

Daniel M. Close

Research Staff Scientist

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Education

- 2006 – 2011 Doctorate of Philosophy, Genome Science and Technology
The University of Tennessee, Knoxville
Dissertation – Development of an Autonomous Mammalian Lux Bioreporter
Advisor: Dr. Gary S. Saylor
- 1999 – 2003 Bachelor of Science, Biology
Minor Concentration, Forensic Science
Suma Cum Laude
Saint Louis University, Saint Louis MO

Professional Experience

- 2016 – Present Adjunct Assistant Professor
Genome Science & Technology Department, The University of Tennessee – Knoxville, TN
- Basic research towards enabling synthetic engineering in non-model microbial host organisms with a focus on the inclusion of students and early career professionals.
- 2012 – Present Research Staff Scientist
Biosciences Division, Oak Ridge National Laboratory – Oak Ridge, TN
- Applied research focused on the synthetic engineering of metabolic pathways in yeasts for the renewable synthesis of high value fuels and chemicals.
- 2012 - 2014 Eugene P. Wigner Fellow
Biosciences Division, Oak Ridge National Laboratory – Oak Ridge, TN
- Applied research towards the production of drop-in-ready biofuels capable of direct synthesis in the industrially relevant organism *Saccharomyces cerevisiae*.
- 2011 - Present Chief Scientific Officer, Co-Founder
490 BioTech Inc. – Knoxville, TN
- Co-founder and head of product development for synthetic design and commercialization of autonomously bioluminescent human and animal cell lines for sale to research and commercial laboratories. Development of low-cost high throughput screening panels leveraging the advantages of substrate free bioluminescence detection for toxicology and metabolic activity screening.
- 2011 – 2012 Postdoctoral Research Associate
Joint Institute for Biological Sciences, The University of Tennessee/Oak Ridge National Laboratory – Knoxville, TN
- Research focusing on the development of synthetic genetic pathways for programmed product production from industrially relevant organisms, with a focus on the adaption of prokaryotic genetic architecture for expression in eukaryotic cells.

2007 – 2011 Graduate Research Assistant

Center for Environmental Biotechnology, The University of Tennessee – Knoxville, TN

- Research directed toward the use of molecular biology techniques for adaptation of the genes involved in bacterial bioluminescence to function autonomously in mammalian systems.

2007 – 2008 Graduate Teaching Assistant

Biochemistry and Molecular Biology 401, The University of Tennessee – Knoxville, TN

- Lecture preparation and performance, administration and evaluation of quizzes, examinations proctoring, and assistance in course grading.

2004 – 2006 Research Technologist I

Lab of Dr. Toshio Narahashi, Northwestern University Medical School – Chicago, IL

- Primary cell culture of neuronal cells and performance of molecular biology protocols. Oversight of laboratory safety, organization, and supply logistics for a staff of seven.

2003 – 2004 Sample Preparation Technician I

Doctors Data – St. Charles, IL

- Receipt, processing and of trace metal analysis of hair, urine, fecal, blood, and water samples.

2002 Laboratory Assistant

Lab of Dr. Stuart Tsubota, Saint Louis University – St. Louis, MO

- Drosophila collection maintenance and research aimed at understanding the mechanisms governing the intra-genome transfer of mobile DNA elements.

Awards and Commendations

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| 2013-Present | \$1,422,400 awarded for research projects as a Primary Investigator, with awards originating from the Department of Energy |
| December 2013 | Development of synthetically designed, reagent-free, fully autonomous bioluminescent human cell lines selected as a Top 10 technology of 2013 by The Scientist Magazine |
| 2012 – 2014 | Recipient of the Eugene P. Wigner Fellowship by Oak Ridge National Laboratory |
| June 2012 | Recipient of the International Society for Bioluminescence and Chemiluminescence's Marlene DeLuca Prize for Outstanding Contribution to the Field of Bioluminescent Biology by a Young Investigator for the first ever demonstration of continuous, self-directed production of bioluminescence from a mammalian tissue cell line |
| April 2011 | Recipient of the University of Tennessee's Science Alliance Fellowship for Outstanding Scholarly Achievement by a Graduate Student for significant original research contributions to the scientific literature by a graduate student |
| April 2010 | Completion of the Effective College Teaching Workshop |
| March 2010 | Sigma Xi Abstract Competition First Place Award |
| June 2009 | Award of Excellence, Comparative & Experimental Medicine and Public Health Research Symposium |
| June 2009 | Comparative & Experimental Medicine and Public Health Symposium Travel Award |

2006 – 2011 Recipient of The University of Tennessee's Billy Stair Fellowship
1999 – 2003 Recipient of the Saint Louis University Deans Scholarship

Service

- Knoxville area host for Life Science Tennessee's Beer and Biotech entrepreneurial community engagement meeting
- Oversight and management of a seven member commercial research team
- Current mentorship of two post-masters research associates and one post bachelors research associate
- Former mentorship of seven undergraduate research associates
- Mentor for the Department of Energy Science Undergraduate Laboratory Internship Program
- *Ad hoc* reviewer for Nature Communications, Applied Microbiology and Biotechnology, Analytical Chemistry, Photochemical & Photobiological Sciences, Journal Biomedical Optics, Biosensors, Journal of Photochemistry and Photobiology, Environmental Science & Technology, The Journal of Visualized Experiments, Science of the Total Environment, Journal of Molecular Catalysis B: Enzymatic, and Ecotoxicology
- SBIR reviewer for the NASA Center for the Advancement of Science in Space (CASIS) and The U.S. Department of Energy
- *Ad hoc* reviewer for laboratory directed research and development proposal funding under the Director's R&D Fund and Seed Money Fund at Oak Ridge National Laboratory
- Former PEER/SCALE-IT mentor for minority graduate students at the University of Tennessee, Knoxville
- Former Genome Science and Technology Graduate Program mentor for incoming Ph.D. candidates at the University of Knoxville, TN
- Former co-leader for the University of Tennessee, Knoxville International Genetically Engineered Machine (iGEM) team

Publications

Dan Close, Miguel Rodriguez, Jr., Rongbin Hu, and Xiaohan Yang. Disposition and availability of inulin and free sugar in untreated and dilute acid pretreated *Agave tequilana* leaves. *Biomass & Bioenergy* (Accepted for publication).

Dan Close, John Ojumu, and Gui Zhang. Draft genome sequence of *Cryptococcus terricola* JCM 24523, an oleaginous yeast capable of expressing exogenous DNA. *Genome Announcements*. 4(6), e01238-16 (2016).

Dan Close and John Ojumu. Draft genome sequence of the oleaginous yeast *Cryptococcus curvatus* ATCC 20509. *Genome Announcements*. 4(6), e01235-16 (2016).

Andrea Rocha, Quan Yuan, **Dan Close**, Kaela O'dell, Julian Fortney, Jayne Wu, and Terry Hazen. Rapid detection of microbial cell abundance in aquatic systems. *Biosensors and Bioelectronics*. 85, 915-923 (2016).

Tingting Xu, **Dan Close**, Winode Handagama, Enolia Marr, Gary Saylor, and Steven Ripp. The expanding toolbox of *in vivo* bioluminescent imaging. *Frontiers in Oncology*. 6(150), doi: 10.3389/fonc.2016.00150 (2016).

Hannah Akinosho, Thomas Rydzak, Abhijeet Borole, Arthur Ragauskas, and **Dan Close**. Toxicological challenges to microbial bioethanol production and strategies for improved tolerance. *Ecotoxicology*. 24, 2156-2174 (2015).

Tingting Xu, Enolia Marr, Haylie Lam, Steven Ripp, Gary Sayler, and **Dan Close**. Real-time toxicity and metabolic activity tracking of human cells exposed to *Escherichia coli* O157:H7 in a mixed consortia. *Ecotoxicology*. 24, 2133-2140 (2015).

Dan Close. Expression of the *Aspergillus niger inuA* gene in *Saccharomyces cerevisiae* permits growth on the plant storage carbohydrate inulin at low enzymatic concentrations. *Journal of Biotech Research*. 6, 1-13 (2015).

Hannah Akinosho, Kelsey Yee, **Dan Close**, and Arthur Ragauskas. The emergence of *Clostridium thermocellum* as a high utility candidate for consolidated bioprocessing applications. *Frontiers in Chemistry*. 2(66), doi:10.3389/fchem.2014.00066 (2014).

Tingting Xu, Steven Ripp, Gary Sayler, and **Dan Close**. Expression of a humanized viral 2A-mediated *lux* operon efficiently generates autonomous bioluminescence in human cells. *PLoS ONE* 9, e96347 (2014).

Tingting Xu, **Dan Close**, James Webb, Steven Ripp, and Gary Sayler. Autonomously bioluminescent mammalian cells for continuous and real-time monitoring of cytotoxicity. *Journal of Visualized Experiments* 80, e50972 (2013).

Tingting Xu, **Dan Close**, Gary Sayler, and Steven Ripp. Genetically modified whole-cell bioreporters for environmental assessment. *Ecological Indicators* 28, 125-141 doi:10.1016/j.ecolind.2012.1001.1020 (2013).

Tingting Xu, **Dan Close**, James Webb, Sarah Price, Steven Ripp, and Gary Sayler. "Continuous, real-time bioimaging of chemical bioavailability and toxicology using autonomously bioluminescent human cell lines," in 2013 SPIE Sensing Technologies for Global Health, Military Medicine, Disaster Response and Environmental Monitoring Conference Proceedings, Baltimore MD (2013).

Ke Jiang, John Sanseverino, Archana Chauhan, Susan Lucas, Alex Copeland, Alla Lapidus, Tijana Glavina Del Rio, Eileen Dalin, Hope Tice, David Bruce, Lynne Goodwin, Sam Pitluck, David Sims, Thomas Brettin, John Detter, Cliff Han, Y.J. Chang, Frank Larimer, Miriam Land, Loren Hauser, Nikos Kyrpides, Natalia Mikhailova, Scott Moser, Patricia Jegier, **Dan Close**, Jennifer M. DeBruyn, Ying Wang, Alice Layton, Michael Allen, and Gary Sayler. Complete genome sequence of *Thauera aminoaromatica* strain MZ1T. *Standards in Genomic Sciences*. 6(3), 325-335 (2012).

Dan Close, Steven Ripp, Stacey Patterson, and Gary Sayler. The use of autonomously bioluminescent human cell lines for detection of bacterial contamination. *Luminescence* 27, 110-111 (2012).

Dan Close, James Webb, Steven Ripp, Stacey Patterson, and Gary Sayler. "Remote detection of human toxicants in real time using a human optimized bioluminescent bacterial luciferase gene cassette bioreporter," in 2012 SPIE Defense, Security, and Sensing Conference Proceedings, Baltimore, MD (2012).

Dan Close, Tingting Xu, Abby Smartt, Alexandra Rodgers, Robert Crossley, Steven Ripp, and Gary Sayler. The evolution of the bacterial luciferase (*lux*) gene cassette as a real-time bioreporter. *Sensors* 12, 732-752 (2012).

Dan Close, Ruth Hahn, Steven Ripp, and Gary Saylor. Comparison of Human Optimized Bacterial Luciferase, Firefly Luciferase, And Green Fluorescent Protein For Continuous Imaging Of Cell Culture And Animal Models. *Journal of Biomedical Optics* 16(4), (2011).

Dan Close, Tingting Xu, Abby Smartt, Pat Jegier, Steven Ripp, and Gary Saylor, "Light without substrate amendment: The bacterial luciferase gene cassette as a mammalian bioreporter," in 2011 SPIE Defense, Security, and Sensing Conference Proceedings, Orlando, FL (2011).

Dan Close, Ruth Hahn, Steven Ripp, and Gary Saylor, "Determining toxicant bioavailability using a constitutively bioluminescent human cell line," in Proceedings for the 3rd Annual Biomedical Science and Engineering Conference, Oak Ridge, TN (2011).

Dan Close, Stacey Patterson, Steven Ripp, Seung Baek, John Sanseverino, and Gary Saylor. Autonomous Bioluminescent Expression of the Bacterial Luciferase Gene Cassette (*lux*) in a Mammalian Cell Line. *PLoS ONE* 5, e12441 (2010).

Dan Close, Tingting Xu, Gary Saylor, and Steven Ripp. *In vivo* Bioluminescent Imaging (BLI): Noninvasive Visualization and Interrogation of Biological Processes in Living Animals. *Sensors* 11, 180-206 (2010).

Dan Close, Steven Ripp, and Gary Saylor. Reporter Proteins in Whole-Cell Optical Bioreporter Detection Systems, Biosensor Integrations, and Biosensing Applications. *Sensors* 9, 9147–9174 (2009).

Elias Greenbaum, Mark Humayun, Charlene Sanders, **Dan Close**, Hugh O'Neill, and Barbara Evans. Metabolic Prosthesis for Oxygenation of Ischemic Tissue. *IEEE Transactions on Biomedical Engineering* 56, 528-531 (2009).

Book Chapters

Tingting Xu, Michael Conway, Ashley Frank, Amelia Brumbaugh, Steven Ripp, and **Dan Close**. "Autobioluminescent Cellular Models for Enhanced Drug Discovery" in Special Topics in Drug Discovery. T. Chen and S. Chai, Eds., pp. 1-23, Intech, Rijeka, Croatia (2016).

Tingting Xu, **Dan Close**, Abby Smartt, Steven Ripp, and Gary Saylor. "Detection of organic compounds with whole-cell bioluminescent bioassays" in Bioluminescence: Fundamentals and Applications – Volume 1, Advances in Biochemical Engineering and Biotechnology. G. Thouand and R. Marks, Eds., pp. 111-151, Springer-Verlag, Berlin Heidelberg (2014).

Dan Close, Tingting Xu, Steven Ripp, and Gary Saylor. "Real-time bioluminescent tracking of cellular population dynamics" in Bioluminescent Imaging: Methods and Protocols. C. Badr, Ed., pp. 107-116, Humana Press, New York, NY (2014).

Dan Close, Tingting Xu, Abby Smartt, Sarah Price, Steven Ripp, and Gary Saylor. "Expression of non-native genes in a surrogate host organism," in Genetic Engineering. H. A. Barrera-Saldana, Ed., pp. 3-34, Intech, Rijeka, Croatia (2012).

Dan Close, Steven Ripp, and Gary Saylor. "Mammalian-Based Bioreporter Targets: Protein Expression for Bioluminescent and Fluorescent Detection in the Mammalian Cellular Background. Biosensors for Health, Environment and Biosecurity," in Biosensors for Health, Environment and Biosecurity. P. Serra, Ed., pp. 469-498, Intech, Rijeka, Croatia (2011).

Invited Talks

Monitoring Treatment-Induced Metabolic Dynamics Using a Continuously Active Bioluminescent Reporter Construct. University of Tennessee Health Science Center/St. Jude Children's Research Hospital, February 2016. Host: Dr. Hassan Almoazen.

Expression of the Bacterial Luciferase Gene Cassette in a Mammalian Cell Line. Vanderbilt University, July 2009. Host: Dr. Carl Johnson.

Contributions to Scientific Meetings

John Ojumu and **Dan Close**. Characterization and development of *Cryptococcus terricola* JCM24523 as a platform host for bio-hydrocarbon chemicals. Accepted for presentation at The Society for Industrial Microbiology and Biotechnology's 39th Symposium on Biotechnology for Fuels and Chemicals. San Francisco, CA. May 2017.

Steven Ripp, Tingting Xu, **Dan Close** and Gary Sayler. The toolbox of bioreporter and biosensor technologies - from environmental monitoring to the protection of human health. China-US Joint Workshop on Environmental Remediation and Watershed Restoration. Changchun, China. June 2016.

Tingting Xu, Haylie Lam, **Dan Close**, Gary Sayler and Steven Ripp. Substrate-independent real-time toxicity screening in 3D human tissue culture models. The Society of Toxicology 55th Annual Meeting. New Orleans, LA. March 2016.

Tingting Xu, Tom Masi, Steven Ripp, Gary Sayler and **Dan Close**. A substrate-independent autoluminescent genetic reporter system for continuous cellular screening and its introduction to stem cells. Fifth Annual Society for Laboratory Automation and Screening Conference and Exhibition. San Diego, CA. January 2016.

David Graham, Kristina Mahan, Christopher Gulvik, Richard Giannone, Dawn Klingeman, **Dan Close**, Robert Hettich, Ronald Parry and Jim Spain. Nitration in the biosynthesis of azomycin (2-nitroimidazole) by *Streptomyces eurocidicus*. The 2015 Society for Industrial Microbiology & Biotechnology Annual Meeting. Philadelphia, PA. August 2015.

Kristina Mahan, Tekle Fida, Richard Giannone, Dawn Klingeman, **Dan Close**, Robert Hettich, Ronald Parry, Jim Spain, and David Graham. Production of N-Nitroglycine by *Streptomyces noursei* JCM 4701. The 2015 Society for Industrial Microbiology & Biotechnology Annual Meeting. Philadelphia, PA. August 2015.

Dan Close and Miguel Rodriguez, Jr. Minimizing essential gene expression to promote alternative metabolisms in *Saccharomyces cerevisiae*. The 3rd Annual Oak Ridge National Laboratory Research Symposium. Oak Ridge, TN. July 2015.

Robert Crossley, Casey Martin, Enolia Marr, Tingting Xu, Michelle Connolly, **Dan Close**, Steven Ripp, and Gary Sayler. Expressing bacterial luciferase in zebrafish for high-throughput, reagent-free whole organism toxicity screening. The 115th General Meeting of the American Society for Microbiology. New Orleans, LA. May 2015.

Tingting Xu, Haylie Lam, **Dan Close**, Shanfeng Wang, Gary Saylor, and Steven Ripp. Development of a multi-functional autonomous bioluminescent gene cassette for the continuous biomonitoring of 3D human tissue culture models and the acquisition of real-time predictive toxicity data. The Chemical and Biological Defense Science and Technology Conference. Saint Louis, MO. May 2015.

Tingting Xu, Steven Ripp, Gary Saylor, and **Dan Close**. Development of a substrate-independent bioluminescent genetic system to enable multi-level high throughput screening. Fourth Annual Society for Laboratory Automation and Screening Conference and Exhibition, Washington, DC. February 2015.

Steven Ripp, Tingting Xu, **Dan Close**, and Gary Saylor. Bioengineering autoluminescence for biomedical imaging: From microbe to man. 2014 Biomedical Engineering Society Annual Meeting. San Antonio, TX. October 2014.

Dan Close. Illuminating cells, illuminating research. BioPharm America. Boston, MA. September 2014.

Tingting Xu, **Dan Close**, Michelle Connolly, and Gary Saylor. Development of a bacterial luciferase-based bioluminescent zebrafish model for high throughput whole organism toxicity screening. The 114th General Meeting of the American Society for Microbiology. Boston, MA. May 2014.

James Web, Tingting Xu, **Dan Close**, and Gary Saylor. A long time course comparison of three dimensional tissue culture methods using continuously bioluminescent human cell lines. The 114th General Meeting of the American Society for Microbiology. Boston, MA. May 2014.

Tingting Xu, **Dan Close**, James Webb, Alexandra Lynn, Hailey Lam, Michele Connolly, Steve Ripp, and Gary Saylor. Engineering autoluminescence for biomedical surveillance: From bacteria to whole animals. The Institute of Biomedical Engineering Research Symposium. Knoxville, TN. April 2014.

Dan Close, Nancy Engle, and Gary Saylor. Evaluation of a eukaryotic aldehyde decarboxylase for yeast-based biohydrocarbon production. The Wigner Distinguished Lecture Series, Oak Ridge, TN. January 2014.

Dan Close, Tingting Xu, Alexandra Rodgers, Steven Ripp, and Gary Saylor. High throughput bioluminescent cellular monitoring using substrate-independent autoluminescent human cell lines. Third Annual Society for Laboratory Automation and Screening Conference and Exhibition, San Diego, CA. January 2014.

Tingting Xu, **Dan Close**, Steven Ripp, and Gary Saylor. No more reagents: Substrate-free autoluminescent human cell lines for high-throughput toxicity testing. The Society of Toxicology FutureTox II: Pathways to Prediction meeting, Chapel Hill, NC. January 2014.

Steven Ripp, Tingting Xu, **Dan Close**, and Gary Saylor. Optimization of bacterial luciferase to enable continuous, substrate-free bioluminescent imaging from human cell lines. The NCI-NIBIB Point of Care Technologies for Cancer Conference, Bethesda, MD. January 2014.

Dan Close, Nancy Engle, and Gary Saylor. Evaluation of a Eukaryotic Aldehyde Decarboxylase for Yeast-Based Biohydrocarbon Production. The 2013 Annual Symposium of the US-China Ecopartnership and Joint Research Center, Gatlinburg, TN. November 2013.

Tingting Xu, Alexandra Rogers, James Webb, Nikil Patel, **Dan Close**, Steven Ripp, and Gary Saylor. Bacterial luciferase-based autoluminescent human cell lines for detection of endocrine disrupting and oxidative stress-inducing compounds, Environmental Health and Green Development. The 2013 Annual Symposium of the US-China Ecopartnership and Joint Research Center, Gatlinburg, TN. November 2013.

Gary Saylor, Steven Ripp, Melanie Eldridge, Tingting Xu, Jun Wang, and **Dan Close**. Bacterial bioluminescence from microbe to man: *Lux* autonomous sensing platforms in environmental and biomedical applications. International Symposium of the Korean Society for Microbiology and Biotechnology, Pyeongchang, Gangwondo, Korea. July 2013.

Tingting Xu, Sarah Price, **Dan Close**, Steven Ripp, and Gary Saylor. Polycistronically expressing the bacterial bioluminescence cassette *luxCDABEfrp* in human cells using viral 2A elements. The 113th General Meeting of the American Society for Microbiology. Denver, CO. May 2013.

Tingting Xu, **Dan Close**, James Webb, Sarah Price, Steven Ripp, and Gary Saylor. Continuous, real-time bioimaging of chemical bioavailability and toxicology using autonomously bioluminescent human cell lines. The 2013 SPIE Defense, Security, and Sensing Conference, Baltimore, MD. May 2013.

Dan Close, Tingting Xu, Steven Ripp, and Gary Saylor. Use of the bacterial luciferase (*lux*) operon as a novel tool for substrate-independent bioluminescent imaging. Revolutionaries for Global Health Summit. Boston, MA. May 2013.

Tingting Xu, **Dan Close**, Sarah Price, and Gary Saylor. Detection of estrogenic compounds using autonomously bioluminescent human breast cancer cells. Revolutionaries for Global Health Summit. Boston, MA. May 2013.

Dan Close, James Webb, and Gary Saylor. Biohydrocarbon fuel production in *Saccharomyces cerevisiae* using a synthetic production pathway: A proof in principle demonstration. The Society for Industrial Microbiology and Biotechnology's 35th Symposium on Biotechnology for Fuels and Chemicals. Portland, OR. April 2013.

Dan Close, Tingting Xu, James Webb, Steven Ripp, and Gary Saylor. Continuous, near real-time toxicological screening using an autonomously bioluminescent human cell line: A transitory pre-clinical imaging approach. The Society of Toxicology 52nd Annual Meeting, San Antonio, TX. March 2013.

Tingting Xu, **Dan Close**, Sarah Price, and Gary Saylor. High-Throughput Detection of Estrogenic Compounds Using Autonomously Bioluminescent Human Breast Cancer Cells. The Society of Toxicology 52nd Annual Meeting, San Antonio, TX. March 2013.

Tingting Xu, James Webb, Alexandra Rogers, **Dan Close**, Steven Ripp, and Gary Saylor. High-throughput *in vitro* toxicity screening using autonomously bioluminescent human cells in 2D and 3D cultures. The Society of Toxicology 52nd Annual Meeting, San Antonio, TX. March 2013.

James Webb, **Dan Close**, and Gary Saylor. Development of a synthetic pathway for alkane production in *Saccharomyces cerevisiae*. The American Society for Microbiology KY-TN Branch Meeting, Maryville, TN. October 2012.

Dan Close, Cong Trinh, and Gary Saylor. Development of a synthetic yeast platform for direct alkane production from lignocellulosic biomass. The 2012 China-US Joint Symposium "Land Use, Ecosystem Services, and Sustainable Development," Shenyang, China. September 2012.

Dan Close, James Webb, Steven Ripp, and Gary Sayler. Tracking human cell exposure to *E. coli* O157:H7 using an autoluminescent cell line expressing the bacterial luciferase gene cassette. The 112th General Meeting of the American Society for Microbiology, San Francisco, CA. June 2012.

Tingting Xu, **Dan Close**, Steven Ripp, and Gary Sayler. Optimization of Bacterial Bioluminescence (*lux*) Expression in Mammalian Cells and Its Application as a Bioreporter. The 112th General Meeting of the American Society for Microbiology, San Francisco, CA. June 2012.

Dan Close, Steven Ripp, Stacey Patterson, and Gary Sayler. The use of bioluminescent human cell lines for detection of bacterial contamination. The 17th International Symposium on Bioluminescence and Chemiluminescence, Guelph, ON, Canada. May 2012.

James Webb, **Dan Close**, and Gary Sayler. Monitoring the metabolic dynamics of human cells grown in 2-D vs. 3-D culture environments. Comparative and Experimental Medicine and Public Health Research Symposium, Knoxville, TN. May 2012.

Dan Close, James Webb, Steven Ripp, Stacey Patterson, and Gary Sayler. Remote detection of human toxicants in real time using a human optimized bioluminescent bacterial luciferase gene cassette bioreporter. The 2012 SPIE Defense, Security, and Sensing Conference, Baltimore, MD. April 2012.

Dan Close, Steven Ripp, Stacey Patterson, and Gary Sayler. Autoluminescent human cell lines as biomarkers for localization and toxicology screening. High Content Analysis – Live Cell Imaging Symposium, San Francisco, CA. January 2012.

Tingting Xu, **Dan Close**, Steven Ripp, and Gary Sayler. Development of a novel high throughput screening method for estrogenic compounds. Comparative and Experimental Medicine and Public Health Research Symposium, Knoxville, TN. June 2011.

Dan Close, Ruth Hahn, Steven Ripp, Seung Baek, and Gary Sayler. Comparison of the human optimized bacterial luciferase gene cassette with firefly luciferase and green fluorescent protein and development into a real-time biosentinel for toxic chemicals. The 111th General Meeting of the American Society for Microbiology, New Orleans, LA. May 2011.

Tingting Xu, **Dan Close**, Steven Ripp, and Gary Sayler. Using a *lux*-mammalian reporter cell to detect estrogenic activity. The 111th General Meeting of the American Society for Microbiology, New Orleans, LA. May 2011.

Dan Close, Tingting Xu, Abby Smartt, Pat Jegier, Steven Ripp, and Gary Sayler. Light without substrate amendment: The bacterial luciferase gene cassette as a mammalian bioreporter. SPIE Defense, Security, and Sensing Conference, Orlando, FL. April 2011.

Dan Close, Stacey Patterson, Steven Ripp, Seung Baek, and Gary Sayler. From cell culture to living mice: The use of mammalian-adapted bacterial luciferase as a target for bioluminescent imaging. The University of Tennessee Comparative and Experimental Medicine and Public Health Research Symposium, Knoxville, TN. June 2010.

Dan Close, Stacey Patterson, Steven Ripp, Seung Baek, and Gary Sayler. Development of a bioluminescent mammalian cell line utilizing the *Photobacterium luminescens lux* gene cassette. The 110th General Meeting of the American Society for Microbiology, San Diego, CA. May 2010.

Dan Close, Stacey Patterson, Steven Ripp, Seung Baek, and Gary Saylor. Autonomous bioluminescent expression of the bacterial luciferase gene cassette (*lux*) in a mammalian cell line. Memphis Bioimaging Symposium, Memphis, TN. November 2009.

Dan Close, Stacey Patterson, and Gary Saylor. Mammalian expression of the bacterial luciferase gene cassette using a two plasmid system. American Society for Microbiology KY-TN Branch Meeting, Knoxville, TN. October 2009.

Dan Close, Stacey Patterson, and Gary Saylor. Development of an autonomous mammalian *lux* bioreporter. The University of Tennessee Comparative and Experimental Medicine and Public Health Research Symposium, Knoxville, TN. June 2009.

Elias Greenbaum, Mark Humayun, Charlene Sanders, **Dan Close**, Hugh O'Neill, and Barbara Evans. Metabolic prosthesis for the oxygenation of ischemic tissue. Association for Research in Vision and Ophthalmology Meeting, Fort Lauderdale, FL. May 2009.

John Sanseverino, Ke Jiang, Yan Wang, Michael Allen, **Dan Close**, Kathleen Cusick, Jennifer DeBruyn, Alice Layton, Leo Poorvin, and Gary Saylor. Genomic analysis of exopolysaccharide producing in *Thauera* sp. MZ1T. The 108th General Meeting of the American Society of Microbiology, Boston, Massachusetts. June 2008.

Dan Close, Stacey Patterson, and Gary Saylor. Development of an autonomous mammalian *lux* bioreporter. The University of Tennessee Comparative and Experimental Medicine and Public Health Research Symposium, Knoxville, TN. June 2008.

Featured Research Projects

My appointment as a Eugene P. Wigner fellow was profiled in volume 47, issue 1 of the Oak Ridge National Laboratory Review, the laboratory's research and development magazine. Article available online at: http://web.ornl.gov/info/ornlreview/v47_1_14/article14.shtml

The humanized bacterial luciferase gene cassette that forms the core of 490 BioTech's technology was named as one of the top 10 innovations of 2013 by The Scientist magazine in their December 2013 edition. Article available online at: <http://www.the-scientist.com/?articles.view/articleNo/38394/title/Top-10-Innovations-2013/>

The success of 490 BioTech's core autoluminescent technology was highlighted by Oak Ridge Today in their December 11, 2013 issue. Article available at: <http://oakridgetoday.com/2013/12/11/bioluminescence-technology-from-ut-a-top-innovation-researchers-have-ornl-connection/#more-33137>

The development and commercialization of licensable technology produced from the autoluminescent human cell line work was highlighted by the city of Knoxville, Tennessee chamber of commerce to entice future biotech development in the greater east Tennessee region on March 26th, 2012. Featured video available at: http://www.youtube.com/watch?feature=player_detailpage&v=zKWLSuYRHSI

The development of autoluminescent human cells was featured on the University of Tennessee homepage promoting successful university research with commercial applications on October 18th, 2011. Featured video available at: <https://www.youtube.com/watch?v=Eg40HJrjyM8>