

Lesa Tran Lu

Department of Chemistry
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Education

- 2012 Ph.D. in Chemistry, Rice University, Houston, TX
Dissertation title: An Assessment of Gadonanotubes as Magnetic Nanolabels for Improved Stem Cell Detection and Retention in Cardiomyoplasty
- 2009 M.A. in Chemistry, Rice University, Houston, TX
- 2007 B.S. in Chemistry, Rice University, Houston, TX

Positions Held

- 2018-present Lecturer, Department of Chemistry, Rice University, Houston, TX
- 2012-2018 Weiss Instructor, Department of Chemistry, Rice University, Houston, TX

Courses Taught:

- CHEM 121: General Chemistry I (Fall 2012-present)
- CHEM 122: General Chemistry II (Spring 2013-present)
- CHEM 176: Chemistry of Art (Spring 2013-2016)
- CHEM 178: Chemistry of Cooking (Fall 2014-present)
- CHEM 231: Introductory Module in Inorganic Chemistry (Fall 2012-2013)
- CHEM 391/491: Research for Undergraduates (Spring 2017-Spring 2018)
- CHEM 493: Undergraduate Honors Research (Spring 2017-Spring 2018)

Student Mentorship:

- Mentored 14 graduate and 34 undergraduate teaching assistants in CHEM 121/122
- Advised 2 graduate and 5 undergraduate educational research assistants

Service to the University:

- Sid Richardson College Faculty Resident Associate (2018-present)
- Center for Teaching Excellence Faculty Fellow (2018-present)
- Office of Graduate and Postdoctoral Studies Graduate Housing Focus Group Member (2018-present)
- Office of Information Technology Academic Technologies Subcommittee Member (2016-present)
- Center for Teaching Excellence Brown Teaching Grant Workshop Panelist (2015-2018)
- Office of Academic Advising Peer Academic Advising Faculty Panelist (2015-2018)
- Office of Academic Advising for Athletics Panelist (2013, 2017)
- Office of Academic Advising Health Professions Advising Committee Member (2013-2016)
- Duncan College Natural Sciences Divisional Advisor (2015-2018)
- Duncan College Faculty Associate Mentor (2013-2018)
- Center for Teaching Excellence Faculty Owl Days Participant (2015-2017)

Service to the Chemistry Department:

- Rice Chemistry Undergraduate Curriculum Committee Member (2013-present)
- Rice Chemistry Alumni Committee Member (2013-present)
- Rice Chemistry Course Overload Advisor (2017-present)
- Duncan College Chemistry Major Advisor (2016-2018)
- Martel College Chemistry Major Advisor (2013-2016)

Honors and Awards

- 2018 Rice Center for Teaching Excellence Faculty Fellow Nominee, Rice University
- 2018 Distinguished Faculty Associate, Duncan College, Rice University
- 2018 Teaching Award for Excellence in Inquiry-Based Learning Nominee, Rice University
- 2018 Will Rice College Favorite Professor, Rice University
- 2017 Orientation Week Faculty Address Invited Speaker, Rice University
- 2017 Outstanding Faculty Associate, Duncan College, Rice University
- 2017 Rice Center for Teaching Excellence Faculty Fellow Nominee, Rice University
- 2017 Will Rice College Favorite Professor, Rice University
- 2016 Rice Women LEAD Distinguished Female Leader Spotlight, Rice University
- 2016 Excellence in Academic Advising Award Nominee, Rice University
- 2016 Distinguished Faculty Associate, Duncan College, Rice University
- 2015 Outstanding Faculty Associate, Duncan College, Rice University
- 2015 Rice Vietnamese Student Association College Leadership Workshop Keynote Speaker, Rice University
- 2015 Will Rice College Favorite Professor, Rice University
- 2014 Distinguished Faculty Associate, Duncan College, Rice University
- 2013 Will Rice College Favorite Professor, Rice University
- 2011 K. Patricia Cross Future Leaders Award Nominee, Association of American Colleges & Universities
- 2011 Harry B. Weiser Leadership Award, Department of Chemistry, Rice University
- 2010 Harry B. Weiser Teaching Award, Department of Chemistry, Rice University
- 2010 U.S. Participant of the 60th Meeting of Nobel Laureates in Lindau, Germany
- 2009 NIH Challenge Grant Research Assistantship, Rice University
- 2008 NSF Graduate Research Fellowship
- 2007 Robert A. Welch Foundation Predoctoral Fellowship, Rice University
- 2006 Zevi and Bertha Salsburg Memorial Award in Chemistry, Rice University

Pedagogical Research Interests and Teaching Methods

- *The effectiveness of the Student-Centered Active Learning at Rice (SCAL@R) method in General Chemistry (2012-present)*. Transformed the General Chemistry course structure by implementing the SCAL@R method in a large classroom (100-150 students) setting and examined the impact of inquiry-based learning methods on student learning, study habits, and attitudes towards learning.
- *The Chemistry of Cooking (2014-present)*. Created an undergraduate elective course to teach basic chemical concepts through guided inquiry kitchen laboratory activities and cooking demonstrations led by invited chefs from Rice Housing & Dining and local Houston area restaurants.
- *Research for Undergraduates and Undergraduate Honors Research (2017-2018)*. Redesigned and managed the Chemistry undergraduate independent research program to improve course structure and provide students with more meaningful guidance in developing written and oral communication skills.

Grant Support

1. **Lu, Lesa T.** and Ramos, Renata F. "Student Inspired Teaching Innovation Awards." Rice University Brown Teaching Grant, Spring 2018. Status: Not funded.
2. **Lu, Lesa T.** and Toffoletto, Frank R. "Martel College Kitchen as an Unconventional Teaching and Learning Space." Rice University Teaching Innovation Fund, Spring 2018. Status: Under review, Funded, \$9,941.60.
3. Beason-Abmayr, B.; Carlton, A.; Eich, E.; Eyler, J.; Kincaid, K.; **Lu, L. T.**; Musher, L.; Paige, R.; Parsons, S.; Pearson, Y.; and Zimmerman, C. "CREATE: Consortium for Research on Education and Teaching Excellence." Rice University InterDisciplinary Excellence Award, Spring 2017. Status: Not funded.
4. **Tran, Lesa A.** "The Chemistry of Cooking: Making Science More Palatable through Food and Cuisine." Rice University Brown Teaching Grant, Spring 2014. Status: Funded, \$3,000.00

Publications

Peer-reviewed Journal Articles

1. **Tran, L.A.**; Hernández-Rivera, M.; Berlin, A.N.; Zheng, Y.; Sampaio, L; Bové, C.; Cabreira-Hansen, M.G.; Willerson, J.T.; Perin, E.C.; Wilson, L.J. “The use of gadolinium-carbon nanostructures to magnetically enhance stem cell retention for cellular cardiomyoplasty.” *Biomaterials* 2014, 35(2): 720-726.
2. Rivera, E.J.; **Tran, L.A.**; Hernandez-Rivera, M.; Yoon, D.; Mikos, A.G.; Rusakova, I.A.; Cheong, B.Y.; Cabreira-Hansen, M.G.; Willerson, J.T.; Perin, E.C.; Wilson, L.J. “Bismuth@US-tubes as a potential contrast agent for X-ray imaging applications.” *J. Mater. Chem. B.* 2013, 1(37): 4792-4800.
3. Van der Zande, M.; Sitharaman, B.; Walboomers, X.F.; **Tran, L.**; Ananta, J.S.; Veltien, A.; Wilson, L.J.; Álava, J.I.; Heerschap, A.; Mikos, A.G.; Jansen, J.A. “*In Vivo* Magnetic Resonance Imaging of the Distribution Pattern of Gadonanotubes Released from a Degrading Poly(Lactic-Co-Glycolic Acid) Scaffold.” *Tissue Eng., Part C* 2011, 17(1): 19-26.
4. **Tran, L.A.**; Krishnamurthy, R.; Muthupillai, R.; Cabreira-Hansen, M.G.; Willerson, J.T.; Perin, E.C.; Wilson, L.J. “Gadonanotubes as Magnetic Nanolabels for Stem Cell Detection.” *Biomaterials* 2010, 31(36): 9482-9491.
5. Hassan, A.A.; Chan, B.T-Y.; **Tran, L.A.**; Hartman, K.B.; Ananta, J.S.; Mackeyev, Y.; Hu, L.; Pautler, R.G.; Wilson, L.J.; Lee, A.V. “Serine-Derivatized Gadonanotubes as Magnetic Nanoprobes for Intracellular Labeling.” *Contrast Media Mol. Imaging* 2010, 5(1): 34-38.
6. Sitharaman, B.; **Tran, L.A.**; Pham, Q.P.; Bolskar, R.D.; Muthupillai, R.; Flamm, S.D.; Mikos, A.G.; Wilson, L.J. “Gadofullerenes as nanoscale magnetic labels for cellular MRI.” *Contrast Media Mol. Imaging* 2007, 2: 139-146.
7. Sitharaman, B.; Shi, X.; **Tran, L.A.**; Spicer, P.P.; Rusakova, I.; Wilson, L.J.; Mikos, A.G. “Injectable *in situ* cross-linkable nanocomposites of biodegradable polymers and carbon nanostructures for bone tissue engineering.” *J. Biomater. Sci., Polym. Ed.* 2007, 18(6): 655-671.
8. Sitharaman, B.; Kissell, K.; Hartman, K.B.; **Tran, L.A.**; Baikalov, A.; Rusakova, I.; Sun, Y.; Khant, H.A.; Ludtke, S.J.; Chiu, W.; Laus, S.; Tóth, É.; Helm, L.; Merbach, A.E.; Wilson, L.J. “Superparamagnetic gadonanotubes are high- performance MRI contrast agents.” *Chem. Commun.* 2005, 31: 3915-3917.

Book Chapters and Review Articles

9. **Tran, L.A.** and Wilson, L.J. “Ultrashort Carbon Nanotubes.” In *Encyclopedia of Nanotechnology*; Bushan, B., Ed.; Springer, 2016.
10. **Tran, L.A.** and Wilson, L.J. “Nanomedicine: Making Controllable Magnetic Drug Delivery Possible for the Treatment of Breast Cancer.” *Breast Cancer Res.* 2011, 13(3): 303.

Invited Presentations

1. Clements, K., Owens, C., Munson, A.H., Kincaid, K., **Lu, L. T.**, Hutchinson, J. S. “Longitudinal and Latitudinal Comparative Studies of the Effectiveness of Two Active Learning Approaches.” *In preparation.*
2. **Lu, L. T.** “Designing a chemistry of cooking course with campus dining staff and facilities.” The 256th ACS National Meeting, Boston, MC, August 2018. *Abstract accepted.*
3. **Lu, L.T.** “The Chemistry of Cooking.” Texas A&M University First Year Program in Chemistry Lecture Series, College Station, TX, March 2018: <https://www.youtube.com/watch?v=Ps6ilmxnOUE>
4. Hutchinson, J.S.; Munson, A.; Owens, C.; **Lu, L.T.**; Kincaid, K. “Silent Students in the Active Learning Classroom.” 253rd American Chemical Society National Meeting, San Francisco, CA, April 2017.
5. Munson, A.; Hutchinson, J.; Owens, C.; **Tran L.**; Kincaid, K. “Active Learning Techniques with Applications to a Statistics Classroom.” Joint Statistical Meetings 2015 Conference, Seattle, WA, August 2015.
6. Obenland, C.; Hutchinson, J., Kincaid, K. **Tran, L.**; Munson, A. “Student Centered Active Learning at Rice.” American Association of Chemistry Teachers ChemEd 2015 Meeting, Kennesaw, GA, July 2015.
7. Hutchinson, J. and **Lu, L.T.** “Not your parents’ Chemistry class: Concept Development and SCAL@R.” 2015 Rice Center for Teaching Excellence Symposium, Houston, TX, January 2015.
8. Gilbertson, M.L.; McNeil, C.; Kincaid, K.; **Tran, L.** “Preparation of graduate student teaching assistants in 13 hours.” 2014 Biennial Conference on Chemical Education, Allendale, MI, August 2014.

9. **Tran, L.A.**; Eyler, J.R.; Beier, M.E.; Barre, E.A.; Hutchinson, J.S. "Concept Development Studies: Active Learning and Constructivism in Chemistry Education at Rice University." Association of American Universities Undergraduate STEM Education Initiative Conference, Washington, DC, July 2014.
10. **Tran, L.A.**; Hernandez-Rivera, M.; Berlin A.N.; Zheng, Y.; Sampaio, L.; Bove, C.; Cabreira-Hansen, M.G.; Willerson, J.T.; Perin, E.C.; Wilson, L.J. "Magnetic Retention of Gadonanotube-labeled Stem Cells for Cellular Cardiomyoplasty." Frontiers in BioMagnetic Particles III Meeting, Telluride, CO, June 2013.
11. **Tran, L.A.**; Hernandez-Rivera, M.; Sampaio, L.; Zheng, Y.; Bove, C.; Wilson, L.J.; Silva, G.; Perin, E.C. "Enhanced Cardiac Stem Cell Engraftment with Magnetic Gadonanotubes." American Heart Association Scientific Sessions, Los Angeles, CA, November 2012.
12. Cabreira-Hansen, M.G.; **Tran, L.A.**; Robinson, T.M.; Wilson, L.J.; Willerson, J.T.; Perin, E.C. "Early Response of Pig Mesenchymal Progenitor Cells to Intracellular Incorporation of Gadonanotubes Resembles Anoikis Resistance." International Society for Stem Cell Research, Yokohama, Japan, June 2012.
13. **Tran, L.A.** "The Use of Nanotechnology in Clinical Research." The Association of Clinical Research Nurses Symposium, Houston, TX, January 2012.
14. **Tran, L.A.**; Zheng, Y.; Matson, M.L.; Cabreira-Hansen, M.G.; Willerson, J.T.; Perin, E.C.; Wilson, L.J. "Magnetic-assisted Retention of MRI-active Gadonanotube-labeled Stem Cells in Cardiac Tissue." Imaging in 2020 VII: Bridging Molecular Imaging and Therapy, Jackson Hole, WY, September 2011.
15. **Tran, L.A.** "Hot Topics: Stem Cells & Nanotechnology." The Association of Clinical Research Nurses Symposium on Innovations in the Management of Stem Cell Clinical Trials, Houston, TX, October 2010.
16. **Tran, L.A.**; Krishnamurthy, R.; Cabreira-Hansen, M.G.; Muthupillai, R.; Wilson, L.J.; Willerson, J.T.; Perin, E.C. "Gadonanotubes as Magnetic Nanolabels: A Powerful and Safe Approach for Stem Cell Detection." American College of Cardiology 59th Annual Scientific Session, Atlanta, GA, March 2010.
17. **Tran, L.A.**; Krishnamurthy, R.; Muthupillai, R.; Cabreira-Hansen, M.G.; Perin, E.C.; Willerson, J.T.; Wilson, L.J. "Gadonanotubes as Magnetic Nanolabels for Stem Cell Detection." Imaging in 2020 VI: Imaging Biopathways, Jackson Hole, WY, September 2009.
18. **Tran, L.A.** and Wilson, L.J. "Gadonanotubes as MRI Nanolabels for Stem Cell Tracking." 215th Meeting of the Electrochemical Society, San Francisco, CA, May 2009.
19. **Tran, L.A.** and Wilson, L.J. "Gadonanotubes as Nanolabels for Cellular Magnetic Resonance Imaging." 213th Meeting of the Electrochemical Society, Phoenix, AZ, May 2008.

Media Mentions and Interviews

1. Gosnell, Lynn. "Summer Refreshments." Rice Magazine, Summer 2018: <http://magazine.rice.edu/2018/06/summer-refreshments/>.
2. Rozelle, Jenny. "Unconventional Wisdom: Harvey's Conduit of Calm." Rice Magazine, Fall 2017: <http://magazine.rice.edu/2017/11/unconventional-wisdom-harveys-conduit-of-calm/>.
3. Schoemann, Kendall. "Faculty encourage students to pay attention, embrace failure and put Rice to the test." Rice News, August, 15, 2017: <http://news.rice.edu/2017/08/15/faculty-address-encourages-students-to-pay-attention-embrace-failure-and-put-rice-to-the-test/>
4. Rhoades, Tracey. "Unconventional Wisdom: The Cooking Chemist." Rice Magazine, Summer 2017: <http://magazine.rice.edu/2017/07/unconventional-wisdom-the-cooking-chemist/>.
5. Cornelius, Keridwen. "House of Carbs: The Clinton Email Risotto Controversy." Cooks Science, November 2, 2016: <http://www.cooksscience.com/articles/story/house-of-carbs/>
6. Williams, Mike. "Eat, drink, and be chemists." Rice News, May 2, 2016: <http://news.rice.edu/2016/05/02/eat-drink-and-be-chemists-2/>
7. Myong, Elizabeth. "Students launch boba business." Rice Thresher, February 2, 2016: <http://www.ricethresher.org/article/2016/02/students-launch-boba-business>
8. Noti, Yaran. "A Houston cookout with a far east reach." Saveur Magazine. May 22, 2015: <http://www.saveur.com/chris-shepherd-houston-cookout>
9. Brigman, Elizabeth. "Dr. Lesa Tran: Using SCAL@R to teach GenChem and develop thinking skills." Rice OIT News, May 18, 2015: <http://itnews.blogs.rice.edu/2015/05/18/dr-lesa-tran-using-scalr-to-teach-genchem-and-develop-thinking-skills/>

10. Passwaters, Arie. "The chemistry of cooking: Scientist meets chef." Rice News, December 4, 2014: <http://news.rice.edu/2014/12/04/the-chemistry-of-cooking-scientist-meets-chef/>
11. Williams, Mike. "Tests show bright future for gadonanotubes in stem cell tracking." Rice News, November 12, 2010: <http://news.rice.edu/2010/11/12/tests-show-bright-future-for-gadonanotubes-in-stem-cell-tracking/>
12. Oak Ridge Associated Universities. "Some of the Nation's brightest graduate students are chosen to meet with Nobel Laureates in Lindau, Germany." ORAU News Release, June 17, 2010: <https://www.ornl.gov/media-center/news-releases/2010/fy10-45-Some-of-the-Nations-brightest-graduate-students-are-chosen-to-meet-with-Nobel-Laureates.aspx>
13. Ruth, David. "\$1M stimulus funds awarded to Rice University, Texas Heart Institute for MRI tracking of stem cells." Rice News, November 10, 2009: <http://news.rice.edu/2009/11/10/1m-in-stimulus-funds-awarded-to-rice-university-texas-heart-institute-for-mri-tracking-of-stem-cells/>