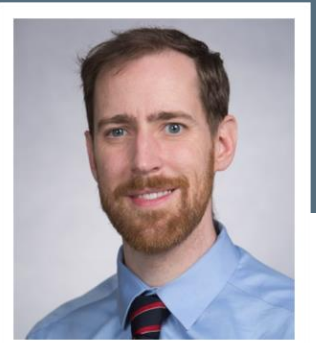



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Publications

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Patents

11. **Lewis, N.E.**, Chiang, W.T., Kellman, B.P., Bao, B., Schinn, M.S. Clinical diagnostics using glycans. Patent pending – provisional.

10. Fuerst, T.R., Toth, E.A., **Lewis, N.E.**, Voldborg, B.G., Chiang, W.T. Glycoengineered Vaccines and Methods of Making the Same. Patent pending – provisional.
9. **Lewis, N.E.**, Chiang, W.T., Liang, C., Sorrentino, J.T. Method of Measuring Complex Carbohydrates at the Nano-Scale. Patent pending – provisional.
8. Martino, C., Kellman, B., **Lewis, N.E.**, Knight, R., Sandoval, D., Esko, J., Mandel-Clausen, T. Application of microbial glycosidase as a therapeutic or anti-viral. Patent pending – provisional.
7. **Lewis, N.E.**, Spahn, P., Li, S., Hefzi, H., Shamie, I. Methods to Stabilize Mammalian Cells. Patent PCT/EP2020/078435.
6. **Lewis, N.E.**, Liang, C., Chiang, W.T.. (2019) Methods of Designing Carbohydrates. PCT/EP2020/082713
5. **Lewis, N.E.**, Chiang, W.T., Puig, M., Zhang, Y., Rosenberg, A. (2019) Method to Suppress Viral Infection of Mammalian Cells. Patent PCT/US2019/048361.
4. **Lewis, N.E.**, Gazestani, V., Pramparo, T., Courchesne, E. (2019) Expression-based diagnosis, prognosis, and treatment of complex diseases. Patent pending.
3. Hefzi, H., **Lewis, N.E.** (2017). Mammalian cells devoid of lactate dehydrogenase activity. WO2017192437A1.
2. Spahn, P., **Lewis, N.E.** (2016). A method for predicting glycosylation on secreted proteins. WO 2016187341 A1.
1. Herrgard, M.J., Pedersen, L.E., **Lewis, N.E.**, Bruntse, A.B. (2014). Methods for modeling Chinese hamster ovary (CHO) cell metabolism. WO2015010088-A1.

Extramural funding

- | | | |
|--|--|--------------------------|
| 1 R35 GM119850 | Lewis (PI) | 07/01/16-06/30/21 |
| Unraveling the mammalian secretory pathway through systems biology and algorithm development | | |
| This grant aims to reconstruct the mammalian secretory pathway and develop algorithms to use the pathway to simulate its functions and discover novel components. | | |
| 1 R01 MH110558-01 | Courchesne (PI), Lewis (PI) | 09/01/16-06/30/21 |
| Developmental Functional Genomics in ASD Toddlers | | |
| This grant aims to develop gene expression biomarker networks for autism diagnosis and prognosis. | | |
| NNF20SA0066621 | Lewis (PI) | 01/01/21-12/31/23 |
| National Biologics Facility | | |
| The goal of this grant is to build computational models of glycosylation and protein secretion, and to use these to control heterologous expression of cytokines and biotherapeutics, in collaboration with the National Biologics Facility at the Technical University of Denmark | | |
| Amgen | Lewis (PI) | 12/01/18-10/01/21 |
| Modeling cell scale metabolism in reactor scale bioprocesses | | |
| This grant aims to build cell-scale metabolic models relevant to bioreactor scale phenotypes. | | |
| 1 R01MH121595 | Pierce (PI), Lewis (Co- Investigator) | 09/01/19-08/31/23 |
| Testing the impact of early screening on the long-term outcomes of children with ASD. | | |
| This grant examines the school age outcomes of children with ASD initially detected and referred for early treatment via our early detection program, “Get SET Early.” | | |
| UH2AI153029 | Lewis (PI), Robasky (Co-PI) | 6/02/20-5/31/22 |
| ImmCellFIE: producing high-resolution snapshots of the functions of immune cells | | |
| This grant funds the development of an RNA-Seq data analysis webtool for ImmPort.org. | | |

- R21AI154353** **Aceves (PI), Lewis (Co-I)** **5/22/20-4/30/22**
Probing the Mechanisms of Fibroblast-Extracellular Matrix Interactions to Assess Disease Severity in Allergic Eosinophilic Esophagitis
In this grant we will study the how changes in the ECM in Eosinophilic Esophagitis impact healthy cell function and show that ECM swapping can be used for screening potential therapeutics
- Completed:**
- 1 R21 CA199292** **Esko (PI), Lewis (Co-Investigator)** **07/01/15 – 06/31/17**
Genome-wide Analysis of Heparan Sulfate using CRISPR/Cas9
This grant will use genome-wide CRISPR/Cas9 knockout screens to identify genes that modulate the transcription/translation of the enzymes or orchestrate their action to achieve the final composition of heparan sulfate observed in different cell types.
- 1 R21 HD080682** **Bode (PI), Lewis (Co-Investigator)** **04/01/15 – 03/31/17**
Exploring Oligosaccharide Synthesis in Human Mammary Gland Epithelial Cells
This grant will use RNA sequencing and glycan profiling data from primary cell culture models, with systems biology analysis to elucidate the enzymes responsible for human milk oligosaccharide synthesis.
- NNF16CC0021858** **Palsson (PI), Lewis (Co-PI)** **01/01/13-12/31/16**
Network Reconstruction and *in Silico* Biology for CHO – Chinese Hamster Ovary
The goal of this grant is to build genome-scale models of Chinese hamster ovary metabolism and glycosylation, and use these models to interpret of genomic, transcriptomic, proteomic, metabolomic, and glycomic data.
- Genentech** **Lewis (PI)** **10/01/18-02/28/19**
Elucidation of RVLP identities in CHO cells
In this grant we studied RVLPs in CHO cells.
- 1 R21 HD088953** **Bode (PI), Lewis (Co- Investigator)** **07/01/17-06/31/19**
Exploring Associations between Human Milk Oligosaccharides and Growth, Body Composition and Obesity Risk in Infancy and Early Childhood.
This grant uses glycan profiling data from human subjects, with complex statistical models to elucidate the association of human milk oligosaccharides with infant growth and childhood obesity.
- Pfizer** **Lewis (PI)** **01/01/18-12/31/19**
Enhancing CHO 2.0 Performance through Systems and Synthetic biology
The goal of this grant is to enhance Pfizer platform cells using computational models.
- Keck Foundation** **O'Rourke (PI), Lewis (Co-PI), Church (Co-PI)** **07/01/16-06/31/20**
Predictive modeling of animal metabolism: The *C. elegans* MetaboFlux Project
This grant will develop technologies for sequencing, genetically perturbing, and modeling at a single cell level to study the metabolism in a whole-organism.
- 2 R01 AI090141-05** **Winzeler (PI), Lewis (Co-Investigator)** **08/01/16-07/31/21**
Discovery of chemically validated malaria liver stage targets
My role involves the transcriptomic analysis of host-parasite interactions following drug interventions.
- NNF10CC1016517** **Lewis (PI)** **01/01/17-12/31/20**
CHO *in Silico* Engineering of Glycosylation and Protein Quality

The goal of this grant is to build computational models of glycosylation and protein secretion, and to use these to control heterologous protein expression.

External advisory roles

- 2016 – 2017** **Scientific Advisory Board**
Cipla BioTec
- 2016 – 2017** **Advisory Committee Member, P41 Technology Development Grant**
Complex Carbohydrate Research Center, University of Georgia

Honors & awards

Academic Awards, Scholarships, and Honor Societies:

- **Web of Science Highly Cited Researcher**, 2020
- **Otto Mønsted Foundation Gæsteprofessorater fellow**, 2020-2022
- **Siebel Scholar 2012** (academic/leadership award given to 85 students annually from top graduate programs in business, computer science, and bioengineering)
- The BYU Department of Chemistry **Outstanding Biochemistry Student Award** for the 2004-2005 school year (faculty-selected award given to the top student in the department each year)
- **Dean's list** for the BYU College of Physical and Mathematical Sciences
- **Phi Kappa Phi** National Honor Society
- National Chancellor's List
- National Dean's List (2x)
- Golden Key National Honor Society

Recipient of various academic scholarships at BYU, including the Snyder Academic Scholarship, the Department of Chemistry and Biochemistry Scholarship, and Dean's Choice Scholarship in the Department of Agronomy and Horticulture (2002-2005)

Graduate and Post-doctoral Fellowships:

- Selected as **Whitaker Scholar** (full support for postdoctoral work) (2011; declined)
- Selected as **NSF Plant Systems Biology IGERT fellow** (full support) (Dec 2007 – Dec 2010)
- Selected as an **HHMI Med-Into-Grad fellow**, providing short-term clinical training in neurology and neurometabolic disorders (Fall 2009 - Winter 2010)
- Selected for the **Whitaker Fellowship** (2009; declined)
- **Fulbright Fellow** for 2008 -2009 (9 months, full support for research at Weizmann Institute, Israel)
- **NSF graduate fellowship honorable mention** (2x: 2007 & 2008)
- **Lawrence Fellowship short list** (2008; declined)

Research and Conference Awards:

- **Winning talk** at the 2008 HHMI Interfaces conference
- **Semi-finalist in the 2006 ABRF conference poster contest**
- Recipient of the **ORCA research fellowship**, and research was one of only a few chosen from hundreds of awardees to be spotlighted on the fellowship website (2005 - 2006)
- Recipient of the **Undergraduate Research Award** for the BYU Department of Chemistry and Biochemistry (2x: Winter and Fall 2004)

Teaching Awards:

- 2007-2008 **UCSD Bioengineering departmental award** for excellence in teaching (two chosen annually from more than 50 teaching assistants)
- **Garth Lee Teaching Award** for teaching excellence, given to the top teaching assistants in the BYU Department of Chemistry (3x: Spring & Fall 2003, Spring 2006)

Conference presentations and significant seminars

Upcoming: Lewis, N.E. Invited Talk, Jacques Monod Conference on Genetics, environment, signalling, & synaptic plasticity in developmental brain disorders: from bench to bedside, Roscoff, France, May 2022.

Upcoming: Lewis, N.E. Invited Talk, Gordon Research Conference on Patient-Centric, Modality-Independent, Data-Driven Biotherapeutic and Vaccine Development, Ventura, CA, March 2022.

Lewis, N.E. Invited Talk, Annual meeting for the society for glycobiology, San Diego, CA, Nov 2021.

Lewis, N.E. Invited Talk, Immport external advisory board meeting, virtual, Sept 2021

Lewis, N.E. Invited Seminar, Amgen, virtual, Aug 2021.

Lewis, N.E. Invited Talk, Critical Capabilities for Biologic Production, Aug 2021.

Lewis, N.E. Invited Talk. Bioprocess Summit, virtual, Aug 2021.

Lewis, N.E. Invited Talk. PEGS conference, virtual, July 2021.

Lewis, N.E. Invited Talk, Beilstein Glyco-Bioinformatics Symposium, Virtual, June 2021.

Lewis, N.E. Keynote Speaker, BPI West Cell Line Development & Engineering, virtual, May 2021.

Lewis, N.E. Invited talk, 2021 San Diego Glycobiology Symposium, Virtual, Apr 2021

Lewis, N.E. Invited Talk, World Biosimilars Congress, virtual, Mar 2021.

Lewis, N.E. Invited Talk, Peptalk Protein Science Week, virtual, Jan 2021.

Lewis, N.E. Invited Talk, NextGen Omics, virtual Dec 2020

Lewis, N.E. Invited Talk, Immport external advisory board meeting, virtual, Nov 2020,

Lewis, N.E. Invited Talk. PEGS conference, virtual, MA, Sept 2020.

Lewis, N.E. Invited Talk, BPI West Cell Line Development & Engineering, virtual, Sept 2020.

Lewis, N.E. Invited Seminar, Sanofi, virtual, Aug 2020.

Lewis, N.E. Keynote Speaker, BPI Europe, virtual, July 2020.

Lewis, N.E. Talk, ASBMB, virtual, July 2020.

Lewis, N.E. Invited Seminar, University College London, London, UK, Feb 2020.

Lewis, N.E. Invited Talk, World Biosimilars Congress, Coronado, CA, Mar 2020.

Lewis, N.E. Invited Talk, Peptalk Protein Science Week, San Diego, CA, Jan 2020.

Lewis, N.E. Invited Seminar, KTH Royal Institute of Technology, Stockholm, Sweden, Nov 2019.

Lewis, N.E. Invited Talk, Annual Meeting for the Society for Glycobiology. Phoenix, AZ, Nov, 2019.

Lewis, N.E. Invited Seminar, Brigham Young University, Provo, UT, Oct 2019.

Lewis, N.E. Invited Seminar, University of Maryland, Rockville, MD, Sept 2019.

Lewis, N.E. Talk, Protein expression in animal cells, Newport, RI, Sept 2019.

Lewis, N.E. Invited Workshop Talk, Fundamentals of Mammalian Cell Bioprocessing, Oceanside, CA Sept 2019.

Lewis, N.E. Keynote Speaker, UNAM CRISPR workshop, Cuernavaca, Aug 2019.

Lewis, N.E. Talk, Biochemical and Molecular Engineering XXI, Quebec, July 2019.

Lewis, N.E. Invited Seminar, KAIST, South Korea, June 2019

Lewis, N.E. Invited Seminar, Samsung Biologics, Seoul, South Korea, CA, June 2019

Lewis, N.E. Invited Talk, 46th annual meeting & international symposium hosted by the Korean Society for Microbiology and Biotechnology, June 2019

Lewis, N.E. Keynote Speaker, Cell line development and engineering, San Francisco, CA, June 2019

Lewis, N.E. Invited Seminar, Thermo Fisher Scientific, Carlsbad, CA, June 2019

Lewis, N.E. Invited Seminar, Norwegian University of Life Sciences (NMBU), Department of Chemistry, Biotechnology and Food Science (IKBM), May 2019

Lewis, N.E. Invited Talk, CHO genome workshop at the Conference of the European Society of Animal Cell Technology, Copenhagen, DK, May 2019

Lewis, N.E. Keynote Speaker, Recombinant Protein Production 10, Herklion, Greece, Apr 2019

Lewis, N.E. Keynote Speaker, BPI Europe: Cell line development and engineering, Vienna, Austria, Apr 2019

Lewis, N.E. Invited Seminar, Center for Computational Biology, La Jolla, CA, Mar 2019

Lewis, N.E. Keynote Speaker, Systems Biology, Bioinformatics, and Big Data in Medicine and Drug Development, Tokyo, Japan, Feb 2019

Lewis, N.E. Invited Seminar, Fujifilm Advanced Research Laboratory, Tokyo, Japan, Feb 2019

Lewis, N.E. Invited Seminar, UC San Diego – Kobe University – FBRI Joint Seminar on Systems Biology, Kobe, Japan, Feb 2019

Lewis, N.E. Invited talk at the 2019 San Diego Glycobiology Symposium, San Diego, CA, Feb 2019

Lewis, N.E. Selected Talk, GlycoBioTec, Berlin, Germany, Jan 2019

Lewis, N.E. Invited Talk, 18th annual PepTalk Protein Science Week, San Diego, CA, Jan 2019

Lewis, N.E. Invited Seminar, Department of Cellular and Molecular Medicine, La Jolla, CA, Jan 2019

Lewis, N.E. Invited Seminar, Irvine Scientific, Irvine, CA, Jan 2019

Lewis, N.E. Selected Talk, International Conference on Biomolecular Engineering, Newport Beach, CA, Jan 2019

Lewis, N.E. Invited Seminar, Bristol Myers Squibb, NJ, December 2018

Lewis, N.E. Poster Annual Meeting for the Society for Glycobiology. New Orleans, LA, Nov, 2018.

Lewis, N.E. Keynote Speaker, the 8th SLATCC - Latin-American Symposium on Animal Cell Technology, Rio de Janeiro, Brazil, October 2018.

Lewis, N.E. Invited Talk, the 5th Conference on Constraint-Based Reconstruction and Analysis, October 2018

Lewis, N.E. Invited Seminar, University of Kent, UK, October 2018

Lewis, N.E. Invited Talk, Annual BioProNet meeting, London, UK, October 2018

Lewis, N.E. Invited Talk, Annual meeting of the Center for Biosustainability, Helsingor, Denmark, September 2018

Lewis, N.E. Talk, CHO Systems Biology Summit, San Diego, CA, Aug 2018

Lewis, N.E. Invited Talk, CHO core, Technical University of Denmark, June 2018

Lewis, N.E. Invited Seminar, Center for Biosustainability, Technical University of Denmark, June 2018

Lewis, N.E. Invited Talk, Cell line development and Engineering, San Francisco, CA, June 2018

Lewis, N.E. Invited Seminar, Genentech, South San Francisco, CA, June 2018.

Lewis, N.E. Poster, Multifaceted mitochondria, San Diego, CA, June 2018.

Lewis, N.E. Talk, Omics workshop at Cell Culture Engineering, Tampa, FL, May 2018.

Lewis, N.E. Talk, Cell Culture Engineering, Tampa, FL, May 2018.

Lewis, N.E. Invited Talk. PEGS conference, Boston, MA, May 2018.

Lewis, N.E. Invited Seminar, Pfizer, Boston, MA, May 2018

Lewis, N.E. Invited Talk. Bioengineering platforms workshop, Heron Island, Australia, April 2018.

Lewis, N.E. Invited Seminar, University of Queensland, Brisbane, Australia, Apr 2018

- Lewis, N.E. Invited Talk.** 2018 San Diego Glycobiology Symposium, San Diego, CA, Mar 2018.
- Lewis, N.E. Invited Talk.** SLAS conference, San Diego, CA, Feb 2018.
- Lewis, N.E. Invited Talk,** 17th annual PepTalk Protein Science Week, San Diego, CA, Jan 2018
- Lewis, N.E. Invited Seminar,** Morgridge Institute at UW-Madison, Dec 2017
- Lewis, N.E. Invited Talk,** International Symposium for Trans-Omics, Tokyo, Japan, Nov 2017
- Lewis, N.E. Invited Talk,** Multi-scale systems biology methods for studying biomedical processes in patients under stress or with several chronic diseases, Riverside, CA, Nov 2017
- Lewis, N.E. Invited Seminar Lecture,** UNAM Frontiers in Genomics, Cuernavaca, Mexico, Oct 2017.
- Lewis, N.E. Invited Talk,** NGS, RNA-Seq, Single Cell Analysis & Single Molecule Analysis, San Diego, CA, Oct 2017.
- Lewis, N.E. Invited Talk,** Protein expression in animal cell culture conference, Valencia, Spain, Sept 2017.
- Lewis, N.E. Invited Talk,** Annual meeting of the Center for Biosustainability, Helsingor, Denmark, September 2017
- Lewis, N.E. Talk,** Biochemical and Molecular Engineering XX, Newport Beach, CA, July 2017.
- Lewis, N.E. Invited Talk,** Beatson International Cancer Conference, Glasgow, UK, July 2017.
- Lewis, N.E. Invited Seminar lecture,** Center for Biosustainability, Technical University of Denmark, June 2017
- Lewis, N.E. Invited Talk,** Beilstein Glyco-Bioinformatics Symposium, Berlin, Germany, June 2017.
- Lewis, N.E. Invited Talk,** Cell line development and Engineering, San Diego, CA, June 2017
- Lewis, N.E. Invited Talk,** Cell Culture World Congress, San Diego, CA, May 2017.
- Lewis, N.E., Hefzi, H., Joshi, C. Invited Talk,** GENiE Workshop, Cambridge, UK, April 2017
- Lewis, N.E. Invited Talk,** Data-driven Biotechnology conference, Copenhagen, Denmark, May 2017
- Lewis, N.E. Invited Talk,** Conference of the European Society of Animal Cell Technology, Lausanne, Sw, May 2017
- Lewis, N.E. Talk,** CHO Systems Biology Summit, San Diego, CA, Feb 2017
- Lewis, N.E. Talk,** GlycoBioTec, Berlin, Germany, Feb 2017
- Lewis, N.E. Invited talk** at the 2017 San Diego Glycobiology Symposium, San Diego, CA, Feb 2017.
- Lewis, N.E. Invited Talk,** Annual Pediatrics Research Symposium, San Diego, CA, Jan 2017
- Lewis, N.E. Invited Talk,** 16th annual PepTalk Protein Science Week, San Diego, CA, Jan 2017
- Lewis, N.E. Talk,** International Conference on Biomolecular Engineering, San Diego, CA, Jan 2017
- Lewis, N.E. Invited Seminar Lecture,** University of California, San Diego Department of Pathology, Oct 2016.
- Lewis, N.E. Invited Talk,** Annual meeting of the Center for Biosustainability, Copenhagen, Denmark, September 2016
- Lewis, N.E. Invited Talk/lecture,** Biochemical Pathways and Large Scale Metabolic Networks, Lausanne, Sw, Aug 2016
- Lewis, N.E. Invited Talk,** Bioprocessing Summit, Boston, MA, Aug 2016
- Lewis, N.E. Invited Seminar Lecture,** Bristol Myers Squibb, Boston, MA, August 2016.
- Lewis, N.E. Invited Talk,** Mammalian Systems Biotechnology, Singapore, August 2016.
- Lewis, N.E. Invited Lecture,** Cipla Biotec SAB, London, UK, July 2016.
- Lewis, N.E. Invited Talk,** IBC Cell Line Development and Engineering, San Francisco, CA, June 2016.
- Lewis, N.E. Invited Talk,** Cell Culture World Congress, San Diego, CA, May 2016.
- Lewis, N.E. Selected Talk,** Cell Culture Engineering, Palm Springs, CA, May 2016.
- Lewis, N.E. Invited Seminar Lecture,** Novo Nordisk, Denmark, April 2016.
- Lewis, N.E. Invited Seminar Lecture,** GNF, San Diego, CA, April 2016.

- Lewis, N.E. Invited Seminar Lecture**, Amgen, Thousand Oaks, CA, April 2016.
- Lewis, N.E. Invited talk** at the 2016 San Diego Glycobiology Symposium, San Diego, CA, March 2016.
- Lewis, N.E. Selected Talk (Bioproduction)**, National meeting of the American Chemical Society, San Diego, Mar 2016.
- Lewis, N.E. Selected Talk (Systems Biology Technology)**, National meeting of the American Chemical Society, San Diego, Mar 2016.
- Lewis, N.E. Invited talk**. 15th annual PepTalk Protein Science Week, San Diego, CA, Jan 2016.
- Lewis, N.E. Keynote Talk**, Bioproduction Summit, San Francisco, CA, Nov 2015
- Lewis, N.E. Invited Seminar Lecture**, University of Maryland, Oct 2015.
- Lewis, N.E. Invited Seminar Lecture**, San Diego State University, Oct 2015.
- Lewis, N.E. Selected Talk**, Protein expression in animal cell culture conference, San Diego, Sept 2015.
- Lewis, N.E. Invited Talk**, Bioprocessing Summit, Boston, MA, Aug 2015
- Lewis, N.E. Poster**, Biochemical and Molecular Engineering, Puerto Vallarta, Mexico, July 2015.
- Lewis, N.E. Invited Talk**, Metabolic Pathway Analysis Conference, Braga, Portugal, June 2015
- Lewis, N.E. Poster**, Conference of the European Society of Animal Cell Technology, Barcelona, Spain, June 2015.
- Lewis, N.E. Invited Talk**, Cell Culture World Congress, San Diego, May 2015
- Lewis, N.E. Invited Seminar Lecture**, The Genetics, Bioinformatics and Systems Biology Colloquium, UCSD, May 2015.
- Lewis, N.E. Invited Seminar lecture**, Center for Biosustainability, Technical University of Denmark, April 2015
- Lewis, N.E. Invited Seminar Lecture**, Pediatric Faculty Research Seminars(PFRS), UCSD, March 2015.
- Lewis, N.E. Poster**, Glycobiology Gordon Research Conference, Barga, Italy, March 2015.
- Lewis, N.E. Invited Seminar Lecture**, Pediatrics Grand Rounds, Scripps Mercy Hospital, San Diego, CA, January 2015.
- Lewis, N.E. Invited talk** at the 14th annual PepTalk Protein Science Week, San Diego, CA, January 2015.
- Lewis, N.E. Invited talk** at the 2015 San Diego Glycobiology Symposium, San Diego, CA, January 2015.
- Lewis, N.E. Poster** at Annual Meeting for the Society for Glycobiology. Honolulu, HI, November, 2014.
- Lewis, N.E. Poster** at Systems Approaches to Metabolic Diseases, Chicago, IL, October 2014.
- Lewis, N.E. Invited talk** and "**Featured Presentation**". The 10th Annual IBC Cell Line Development and Engineering conference, Berkeley, CA, September 2014
- Lewis, N.E. Invited young investigator talk**, The 28th annual Protein Society Meeting, San Diego, CA, July 2014
- Lewis, N.E. Invited talk**, FACILIS 2014, Milan, Italy, July 2014
- Lewis, N.E. Talk** at the 3rd Conference on Constraint-Based Reconstruction and Analysis, May 2014
- Lewis, N.E. Invited Seminar lecture**, University of Copenhagen, March 10, 2014
- Lewis, N.E. Invited Seminar lecture**, Center for Biosustainability, Technical University of Denmark (DTU), March 11, 2014
- Lewis, N.E. Invited talk**, CHO genome workshop (international conference), Vienna, Austria, March 13, 2014
- Lewis, N.E., et al. Poster** at the Cell Factories and Biosustainability Conference, May 2013, Copenhagen, Denmark.
- Lewis, N.E. Invited Seminar lecture**, MRC Cancer Cell Unit, Cambridge, UK, March 2014
- Lewis, N.E. Invited Seminar lecture**, Georgia Institute of Technology, Department of Biomedical Engineering, Atlanta, GA, March 2014
- Lewis, N.E., et al. Talk** at the Q-Bio Winter Conference, February 2013, Honolulu, HI.
- Lewis, N.E., et al. Poster** at the Conference on Constraint-based Reconstruction and Analysis, October 2012, Copenhagen, Denmark.

Lewis, N.E., et al. **Talk** at SynBERC, September 2012, Cambridge, MA.

Lewis, N.E., et al. **Talk** at the International Conference on Systems Biology, August 2012, Toronto, Canada.

Lewis, N.E. Invited Talk at the IOMPA session of the International Conference on Systems Biology, August 2011, Heidelberg, Germany.

Lewis, N.E., et al. **Poster** at the International Conference on Systems Biology 2011, Heidelberg, Germany.

Lewis, N.E. Invited talk at the IBC Conference on Cell Line Development and Engineering 2011, Boston, MA.

Lewis, N.E., et al. **Poster** at the International Conference on Systems Biology 2009, Stanford, CA.

Lewis, N.E., Palsson, B.Ø., Segal, E. **Poster** at ISMB/ECCB 2009, Stockholm, Sweden.

Lewis, N.E., et al. **Talk** at the German Symposium on Systems Biology 2009, Heidelberg, Germany.

Lewis, N.E., et al. **Poster** at the IGERT 2008 meeting, Washington, D.C.

Lewis, N.E., et al. **Talk** and poster at the FASEB Experimental Biology 2008 meeting, San Diego, CA.

Lewis, N.E., et al. **Poster** at the Conference for the Association of Biomolecular Resource Facilities 2006, Long Beach, CA. Semi-finalist in the poster contest.

Teaching experience

Biochemical engineering 1: Bioreactor engineering (BENG 161A) (Course on bioprocess engineering)
University of California, San Diego, Fall 2021.

Fundamentals of Mammalian Cell Bioprocessing (BENG 207) (Course on mammalian cell culture, bioprocessing, separations of biological products, and regulatory concerns in the biotechnology industry)
University of California, San Diego, Fall 2019.

Biochemical engineering 2: Bioseparations (BENG 161B) (Course on separations of biological products)
University of California, San Diego, Winter 2018, Winter 2019, Winter 2020.

Bioinformatics Student Research Talks (BNFO 283) (Course on effective research presentation and feedback for student work)
University of California, San Diego, Spring/Fall 2014, Winter/Spring/Fall 2015, Fall 2016, Winter/Spring/Fall 2017, Winter/Spring/Fall 2018, Winter/Spring 2019, Winter 2020, Winter 2021.

High throughput data and systems biology (Measurement and statistical analysis of -omic data types, biological network construction and comparison, pathway simulation, nonlinear dynamics, constraint-based modeling, regulatory network modeling)
Brigham Young University, Winter 2013.
Developed and taught entire course.

Systems Biology and Bioengineering with Bernhard Palsson, Ph.D. (Constraint-based Modeling, Reaction Kinetics, Dynamic Analyses of Metabolic Network Functions, Linearization, Jacobian, Singular Value Decomposition)
Graduate Teaching Assistant, University of California, San Diego, Winter 2007/2008.
Was awarded the **2007-2008 departmental award** for excellence in teaching.

Modeling and Computation in Bioengineering with Jeff Hasty, Ph.D. (Modeling Non-linear Systems, Linearization, Jacobian)
Graduate Teaching Assistant, University of California, San Diego, Spring 2008.

Human Anatomy with Professor David Busath, M.D.
Undergraduate Teaching Assistant, Brigham Young University, Summer 2003.

General Chemistry with Professors John Cannon, Delbert Eatough, Lee Hansen, and Paul Farnsworth
Recitation Leader, Brigham Young University, 5x: Fall 2002 – Fall 2003 & Spring 2006.
Was awarded the **Garth Lee Award** three times for excellence in teaching.

Doctoral committees

Chair:

Alex Thomas (Ph.D., UCSD, Bioinformatics and Systems Biology, Graduated Oct 2015)
Hooman Hefzi (Ph.D., UCSD, Bioengineering, Graduated Feb 2018)
Jahir Gutierrez (Ph.D., UCSD, Bioengineering, Graduated July 2018)
Shangzhong Li (Ph.D., UCSD, Bioengineering, Graduated Mar 2019)
Benjamin Kellman (Ph.D., UCSD, Bioinformatics and Systems Biology, Graduated Sept 2020)
Chi-Chung Kuo (Ph.D., UCSD, Bioengineering, Graduated July 2021)
Isaac Shamie (Ph.D., UCSD, Bioinformatics and Systems Biology)
James Sorrentino (Ph.D., UCSD, Bioinformatics and Systems Biology)
Bokan Bao (Ph.D., UCSD, Bioinformatics and Systems Biology)
Helen Masson (Ph.D., UCSD, Bioengineering)
Albert Liang (Ph.D., UC San Diego, Bioengineering)
Hratch Baghdassarian (Ph.D., UCSD, Bioinformatics and Systems Biology)

Co-chair:

Joanna Liu (Ph.D., UCSD, Bioinformatics and Systems Biology, Graduated Aug 2017)

Committee Member:

Kimberly Robasky (Ph.D., Boston University, Bioinformatics, Graduated Aug. 2012)
Perry Ridge (Ph.D., Brigham Young University, Biology, Graduated Dec. 2012)
Victoria Catherine Corey (Ph.D., UCSD, Biomedical Sciences, Graduated Apr 2016)
Hoang Dinh (Masters, UCSD Bioengineering, Graduated 2017)
Chuankai Cheng (Masters, UCSD Bioengineering, Graduated 2017)
James Jensen (Ph.D., UCSD, Bioinformatics and Systems Biology, Graduated Dec 2018)
James Yurkovich (Ph.D., UCSD, Bioinformatics and Systems Biology, Graduated Apr 2018)
Nassim Ajami (Ph.D., UCSD, Bioinformatics and Systems Biology, Graduated June 2018)
Brian Yik Tak Tsui (Ph.D. UCSD, Bioinformatics and Systems Biology, Graduated 2018)
Daniel Sandoval (Ph.D., UCSD, Biomedical Sciences, Graduated 2019)
John Sauls (Ph.D., UCSD, Bioinformatics and Systems Biology, Graduated 2019)
Rob Foreman (Ph.D., UCSD, Bioinformatics and Systems Biology, Graduated 2019)
Shamim Ara Mollah (Ph.D. UCSD, Bioinformatics and Systems Biology, Graduated 2019)
Margaret Donovan (Ph.D. UCSD, Bioinformatics and Systems Biology, Graduated 2019)
Kanishk Asthana (Ph.D. UCSD, Bioinformatics and Systems Biology)
Argus Jerome Athanas-Crannell (Ph.D. UCSD, Bioinformatics and Systems Biology, Graduated 2020)
Gregoire Thouvenin (Ph.D. UCSD, Bioengineering, Graduated 2020)
Bijie Ren (Ph.D. UCSD, Biology, Graduated 2021)
Patrick Fiaux (Ph.D. UCSD, Bioinformatics and Systems Biology, Graduated 2021)
Patrick Phaneuf (Ph.D., Bioinformatics and Systems Biology, Graduated 2021)
Avi Kumar (Ph.D. UCSD, Bioengineering, Graduated 2021)
Kevin Glass (Masters, UCSD Bioengineering, Graduated 2021)
Edward Catoi (Ph.D. UCSD, Bioengineering)
Kivilcim Ozturk (Ph.D. UCSD, Bioinformatics and Systems Biology)
Yilan Shi (Ph.D., UCSD, Biomedical Sciences)
Samson Fong (Ph.D. UCSD, Bioengineering)
CJ Norsigian (Ph.D. UCSD, Bioengineering)
Madeline Luth (Ph.D. UCSD, Biomedical sciences)
Zachary Haiman (Ph.D. UCSD, Bioengineering)
Jivani Manovathy Gengatharan (Ph.D. UCSD, Bioengineering)

Cameron Martino (Ph.D. UCSD, Bioinformatics and Systems Biology)
Rick Zhenzhi Li (Ph.D. UCSD, Bioinformatics and Systems Biology)
Gibraan Rahman (Ph.D. UCSD, Bioinformatics and Systems Biology)

Chair/advisor (Masters Committees):

Tyler Paul Huelsman (M.S., UCSD, Bioengineering, Graduated 2015)
Anders Bech Bruntse (Technical University of Denmark, Graduated 2015)
Caressa Robinson (M.S., UC San Diego, Bioengineering, Graduated 2020)
Jamie Lee (M.S., UC San Diego, Bioengineering, Graduated 2020)
Mia Altieri (M.S. UC San Diego, Computer Science and Engineering, Graduated 2021)

External Committee member:

Christian Kaas (Ph.D., DTU, 2015)
Alyaa Mahmoud (Ph.D., KAUST 2019)
Erika Hagrot (Ph.D., KTH Sweden, 2019)
Maximilian Lularevic (Ph.D., UCL, 2020)
Peter Eisenhut (Ph.D., BOKU, 2020)

University service

University of California, San Diego:

Chair of Bioinformatics student fellowship committee (2019 - present)
Bioinformatics student fellowship committee (2015 - 2019)
Bioinformatics brochure committee (2016)
Bioinformatics PhD program recruitment committee (2016-present)
Bioengineering PhD program application reviewer (2014-present)
Reviewer of PhD applicants for Bioinformatics programs (2014-present)

Brigham Young University:

Bioinformatics faculty search committee (2012 - 2013)
College Computer Users' Council – represented the Department of Biology (2013)

Outreach activities

Teaching science in a Seattle middle school (2005)

In conjunction with the Institute for Systems Biology, I participated in a middle school science education outreach program, teaching science to students from less advantaged backgrounds.

Assisting in science teaching in San Diego charter school (2007)

Aided in teaching an 8th grade science course at a local charter school that focuses on teaching students from less advantaged backgrounds.

Faculty advisor for UCSD iGEM team (2014)

Team developed tool for cataloging genetic circuits (Gold medal at iGEM conference)

Founder and faculty advisor for Highschool Data Science program (2019)

Developed a biomedical data science summer program introducing high school students to the field.

Peer-review activities

Journals for which I have reviewed manuscripts

ACS Chemical Biology, ACS Synthetic Biology, Bioengineering, Bioinformatics, Biotechnology and Bioengineering, Biotechnology Journal, Biotechnology Progress, BMC Biology, BMC Bioinformatics, BMC Genomics, Cell Metabolism, Cell Reports, Cell Systems, Computational and Structural Biotechnology Journal, Computers in Biology and Medicine, Journal of Laboratory Automation, Journal of Molecular Biology, Journal of Proteomic Research, Journal of Theoretical Biology, mBIO, Metabolic Engineering, Metabolites, Molecular Cell, Molecular Systems Biology, Nature, Nature Biotechnology, Nature Communications, Nature Genetics, Nature

Reviews Microbiology, Nature Reviews Cell and Molecular Biology, Nucleic Acids Research, Nutrition and Metabolism, PLoS Computational Biology, PLoS One, Proc Nat Acad Sci USA, Science, Trends in Genetics, WIREs systems biology and medicine

Selection of agencies for which I have reviewed grant applications

Food and Health Bureau (FHB) of the Hong Kong SAR Government, Science Foundation Ireland, Czech Science Foundation

Conference administration

Workshop organizer, Cell culture engineering 2020, Tucson, AZ
Session chair, Peptalk protein science week, 2020, San Diego, CA
Conference organizing committee, PEACE, 2019, Newport, RI
Session organizer and chair, Biochemical and molecular engineering 2019, Mont Tremblant, Quebec
Session organizer, National meeting of the American Chemical Society 2019
Meeting organizer and chair, CHO systems biology center research summit, 2018, San Diego, CA
Session chair, Cell line development and Engineering 2018, San Diego, CA
Workshop organizer, Cell culture engineering 2018, Tampa, FL
Session organizer and chair, Biochemical and molecular engineering 2017, Newport Beach, CA
Session chair, Cell line development and Engineering 2017, San Diego, CA
Session organizer, National meeting of the American Chemical Society 2017, San Francisco, CA
Meeting organizer and chair, CHO systems biology center research summit, 2017, San Diego, CA
Conference organizing committee, Mammalian systems biotechnology, 2016, Singapore
Session chair, Cell line development and Engineering 2016, San Francisco, CA
Poster session chair, Cell Culture Engineering, 2016, Palm Springs, CA
Session chair, National meeting of the American Chemical Society 2016, San Diego, CA
Program committee for the 11th Biotechnology and Bioinformatics Symposium, 2015, Provo, UT
Meeting organizer and chair, Microbial systems biology symposium, San Diego, CA
Program committee for the 10th Biotechnology and Bioinformatics Symposium, 2014, Provo, UT
Program committee for the 9th Biotechnology and Bioinformatics Symposium, 2013, Provo, UT