Inimary T. Toby, Ph.D.
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1.Education

Degrees

2009 The Ohio State University, Columbus, Ohio
Ph.D. in Biomedical Sciences (Conferred in December 2009)
2004 The University of Tennessee Knoxville, Knoxville, Tennessee
BA in Chemistry and Environmental Sciences

Other Advanced Study

2006 Certificate in Biostatistics and Epidemiological Methods
The Ohio State University, Columbus, OH
2009 Certificate in Translational Research
The Ohio State University, Columbus, OH
2014 Red Hat Linux Administrator program
Red Hat software, Irving, TX
2017 Certificate in python programming
OneMonth Program, New York City, NY

2. Academic Appointments

08/24-present Associate Professor. Biology Department. University of Dallas, Irving, TX
08/18-07/24 Assistant Professor. Biology Department. University of Dallas, Irving, TX
06/23-07/23 Visiting Professor, Sapienza University di Roma, Rome, Italy
05/22-6/22 Visiting Professor, Sapienza University di Roma, Rome, Italy
12/17-6/18 Affiliate Faculty. Biology Department. Collin College. Plano, TX
06/18-06/18 Guest Lecturer. Division of Biomedical Informatics. UT Southwestern Medical Center, Dallas, TX
06/15-06/18 Computational Biologist II. Division of Biomedical Informatics. UT Southwestern Medical Center, Dallas, TX
10/11-06/15 Bioinformatics Specialist. Department of Microbiology and Immunology. The University of Oklahoma Health Sciences Center, Oklahoma City, OK

1/11-12/14 Adjunct Instructor. Biology. Wright College. Oklahoma City, OK

3. Honors Received

1/25	King Haggar Scholar Award. University of Dallas
1/23	Haggar Fellow Award, University of Dallas
1/21	King Haggar Scholar Award. University of Dallas
08/20	Bio-Rad technologies educator scholarship recipient
7/20	Women in Immune Driven Medicine Award
1/19	King Haggar Scholar Award. University of Dallas
03/17	Best paper Award- Mid-South Computational Biology and Bioinformatics Society
04/13	American Physiological Society K-12 Science Outreach Award
01/10	National Research Council Postdoctoral Award
4/09	American Physiological Society- Respiration Section, Graduate Student Highlight
12/09	American Society for Pharmacology/Experimental Therapeutics Travel Award
12/08	American Physiological Society Graduate Student Travel Award
12/07	American Society for Pharmacology/Experimental Therapeutics Travel Award
06/07	UC San Diego Department of Pharmacology summer program scholarship
04/06	American Physiological Society- Respiration Section, Graduate Student Highlight
05/05	The Ohio State University Graduate Student Fellowship
08/03	Benjamin A. Gilman Fellowship
08/02	University of Tennessee Academic Challenge Scholarship
08/01	University of Tennessee African-American Achievers Scholarship
06/01	Redico Incorporated Scholarship

4. Teaching

A. Courses Taught at UD

General Biology I. Undergraduate Science Majors and Pre-Health. University of Dallas. Irving, Texas. (Fall 2018, Fall 2019, Summer 2020, Fall 2020, Summer 2021, Fall 2021, Summer 2022, Fall 2022, Summer 2023, Summer 2024, Fall 2024)

Human Biology. Core Life Science and Biology Cells to Organisms. University of Dallas. Irving, Texas. (Spring 2020, Fall 2020, Fall 2021, Fall 2022, Fall 2023, Fall 2024)

Human Biology Laboratory. Core Life Science Biology. University of Dallas. Irving, Texas. (Spring 2020, Fall 2020, Fall 2021, Fall 2022, Fall 2023, Fall 2024)

Forensic Biology. Undergraduate Non-Majors. University of Dallas. Irving, Texas. (Spring 2019, Spring 2020, Spring 2021, Spring 2022, Spring 2023)

Forensic Biology Laboratory. Undergraduate Non-Majors. University of Dallas. Irving, Texas. (Spring 2019, Spring 2020, Spring 2021, Spring 2022, Spring 2023)

Biology Literature, Undergraduate Science Majors. University of Dallas. Irving, Texas. (Spring 2019, Spring 2021, Spring 2022, Spring 2023)

Biostatistics. Undergraduate Science Majors and Non-Majors. University of Dallas. Irving, Texas. (Fall 2018, Fall 2019, Fall 2020, Fall 2021, Fall 2022, Fall 2023, Fall 2024

Bioinformatics, Undergraduate Science Majors and Non-Majors. University of Dallas. Irving, Texas. (Spring 2019, Fall 2019, Spring 2021, Spring 2022, Spring 2023)

General Biology I Laboratory. Undergraduate Science Majors and Pre-Health. University of Dallas. Irving, Texas. (Fall 2018, Fall 2019)

Anatomy Laboratory. Undergraduate Science Majors and Pre-Health. University of Dallas. Irving, Texas. (Fall 2018)

i. New Course Development

Machine learning for Biology (Advanced level course, special topics). Undergraduate Science Majors and Non-Majors. University of Dallas. Irving, Texas. (Summer 2021, Summer 2022, Summer 2023, Summer 2024, Summer 2025)

Summer Bioinformatics Course (Collaboration with Sapienza University di Roma). Undergraduate Science. (Summer 2023)

B. Undergraduate Research Students Supervised in the Toby Laboratory

Project title: Immune Profiling Analysis of T-cells CDR3 Sequences.
Students: Antonio Mestanza- (May 2025-August 2025)

Project title: Characterization of cell viability and Reactive Oxygen Species activity in nicotine exposed human pulmonary artery endothelial cells.
Students: Catherine Picard- (May 2025-August 2025)

Project title: Immune Profiling Analysis using Machine Learning and Natural Language Processing for T-cell receptor CDR3 Sequences in Acute Respiratory Distress Syndrome.

Students: Richi Sanchez and Sanskriti Baranwal- (May 2024-August 2024)

Project title: Characterization of cell viability and cell signaling pathways in nicotine exposed human pulmonary artery endothelial cells.

Students: Bri Armendariz-diaz- (May 2024-August 2024)

Project title: High-throughput sequencing and immune profiling of biological sequences from Acute Respiratory Distress Syndrome (ARDS) and related lung pathologies.

Students: Tri Ha, Allison Nguyen and Vishnu Marella (Coppell high school)- May 2023-August 2023

Project title: Cell culture models and Artificial Intelligence approaches to study the molecular dynamics of lung injury.

Students: B.J Salazar and Vishnu Marella (May 2022-August 2022)

Project title: Advances in Big data in Biology

Students: Minh-Chau Hoang and Teni Onanuga (Visiting student from Virginia State University)- May 2022-August 2022

Project title: Analysis of repertoire features from CDR3 sequences in Acute Respiratory Distress Syndrome.

Students: Sara Hey, Claire Wingfield (January 2022-December 2022)

Project title: Evolution and divergence of surface glycoproteins.

Students: Ben Lux Michael Phung (January 2022-May 2022); Umang Vinayaka (Coppell HIgh school, June 2022-August 2022)

Project title: Clinical monitoring of Acute Respiratory Distress Syndrome using Machine Learning and High Throughput Sequencing;

Students: Joseph Natvig, Dayjah Whyte and Abby Porras (May 2021-May 2022)

Project title: Machine Learning Using Genomic Patterns to Explore Gender Differences in Acute Respiratory Distress Syndrome

Students: Nicholas Le, Joseph Galasso, Binh Vu (May 2021-May 2022)

Project title: Cellular Proliferation, visualization and quantification of bronchoalveolar lavage samples and E-Cig exposed primary Lung Epithelial Cells.

Students: Joseph Natvig and Dayjah Whyte and Andrew Samson (Plano High School); June 2021- August 2021

Project title: Machine learning algorithms using RNA seq datasets to explore the immune repertoire in lung injury.

Student: Binh Vu; June 2021- August 2021

Project title: Pharmacoinformatics study of biomolecules using protein modeling approaches.

Students: Michael Phung and Umang Vinayaka (Coppell High school); June 2021- August 2021

Project title: Machine learning using high throughput sequencing datasets to explore the SARS-CoV-2 spike protein.

Students: Michael Bujard, Michael Phung and Nicholas Le; January 2021-May 2021

Project title: Cellular Proliferation, visualization and quantification of bronchoalveolar lavage samples from ARDS patients.

Students: Abby Porras and Michael Phung; January 2021-May 2021

Project title: The curation and development of an ARDS database resource using genomics data.

Students: Ashley Nguyen and Samuel Ho; January 2021-May 2021

Project title: Divergence and evolution of human viral strains of SARS-CoV-2.

Students: Joseph Galasso, Kaitlyn Saunders and Christian Lopez; August 2020-December 2020

Project title: Pharmacoinformatics study of biomolecules using protein modeling approaches.

Students: Kimberly Diwa, Ashley Nguyen, Samuel Ho, Lavang Vu, Fajar Adnan; June 2020-August 2020

Project title: Data analytics approaches to assess vaping behavior in teenagers and young adults.

Students: Brianna Hale and Claryl Mary Truz; June 2020- August 2020

Project title: Data management and analysis of AV Canal related tracheostomy intervention from hospitals within the United States.

Students: Lavang Vu, Kimberly Diwa, and Fajar Adnan; June 2020-August 2020

Project title: The curation and development of an ARDS database resource using genomics data.

Students: Ashley Nguyen, Erick Quintanilla, Kimberly Diwa, Fajar Adnan, Lavang Vu and Samuel Ho; June 2020-August 2020

Project title: The effects of urea & tyrosine kinase activity on epithelial cells exposed to e-cig liquid.
Student: Erick Quintanilla. January 2020- May 2020

Project title: Machine learning using high throughput sequence datasets to explore the immune repertoire in lung injury.
Student: Joseph Galasso; December 2019- January 2020

Project title: The effects of urea & tyrosine kinase activity on epithelial cells exposed to e-cig liquid.
Student: Gaby Gonzalez. June 2019- August 2019

Project title: Cellular proliferation and the effects of vaping on epithelial cells.
Student: Trinity Ngo; June 2019- August 2019

Project title: Visualization and quantification of epithelial cells using computational methods.
Student: Mary Truz; June 2019-August 2019

Project title: Use of data mining approaches to characterize gene expression patterns in ulcerative colitis.
Student: Anika Kapoor (Coppell High School); June 2019-August 2019

Project title: Characterizing the immune repertoire using data mining approaches.
Student: A.J Zaugg; January 2019- May 2019

C. Courses Taught at Other Institutions

Visiting Professor. Bioinformatics summer course (Learn, Experience, Apply and Practice- LEAP). Sapienza University of Rome. (Summer 2023)

Visiting Professor. Bioinformatics (Department of Biochemical Sciences). Sapienza University of Rome. (Summer 2022)

Guest Lecturer. Nanocourse on Immune Sequencing using VDJServer. Graduate Biomedical Science program. UT Southwestern Medical Center. (Summer 2018)

Affiliate Faculty. General Biology. Collin College. (Spring 2018)

Guest Lecturer. Introduction to Bioinformatics principles. General Biology. Northeastern Oklahoma State university. (Fall 2012)

Visiting Lecturer. Selected lab topics in Biology. General Education. Emerson School. (Spring 2013)

Adjunct Instructor. General Biology. Wright Career College. (Fall 2011-Fall 2014)

5. Scholarship: Intellectual and Creative Achievement and Growth

A. Publications

Dissertation

Toby, IT. Activation of EGFR and stimulation of Arginase in Pulmonary Hypertension, Doctoral dissertation, Ohio Link ETD, December 2009

Undergraduate Thesis

Toby, IT; Hayes, D. A Study of the Lipase-Catalyzed Synthesis of Polyesters: An Example of Green Chemistry. Undergraduate Thesis, December 2004

Research Articles and Reviews published in Peer-Reviewed Journals

Hong H, Toby-Ogundeji I, Doerksen RJ, Qin ZS. Editorial: Big data and artificial intelligence for genomics and therapeutics - Proceedings of the 19th Annual Meeting of the MidSouth Computational Biology and Bioinformatics Society (MCBIOS). Front Bioinform. 2024 Aug 9;4:1470107. doi: 10.3389/fbinf.2024.1470107.

No-boundary thinking for artificial intelligence in bioinformatics and education. Patel P, Pillai N, Toby I. Front Bioinform. 2024 Jan 8;3:1332902. doi: 10.3389/fbinf.2023.1332902. eCollection 2023.

Analysis of CDR3 Sequences from T-Cell Receptor β in Acute Respiratory Distress Syndrome. Hey S, Whyte D, Hoang MC, Le N, Natvig J, Wingfield C, Onyeama C, Howrylak J, Toby IT. Biomolecules. 2023 May 12;13(5):825. doi: 10.3390/biom13050825. PMID: 37238695.

Toby I, Williams J, Lu G, Cai C, Crandall KA, Dinsdale EA, Drew J, Edgington NP, Goller CC, Grandgenett NF, Grant BJ, Hauser C, Johnson KA, Jones CJ, Jue NK, Jungck FR, Kerby J, Kleinschmit AJ, Miller KG, Morgan WR, Murdoch B, Noutsios G, Nunez-Castilla J, Pauley M, Pearson WR, Robertson SD, Robic S, Rosenwald A, Seah YM, Shofner M, Sierk M, Siltberg-Liberles J, Smith T, Stover NA, Tapprich W, Triplett EW, Ryder EF. 2022. Making change sustainable: Network for Integrating

Bioinformatics into Life Sciences Education (NIBLSE) meeting review. CourseSource. https://doi.org/10.24918/cs.2022.10

Editorial: Unleashing Innovation on Precision Public Health-Highlights From the MCBIOS and MAQC 2021 Joint Conference.
Homayouni R, Hong H, Manda P, Nanduri B, Toby IT. Front Artif Intell. 2022 Feb 25;5:859700. doi: 10.3389/frai.2022.859700. eCollection 2022. PMID: 35280236.

A Data Report on the Curation and Development of a Database of Genes for Acute Respiratory Distress Syndrome. Quintanilla E, Diwa K, Nguyen A, Vu L, Toby IT. Front Genet. 2021 Dec 9;12:750568. doi: 10.3389/fgene.2021.750568. eCollection 2021. PMID: 34956316.

Identification of potential antiviral compounds against SARS-CoV-2 structural and non structural protein targets: A pharmacoinformatics study of the CAS COVID-19 dataset. García R, Hussain A, Koduru P, Atis M, Wilson K, Park JY, Toby IT, Diwa K, Vu L, Ho S, Adnan F, Nguyen A et al., Computers in Biology and Medicine, Volume 133, 2021, 104364, ISSN 0010-4825, https://doi.org/10.1016/j.compbiomed.2021.104364

“Zoom” into data analysis with JupyterLab, Toby IT, Physiology Education Community of Practice Journal, August 31, 2020. lifescitrc.org

Characterizing a Focused Landscape of Familial Acute Respiratory Distress Syndrome. Toby IT, Thomas NJ, Thorenoor N, Spear D, DiAngelo S, Floros J. Biomarkers and Applications. 2020 Sep 18; 04:141. DOI: 10.29011/2576-9588.100041

Proceedings of the 2018 MidSouth Computational Biology and Bioinformatics Society (MCBIOS) conference. Wren JD, Doerkson RJ, Toby IT, Nanduri B, Homayouni R, Manda P, Thakkar S. BMC Bioinformatics. 2019 Mar 14;20(Suppl 2):95. doi: 10.1186/s12859-019-2618-7.

Biophysicochemical Motifs in T-cell Receptor Sequences Distinguish Repertoires from Tumor-Infiltrating Lymphocyte and Adjacent Healthy Tissue. Ostmeyer J, Christley S, Toby IT, Cowell LG. Cancer Res. 2019 Apr 1;79(7):1671-1680. doi: 10.1158/0008-5472.CAN-18-2292.

VDJServer: A Cloud-Based Analysis Portal and Data Commons for Immune Repertoire Sequences and Rearrangements. Christley S, Scarborough W, Salinas E, Rounds WH, Toby IT, Fonner JM, Levin MK, Kim M, Mock SA, Jordan C, Ostmeyer J, Buntzman A, Rubelt F, Davila ML, Monson NL, Scheuermann RH, Cowell LG. Front Immunol. 2018 May 8;9:976. doi: 10.3389/fimmu.2018.00976.

Proceedings of the 2017 MidSouth Computational Biology and Bioinformatics Society (MCBIOS) Conference. Wren JD, Dozmorov MG, Toby I, Nanduri B, Homayouni R, Manda P, Thakkar S. BMC Bioinformatics. 2017 Dec 28;18(Suppl 14):498. doi: 10.1186/s12859-017-1887-2.

VDJPipe: a pipelined tool for pre-processing immune repertoire sequencing data. Christley S, Levin MK, Toby IT, Fonner JM, Monson NL, Rounds WH, Rubelt F, Scarborough W, Scheuermann RH, Cowell LG. BMC Bioinformatics. 2017 Oct 11;18(1):448. doi: 10.1186/s12859-017-1853-z.

Statistical classifiers for diagnosing disease from immune repertoires: a case study using multiple sclerosis. Ostmeyer J, Toby I, Cowell LG. BMC Bioinformatics. 2017 Sep 7;18(1):401. doi: 10.1186/s12859-017-1814-6.

VDJML: a file format with tools for capturing the results of inferring immune receptor rearrangements. Toby IT, Levin MK, Cowell LG. BMC Bioinformatics. 2016 Oct 6;17(Suppl 13):333.

Proceedings of the 2016 MidSouth Computational Biology and Bioinformatics Society (MCBIOS) Conference. Wren JD, Toby I, Hong H, Nanduri B, Kaundal R, Dozmorov MG, Thakkar S. BMC Bioinformatics. 2016 Oct 6;17(Suppl 13):356. No abstract available.

Divergence of protein-coding capacity and regulation in the Bacillus cereus sensu lato group. Toby IT, Widmer J, Dyer DW. BMC Bioinformatics. 2014;15 Suppl 11:S8. doi: 10.1186/1471-2105-15-S11-S8. Epub 2014 Oct 21.

Genome Sequence of SCB34, a Sequence Type 131 Multidrug-Resistant Escherichia coli Isolate Causing Neonatal Early-Onset Sepsis. Chavez-Bueno S, Day MW, Toby IT, Akins DR, Dyer DW. Genome Announc. 2014 Jun 12;2(3). pii: e00514-14. doi: 10.1128/genomeA.00514-14.

Bioinformatics tools available for K-12 students to engage in research. Toby I, Pope A. Aviat Space Environ Med. 2014 Apr;85(4):484-5.

Biological databases as research tools in the post-genomic era. Toby I. Aviat Space Environ Med. 2012 Apr;83(4):452-3.

Translational research: an emerging trend in biomedical science. Toby I. Aviat Space Environ Med. 2011 Jun;82(6):660-1.

Hypoxia-induced proliferation of human pulmonary microvascular endothelial cells depends on epidermal growth factor receptor tyrosine kinase activation. Toby IT, Chicoine LG, Cui H, Chen B, Nelin LD. Am J Physiol Lung Cell Mol Physiol. 2010 Apr;298(4):L600-6. doi: 10.1152/ajplung.00122.2009. Epub 2010 Feb 5.

Other scholarly work:

Published book

Inspired Success: A Women's devotional guide to growth, transformation and divine purpose, May 2025

Published online research database

Quintanilla, E, Adnan F, Diwa K, Nguyen A, Vu Lavang, Truz Mary-Claryl, and Toby IT, Acute Respiratory Distress Syndrome-Database of Genes (ARDS-DB), September 2020, https://doi.org/10.5281/zenodo.4033491.

Hey, Sara, Wingfield, Claire and Toby-Ogundeji, Inimary, Immunesequencing of T-Cell Receptor Beta from Acute Respiratory Distress Syndrome samples, https://zenodo.org/records/15790638.

Published code repositories

Kaitlyn Saunders, Joseph Galasso, Christian Lopez and Inimary Toby, https://github.com/initoby/ud-bioinformatics-club, Fall 2020

Michael Phung, Lavang Vu and Inimary Toby, https://github.com/NCBI-Codeathons/wgs-sars-cov2, Spring 2021

Michael Bujard, Robert Hochberg and Inimary Toby, https://github.com/initoby/ud-bioinformatics-research-SARS-CoV-2, Spring 2021

News articles

UD Faculty, Students Shine at Science Conference on Campus, March 31, 2023; https://news.udallas.edu/03-31-23-UD-Faculty,-Students-Shine-at-Science-Conference-on-Campus#assets_all

Long COVID Now Has a Formal Definition from the WHO: What to Know, October 2021; https://www.healthline.com/health-news/long-covid-now-has-a-formal-definition-from-the-who-what-to-know#1

Codeathon from the Couch — NCBI North Texas Workshops and Codeathon 2021; https://ncbiinsights.ncbi.nlm.nih.gov/2021/07/06/north-texas-codeathon-2021/

A Faculty Summer: Fighting COVID-19, University of Dallas News, August 2020; https://udallas.edu/news/2020/a-faculty-summer-dr-tobys-fight-against-covid-19.php

B. Presentations

Invited Talks

Integrating Bioinformatics into Undergraduate Biology Education: Innovation, Experiential Learning, and Sustainable Program Design, Inimary Toby, University of Dallas, Biology Department; presented at the Intelligent Systems for Molecular Biology-ISMB 2025 Annual Conference, July 2025 (Liverpool, England).

Sustainability in Bioinformatics Education and Program design, Inimary Toby, University of Dallas, Biology Department; presented at Horizons Bioinformatics 2025 Annual Conference, April 2025 (Bucharest, Romania).

Featured session on Artificial Intelligence in Biological Systems. Inimary Toby, University of Dallas, Biology Department; presented at MCBIOS 2025 Annual Conference, March 2025.

Natural Language Processing of T-cell receptor CDR3 sequences. Sanskriti Baranwal, Richi Avila-Sanchez and Inimary Toby, University of Dallas, Biology Department and Computer Science Department; presented at MCBIOS 2025 Annual Conference, March 2025, Young Scientists in Excellence Award competition.

Immune profiling of T-cell receptor CDR3 sequences from Acute Respiratory Distress Syndrome (ARDS). Richi Avila-Sanchez and Inimary Toby, University of Dallas, Biology Department, presented at MCBIOS 2025 Annual Conference, March 2025, Young Scientists in Excellence Award Finalist presented to Richi Avila-Sanchez.

High-throughput sequencing and immune profiling of biological sequences from Acute Respiratory Distress Syndrome (ARDS) and related lung pathologies. Tri Ha, Allison Nguyen and Inimary Toby, University of Dallas, Biology Department, presented at MCBIOS 2024 Annual Conference, March 2024, Young Scientists in Excellence Award Finalist presented to Tri Ha.

Big data in Biology, Minh-Chau Hoang, University of Dallas, Biology Department, presented at MCBIOS 2023 Annual Conference, Highlighted Talks, March 2023.

Evolution and divergence of SARS-CoV-2 surface glycoproteins. Umang Vinayaka, Michael Phung, and Inimary Toby, University of Dallas, Department of Biology, presented at MCBIOS 2022 Annual Conference, April 2022, (Second place oral speaker award presented to Umang Vinayaka).

Toby, IT, Immune profiling and the T-Cell Repertoire in Acute Respiratory Distress Syndrome. Sapienza University di Roma, Department of Biochemical Sciences, May 2022.

Toby, IT, Challenges and Opportunities in the process of integrating Bioinformatics into Undergraduate Life Sciences. University of Arkansas Bioinformatics Center Seminar Series, March 2021

Nguyen A, Toby IT et al, A Machine Learning Approach for Identification of Potential Antiviral Compounds Against SARS-CoV-2 Structural and Non-Structural Protein Targets. Baylor Heart of Texas Undergraduate Research Conference, March 2021.

Ho S, Toby IT et al, ARDS-DB: The development of a database of genes associated with Acute Respiratory Distress Syndrome. Baylor Heart of Texas Undergraduate Research Conference, March 2021.

Toby, I.T, et al. Characterizing a focused landscape of familial acute respiratory distress syndrome. International Society for Computational Biology Conference 2019 Basel, Switzerland, June 2019

Toby, IT, Cowell,LG, VDJML: a file format with tools for capturing the results of inferring immune receptor rearrangements. Mid-South Computational Biology and Bioinformatics Society Meeting, March 2016

Toby, IT Changes in gene expression of elderly during altitude exposure. Oklahoma State University Veterinary Sciences Graduate Program, August 2011

Toby, IT, Nelin LD. EGFR inhibition prevents chronic hypoxia-induced Pulmonary Hypertension in mice. Society for Pediatric Research meeting, May 2010

Toby, I.T, Nelin, L.D. Hypoxia-induced proliferation via Epidermal Growth Factor Receptor signaling in pulmonary endothelial cells. American Physiological Society-Respiration Section, April 2009

Toby, I.T, Nelin, L.D. The role of epidermal growth factor receptor in a hypoxic model of pulmonary hypertension. Ohio Valley Society of Toxicology meeting, November 2008

Toby, I, Nelin, LD. Activation of EGFR and stimulation of arginase in pulmonary hypertension. Ohio Valley Society of Toxicology student meeting, July 2008

Toby, I.T, Nelin, L.D EGFR stimulation promotes proliferation in human pulmonary microvascular endothelial cells. UC San Diego, Department of Pharmacology, July 2007

Poster Presentations at National/International Scientific Conferences

Nneoma Okoli, Renita Murimi and Inimary Toby, Exposing AI Harms in Re-Emerging Infectious Diseases; Presented by: Dr Inimary Toby at ISMB 2025 Annual conference, July 2025 (Liverpool, England).

Tri Ha, Allison Nguyen, Claire Wingfield, Sara Hey, Judie Howrylak and Inimary Toby, Machine Learning Analysis of T-Cell Receptor Sequences in Acute Respiratory Distress Syndrome; Presented by: Dr Inimary Toby at ISCB 2025 Annual conference, July 2024 (Montreal, Quebec).

Trinity Ngo, Lydianne Juguilon and Inimary Toby, University of Dallas, Department of Biology. University of Houston, School of Public Health.
Datasets for Further Exploration of the Effects of the COVID-19 Pandemic on Food Insecurity & Minority Communities in Dallas, Texas; Presented at MCBIOS 2023 Annual Conference, March 2023

Claire Wingfield, Sara Hey, Joseph Natvig and Inimary Toby, University of Dallas, Department of Biology.
Immune repertoire features of CDR3 sequences from T-Cell Receptor β in Acute Respiratory
Distress Syndrome; Presented at MCBIOS 2023 Annual Conference, March 2023

Joseph Natvig, Dayjah Whyte, Abby Porras and Inimary Toby, University of Dallas, Department of Biology.

Clinical monitoring of Acute Respiratory Distress Syndrome using Machine Learning and High Throughput Sequencing; Presented at MCBIOS 2022 Annual Conference, April 2022

Nicholas Le, Joseph Galasso, Binh Vu, and Inimary Toby, University of Dallas, Department of Biology.

Machine Learning Using Genomic Patterns to Explore Gender Differences in Acute Respiratory Distress Syndrome; Presented at MCBIOS 2022 Annual Conference, April 2022

Quintanilla E, Adnan F, Diwa K, Nguyen A, Vu L, Truz MC and Toby IT, ARDS-DB: The Development of a Database of Genes for Acute Respiratory Distress Syndrome. MCBIOS 2021 Annual Conference, April 2021 (virtual)

Truz MC, Ngo T, Gonzalez G and Toby IT, Visualization and Quantification of Vaping Nicotine-treated Epithelial Cells Using Computational Methods. International Society for Computational Biology Conference (Southeast Symposium) December 2019, St Petersburg, Florida

Toby, I.T, et al. Characterizing a focused landscape of familial acute respiratory distress syndrome. International Society for Computational Biology Conference 2019 Basel, Switzerland

Toby, IT, Cowell,LG, VDJML: a file format with tools for capturing the results of inferring immune receptor rearrangements. Mid-South Computational Biology and Bioinformatics Society Meeting 2016

Toby, IT, Sivanesan G, Challenges and opportunities in K-12 outreach for an OKC public school. Experimental Biology 2014

Toby, IT, Dyer, D, Divergence of protein-coding capacity and regulation in the Bacillus cereus sensu lato group. Mid-South Computational Biology and Bioinformatics Society Meeting 2013

Toby, IT, Burian, D, Changes in gene expression of elderly during altitude exposure. Aerospace Medical Association Conference 2011

Toby, I.T, Chicoine, L. Nelin, L.D. Hypoxia-induced proliferation via Epidermal Growth Factor Receptor signaling in pulmonary endothelial cells. Experimental Biology, April 2009

Toby, I.T, Chicoine, L, Nelin, L.D. Hypoxia-induced proliferation of human pulmonary microvascular endothelial cells depends on epidermal growth factor receptor tyrosine kinase activation. Society for Pediatric Research, May 2008

Toby, I.T, Chicoine, L, Nelin, L.D. The proliferation of human pulmonary microvascular endothelial cells in hypoxia depends on epidermal growth factor receptor tyrosine kinase activation. Experimental Biology, April 2008

Toby, I.T, Chicoine, L, Nelin, L.D. Effects of Epidermal Growth Factor Receptor on a Hypoxia-induced model of Pulmonary Hypertension. Ohio Valley Society of Toxicology, November 2007

Toby, I.T, Chicoine, L, Nelin, L.D. EGFR stimulation promotes proliferation in human pulmonary microvascular endothelial cells. Experimental Biology, April 2007

C. Research Grants

Grants Awarded

06/25-08/25 Summer Research. Marcus Fund. University of Dallas. Amount: $10000

06/24-08/24 Summer Research. Marcus Fund. University of Dallas. Amount: $10000

06/23-08/23 Summer Research. Marcus Fund. University of Dallas. Amount: $10000

06/22-08/22 Summer Research. Marcus Fund. University of Dallas. Amount: $10000

06/21-08/21 Summer Research. Marcus Fund. University of Dallas. Amount: $10000

03/21 Co-Investigator. Biology Laboratory Upgrades to Support Multidisciplinary Research. The Hillcrest Foundation. Award: $99,959

01/21 King Haggar Award. University of Dallas. Award Amount: $2000

07/20 Principal Investigator, Women in Immune Driven Medicine Grant. Adaptive Biotechnologies. Amount: $5000

06/20-08/20 Summer Research. Marcus Fund. University of Dallas. Amount: $10000

01/19 King Haggar Award. University of Dallas. Award Amount: $1000

06/19-08/19 Summer Research. Marcus Fund. University of Dallas. Amount: $10000

06/18 New Investigator Funding. Marcus Fund. University of Dallas. Award Amount: $30,000

06/12-06/15 Key Personnel, IDeA/INBRE – University of Oklahoma Health Sciences Center. Amount: $10,970,748

04/13-04/14 Fellowship Recipient, American Physiological Society K-12 Science Outreach Award. Amount: $3,000

01/12-01/14 Key Personnel, Flight Attendant Medical Research Institute. Amount: $300,000

01/10-01/11 Principal Investigator, Postdoctoral fellowship, American Association for the Advancement of Sciences (Agency- Civil Aerospace Medical Research Institute). Amount: $100,000

06/08-12/09 Pre-Doctoral Fellowship, National Institute of Health- NHLBI-F31. Amount: $40,000

01/07-01/08 Trainee recipient, NHLBI R01 supplemental award. National Institute of Health- Amount: $35,000

08/03-01/04 Recipient, Benjamin A Gilman International Fellowship. Amount: $3,000

Other funding

12/21 ARDS funding for research- Pedlow fund, $15,000
12/22 ARDS funding for research- Pedlow fund, $15,000
12/23 ARDS funding for research- Pedlow fund, $15,000
12/24 ARDS funding for research- Pedlow fund, $15,000

Grants Submitted:

Toby, I. T, Patel P, Chastain E, Moldenhaur J. Acquisition of a High Performance instrument for STEM teaching (Sequencing and High

performance computing resource grant). NSF. Requested Award Amount- $170,000. *Submitted Feb 2025, not funded*

Toby, I. T, The study of genomic variants from high-throughput sequencing experiments using an HPC instrument, Alafia Ai, Inc., Instrument Award- $100,000, *Submitted August 2024, not funded*

Toby, I. T, Patel P, Chastain E, Moldenhaur J. Acquisition of a High Performance big data analytics system for STEM teaching (Sequencing and High performance computing resource grant). NSF. Requested Award Amount- $170,000. *Submitted June 2024, not funded*

Toby, I. T, Patel P, Chastain E, Moldenhaur J, and Murimi R. Acquisition of a high performance big data analytics system for convergent research in life sciences (Sequencing and High performance computing resource grant). NSF. Requested Award Amount- $650,000. *Submitted October 2023, not funded*

Toby, I. T (Principal Investigator). Maximizing the Scientific Value of the NHLBI Biorepository: Scientific Opportunities for Exploratory Research (R21 grant). National Institute of Health (NIH)- National Heart, Lung, and Blood Institute (NHLBI). Requested Award Amount- $150,000. *Submitted October 17, 2019; not funded*

The American Physiological Society- Undergraduate Research Mentor Award *(submitted January 2020)*; award postponed due to COVID-19

D. Work in progress:

Manuscripts in press

Natural Language Processing of T-cell receptor CDR3 sequences from Acute Respiratory Distress Syndrome Inimary Toby; *in press*

Manuscripts in revision

Adewumi T, Juguilon L, Ngo T, and Toby IT, Datasets for exploring the effects of the COVID-19 pandemic on food insecurity and minority communities within Dallas, Texas, *in revision*

Books in preparation

Toby IT, Foundations of Computational Biology and Bioinformatics

Toby IT, Concepts in Data Science for Biology

Ongoing Research Projects

1. Artificial Intelligence methods to visualize public health data (risks and mitigation).
   Anticipated Outcomes: 1 research seminar presentation *(completed summer 2025)*
   1 research manuscript *(expected fall 2025)*
   1 poster presentation at a local conference in Fall 2025
   1 poster presentation at national conference in Spring 2025
2. Machine learning to explore the immune repertoire of Acute Respiratory Distress Syndrome.
   Anticipated Outcomes: 1 submitted manuscript, completed 2024
   1 collaborative manuscript with computer science department, completed summer 2025
   2 presentations from project, completed in Spring 2025; 1 additional manuscript in preparation for submission (anticipated Fall 2025)
3. Cellular Proliferation and ROS signaling in e-liquid exposure in human primary lung cells
   Anticipated Outcomes: 1 research conference presentation *(expected spring 2026)*
   1 manuscript submission *(expected fall 2025)*

6. Service

A. Service to the University

02/22-present	Member, Excellence in E-Learning and Teaching Committee
08/21-05/22	Member, Search Committee- Computer Science Department
08/18-present	Faculty evaluator, Biology Senior comprehensive exams
08/18-present	Academic Advisor, Department of Biology
08/19-present	Pre-Allied Health advisor- (Allied Health programs

10/19-present	Affiliated faculty, Community Assistance Research (CARE)
10/19-present	Faculty Mentor and program liaison, Food as Medicine Program (FAME)
04/23	Session speaker, Study abroad programs fair
03/23	Faculty panelist, Truman Mock Interview Panel
12/22	Session speaker, 2022 Teaching and Learning conference
10/22	Invited speaker, Women in STEM student organization
08/20-05/22	Faculty mentor, UD Residence Life
06/20-05/21	Member, President's Diversity Task Force
05/21-07/21	Chair, Faculty Search Committee- Department of Biology
05/21	Organizer, North Texas Workshop and Codeathon Week
02/21	Panelist, Tri-Beta COVID Vaccine panel discussion
04/21	Panelist, Tri-Beta panel ("The Importance of Diversity in STEM")
04/21	Panelist, JOLT panel ("COVID-19 Vaccine distribution disparities")
03/21	Moderator, SLRS panel ("Defining Racism")
11/20	Host, University of St Augustine Health Sciences, UD Pre-Allied Health student admissions seminar
09/20	Host, Bridging Faith and Science in a Pandemic World, Richard Burke Squires (UD Alumni 94')
08/20	Panelist, Faculty Book discussion
08/20	Panelist, UD Reads
08/20	Panelist, Woman to Woman
03/20	Presenter, Mock lecture- UD Magic in the metroplex
12/19-04/20	Member, Search Committee- Department of Computer Science

09/19-11/19	Member, Search Committee- Department of Physics
03/19	Invited speaker, Women in STEM student organization
11/18	Spanish Health Club Outreach networking with UT Southwestern
11/18	Faculty panelist, ART of Library Research

B. Service to the Profession

Memberships in Professional Organizations

06/05-current	Member, American Physiological Society
10/11- current	Member, Mid-South Computational Biology and Bioinformatics Society
06/23- current	Past-President, Mid-South Computational Biology and Bioinformatics Society
05/22-05/23	President, Mid-South Computational Biology and Bioinformatics Society
04/20	President Elect, Mid-South Computational Biology and Bioinformatics Society
03/16- 04/20	Executive Secretary, Mid-South Computational Biology and Bioinformatics Society
06/16- 12/20	Member, Adaptive Immune Receptor Repertoire Community (The Antibody Society)
06/07-06/08	Member, American Society for Pharmacology and Experimental Therapeutics
06/05- 12/09	Member, The Ohio State University, Graduate Student Association

Professional activities outside the University

02/25	Biotechnology and Healthcare Industry Alliance of North Texas (BHIANT) Working Group Member, Dallas, Texas

05/24-04/25	Featured Session Chair, 2025 Mid-South Computational Biology and Bioinformatics Society (MCBIOS) annual conference (University of Utah)
05/23-03/24	Featured Session Chair, 2024 Mid-South Computational Biology and Bioinformatics Society (MCBIOS) annual conference (Emory University)
05/22-03/23	Chair, Organizing committee for the 2023 Mid-South Computational Biology and Bioinformatics Society (MCBIOS) annual conference
01/22	Associate Editor, Frontiers in Bioinformatics Scientific Journal
01/22	Reviewer, Biomolecules Journal
05/21	Guest editor, Frontiers in Big Data (and Artificial Intelligence), 2021 MCBIOS proceedings
04/21	Presidential candidate, Mid-South Computational Biology and Bioinformatics Society (MCBIOS)
04/21	Conference co-chair and Trainee development workshop coordinator, 2021 Mid-South Computational Biology and Bioinformatics Society (MCBIOS) annual conference (Virtual, due to COVID-19)
10/20	Editorial board, Frontiers in Bioinformatics Journal
06/20	Dallas volunteer coordinator, COVID-19 National Scientist Volunteer Database (serving since June 2020)
04/20	Conference co-chair, 2020 Mid-South Computational Biology and Bioinformatics Society (MCBIOS) annual conference at SAS institute in Cary, NC *postponed until 2021* due to COVID-19
03/20	Expert scientific adviser for Highland Park High School AP Research course (Highland Park, Texas)
11/19	Contributing Faculty, Network for integration of Bioinformatics in undergraduate life sciences (NIBLSE)
06/19	Invited speaker at the International Society for Computational Biology 2019 Conference

03/19	Student career development workshop coordinator and session speaker, Mid-South Computational Biology and Bioinformatics Society 2019 Conference
06/18	Co-Editor, MCBIOS Proceedings, BMC Bioinformatics journal
05/18	Invited presentation for Women in Science and Medicine, UT Southwestern Medical Center

C. Service to the Community

10/24-present	Board of Directors, Children's Summer Camp program-RCCG-North America Headquarters
10/24	Chair, Planning committee, 2024 Women's Retreat and Conference, RCCG-Glory House Colleyville
10/23	Chair, Planning committee, 2023 Women's Conference, RCCG-Glory House Colleyville
05/23	Guest Scientist, Samuel Beck Elementary School, Trophy club
02/23	Chair, Datakirk Dallas Data Science Pilot program for kids
10/22	Chair, Planning committee, 2022 Women's Symposium, RCCG-Glory House Colleyville
04/21	Guest Scientist, Samuel Beck Elementary School, Trophy club
02/21	COVID-19 vaccine panelist, RCCG-Glory House Colleyville
06/20	Invited speaker, Skype-A-Scientist
05/20	Texas volunteer coordinator, COVID-19 National Scientist Volunteer Database
02/20	Volunteer, Beautiful Feet Ministries, Fort Worth, Texas
10/20	Organizer, Women's Health Virtual Conference, RCCG-Glory House Colleyville

04/19	Guest Scientist, Samuel Beck Elementary School, Trophy club
12/18	Guest Teacher, Trophy Lakes Academy, Trophy Club
11/18	Workshop organizer, Women’s Conference, RCCG-Glory House, Colleyville