

# Tawana M. Robinson, PhD

## EDUCATION

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May 2019                      Rice University, PhD Chemistry (AHA and NIH F31 Predoctoral Fellow)  
Thesis: "Engineering Adeno-Associated Virus (AAV) for Protease  
Targeted Gene Therapy and Immune Avoidance"  
September 2008      University of Rochester, MS Chemistry

## ACADEMIC APPOINTMENT

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### University of St. Thomas, Houston, TX

August 2025 - present      *Assistant Professor in Biochemistry*

- Teach Organic Chemistry I, General Biochemistry, and Advanced Biochemistry and associated labs within an ACS-approved curriculum
- Develop and implement an innovative, research-integrated gene therapy platform that connects biochemical concepts to real-world therapeutic applications
- Supervise and mentor undergraduate researchers to provide guidance in experimental design, data interpretation, and scientific writing

## RESEARCH INTERESTS

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- Viral vector engineering for gene and cell therapy
- Adeno-associated virus (AAV) design for targeted therapy
- Gene delivery platforms for translational therapeutics
- Protein engineering and nanobiotechnology

## PUBLICATIONS

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### Peer-reviewed publications (published or accepted):

1. M. Chen, T.M. Robinson, J. Suh. Longer inactivating sequence improves performance of synthetic protease-activatable adeno-associated virus. **ACS Synthetic Biology**, 2019, 8(1):91-98.
2. E.J. Lee, T.M. Robinson, J.J. Tabor, A.G. Mikos, J. Suh. Reverse transduction can improve efficiency of AAV vectors in transduction-resistant cells. **ACS Biotechnology & Bioengineering**, 2018, 115(12), 3042-3049.
3. T.M. Robinson, J. Judd, M.L. Ho, J. Suh. Role of tetra amino acid motif properties on the function of protease-activatable viral vectors. **ACS Biomaterials Science & Engineering**, 2016, 2(11):2026-2033.
4. C.M. Guenther\*, B.E. Kuypers\*, M.T. Lam\*, T.M. Robinson\*, J. Zhao, J. Suh. Synthetic virology: engineering viruses for gene delivery. **WIREs Nanomedicine & Nanobiotechnology**, 2014, 6:548-558. \*Authors contributed equally.
5. T.M. Robinson, M.L. Ho, B. Wahlig, J. Tong, A. Banta, K. Reyes Gamas, V. Gough, E. Lee, B. Kang, M. Yamagami, J. Suh. An essential N-Terminal serine-rich motif in the AAV VP1 and VP2 subunits that may play a role in viral transcription. **Virology** (2020).

6. T.M. Robinson, M. Chen, M. Lam, M. Ykema, J. Suh. Display of self-peptide on adeno-associated virus capsid decreases phagocytic uptake *in vitro*. **ACS Synthetic Biology** (2020).

## CONFERENCES

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1. T.M. Robinson (presenter), M. Chen, S. Butler, J. Tong, M. Lam, M. Ykema, and J. Suh. *Engineering adeno-associated virus with a self-peptide for immune-avoidance*, American Society of Gene and Cell Therapy Annual Meeting 2018: Chicago, IL
2. Tong (presenter), T.M. Robinson, M. Ho, J. Chen, E. Lee, B. Kang, A. Banta, K. Reyes Gamas, J. Suh. *Characterization of a novel serine/threonine motif in the N-terminal region of adeno-associated virus*, American Society of Gene and Cell Therapy Annual Meeting 2018: Chicago, IL
3. M.Y. Chen (presenter), T.M. Robinson, J. Suh. *Optimizing the Inactivating Sequence Used To Make Protease-Activatable Adeno-Associated Virus Vectors*, American Society of Gene and Cell Therapy Annual Meeting 2018: Chicago, IL
4. E.J. Lee (presenter), T.M. Robinson, E.J. Gomez, E. Wu, J. Yang, J.J. Tabor, A.G. Mikos, J. Suh. *Engineering an All-in-One Light Activatable Adeno-Associated Virus Vector for Tunable Gene Delivery*, American Society of Gene and Cell Therapy Annual Meeting 2018: Chicago, IL
5. T.M. Robinson (presenter), J. Judd, M.L. Ho, J. Suh. *Effect of Inactivating Motif Properties on the function of Protease-Activatable (PAV) Nanoparticles*, Poster presentation, Discovery on Target Gene Therapy Conference 2015: Boston, MA

## RESEARCH APPOINTMENTS

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### MD Anderson Cancer Center, Houston, TX

Jun 2022 - Nov 2024

*Postdoctoral Research Fellow and Intern*

- Studied CAR-NK Cell engineering for tumor targeting
- Isolated NK cells from umbilical cord blood for culture and tumor killing assays
- Conducted *in vitro* experiments to test for influenza antiviral effects with toll-like receptor agonists
- Investigated chemical modifications of influenza architecture

### Baylor College of Medicine, Houston, TX

July 2019 - Dec 2021

*Postdoctoral Research Fellow, NIH T32 Fellow*

- Designed Helper-Dependent Adenovirus for Lubricin delivery
- Implemented RNA therapy to treat Argininosuccinate Lysase deficient mice
- Constructed Adeno-Associated vectors for targeted delivery to cardiac fibroblasts
- Performed maintenance and differentiation of human iPSCs to cardiomyocytes for gene-editing

### Rice University, Houston, TX

Aug 2011 - May 2019

*PhD Candidate*

Thesis: "Engineering Adeno-Associated Virus (AAV) for Protease Targeted Gene Therapy and Immune Avoidance"

- Conducted molecular cloning strategies for plasmid construction

- Produced “designer” AAV vectors via manufacturing techniques
- Used various characterization methods to investigate AAV functionality
- Developed and implemented AAV protocols

#### **Baylor College of Medicine, Houston, TX**

June 2008 – June 2011    *Research Assistant, Human Genome Sequencing Center*

#### **FELLOWSHIPS, HONORS & AWARDS**

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|           |                                                                             |
|-----------|-----------------------------------------------------------------------------|
| Nov 2020  | NIH T32 Cardiovascular Molecular Physiology and Biophysics Fellowship       |
| Oct 2019  | NIH T32 Cell and Gene Therapy Training Fellowship                           |
| May 2018  | Chemistry Department Travel Award                                           |
| May 2018  | ASCGT Conference Student Travel Award                                       |
| May 2018  | Graduate Student Association Service Award                                  |
| Oct 2016  | Rice Chemistry Department Graduate Award                                    |
| July 2016 | National Institutes of Health F31 Fellowship                                |
| Mar 2016  | American Heart Association Predoctoral Fellowship                           |
| Sept 2015 | Discovery on Target Student Travel Fellowship                               |
| Jan 2014  | Rice Alliances for Graduate Education & the Professoriate (AGEP) Fellowship |
| Nov 2014  | Ford Foundation Fellowship, Honorable Mention                               |
| Sept 2013 | NIH Nanobiology Interdisciplinary Graduate Training Grant                   |
| May 2006  | W.D. Walters Teaching Award                                                 |

#### **TEACHING EXPERIENCE**

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##### **University of St. Thomas (ACS-approved curriculum; Present)**

|          |                                |
|----------|--------------------------------|
| Jan 2026 | Biochemistry Laboratory        |
| Jan 2026 | Biochemistry                   |
| Aug 2025 | Advanced Biochemistry          |
| Aug 2025 | Organic Chemistry I Laboratory |
| Aug 2025 | Organic Chemistry I            |

##### **Rice University**

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|-----------|-------------------------------------------|
| Sept 2014 | Inorganic Chemistry Laboratory            |
| Sept 2013 | General Chemistry Discussion Group Leader |
| Jan 2012  | General Chemistry II Laboratory           |
| Sept 2011 | General Chemistry I Laboratory            |

##### **University of Rochester**

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| Jan 2007 | Biochemistry Discussion Group Leader |
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#### **UNIVERSITY SERVICE**

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##### **University of St. Thomas**

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| Aug 2026 | Faculty Development Committee                                                                                            |
| Aug 2026 | Member, Faculty Accreditation Team, American Society for Biochemistry and Molecular Biology (ASBMB), Biochemistry Sector |
| Aug 2025 | Admissions Committee                                                                                                     |
| Aug 2025 | Organic Chemistry Faculty Search Committee                                                                               |

## **MD Anderson Cancer Center**

Mar 2024 UT-MDACC Postdoctoral Association, Community Outreach Lead

## **Rice University**

Sept 2018 Graduate Student Association, Vice President of Student Advocacy

Aug 2017 Graduate Student Association, Community Service Director

Aug 2018 Graduate Student Diversity & Inclusion Committee

Aug 2017 Graduate Student Commencement Speaker Committee

July 2014 Graduate Student Teaching Committee

## **MENTORSHIP & OUTREACH**

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### **Outreach Programs**

Apr 2024 Invited Chemistry Graduate Association speaker, Rice University

Oct 2018 Lecture on AAV engineering, Drew Academy

### **Medical students**

Oct 2024 Felipe Soto, UT-MDACC, University of Monterrey Exchange Student

Aug 2024 Emilia Nunez, UT-MDACC, University of Monterrey Exchange Student

Jun 2023 Raj Patel, UT-MDACC Catalyst Program, Texas A&M Medical School

### **Graduate students**

Sep 2023 Brianne Wharton, UT-MDACC

Nov 2021 Oliver Moore, Baylor College of Medicine

Nov 2021 Kevin Ho, Baylor College of Medicine

Nov 2021 Juwan Copeland, Baylor College of Medicine

Aug 2021 Rebekah Townsley, Baylor College of Medicine

Aug 2017 Maria Chen, Department of Bioengineering, Rice University

Aug 2017 Esther Lee, Department of Bioengineering, Rice University

### **Undergraduate students**

Aug 2025 Austin Brister, University of St. Thomas

Aug 2025 Haylie Tran, University of St. Thomas

Aug 2025 Yanelisse Luiggi Garcia, University of St. Thomas

Jun 2023 Wanyu Zhang, UT-MDACC Catalyst Program, Duke University

Oct 2022 Sunu Kim, UT-MDACC, University of Monterrey Exchange Student

July 2021 Sai Mettupalli, Rice University Internship Program

July 2021 Akhil Adusimilli, Rice University Internship Program

July 2021 Faith Pena, BCM Summer Internship Program

July 2015 Chioma Okorie, NSF Research Experience for Community College Students

### **High school students**

July 2016 Rice IBB Girls STEM Initiative, high school student Yesenia Salas

July 2016 Rice IBB Summer Academy, high school student Lydia Morales

July 2015 Rice IBB Girls STEM Initiative, high school student Troysha Giggans

## **PROFESSIONAL AFFILIATIONS**

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May 2018 American Society of Gene and Cell Therapy

Mar 2016 American Heart Association