

RUPA S. IYER, Ph.D.

Inaugural Vice President
Research, Innovation and Economic Development
Tarleton State University
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EDUCATION

1992	Ph.D.	Mycology, Michigan State University, East Lansing, MI
1985	M.S.	Biotechnology, University of Mumbai, India
1983	B.S.	Life Sciences, St. Xavier's College, India

TRAINING AND CERTIFICATION

1994	Post-doctoral training	MD Anderson Cancer Research Center, Houston, TX
2023	Certificate	Institute for Education Management, College of Education, Harvard University

KEY APPOINTMENTS

Administrative

2021-pres.	Inaugural Vice President Research, Innovation and Economic Development Tarleton State University, Stephenville TX
2005-2021	Founding Director Biotechnology Programs University of Houston (UH), Houston TX
2017-2019	Program Director National Science Foundation (NSF), Alexandria, Virginia
2008-2021	Director Center for Life Sciences Technology University of Houston (UH), Houston TX
2013-2017	Associate Dean Research and Graduate Studies College of Technology (COT), UH, Houston, TX

Academic

2021- present	Professor Biology, College of Sciences and Math Tarleton State University, Stephenville TX
2019-2021	Professor Engineering Technology, Biotechnology COT, UH, Houston, TX
2012-2019	Associate Professor Engineering Technology, Biotechnology COT, UH, Houston, TX
2005-2012	Research Professor Engineering Technology COT, UH, Houston, TX
1994-2005	Instructor Department of Biology Wharton County Junior College, Wharton, TX

AWARDS AND HONORS

- Elected Fellow – American Association for Advancement in Science (AAAS), 2022
- Awarded Outstanding Woman in Science - Association of Women in Science, Gulf Coast Houston, 2020
- Selected Fellow -Council on Research, Association of Public and Land Grant Universities (COR, APLU), 2019 -2021
- Awarded- Faculty Excellence in Research Award, COT, UH, 2018 – 2019
- Admitted- Life member to Phi Beta Delta International Honor Society for International Scholars, 2018
- Awarded- Distinguished Leadership in Teaching Award, UH, 2016-2017 (University of Houston’s Highest Teaching award, only one given per year)
- Outstanding Graduate Student Award, COT, Thesis Advisor, student -Nelufa Islam, 2018
- Selected- UH Nominee, Texas Minnie Piper Stevens Award, 2016-2017
- Selected - Fulbright Specialist, Morocco, July 2016
- Selected- Fulbright Specialist Roster, US Department of State, 2015 -2020
- Certificate- Outstanding COT Faculty, UH Provost, 2015
- Awarded- Excellence in Teaching Award, University of Houston, 2014
- Awarded- Fluor Award for Service Excellence, College of Technology, UH, 2013
- Selected to participate in BIO IDEAS LAB, NSF, Virginia, June 2015
- Selected to participate in the first cohort UH’s Chairs Leadership Academy Program, 2013- 2014
- Summer Undergraduate Research Award (SURF) Mentor, Student, Lisa Lau, 2013
- Third Place award for best paper: Givmanesh, A., Iyer, R., Smith K. “Enhancing Bioreactor Functionality in Bio- Processing Courses,” Proceedings of the 2011 ASEE Gulf—Southwest Annual Conference
- Outstanding Indian Award, Teaching, India Culture Center, 2011, Houston, TX
- Selected- Thoman Fellow- Michigan State University, MI, 1989-90

SPONSORED GRANTS

Sponsor: U.S. Economic Development Administration (**EDA**) Recommended for Funding

Purpose: Creation of Tarleton Innovation and Entrepreneurship University Center to support innovation and entrepreneurship across North Central Texas by acting as a hub for knowledge-based economic development and resilience.

Amount: \$1,329,240.00

Period: October 1st, 2023 – October 1st, 2028.

P.I: **Rupa Iyer**

1. Sponsor: The National Science Foundation (**NSF, GRANTED**)

Purpose: Conference to convene emerging research institutions and professional development organizations to share knowledge catalyze the development of new approaches to collectively strengthen the nation's research enterprise

Amount: \$99,979.00

Period: August 15th, 2023 – May 15th, 2023

P.I: **Rupa Iyer**

2. Sponsor: The National Science Foundation (**NSF, IUSE**)

Purpose: Broad Scale Dissemination and Implementation of undergraduate research at 5 institutions nationally.

Amount: **\$2,100,836.00**

Period: 9/01/17-8/31/23

P.I: **Rupa Iyer** (Sole investigator on the grant)

3. Sponsor: UH Minor Research Core Facility Funding Program

Purpose: Mass Spectroscopy for Multidisciplinary Research

Date: 3/26/2017

Amount: **\$400,000.00**

P.I.: Chengzhi Cai (PI), Steven Bark, **Iyer Rupa**, Otteson Deborah, Robertson Megan

4. Sponsor: The National Institutes of Standards and Technology (**NIST**)
Purpose: Developing Standards Course in Biotechnology
Amount: **\$74,887.00**
Period: 9/01/15-2/28/18
P.I: **Rupa Iyer**
5. Sponsor: **US State Department**
Purpose: Fulbright Grant to Morocco
Amount: **\$3,000.100**, Period: 7/11/2016-7/25/2016
P.I: **Rupa Iyer**
6. Sponsor: The National Science Foundation (**NSF**), I- CORP
Purpose: Entrepreneurship Training for Educational Startups
Amount: **\$50, 000**
Period: 1/2015-6/2016
P.I: **Rupa Iyer**
7. Sponsor: University of Houston (**UH**)
Purpose: Regulations in Biotechnology (Graduate course)
Amount: **\$4,000**, UH FDIP
Period: 5/2012- 5/2013
P.I: **Rupa Iyer**
8. Sponsor: Texas Workforce Commission (**TWC**)
Purpose: Building a 21st Century Biotechnology Workforce
Amount: **\$296,094**
Period: 2/2011 - 1/2012
P.I: **Rupa Iyer**
9. Funding Agency: **TWC**
Purpose: Skills and Training in Biotechnology and Life Sciences
Amount: **\$392,604**
Period: 5/2009 - 5/2010
P.I: **Rupa Iyer**
10. Sponsor: **NSF**, REU
Purpose: Research Experiences for Undergraduates
Amount: **\$330,000**
Period: 6/2008-1/2011
I: Heidar Malki, Co- PI Co-PI: Jane Yuan, Senior Personnel: Driss Benhaddou, **Rupa Iyer**, Deniz Gurkan, Farrokh Attarzadeh, Moges Mequanint, Gangbing Song
10. Sponsor: University of Houston (**UH**)
Purpose: Interdisciplinary Research based Bioprocessing Laboratory Course
Amount: **\$10,000**
Period: 1/2009 -12/2009
P.I: **Rupa Iyer**, Co PIs: Richard Wilson, and Bill Kudrle
11. Sponsor: Li Cor Biosciences
Purpose: Equipment grant
Amount: **\$100,000**
Period: 7/2008 – 7/2009
P.I: **Rupa Iyer**

12. Sponsor: **UH**
 Purpose: Distance Education Courses
 Amount: **\$15,000,**
 Period: 6/2008 – 8/2009
 P.I.: **Rupa Iyer**
13. Sponsor: **TWC**
 Purpose: Biotechnology Summer Camp
 Amount: **\$31,500**
 Period: 6/2008 - 9/2008
 P.I: **Rupa Iyer**
14. Sponsor: **TWC**
 Purpose: - Initiating a Comprehensive Biotechnology Program at the University of Houston
 Amount: **\$1,022,336.00,**
 Period: 8/2006 - 8/2008
 P.I: Rupa Iyer
15. Funding Agency: **NSF, CCLI**
 Purpose: From Nature to Lab to Production- Infusing Cutting Edge Research into Undergraduate Biotechnology Curriculum
 Amount: **\$121,880 .00**
 Period: 12/2006 -12/2009
 P.I: Rupa Iyer

Other: Industry Contributions Amount: **\$300,000.00**
 Period: 09/2009- present

ADMINISTRATIVE EXPERIENCE

2021- prese **Inaugural Vice President of Research, Innovation and Economic Development, Tarleton State University, Stephenville TX**

Responsibilities and Accomplishments

- Providing leadership, planning, coordination, in research administration to improve research support and services communication and research administration, and economic development initiatives
 - Centralized pre and post award services to provide seamless support in research administration
 - Developed and implemented procedure and policies to identify and accurately capture institutional research expenditures
 - Initiated pre-award support through grant writing workshops, writing retreats, individual grant writing and proposal development support.
 - Increased research expenditures by over 50% in 2 years
 - Administered internal funding of over \$2.5 million over 3 years
 - Overseeing administration of compliance programs to ensure research compliance
 - Implemented pre award post award and compliance training workshops
 - Established Tarleton’s first Research Council to listen, understand, effectively communicate, and receive feedback from colleges, faculty and deans to enhance and support research and scholarly activities of each unit.
 - Led the creation of new website for Division of Research in collaboration with MarCom
 - Started Quarterly REID newsletter to communicate REID activities to internal and external stakeholders.
 - Established new funding opportunity newsletter, **Inside Tarleton Research**
 - New Research Magazine to communicate Tarleton Faculty Research to internal and external stakeholders.
- Enhanced Tarleton’s Research and Innovation Capacity

- Initiated first matching equipment research funding program
 - Supported research development of first NSF research grant to college of Education and College of Engineering
 - Facilitating multidisciplinary research opportunities and development of campus wide initiatives
 - Coordinating ongoing and emerging initiatives among the Division's units to develop strategic partnerships
- Innovation and Economic Development
 - Led the creation of Institute for Rural Research and Economic Development
 - Led the creation of Institute for Biotechnology Research and Innovation, TAMUS – Tarleton Fort Worth.
 - Building partnerships and collaborations with local, regional, national business, government, and industry
 - Engaged and partnered with Chamber of Commerce and Economic Development councils with counties including Hood, Erath, Parker, Palo Pinto, and Tarrant to submit the First University Center proposal to support rural innovation and entrepreneurship.
 - Partnerships with industries including St. Gobain, and United Cooperative Services to collaborate and engage students and faculty on research projects
 - TAMUS Fort Worth – Tarleton POR for Research and Academic Alliance.
 - Facility planning for Tarleton's Research and Innovation park
 - Student Success, Access and Engagement
 - Administered internal funding of ~ \$3million to support faculty led student research
 - Administered Tarleton's Annual Research symposium
 - Partnered with TechFW (incubator accelerator) to place students in start-ups
 - Implemented undergraduate research to provide cross disciplinary skills and collaborative research experience to help retention and motivation in STEM
 - Procured funding to place students in state funding agencies to gain experience in research administration.

2005 – 2021 Founding Director, Biotechnology Programs, College of Technology (COT), University of Houston (UH), Houston TX

Responsibilities and Accomplishments

- Created, designed, developed, and implemented a new four-year biotechnology undergraduate degree and MS track in Biotechnology
- Integrated undergraduate research and federal regulations into the curriculum.
- Disseminated and implemented undergraduate research at 5 diverse institutions
- Procured funding from state and federal agencies in excess of \$4M as PI to develop the program and successfully implement the program
- Created interdisciplinary laboratory program in collaboration with industry and academic partners
- Designed Biotechnology academic and research laboratories
- Led the program through its formal approval process from the College to the University to the Texas Higher Education Coordinating Board (THECB)
- Increased student enrollment from less than 6 to over 580 within 8 years of program implementation (2009-2017), increased faculty from 1 to 5
- Led the first accreditation of the program by the Association Technology Management and Applied Engineering Board of Accreditation (ATMAE)
- Managed advising, admissions, recruitment, faculty and staff hiring

2017-2019 Program Director, National Science Foundation (NSF), Alexandria, Virginia

Responsibilities and Accomplishments

- Reviewed and evaluated research and education proposals
- Recommended proposals for funding

- Administered NSF awards and conducted post award oversight
- Recruited reviewers, organized, and managed review panels
- Mentored current and potential Principal Investigators
- Drafted solicitations in collaboration with government agencies and industry partners
- Collaborated with Interagency Working Groups (IWG) to evaluate policies and procedures on Oceans Education
- Represented Education and Human Resources directorate to draft convergent research solicitations, ex. Navigating the New Arctic
- Offered proposal writing workshops and mock review panels
- Conducted outreach to education and research community
- Ensured broadening participation of women and underrepresented minorities

2013 – 2017 Associate Dean, Research and Graduate Studies, COT, UH

Responsibilities and Accomplishments

- Reorganized COT sponsored program office to enhance faculty proposal submissions and reduce administrative burden
- Increased awards by 79%
- Increased average grant submissions by 65%
- Increased average research expenditures by 37%
- Served as a liaison between UH Division of Research (DOR) and COT
- Increased interdisciplinary submissions
- Increased limited submission grant slots for COT faculty
- Organized the first COT “research mixer” to facilitate research collaborations amongst faculty
- Serve as liaison between the Graduate School and COT
- Evaluated and approved COT graduate applications, programs, and courses
- Evaluated and recommended new UH graduate programs and Certificates
- Led the college through the transition to College Net, a new online graduate application system
- Led the college through the first peer review of COT graduate programs

2018 – 2021 Director of the Center for Life Sciences Technology, COT, UH

Responsibilities and Accomplishments

- Initiated and developed the core vision of the Center to support education, research, and public private partnerships
- Led the center to be consistently ranked amongst the top ten at UH in terms of external funding
- Engaged and collaborated with local biotech industry to develop new biotechnology program at UH
- Manage business and related operations of the center
- Offered certificate and upskilling programs for the biotech industry
- Offered teacher workshops and high school biotech camps

FACULTY EXPERIENCE

2019 – 2021 Professor, Engineering Technology, Biotechnology, COT, UH

Responsibilities and Accomplishments

- Modeling of putative xenobiotic degradation pathways
- Mapping of distribution of relevant bacterial species and degradation biomarkers for environmental waste products
- Media optimization for the isolation of rare soil bacterial genera including *Sphingomonas*, *Sphingobium*, *Rhodococcus* and *Comomonas*

2012 -2019 Associate Professor, COT, UH

Responsibilities and Accomplishments

- Initiated and implemented an independent research program in environmental biotechnology and soil microbiome genomics
- Conducted functional annotation and pathway mapping of bacteria in environmental samples using metagenomic data analysis
- Genome-spatial analysis of xenobiotic degradation activity and biomarkers in water and soil
- Comparative degradation kinetics of individual wild-type bacteria and bacterial consortia for bioremediation of environmental toxins
- Assembled a collection of over 60 bacterial strains for research, education, and commercialization

2005 -2012 Research Professor, COT, UH

- Procured funding to administer and implement biotechnology initiative for UH

1994 -2005 Instructor, Department of Biology, Wharton County Junior College, TX

Responsibilities and Accomplishments

- Taught introductory biology, microbiology (interactive T.V), nutrition (video based), anatomy and physiology lecture and laboratory classes
- Developed and updated microbiology lab and lecture curriculum and authored first lab manual for WCJC
- Co-authored biology lab manuals
- Participated in developing and teaching first distance learning (interactive TV and video-based classes) for Biology Department

PROFESSIONAL SERVICE

National/Federal/Departmental Service

1. **Member**, Executive Committee Council on Research (COR), Association of Public and Land Grant Universities (APLU). 2022- present
2. **Co -organizer**, New and Aspiring VPR workshop, APLU, COR Meeting, June 2023, Halifax, CA
3. **Member, Steering Committee**, COR Fellows, APLU.
4. **Member**, President Executive Cabinet, Tarleton State University, Feb, 2021 – present
5. **Executive Chair**, Research Council, Tarleton State University, 2021 – present
6. **Member, Steering Committee**, Tarleton Budget Redesign project, April 2022 – present
7. **Member**, Interagency Working Group (IWG), NSF, Ocean's Education, 11/18- 9/19
8. **Steering Committee Member**, NSF, Undergraduate Research Summit, NSF, 2/19- 10/19
9. **IRB Committee Member**, UH, 8/2019- 2021
10. **UH Faculty Representative**, Federal Demonstration Partnership (**FDP**), FDP is a cooperative initiative is a cooperative agreement among federal agencies and universities to reduce administrative burdens associated with research grants and contracts. 10/13- 9/17
11. **Member**, Graduate School and Professional Council, Program Evaluation Committee, UH, 2012-2017
12. **Grant reviewer**, National Science Foundation (NSF), ATE (Advanced Technological Education) and Course Curriculum and Laboratory Improvement (CCLI) review panel, since 2002
13. **Panel Chair**, National Science Foundation ATE review panel, 2004.
14. **Member**, Advisory Board, Life Science Technology Forum, Rice University, Houston TX, 2009, 2010, 2011
15. **Founder**, International Society of Pharmaceutical Engineers, Houston Student Chapter, UH, 2008.
16. **Founding Faculty advisor**, International Society for Pharmaceutical Engineers Chapter, 2008-2013
17. **Faculty Advisor**, Society for Biological Engineers UH Chapter, 2016- present
18. **Committee Member**, Scholarship Committee, College of Technology, UH, 2010- 2012
19. **Committee Chair**, Biotechnology Lab manager search committee, College of Technology, UH,

2009.

20. **Committee Member**, Bioresearch Day Planning Committee, University of Houston, 2009.
21. **Committee Chair**, Biotechnology Assistant Professor search committee, Cot, 2015
22. **Committee Member, Director** of COT Student affairs search committee, Cot, 2016
23. **Committee Chair**, Biotechnology Lab manager search committee, Cot, 2016

Professional Societies

1. **Session Co Chair**, Annual AAAS meeting, Seattle, 2020
2. **Session Chair**, Annual ASEE- GSW Conference, Houston, TX, 2011.
3. **Reviewer**, ASEE Conference Papers, 2010, 2011.
4. **Panel Member**, Southeast ISPE Chapter Feb 2007 Galveston: Current Trends in Biotechnology Industry.
5. **Member**, American Association for Advancement of Science, American Society for Microbiology, American Society for Engineering Education (past member).

PUBLICATIONS (**student)

Journal Publications

1. Islam, N., and Iyer, R., (2021) Functional Analysis of Chlorpyrifos Biodegradation in Agricultural Soils Augmented with a Three Strain Bacteria Consortium. *Water, Air and Soil Pollution*, 232(10),1-11
2. Iyer, R., and Damiana, A. (2020) Shotgun Metagenomics of indigenous bacteria collected from the banks of San Jacinto River for biodegradation of aromatics waste. *FEMS Microbiology Letters*, 367fnaa 133.
3. Savio, A., Fletcher., Smith, K., Iyer, R., Bao, J., Hernandez Robles, F (2019) Effective Visible Light Photodegradation of Paraoxon with pure and doped TiO₂. *Advanced Catalytic Materials: Current Status and Future Progress*, 191-207
4. Iyer, R., Damania, A., and Iken (2019) Genome data of *Stenotrophomonas maltophilia* DF07 collected from polluted river sediment reveals an opportunities pathogen and potential antibiotic reservoir. *Data in brief*, 25.
5. Iyer, R., Iken B., Damania, D., **Krieger, J. (2018) Whole genome analysis of six organophosphate-degrading rhizobacteria reveals putative agrochemical degradation enzymes with broad substrate specificity. *Environmental Science and Pollution Research*, 25(14) 13660-13675.
6. Iyer, R., Iken, B. and Damania, A. (2017). Whole genome sequencing of *Microbacterium* sp. AISO3 from polluted San Jacinto River sediment reveals high bacterial mobility, metabolic versatility and heavy metal resistance. *Genomics Data*, 14, 10-13.
7. Iyer, R., Iken, B. and Damania, A. (2017). Whole genome of *Klebsiella aerogenes* PX01 isolated from San Jacinto River sediment west of Baytown, Texas reveals the presence of multiple antibiotic resistance determinants and mobile genetic elements. *Genomics Data*, 14, 7-9.
8. Iyer, R., Iken, B. and Damania, A. (2017). Genome of *Pseudomonas nitroreducens* DF05 from dioxin contaminated sediment downstream of the San Jacinto River waste pits reveals a broad array of aromatic degradation gene determinants. *Genomics Data*, 14, 7-9.
9. Iyer, R., **Aggarwal, J., and Iken, B. (2016). A Review of the Texas, USA San Jacinto Superfund site and the deposition of polychlorinated dibenzo-p-dioxins and dibenzofurans in the San Jacinto River and Houston Ship Channel. *Environmental Science and Pollution Research*, 23(17).
10. Iyer, R., and Damania, A. (2016). Draft Genome Sequence of *Exiguobacterium* sp. KKBO11, Isolated Downstream of a Wastewater Treatment Plant in Houston, Texas. *Genome Announcements*, 4(4), e00681-16.
11. Iyer, R., and Damania, A. (2016). Draft genome sequence of *Pseudomonas putida* CBF10-2, a soil isolate with bioremediation potential in agricultural and industrial environmental settings. *Genome Announcements*, 4(4), e00670-16.
12. Iyer, R., Iken, B., and **Leon, A. (2016). Characterization and Comparison of Putative *Stenotrophomonas Maltophilia* Methyl Parathion Hydrolases. *Bioremediation Journal*, 20(1), 71 – 79.
13. Iyer, R., and Damania, A. (2016). Draft genome sequence of alkane-degrading *Acinetobacter venetianus* JKSF02, isolated from contaminated sediment of the San Jacinto River in Houston, Texas.

- Genome announcements, 4(2), e00286-16.
14. Iyer, R., and Damania, A. (2016). Draft genome sequence of *Pseudomonas stutzeri* ODKF13, isolated from farmland soil in Alvin, Texas. Genome announcements, 4(2), e00293-16.
 15. **Savio, A, Fletcher, J., Smith, K. Iyer, R., Bao, J., and Hernandez, Robles. (2016). Environmentally Effective Photocatalyst CoO-TiO₂ Synthesized by thermal precipitation of Co in Amorphous TiO₂. Applied Catalysis B: Environmental.
 16. Iyer, R., and Damania, A. (2016). Draft Genome Sequence of *Rhizobium* sp. GHKF11, Isolated from Farmland Soil in Pecan Grove, Texas. Genome Announcements, 4(4), e00682- 16.
 17. Iyer, R., and Damania, A. (2016). Draft genome sequence of *Stenotrophomonas maltophilia* CBF10-1, an organophosphate-degrading bacterium isolated from ranch soil in Fairchilds, Texas. Genome announcements, 4(3), e00378-16.
 18. Iyer, R., and Damania, A. (2016). Draft genome sequence of the broad-spectrum xenobiotic degrader *Achromobacter xylosoxidans* ADAF13. Genome announcements, 4(2), e00203-16.
 19. Iyer, R., and Damania, A. (2016). Draft genome sequence of organophosphate-degrading *Ochrobactrum anthropi* FRAF13. Genome announcements, 4(2), e00295-16.
 20. Iyer, R., Smith, K., Kudrle, B., and **Leon, A. (2015). Detection and Location of OP- degrading Activity: A model to Integrate Education and Research. New Biotechnology, 32(4), 403-411.
 21. Iyer, R., and Iken, B. (2015). Protein Engineering of Representative Hydrolytic Enzymes for Remediation of Organophosphates. Biochemical Engineering Journal. Vol. 94, 134-144.
 22. Iyer, R., Iken, B., and **Leon, A. (2015). Developments in Alternative Treatments for Organophosphate Poisoning. Toxicology letters. Vol. 233(2), 200-206.
 23. Iyer, R., Iken, B., and ** Damania, A. (2013) A Comparison of Organophosphate Degradation Genes and Bioremediation Applications. Environmental Microbiology Reports. doi: 10.1111/1758-2229.12095.
 24. Iyer, R., Stepanov, V., and Iken, B. (2013) Isolation and Molecular Characterization of Novel *Pseudomonas putida* Strain Capable of Degrading Organophosphate and Aromatic Compounds. Journal of Advances in Biological Chemistry. (Vol 3), 564- 578.
 25. Iyer, R., and Iken, B. (2013) Identification of Water-borne bacterial isolates for Potential Remediation of Organophosphate Contamination, Journal of Advances in Biological Chemistry, Vol. 3,146-152.
 26. Iyer, R., and Wales, M. (2012) Integrating Interdisciplinary Research –based Experiences in Biotechnology Laboratories, Journal of Advances in Engineering Education, Vol. 3,(1) 1-35.
 27. Iyer, R., and Kudrle, B. (2012) Implementation of an Electronic Lab Notebook to Integrate Research and Education in Biotechnology Program, Technology Interface Journal, Vol. 12, (2) 5-12.
 28. Kudrle, B., and Iyer, R. (2012) A Semantic Electronic Lab Notebook for Education, Computers in Education Journal, Vol. 22 (3), 35-42.
 29. *Givmanesh, A., and Iyer, R. (2011) Enhancing Bioreactor Functionality in Bio- Processing Courses, Computers in Education Journal, Vol 21 (4), 2-12.
 30. *Givmanesh, A., Iyer, R., and Benhaddou, D. (2011) Integrated Remote Management for Bio- Processing Experiments, International Journal of Engineering Research and Innovation, Vol 3(1), 75 -81.
 31. Iyer, R., Iken, B., and **Tamez, T. (2011) Isolation, Molecular and Biochemical Identification of Paraoxon-Metabolizing *Pseudomonas* Species, Journal of Biodegradation and Bioremediation, Vol 2 (5), 2- 6.
 32. Iyer, R., and Fitzgibbon, W. (2009) “Building the Future Biotechnology Workforce – A University of Houston Model” Journal of Commercial Biotechnology, Vol 15 (2), 171 -182.
 33. Adams, G. C., Surve-Iyer, R.S., and Iezzoni, A. F. (2002) Ribosomal DNA sequence divergence and group I introns within *Leucostoma personii* and *Leucostoma cincta*. Mycologia, Vol. 94 (6) 947- 969.
 34. Saunders, P. P., Arimilli, S., Krohn, K., Muhs, M. A., Alvarez, E. and Surve-Iyer, R.S. (1995) “Metabolism and action of benzamide ribozide in Chinese hamster ovary cells.” Anti-cancer Drugs, 6: 1-7.
 35. Surve-Iyer, R.S., Adams G.C., Iezzoni, A.F and Jones A.L. (1995). Isozyme detection and variation in *Leucostoma* species from *Prunus* and *Malus*. Mycologia, Vol 87 (471-482).
 36. Surve-Iyer, R. S., and Adams, G. C. (1991). Genetic comparison of ribosomal DNA in *Leucostoma* species. Mycol. Soc. Am. News. Vol 42 (3):45.

PEER REVIEWED CONFERENCE PROCEEDINGS

1. Iyer, R.S. (2021) “An Entrepreneurial Approach to Broadening Participation in STEM” **Plenary Speaker**, Partnership for Undergraduate Life Sciences Education, May 27, 2021. Virtual Conference.
2. Iyer, R.S. (2019) “Metagenomic and Functional Characterization of Microbiota Degradation of Dioxin like Pollutants from the San Jacinto River” Soil Society of America Conference, Jan. 6-9, San Diego, CA
3. Islam, N and Iyer R.S (2018) “A Genomic and Functional Analysis of Bacterial Diversity in Agricultural Soil for Chlorpyrifos Degradation”. Texas Branch, American Society for Microbiology (ASM) fall Conference, Corpus Christie, TX
4. Iyer R.S (2018) “Environmental Sampling – An Approach to Integrate Education and Research” American Society for Microbiology Conference, July 25 -29, Austin, TX
5. Iyer R.S (2018) “UH Biotechnology- A Platform for Education and Research Collaboration” presentation to the Division of Graduate Education, NSF, June 20, Alexandria, VA
6. Iyer R.S (2018) “Increasing Student Engagement with Environmental Research” Association for Environmental Science and Studies Conference, June 20- 23, Washington D.C
7. Iyer R. S (2018) “Environmental Sampling: An Approach to Broaden Participation, National Alliance for Broader Impacts”, Conference, April 25 -27, Providence, R.I
8. Iyer R.S., Wright R., Pauley, M. (2018) “NABI Framework and Broader Impacts of NSF’s Division of Undergraduate Projects”, National Alliance for Broader Impacts Conference, April 25 -27, Providence, R.I
9. Islam N* and Iyer R.S (2018) “A Taxonomic and Functional Analysis of Bacterial Diversity in Agricultural Soils for Organophosphate Biodegradation” Texas ASM Conference, American Society for Microbiology Meeting, New Braunfels, TX
10. Iyer, R. S (2017) “Functional Characterization and Comparative Metagenomics of Indigenous Bacteria Isolated from the San Jacinto River for Biodegradation of Recalcitrant Chlorinated and Non-Chlorinated Aromatic Waste”, 14th International Symposium on Recent Advances in Environmental Health Research” Jackson, MS
11. ** Mahanadi, Kavya, and Iyer, R. (2012) Remote Control of Bioreactor, *Proceedings of the 2012 ASEE Annual Conference*. San Antonio, TX
12. **Givmanesh, A., Iyer, R., and Smith K. (2011) Enhancing Bioreactor Functionality in Bio- Processing Courses. *Proceedings of the 2011 ASEE Gulf—Southwest Annual Conference*, Houston, TX
13. **Givmanesh, A., and Iyer, R., and Benhaddou, D. (2011) Integrated Remote Management for Bioprocessing Experiments. *Proceedings of the 2011 ASEE International Conference*, Hartford, CT
14. Iyer, R.S. (2010) The Center for Life Sciences Technology – A Model for Integration of Education Research and Workforce Development. *Proceedings of the 2010 American Society for Engineering Education*, Louisville, KY
15. Iyer, R.S. (2009) An interdisciplinary Research Based Approach to transform Undergraduate Education. *Proceedings of the 2009 American Association for Advancement of Science Conference*, Washington DC
16. Iyer, R.S. (2008) From Nature to Lab to Production- Infusing Cutting Edge Research into Undergraduate Lab Curriculum. *National Science Foundation, Course Curriculum and Laboratory Improvement Conference*, Washington DC
17. Iyer, R.S. (2008) Research Based Biotechnology Program. *Proceedings of the Council for Undergraduate Research Conference*, St. Benedict, MN
18. Iyer, R.S. (2007) Bridges to the future- Infusing Cutting Edge Research into Undergraduate Curriculum. *Proceedings of the Annual ASEE Conference*, Honolulu, HI
19. Surve-Iyer, R.S., and Adams, G.C. (1991) Genetic Comparison of r-DNA of *Leucostoma* species. *Proceedings of the Annual American Institute of Biological Sciences Meeting*, San Antonio, TX

INVITED PRESENTATIONS

1. Iyer R. S (2023) “Partnerships for Economic Prosperity and Resilience Through Research and Innovation” Stephenville Economic Development Corporation, Annual Meeting, Stephenville, TX
2. Iyer R.S (2021) “An Evidence-Based Entrepreneurial approach to Broadening Participation and Community Engagement” Plenary Speaker, Southeastern Regional PULSE conference (virtual), May 20-21

3. Iyer R.S (2019) "Metagenomic and Functional Characterization of Microbiota Degradation of Dioxin like Pollutants from the San Jacinto River" Soil Society of America Conference, San Diego, CA
4. Islam N* and Iyer R.S (2018) "A Genomic and Functional Analysis of Bacterial Diversity in Agricultural Soil for Chlorpyrifos Degradation". Texas Branch, American Society for Microbiology (ASM) fall Conference. Corpus Christie, TX
5. Iyer R.S (2018) "Environmental Sampling – An Approach to Integrate Education and Research" American Society for Microbiology Conference, July 25 -29, Austin, TX
6. Iyer R.S (2018) "UH Biotechnology- A Platform for Education and Research Collaboration" presentation to the Division of Graduate Education, NSF, June 20, Alexandria, VA
7. Iyer R.S (2018) "Increasing Student Engagement with Environmental Research" Association for Environmental Science and Studies Conference, June 20- 23, Washington D.C
8. Iyer R. S (2018) "Environmental Sampling: An Approach to Broaden Participation, National Alliance for Broader Impacts", Conference, April 25 -27, Providence, R.I
9. Iyer R.S., Wright R., Pauley, M. (2018) "NABI Framework and Broader Impacts of NSF's Division of Undergraduate Projects", Keynote Speaker, National Alliance for Broader Impacts Conference, April 25 -27, Providence, R.I
10. Islam N* and Iyer R.S (2018) "A Taxonomic and Functional Analysis of Bacterial Diversity in Agricultural Soils for Organophosphate Biodegradation" Texas ASM Conference, American Society for Microbiology Meeting, New Braunfels, TX
11. Iyer, R., Iken B., (2018) "Integration of Standards, Models of Standardization and Science Policy for the 21st Century Biotechnology Workforce", NIST, Gaithersburg, MD
12. Iyer, R. S (2017) "Functional Characterization and Comparative Metagenomics of Indigenous Bacteria Isolated from the San Jacinto River for Biodegradation of Recalcitrant Chlorinated and Non-Chlorinated Aromatic Waste", 14th International Symposium on Recent Advances in Environmental Health Research" Jackson, MS
13. Iyer, R.S (2016) "Interdisciplinary STEM Program Development and Administration" Faculty of Sciences and Techniques of Tangier, Abdelmalek Essaadi University, Tangier, Morocco.
14. Iyer, R.S (2016) "Environmental Sampling- An Open Education Resource to integrate Learning and Research" Al Akhawayn University, Ifrane, Morocco
15. Iyer, R. (2016) "Biotechnology -Platform for Education and Research Collaboration" Presentation at conference hosted by the Panama Counsel General, TX
16. Iyer, R. (2016) "Undergraduate Research Experiences in the Biotechnology Program," invited presentation UH Honors Biomedical Science Program, Houston, TX
17. Iyer, R.S. (2015) "Environmental and Health Threats: The Houston Ship Channel and Surrounding Areas" Houston Oil and Gas Supply Chain Resilience, Department of Homeland Security Workshop, Galveston, TX
18. Iyer, R.S. (2013) "An Overview and Best practices of Biotechnology Education and Research at the University of Houston" Jackson State University, Jackson, invited as part of Jackson State University's Distinguished Lecture Series, Jackson, MS
19. Iyer, R.S (2012) "UH Biotechnology," John's Hopkins University. 1st Annual International Bio Entrepreneurship Education Conference. Baltimore, MD.
20. Iyer, R.S. (2012) "Biotechnology Programs at UH," University of Tangiers, Morocco, presented a workshop to discuss and explore collaborations with the research- based biotechnology curriculum, Tangier's Morocco
21. Iyer, R.S. (2010) "Are you ready for the Bio –Century." Challenges and Solutions in Medicine Conference, Houston, TX
22. Iyer, R.S. (2010) "Center for Life Sciences Technology – A Model for Integration of Education Research and Workforce Development." ASEE Annual Conference and Exposition, Louisville, KY
23. Iyer, R.S. (2009) "An interdisciplinary Research-based Approach to transform Undergraduate Education." American Association for Advancement of Science Conference, Washington D.C.
24. Iyer, R.S. (2009) "Biotechnology Programs at the University of Houston." St. Xavier's College. Mumbai, India
25. Iyer, R.S. (2009) "Learn Something New." American Society for Microbiology Conference, Fort Collins, CO

PUBLISHED BOOKS

1. Iyer, R.S., and Pinson, D. L., 2004, “*Laboratory exercises in Microbiology*” 2nd Edition. Heritage Publishing Company. Wharton, TX.
2. Jeffery, J. Raun, K., Glenn, D., Partlow, N., Gadkari, P., Iyer, R.S., Walker, D., Pinson; D. and Dees, K., 2001. “*Laboratory Manual for General Biology*” Kendall Hunt Publishing Company, Dubuque, IA.
3. Iyer, R.S and Pinson, D. L., 2000, 1st Edition. “*Laboratory exercises in Microbiology.*”
4. Heritage Publishing Company, Wharton, TX.

PUBLISHED BOOK CHAPTER

1. Iyer, R., “An Interdisciplinary Undergraduate Biotechnology Program at the University of Houston,” chapter published, 2009, Best Practices in Biotechnology Education. Editor Yali Freidman, pg.183 - 194.

CONFERENCES, WORKSHOPS AND CAMPS

1. Led, National NSF IUSE Workshop, June 2018, University of Houston, TX
2. Led, NSF I- Corp Workshop, July 2015, University of Houston, TX.
3. Organized, Biotechnology Teacher Workshop, June 2008, Center for Life Sciences Technology, UH, Houston, TX.
4. Organized-Short Courses in Biotechnology, August 2008, Center for Life Sciences Technology, UH, TX
5. Organized-STEM Biotechnology High School Camps, 2015 – 2008, Center for Life Sciences Technology, UH, TX.

WORKSHOP MANUALS

1. Iyer, R.S, Smith, K.S, Iken, B, Damania, A, Kudrle, B “National Platform for Education and Research Collaboration”, June 4 -5 2018, Houston, TX
2. Iyer, R.S “Environmental Sampling -An Open Education Resource to Integrate Learning and Research” Fulbright Specialist Project, July 2016, Ifrane and Tangiers, Morocco
3. Iyer, R.S., and Smith, K., “An Adaptable Scalable Method for Impactful Undergraduate Research”, Regional NSF I Corp Conference, July 2015, Houston TX
4. Iyer, R., and Sen P. R., “Biotechnology Teacher Workshop,” June 2008, Center for Life Sciences Technology, Houston, TX
5. Iyer, R., and Sen P.R., Biotechnology Camp for High School Students,” July 2009 Center for Life Sciences Technology, Houston TX
6. Iyer, R.S., Pondel, S. R and Yarbrough “Short course in Biotech Clinical Practices and Biomanufacturing Practices,” August 2008, Center for Life Sciences Technology, Houston, TX

INVITED WORKSHOP

1. Iyer, R.S., (2009) “Learn Something New” workshop on new trends in microbiology by The American Society of Microbiology, Fort Collins, CO, May.

GRADUATE STUDENTS SUPERVISED

- Ethan Mason, "Impact of Biphenyl on San Jacinto River Microbiome Population Structure and Biomarker Abundance", sp. 2021
- Meron Kidanemiriam, "Comparative metagenomic analysis of farmland soil microbiomes exposed to the organophosphate pesticide methyl parathion", fall 2022
- Hao Chau, “Identification and Functional Characterization OF Biphenyl Degrading Microorganisms from San Jacinto River sediment”, fall 2021
- Andy Kim, “Elucidating the metabolic pathway of chlorpyrifos biodegradation in a three strain bacterial consortium composed of *Pseudomonas putida* CBF 10-2, *Ochrobactrum anthropi* FRAF13, and *Rhizobium radiobacter* GHKF11”, fall 2021
- Rumana Mustafa, “Impact of commercial adjuvants on the biodegradation of chlorpyrifos by a

three-strain bacterial consortium composed of *Pseudomonas putida* CBF 10-2, *Ochrobactrum anthropi* FRAF13, and *Rhizobium radiobacter* GHKF11”, fall 2021

- Nelufa Islam, “A Genomic and Functional analysis of Bacterial Organophosphate Biodegradation in Soil” fall 2018
- Hassan Ahmed, “Isolation and Characterization of Biphenyl and Polychlorinated Biphenyls” 2017
- Hemen Hosseinzadeh, A GIS based comparative Study of Superfund Contaminants and the Threat they represent to Eastern Harris County Communities, 2017
- Dipti Jagtap, “Comparison of Naphthalene Degradation Pathways in Bacteria Isolated from
- Kavya Mandhadi, “Remote Control of Bioreactors”, 2012
- Ali Givmanesh, “Enhancing Bioreactor Functionality”, 2011

Project Advisor

- Franco Redi, “Horizontal transfer in San Jacinto River bacterial strains” 2019.
- Shellsea Fontenot, “Bioinformatics analysis of San Jacinto River Soil Microorganisms Reveals Potential for Antibiotic resistance and Virulence”, 2019.

Thesis Committee

- Nekha Johnson, “Quantitative Real-Time PCR Analysis of Colchicine Pathway Genes” in Fall 2020
- Diana Rodriguez, "Quantitative Real-Time PCR Analysis of Colchicine Pathway and Rhizome Developmental Genes" in Spring 2021.
- Diana Krupnik (Doctoral Candidate, NSM), 2020
- Jennifer Nguyen, “Presence of Carbon –based Nanostructures in Electron –Beam Irradiated Food Products, 2013
- Amal Kennedy Savio, “Characterization Protocol for Titanium dioxide (Anatase Rutile) Use in Photocatalytic Applications”, 2011

Other

- Quyen Tran, Biology/Biochemistry Ph.D. candidate, conducted his lab rotation in the biotechnology lab as part of his Ph.D. requirement, 2010

TEACHING, STUDENT LEARNING and SCHOLARSHIP

University of Houston, Houston, TX

04/2008-Present

New Degree Created

Bachelor’s in Biotechnology: Created, designed, developed, and implemented a new degree program in Biotechnology at UH. Created new biotechnology courses and the curriculum for the new degree program. Seed funding for creation of the degree, curriculum, and lab equipment was funded by the Governor’s Texas Cluster Initiative of **\$1,022,336, the largest to the University to develop an academic program.** Program is the second well attended program in the country (after UC. Davis) and is the **first and only accredited biotechnology program** by Association of Technology. Management, and Applied Engineering (ATMAE).

New Program Development

Master of Science in Engineering Technology, Biotechnology Track: Led the approval, design and development of MS in Engineering Technology, Biotechnology track. BTEC is highly inter- and multi-disciplinary and builds on existing resources available in the College of Technology and the University of Houston. The applied nature of the track is very well aligned with the mission of the College of Technology.

New Courses Created

1. BTEC 1322 - Introduction to Biotechnology
2. BTEC 2320 - Biotechnology Regulatory Environment
3. BTEC 2321 - Current Good Manufacturing Techniques
4. BTEC 3100 - Biotechnology Research Methods/Applications

5. BTEC 4101 - Principles of Bioprocessing Lab
6. BTEC 4301 - Principles of Bioprocessing
7. BTEC 3303 - Quality Assurance and Quality Control in Drug and Biologics
8. BTEC 3301 - Principles of Bioinformatics/Genomics and Proteomics
9. BTEC 4350 - Capstone Experience

New Courses Developed

1. BTEC 1322 - Introduction to Biotechnology
2. BTEC 2320 - Biotechnology Regulatory Environment
3. BTEC 2321 - Current Good Manufacturing Techniques
4. BTEC 3100 - Biotechnology Research Methods/Applications
5. BTEC 4101 - Principles of Bioprocessing Lab
6. BTEC 4301 - Principles of Bioprocessing
7. BTEC 3303 - Quality Assurance and Quality Control in Drug and Biologics
8. BTEC 4350 - Capstone Experience

New Courses Created

1. BTEC 6100 - Seminar
2. BTEC 6101 - Advanced Biotechnology Techniques and Methods
3. BTEC 6401 - Bioprocessing in Biotechnology
4. BTEC 6302 - Regulations in Biotechnology
5. BTEC 6303 - Protein Engineering Technology
6. BTEC 6304 - Computational Methods in Biotechnology
7. BTEC 6300 - Standards in Biotechnology

New Courses Developed

1. BTEC 6100 - Seminar
2. BTEC 6301 - Advanced Biotechnology Techniques and Methods
3. BTEC 6401 - Bioprocessing in Biotechnology
4. BTEC 6302 - Regulations in Biotechnology
5. BTEC 6300 - Standards in Biotechnology

Courses Taught

1. BTEC 1322 - Introduction to Biotechnology
2. BTEC 2320 - Biotechnology Regulatory Environment
3. BTEC 3100 - Biotechnology Research Methods/Applications
4. BTEC 4101 - Principles of Bioprocessing Lab
5. BTEC 4301 - Principles of Bioprocessing
6. BTEC 5350 - Capstone Experience

1. BIOL 2420 - Microbiology
2. BIOL 1406 - General Biology I

3. BIOL 1322 - Nutrition
4. BIOL 2401 - Human Anatomy and Physiology I (Lecture/Lab)

ADVISING and STUDENT SUCCESS

As the founding director of Biotechnology programs, I worked closely with COT's academic advising department and the marketing department to develop recruiting, advising and marketing plan for the new major. I was also the founding Faculty advisor for International Society for Pharmaceutical Engineers UH Chapter, and the faculty advisor Society for Biological Engineers.

MENTORING UNDERGRADUTES RESEARCH (outside of classroom)

Mentored and supervised undergraduate research of students from College of Technology, Natural Sciences and Math, Honors College, and other universities.

1. **Brandon Bell**, UH biotechnology major, NSF REU recipient, "Naturally occurring enzymes for detection of organophosphorous," compounds, funded by the National Science Foundation (NSF) summer 2008
2. **Vinskey Louissaint**, New Jersey Institute of Technology, NSF REU student. "Biosensors to detect organophosphorous compounds," funded by the National Science Foundation, summer 2008
3. **Roland Tsai**, UH biotechnology major, "Comparison of intergenic spacers in the 16S rDNA of two unknown organophosphorous degrading microbes," funded by TWC grant, fall 2009
4. **Jeff Spencer**, UH Biology/Biochemistry major, "Overview of Organophosphorus Genes," summer 2010
5. **Daniel Mansour**, UH Biotechnology major, NSF REU recipient, "Identification and characterization of two organophosphorous degrading isolates," funded by NSF, summer 2010
6. **Kristy Kirkman**, Biology/ Biochemistry major, Comparison of ITS region of organophosphorous degrading isolates," funded by TWC, summer 2010 - summer 2012
7. **Tim Tamez**, UH Biology/Biochemistry major, "Timed degradation and tolerance of organophosphorous compounds by seven unknown isolates," funded by TWC grant, spring 2011
8. **Ajesh Pillai**, UH biotechnology major, "Characterizing pesticide degrading activity of unknown isolates from water samples," summer, 2011
9. **James Leba**, UH biotechnology major, "Genomic Libraries of OP Degrading Strains," summer 2012
10. **Lisa Lau**, UH biotechnology major, SURF recipient, "Microbial Degradation of Pharmaceutical Waste," SURF recipient, summer 2013
11. **Alex Leon**, UH biotechnology major, "Quantification of OP degradation in Wild Type Strains" undergraduate research, summer 2012 – 2014
12. **Jerry B. Krieger**: Screening of environmental isolates for growth and utilization of OP insecticides, glyphosate, and 1,4 dioxin, 2014 – 2015
13. **Annette Frenk**, "Assessment of monooxygenase genes involved in the biodegradation of 1,4 dioxin," summer 2015
14. **Navya Kartha**, Soil metagenomics of OP- degrading environmental isolates, summer and fall 2015-2016
15. **Nesma Khalil**, "Degradation Kinetics databases of OP degrading Bacteria," Fall 2015- Spring 2016

UNDERGRADUTE RESEARCH DAY PRESENTATIONS

1. **Alejandra Cerda**: Identification and Degradation Analysis of *Pseudomonas* Sp., Fall 2015
2. **Gabriella Conrado**: Organophosphorous Compound Degradation and Identification of Unknown Samples', Fall 2015
3. **Navya Kartha**: Metagenomics Analysis of Soil Microbes and Degradation Genes, **Best Poster Award**, fall 2015
4. **Ebanga Tanyi**: Methyl Parathion Degradation in *Citrobacter freundii* and *Pseudomonas aeruginosa*, fall 2015
5. **Lisa Lau**, UH biotechnology major, SURF recipient, "Microbial Degradation of Pharmaceutical Waste," **SURF recipient**, summer 2013

UNDERGRADUTE HONORS THESIS COMMITTEE

1. **Kristopher Reaves:** “Analysis of Thermal Residual Stress on Large Thickness Polypropylene field joints as a Reel- Lay System,” spring 2016

COMMUNITY SERVICE

1. Symposium Speaker, DeBaKey High School for Health Care Professionals, 2014, 2015, Houston TX
2. Board Member, Save A Mother, A U.S. based non-profit organization that connects poor pregnant women in rural India to health resources, 2012 – 2018
3. Board Member and Education Chair iEducate USA. A local non- profit organization that provides paid undergraduate tutors in low performing Houston Independent School districts to improve Math and Science skills, Houston, TX 2012- 2013
4. Organizer, Biotechnology High School Summer Camps, Center for Life Sciences Technology, Houston, TX, 2008, 2009, 2011
5. Organizer, Biotechnology High School Summer Workshop, Center for Life Sciences Technology, Houston, TX, 2008, 2009, 2011
6. Organizer, Biotechnology Training Workshops for Industry Professionals, Center for Life Sciences Technology, University of Houston, Houston, TX, 2008, 2009, 2011
7. Hosted Mars Solar Rover Contestants from the greater Houston area Middle and High School, Center for Life Sciences, University of Houston, 2009, 2010, 2011
8. Board Member, Indo American Charity Foundation, Houston, TX, 2007- 2010