIENCE:

- 2020      Guest Editor, Best Practice & Research Clinical Rheumatology
- 2020-      Reviewer for the Journal "Arthritis and Rheumatology"
- 2018      NIH FARE Judge for 2019 awards

2017 NIH FARE Judge for 2018 awards  
2013-2015 Mentor for summer students at NIAMS/NIH  
2014 Pedagogy course at NIH "Scientists Teaching Science: An Introduction to Best Practices in Science Education"  
2011-2012 Mentor for summer students at Case Western Reserve University  
2008-2009 Mentor for undergraduate and postgraduate students at IHBT, Palampur, India

#### **ORAL PRESENTATIONS:**

2019 Symposium: Microbiome Research at the NIH/FDA, NIH, Bethesda, MD.  
*Title:* Novel Inter-omic Network Analysis Reveals Host-Microbe Relationships in HLA-B27-Induced Experimental Spondyloarthritis

2018 NIAMS Scientific Meeting, Bethesda, MD.  
*Title:* Effect of HLA-B27 and its interaction with ERAP1 on gut microbiota, arthritis, and inflammation in experimental spondyloarthritis.

2017 American College of Rheumatology Meeting, San Diego, CA.  
*Title:* Functional Relationship Between Diverse Gut Microbiota and Dysregulated Host Immune Response in HLA-B27-Mediated Experimental Spondyloarthritis.

2017 Symposium: Microbiome Research at the NIH/FDA, NIH, Bethesda, MD.  
*Title:* Spondyloarthritis Pathogenesis Involves Interplay Between Gut Microbiota and Genetic Background.

2016 American College of Rheumatology Meeting, Washington D.C.  
*Title:* Spondyloarthritis Pathogenesis Involves Interplay Between Gut Microbiota and Genetic Background.

2016 NIAMS Scientific Meeting, Bethesda, MD.  
*Title:* Microbial Dysbiosis in Spondyloarthritis.

2015 Microbiome in Health and Disease Symposium. NIH, Bethesda, MD.  
*Title:* Microbial Dysbiosis Implicated in Spondyloarthritis.

#### **ABSTRACTS/POSTER PRESENTATIONS:**

2019 NIAMS IRP Retreat, Bethesda, MD.  
2018 Symposium: Microbiome Research at the NIH/FDA, FDA, Silver Spring, MD.  
2018 NIAMS IRP Retreat, Bethesda, MD.  
2017 American College of Rheumatology Meeting, San Diego, CA.  
2017 ICMI meeting, Washington D.C.  
2016 NIAMS Scientific Meeting, Lister Hill Auditorium NIH campus, Bethesda, MD.  
2016 American College of Rheumatology Meeting, Washington D.C.  
2015 Microbiome in Health and Disease Symposium. NIH, Bethesda, MD.  
2015 American College of Rheumatology Meeting, San Francisco, CA.  
2015 NIAMS IRP Retreat, Lister Hill Auditorium NIH campus, Bethesda, MD.  
2014 American College of Rheumatology Meeting, Boston, MA.  
2012 Gordon Research Conference on The Molecular Underpinnings of Redox Regulation and Oxidative Stress, Bates College, Lewiston, ME.

#### **PUBLICATIONS:**

Gotschlich EC, Colbert RA, **Gill T.** Methods in microbiome research: Past, present, and future. *Best Pract Res Clin Rheumatol.* 2019;33(6):101498. doi:10.1016/j.berh.2020.101498.

**Gill, T.**, Brooks, S.R., Rosenbaum, J.T., Asquith, M. and Colbert, R.A. (2019) Novel inter-omic analysis reveals relationships between gut microbiota and host immune dysregulation in HLA-B27-induced experimental spondyloarthritis. *Arthritis Rheumatol.* Jun 19. DOI:[10.1002/art.41018](https://doi.org/10.1002/art.41018). [Epub ahead of print].

Colbert, R.A., Navid, F.\* and **Gill, T.** \* (2018). The role of HLA-B27 in spondyloarthritis. *Best Practice & Research Clinical Rheumatology*. Dec;31(6):797-815 <https://doi.org/10.1016/j.berh.2018.07.012> \***Equal Contributors**.

**Gill, T.**, Asquith, M., Brooks, S.R., Rosenbaum, J.T. and Colbert, R.A. (2018) Effects of HLA-B27 on gut microbiota in experimental spondyloarthritis implicate an ecological model of dysbiosis. *Arthritis Rheumatol.* Apr;70(4):555-565. doi: [10.1002/art.40405](https://doi.org/10.1002/art.40405).

**Gill, T.**, Asquith, M., Rosenbaum, J.T. and Colbert, R.A. (2015). The intestinal microbiome in spondyloarthritis. *Current Opinion in Rheumatology*, 27:319–325. doi:[10.1097/BOR.000000000000187](https://doi.org/10.1097/BOR.000000000000187).

Lin, P., Bach, M., Asquith, M., Lee, A.Y., Akileswaran, L., Stauffer, P., Davin, S., Pan, Y., Cambronne, E.D., Dorris, M., Debelius, J.W., Lauber, C.L., Ackermann, G., Baeza, Y.V., **Gill, T.**, Knight, R., Colbert, R.A., Taurog, J.D., Van Gelder, R.N. and Rosenbaum, J.T. (2014). HLA-B27 and human  $\beta$ 2-microglobulin affect the gut microbiota of transgenic rats. *PLoS One*, **20**; **9(8)**: e105684. doi: [10.1371/journal.pone.0105684](https://doi.org/10.1371/journal.pone.0105684).

**Gill, T.** and Levine, A.D. (2013). Mitochondria-derived hydrogen peroxide selectively enhances T cell receptor-initiated signal transduction. *Journal of Biological Chemistry*, 288(36): 26246-55. doi: [10.1074/jbc.M113.476895](https://doi.org/10.1074/jbc.M113.476895).

Das, L. M., Torres-Castillo, M.D.L.A., **Gill, T.** and Levine, A.D. (2013). TGF- $\beta$  conditions intestinal T cells to express increased levels of miR-155, associated with down-regulation of IL-2 and ITK mRNA. *Mucosal Immunology*, 6(1): 167-76. doi: [10.1038/mi.2012.60](https://doi.org/10.1038/mi.2012.60).

#### **Ph.D. PUBLICATIONS:**

Shafi, A., Dogra, V., **Gill, T.**, Ahuja, P.S. and Sreenivasulu, Y. (2014). Simultaneous over-expression of *PaSOD* and *RaAPX* in transgenic *Arabidopsis thaliana* confers cold stress tolerance through increase in vascular lignifications. *PLoS One*, doi: [10.1371/journal.pone.0110302](https://doi.org/10.1371/journal.pone.0110302).

Shafi, A., **Gill, T.**, Sreenivasulu, Y., Kumar, S., Ahuja, P.S. and Singh, A.K. (2014). Improved callus induction, shoot regeneration, and salt stress tolerance in *Arabidopsis* overexpressing superoxide dismutase from *Potentilla astrosanguinea*. *Protoplasma*, May 17. doi: [10.1007/s00709-014-0653-9](https://doi.org/10.1007/s00709-014-0653-9).

Kumar, V., **Gill, T.**, Grover, S., Ahuja, P.S. and Yadav, S.K. (2013). Influence of human lactoferrin expression on iron homeostasis, flavonoids, and antioxidants in transgenic tobacco. *Molecular Biotechnology*, 53(2): 118-28. doi: [10.1007/s12033-012-9495-x](https://doi.org/10.1007/s12033-012-9495-x).

**Gill, T.**, Dogra, V., Kumar, S., Ahuja, P.S., Sreenivasulu, Y. (2012). "Protein dynamics during seed germination under copper stress in *Arabidopsis* over-expressing *Potentilla* superoxide dismutase." *Journal of Plant Research*, 125(1): 165-72. doi: [10.1007/s10265-011-0421-2](https://doi.org/10.1007/s10265-011-0421-2).

**Gill, T.**, Sreenivasulu, Y., Kumar, S. and Ahuja, P.S. (2010). "Over-expression of superoxide dismutase exhibits lignification of vascular structures in *Arabidopsis thaliana*." *Journal of Plant Physiology*, 167:757- 760. doi: [10.1016/j.jplph.2009.12.004](https://doi.org/10.1016/j.jplph.2009.12.004).

#### **BOOK CHAPTER:**

**Gill, T.**, Bhattacharya, A. and Ahuja, P.S. (2008). "Insect resistant transgenic plants: achievements and challenges. In: Sustainable crop protection: Biopesticide strategies." Koul, O., Dhaliwal, G.S. and Kaul, V.K. (eds). Kalyani Publishers, India. 48-64.