

# Tojan B. Rahhal

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## EDUCATION

Doctor of Philosophy in **Pharmaceutical Sciences** May 2016

University Of North Carolina at Chapel Hill (UNC-CH)

Eshelman School of Pharmacy, Division of Pharmacoengineering and Molecular Pharmaceutics

National Science Foundation Graduate Research Fellowship Program Scholar

Master of Law in **Dispute Resolution**

Dec. 2020

University of Missouri, School of Law, Hybrid Program

Bachelor of Science in **Biomedical Engineering**, concentration in **Biomaterials**

May 2012

North Carolina State University (NCSU), Raleigh, NC

Minors: Tissue Engineering and Biotechnology

## WORK EXPERIENCE

**CEO & President, Engineering World Health**

Aug. 2020- Present

Non-Profit, Durham, NC

- Guided the strategic planning and evaluation for adapting to COVID19 hinderance of programming
- Developed a new tactical plan with measurable metrics and reporting focusing on Engineering Education, Global Outreach for improved healthcare access and Intercultural Competence
- Launched and secured corporate sponsorship for a unique STEM outreach program for underserved schools in three states, impacting over 700 students to date
- Secured a \$150,000 grant to support cross-cultural engineering virtual programs
- Selected as “Top 10 to Watch” CEO of Non-Profits by United way of the Greater Triangle
- Secured \$50,000 in grant funding for a unique Kits for the Classroom program (STEM outreach)
- Solidified virtual programming offerings beyond a COVID adaptation on an international scale serving over 500 students a year
- Increased chapter memberships from an average of 15 a year to 30
- Increased Kit sales from \$9k to 25k+ in less than a year, on track to double sales to 40k in year 2
- Oversaw global programs, staff, and contractors in 5+ countries including finances, contracts, and strategic implementation
- Supervised 5 staff, volunteers, and interns; work with a Board of Directors

**Founder and Consultant, Alliance Professional Development.**

2016-Present

www.Alliance-Professional.com

- Provided customized strategic plans and workshops on leadership development, inclusivity training, and cultural awareness 3-5 times a month to students, executives, senior staff, employee resource groups, and committees.
- Created a curriculum to address the integration of understanding diversity as a vital leadership skill
- Conducted strategic consulting sessions for clients across Higher Education, Private Corporations, and individuals
  - Clients include: Central Bank of Boone County, Southern College of Optometry, Women’s Network of MO, Shelter Insurance, Veterans United, Stephen’s College, North Carolina State University, Trulaske College of Business MBA program, South Dakota State University.

**Assistant Dean for Inclusive Excellence and Strategic Initiatives**  
College of Engineering, University of Missouri

Sept. 2018- July 2020

- Executed the college's vision to build and sustain a diverse and inclusive environment by developing, implementing, and continually assessing strategies and programs to enhance the college's environment.
- Actively worked with the Associate Deans and Faculty to recruit and retain a diverse faculty while maintaining an inclusive culture resulting in 30% of new hires being URM or women
- Worked with Advancement team to secure alumni donations, with the largest being a \$1.4M donation to the office of diversity and outreach initiatives
- Spearheaded recruitment efforts to increase undergraduate and graduate student diversity resulting in the highest percentage in 5 years of URM and women student recruits, with continued upward trends
- Managed and strategized use of over \$300K in funds for Inclusive Excellence efforts
- Developed impact analysis and reports for all events and programs planned
- Oversaw the hiring of new employees, including development of inclusive job advertisements, search committees, and interviews
- Supervised a team to develop the First Year Engineering Experience for incoming engineers that includes holistic programming, financial support, professional development and mentoring

**Interim Director, Pre-Engineering Programs**  
College of Engineering, University of Missouri

June 2018- Aug. 2018

- Developed programming for a summer transition program for pre-engineering students
- Hired and supervised two Graduate assistants and a coordinator to support this program
- Aimed to increase recruitment and retention of first year engineering students
- Developed evaluation assessments, follow-ups, and annual reports for the program
- Resulted in increased retention of participants

**Director, Diversity and Outreach Initiatives**  
College of Engineering, University of Missouri

March 2017- Aug. 2018

- Developed cultural competency training for Faculty, Staff, and Students (15+ events/semester)
- Created a recruitment and retention plan for underrepresented minorities and women in engineering by developing actionable strategic goals
- Managed a \$150K annual budget for all programming, investments, and initiatives
- Developed evaluation and impact reports for all programming and outreach efforts
- Represented the college at various campus and national events to report on D&I efforts in the college
- Oversaw advisory boards for faculty and staff, undergraduates, and graduate students respectively
- Developed on-boarding orientations for new employees and strategic retention initiatives for current and new members
- Spearheaded several large events that grew year to year focusing on building community for underrepresented students in engineering (\$20k+, 200+ participants)
- Developed an award-winning K-5 STEM outreach program at the college of engineering with collaborators across campus for more than 300 participants a year and secured sponsor donations to sustain programming efforts and received multiple accolades
- Co-authored and received grants focusing on STEM retention and recruitment (i.e. NSF S-STEM)
- Supervised 2 coordinators and 4 student staff

**Educator**, Office of Inclusivity, Diversity, and Equity, Univ. of Missouri Jan. 2017- March 2017

- Organized and arranged for various Spring and Summer programming for faculty and staff focusing on Diversity and Inclusion
- Cultivated relationships across campus to form collaborations and to identify teaching gaps that could be developed (i.e. presented a workshop on a lacking topic to faculty and staff)
- Managed registrations and logistical operations to ensure a seamless training for faculty and staff
- (Transitional Role to Director position in same organization)

#### **ADDITIONAL LEADERSHIP EXPERIENCE** (external to job roles)

**Strategic Chair**, National Association of Minority Engineering Program Advocates 2018-Present

- Develop strategic goals and priorities for NAMEPA and tools for developing and matriculating engineers and scientists from underrepresented populations, including utilizing data-centric approaches
- Manage board members' projects and tasks to collaboratively accomplish strategic priorities
- Represent NAMEPA at conferences and roundtable meetings with other college Deans and leadership teams
- Work to further develop best practices for multicultural engineering programs
- Establish webinars and modules to adapt to the shift in learning during the COVID-19 pandemic

**Founder**, Cross-Cultural Leadership Development Workshop Curriculum, UNC-CH 2015-2017

- Created a curriculum to address the integration of understanding diversity as a vital leadership skill
- Led the incorporation of curriculum into the School of Pharmacy for graduate students
- Established a student executive committee and advising committee to aid efforts
- Independently secured funding via a grant for the pilot year of the program
- Secured funding via the Eshelman Institute for Innovation to expand this programming (2017)

**Chair**, Women in Science (WinS), UNC-CH 2012-2016

- **Chair** (2015-2016), **Co-Chair** (2014-2015), **Executive Committee** (2012-2014)
- Coordinated and organized the participation of over 100 graduate and professional students for the second annual WinS symposium, including a poster competition and networking session
- Organized the participation of the UNC Chancellor to speak on women in science to 300+ faculty, students, and staff at the WinS symposium
- Facilitated a minimum of 4 events a year including professional development, networking, and work-life balance panels

#### **RESEARCH EXPERIENCE**

**Adjunct Assistant Professor, Biomedical, Bioengineering, and Chemical Engineering Dept.**

University of Missouri at Columbia

Oct. 2017- July 2020

- Advised graduate and undergraduate students on their research path as a Graduate Faculty
- Designed and taught a course focusing on the intersection of diversity, inclusion, social justice, and global engineering (Find your EDGEd) for three semesters
- Authored and Co-authored several publications and grant applications
- Grants involved in:
  - NSF S-STEM: Synergistic Strategies in the Gateway 8: Increasing Retention and Success of Students from low-income backgrounds in Civil Engineering, Co-PI, National Science Foundation, \$959,547, awarded Dec. 2019

- Regional ITS Data Sharing Initiative, Leadership Team, Funded by St. Charles County
- Building a Convergent Research Community for Smart City Center Procurement, Co-Pi, UM System Research and Creative Works Strategic Investment Program
- Black and Brown in STEM, University of Missouri Inclusion, Diversity, and Equity Inclusive Excellence Faculty Grant
- Inclusive Excellence Grant, \$355k, UM System

**Graduate Assistant**, University of North Carolina at Chapel Hill Sep. 2012- June 2016

Project: Engineering PRINT® Particles for Pulmonary Delivery of Therapeutics

Adviser: Joseph M. DeSimone, PhD, Chancellor's Eminent Professor of Chemistry

Department of Molecular Pharmaceutics, Eshelman School of Pharmacy

NSF Graduate Research Fellow

- Investigated pulmonary treatment of respiratory diseases utilizing particle technology
- Authored and Co-authored 5 publications
- Established productive collaborations resulting in multiple publications
- Competitively acquired fellowship for 3 years based on research grant
- Managed a multidisciplinary team as well as worked independently
- Communicated complex information to a variety of audiences (presented at 10+ venues)
- Learned new techniques within first month and initiated a training checklist for future lab members
- Balanced research and outreach efforts simultaneously

## PATENTS

Desimone MJ, Perry J, Kapadia C, Tian S, **Rahhal TB**, Luft JC. (2018 Dec.) Toll-like Receptor Agonist Modified Particles and their use in Lung Cancer. (PCT/IB2018.053314 - US 62/504,831). Patent. Raleigh, NC

**Rahhal TB**, Wilson AK, Barnette WC, Lasater KE, Westbrook AE, Wiggin BM. (2012 May) Ankle-foot Orthotic devices with Integrated Vibrotactile Feedback. (US 20130296741 A1). Patent. Raleigh, NC.

## DIVERSITY & INCLUSION PROJECTS/PUBLICATIONS

**Baker J, Rahhal TB**. Engineering World Health's Design Competition: Fostering Career Exploration and Global Perspective. IEEE Potentials. March 2021.

**Rahhal, T.B.**, Ayllon M.E. Understanding the Impact of a Diversity and Inclusion Oriented Short-Term Study Abroad Program in Undergraduate Engineering Students. ASEE Collaborative Network for Engineering and Computing Diversity 2020 Conference.

**Rahhal, T.B.**, Devlin, S.L., Lobo, E.G.. Global Innovation: Creating a Conference to Promote Diversity in Science and Technology, Engineering, and Math. *Technology & Innovation: Journal of the National Academy of Inventors*. June 2019. <https://doi.org/10.21300/21.2.2020.123>

Morton, T, **Rahhal, T.B.**, Schul, J.. Black and Brown in STEM. In Progress.

**Rahhal, T.B.**, Ayllon M.E.. Finding your EDGEs: Engineering, Diversity, Global Experiences, and Service. Diversity Abroad Conference Competition. Third Place. April 2018. Oral.

**Rahhal, T.B.**, Ayllon M.E. The Latino/a student Engineering Experience at the University of Missouri, Cambio de Colores: Change of Colors Conference. June 2017. Oral.

## RESEARCH PUBLICATIONS

**Rahhal TB**, Fromen CA, Wilson E, Kai MP, Shen TW, Luft JC, DeSimone JM. Pulmonary Delivery of Butyrylcholinesterase as a Model Protein to the Lung. *Molecular Pharmaceutics*. March 2016.

Fromen CA, **Rahhal TB**, Shen TW, Robbins GR, Kai MP, Luft JC, Ting JP, DeSimone JM. Nanoparticle Surface Charge Impacts Distribution, Uptake and Lymph Node Trafficking by Pulmonary Antigen-Presenting Cells. *Nanomedicine: Nanotechnology, Biology, and Medicine*. Dec. 2015. Cover Feature.

Robbins GR, Fromen CA, **Rahhal TB**, Luft JC, Wang AZ, Pecot CV, DeSimone JM. Non-Intravenous Routes of Delivery: Aerosol Therapy for Cancer Management. *Cancer Nanotechnology Plan*. Nov. 2015.

Shen TW, Fromen CA, Kai MP, Luft JC, **Rahhal TB**, Robbins GR, DeSimone JM. Distribution and Cellular Uptake of PEGylated Polymeric Particles in the Lung Towards Cell-Specific Targeted Delivery. *Pharmaceutical Research*. April 2015.

Gharpure KM, Chu KS, Bowerman CJ, Miyake T, Pradeep S, Mangala SL, Han HD, Rupaimoole R, Armaiz-Pena GN, **Rahhal TB**, Wu SY, Luft JC, Napier ME, Lopez-Berestein G, DeSimone JM, Sood AK. Metronomic Docetaxel in PRINT Nanoparticles and EZH2 Silencing Have Synergistic Antitumor Effect in Ovarian Cancer. *Molecular Cancer Therapeutics*. 2014 Jul;13(7):1750-7. Cover Feature.

## HONORS & AWARDS

2021 Top 10 to Watch CEO of Non-profits, United Way of the Greater Triangle, Sept, 2021

2021 Leader in Diversity via Alliance Professional Development, Triangle Business Journal, Aug. 2021

2020 University of Missouri Study Abroad Teaching Excellence Award, May 2020

Inclusive Excellence and Engagement, Diverse Engineering Professional Conference Team Special Recognition, UM Extension and Engagement Division, Sept. 2019

American Society for Engineering Education Diversity Education Program Recognition Bronze, Aug. 2019

National Society of Black Engineers (NSBE) Mentoring Award, March 2019

Missourian Progress for Education Award, December 2018

Insight into Diversity 2018 Inspiring programs in STEM Award, August 2018

MU Staff Advisory Council Education Award, Fall 2018

WISE Women of May, Women in Science and Entrepreneurship, May 2018

Student Nominated Outstanding Staff Award, Engineering Student Council, Univ. of Missouri, May 2018

Women of Color History Makers in Diversity Award, NAMEPA, April 2018

Mystical 7, Mizzou Secret Honor Society, Honorary Faculty Inductee, April 2018

Hidden Gem, Columbia-Missouri Entrepreneurs Panel, Worley St. Roundtable, April 2018

Third Place, Diversity Abroad Innovation Competition, Miami, FL, April 2018

Outstanding Staff Award, College of Engineering, Univ. of Missouri, March 2018

Shirley Chisholm Outspoken Advocate Award, Univ. of Missouri, November 2017

## CERTIFICATIONS

Leadership Triangle, Transforming Leaders, Goodmon Fellowship, Fall 2021  
 Mediation for Civil Cases, 23 MCLE credit and 2 hours of Ethics, January 2019  
 Principals of Clinical Pharmacology Certification, National Institutes of Health Clinical Center, June 2018  
 Green Dot Community Training Certification, Missouri Dept. of Health, May 2018  
 Intercultural Development Inventory Qualified Administrator, April 2017  
 Supervisory Training Certification, Missouri Training Institute, October 2017  
 Diversity 101 Course Completion, University of Missouri, May 2017  
 NCCJ Building Inclusive Classroom & Community Workshop, Center for Health Policy, Feb. 2017  
 HHMI Translational Medicine Certificate, UNC School of Medicine, May 2016  
 Orientation for Clinical Research Personnel, Dec. 2015  
 Essential Skills for Success in Industry Seminar Series, TIBBS, Aug. 2014

## DIVERSITY AND INCLUSION PRESENTATIONS (sample)

- SUNY Upstate Medical School Program Participants, November 2021
- Implicit Bias Workshop Speaker, Southern College of Optometry, Sept 2021, October 2021
- Imposter syndrome Workshop Speaker, Central Bank of Boone County Mentor Program October 2021
- Panelist, Women in Science and Engineering, Missouri Cures, November 2018
- Women's Network Monthly Lunch Keynote Speaker, Columbia Chamber of Commerce, Sept. 2018
- Cross-Cultural Leadership, University of South Dakota School of Pharmacy, September 2018
- Shelter Insurance: Multicultural Resource Group, Emerging Professionals Network, Women Advocacy Group, Fall 2018
- University of Missouri Student Ambassadors, Retreat Training, August 2018
- Imposter Syndrome, Graduate Students, AACP Webinar, April 2018
- Journey towards Inclusive Excellence Workshop, April 2018
- Unraveling the Mystery of LinkedIn, The Hatchery- Coworking Space, April 2018
- Implicit Bias in the Corporate World Webinar, execMBA, Trulaske College of Business, March 2018 & November 2018
- Women Entrepreneurs and Imposter Syndrome, Boonslick Women's Network, October 2017.
- Diversity and the Tech Culture, College of Engineering, University of Missouri- Columbia, November 2017.
- The AtoZ of Networking Workshop, Annual Biomedical Research Conference for Minority Scientists, November 2017.
- Overcoming Imposter Syndrome, Veteran's United Home Loans, October 2017.
- Overcoming Imposter Syndrome, Missouri Women's Business Center, Fulton, MO, October 2017.
- Bias and Imposter Syndrome Workshop, Missouri Women's Business Center, Columbia, MO, September 2017.
- Faculty Department Diversity and Inclusivity Retreat, August 2017.
- Team Building and Leadership Development, Columbia Junior Leaders Academy, Chamber of Commerce, August 2017.
- Utilizing Cross-Cultural Leadership Training for Pharmaceutical Sciences, American Association of Colleges of Pharmacy Annual Meeting, July 2017.
- Understanding the Leader in You, Leadercast Conference, May 2017.
- Team Building and Leadership Development, The BOLD Academy, Columbia College, July 2017.
- Keynote Speaker, Stand Up Stand Out: The Power of Confidence, Missouri S & T University, October 2017.

- Developing Authentic Leadership, Missouri Women's Business Center, Columbia, MO, March 2017.
- Inclusion Illusion Conference, Trulaske College of Business, University of Missouri- Columbia, March 2017.
- MGT 3700 Diversity in Management Course Guest Lecturer, Trulaske College of Business, University of Missouri- Columbia, March 2017.
- The A to Z of Networking, Stephen's College, Columbia, MO, February 2017.

## RESEARCH PRESENTATIONS (sample)

### Engineering PRINT® Particle for Pulmonary Delivery of Therapeutics

- **Rahhal, T.B.** 9<sup>th</sup> International Conference and Exhibition on Tissue Science and Regenerative Medicine, Keynote Speaker. Las Vegas, NV. April 2018. Oral.
- **Rahhal, T.B.** Eshelman School of Pharmacy Graduate Program Retreat, Research, and Awards Day. Chapel Hill, NC. April 2016. Brewington Awardee Presentation Oral.

### Pulmonary Delivery of Butyrylcholinesterase for Treatment of Organophosphate Poisoning.

- **Rahhal, T.B.**, Fromen, C.A., Wilson, E.M., Kai, M.P., Shen, T.W., Luft, C.J., DeSimone, J.M. American Association of Pharmaceutical Sciences Annual Meeting. Orlando, FL. Oct. 2015. Poster.
- **Rahhal, T.B.**, Fromen, C.A., Wilson, E.M., Kai, M.P., Shen, T.W., Luft, C.J., DeSimone, J.M. Chapel Hill Pharmaceutical Sciences Conference. Chapel Hill, NC. Oct. 2015. Poster.

### PRINT® PLGA Nanoparticle Ex-vivo Degradation Characterization.

- **Rahhal, T.B.**, Chu, K., DeSimone, J.M. BBSP Fall Symposium. Chapel Hill, NC. Dec 2012. Poster.

### Ankle-foot Orthotic devices with Integrated Vibrotactile Feedback.

- **Rahhal, T.B.**, Wilson A.K., Barnette W.C., Lasater K.E., Westbrook A.E., Wiggin B.M., Dimeo A. Annual Biomedical Engineering Symposium. Raleigh, NC. May 2012. Oral and Poster.

## MEDIA COVERAGE (sample)

“Biomedical Engineers are Unsung Heroes of Global Health”  
<https://lnkd.in/ga6xPte9>

“10 to Watch: Tojan Rahhal, Ph.D. of Engineering World Health”  
<https://leadershiptriangle.medium.com/10-to-watch-tojan-rahhal-ph-d-of-engineering-world-health-cfc3637e680c>

“Thinking Edge Interview with Ed Boudrot” <https://youtu.be/nDKlxxdWjFo>

“Tojan Rahhal, an educator bringing STEM to young students”  
[https://www.columbiamissourian.com/special\\_section/progress/tojan-rahhal-an-educator-bringing-stem-to-young-students/article\\_d69eb1ce-e8f5-11e8-84f5-ef5ac8a4e340.html](https://www.columbiamissourian.com/special_section/progress/tojan-rahhal-an-educator-bringing-stem-to-young-students/article_d69eb1ce-e8f5-11e8-84f5-ef5ac8a4e340.html)

“MU College of Engineering promotes inclusivity in new center.”  
[https://www.columbiamissourian.com/news/higher\\_education/mu-college-of-engineering-promotes-inclusivity-in-new-center/article\\_156255a4-a3cf-11e7-a120-074b3930f309.html](https://www.columbiamissourian.com/news/higher_education/mu-college-of-engineering-promotes-inclusivity-in-new-center/article_156255a4-a3cf-11e7-a120-074b3930f309.html)