Christopher T. Nomura, Ph.D.
University of Idaho
Office of Research and Economic Development
875 Perimeter Drive MS 3010
Moscow, ID 83844-3010
Office: 208-885-2258
Personal: 315-882-6593
ctnomura@uidaho.edu
ctnomura@gmail.com

Education

The Pennsylvania State University, University Park, PA
Ph.D., Biochemistry, Microbiology, and Molecular Biology (2001)

University of California, Santa Cruz, Santa Cruz, CA
B.A., Biology, with honors (1994)

Professional Experience

University of Idaho

Vice President for Research and Economic Development, University of Idaho (2020-present)
Professor, Department of Biological Sciences, University of Idaho (2020-present)
Chair, Science and Technology Committee, Board of Managers, Battelle Energy Alliance, LLC (2022-present)
Member, Science and Technology Committee, Board of Managers for the Idaho National Laboratory, Battelle Energy Alliance, LLC (2021-present)
Chair, Idaho Higher Education Research Council (HERC), State Board of Education (2021-2022)
Member, Idaho Higher Education Research Council (HERC), State Board of Education (2020-present)
Board Member, EPSCoR/IDeA Coalition Board of Directors (2021-present)
Member, Idaho EPSCoR Statewide Committee (2020-present)
Member, Idaho Global Entrepreneurial Mission (IGEM) Council, Department of Commerce (2020-present)
Member, Governor's Cybersecurity Task Force, Idaho (2022)
Member, AAAS Committee on Science, Engineering, and Public Policy (2022-2023)

SUNY Environmental Science and Forestry

Vice President for Research, SUNY Environmental Science and Forestry (2017-2020)
Professor, Department of Chemistry, SUNY Environmental Science and Forestry (2016-2020)
Co-founder, Alba Solutions, LLC (2016)
Visiting Lecturer, Hubei Collaborative Innovation Center for Green Transformation of Bio-Resources, College of Life Sciences, Hubei University (2016-2018, disclosed)
Facilitative Leader, Research Foundation of SUNY, Green Composite Materials Workgroup (2014-2016)
Associate Professor, Department of Chemistry, SUNY Environmental Science and Forestry (2011-2016)
Assistant Professor, Department of Chemistry, SUNY Environmental Science and Forestry (2006-2011)

RIKEN

Japan Society for the Promotion of Science (JSPS) Postdoctoral Research Fellow, Polymer Chemistry Laboratory, RIKEN Institute (2004-2006)
Postdoctoral Researcher, Polymer Chemistry Laboratory, RIKEN Institute (2001-2004)

The Pennsylvania State University

Research Assistant, Department of Biochemistry and Molecular Biology, The Pennsylvania State University (1997-2001)
NIH Biotechnology Predoctoral Fellow, The Pennsylvania State University (1994-1996)
Graham Endowed Graduate Fellow, The Pennsylvania State University (1994-1996)

UC Santa Cruz

NIH MHIRT Fellow, Centro Nacional Patagonico (CeNPat), Puerto Madryn, Peninsula Valdes, Patagonia, Argentina-University of California, Santa Cruz (1994)

NIH MARC Fellow, Department of Biology, University of California, Santa Cruz (1993-1994)
NIH MBRS Fellow, Department of Biology, University of California, Santa Cruz (1992-1993)

Executive Administrative Experience

October 2020 - present
The University of Idaho
Profile: Founded in 1889, The University of Idaho (U of I) is the land-grant and flagship university in the state of Idaho with annual research expenditures of ~$100M annually. The University of Idaho is comprised of four campuses (Moscow, Coeur d'Alene, Idaho Falls, Boise) and research and extension offices in every county across the state. The University of Idaho is a R2 Carnegie Research institution with "high research activity." The University of Idaho has faculty across Colleges of Agriculture and Life Sciences (CALS), Art and Architecture (CAA), Business and Economics (CBE), Education, Health and Human Sciences (CEHHS), Engineering (COE), Graduate Studies (COGS), Law (COL), Letters, Arts and Social Sciences, Natural Resources (CLASS). The University of Idaho is also home to the WWAMI (Washington, Wyoming, Alaska, Montana, and Idaho) medical education program administered by the University of Washington's School of Medicine for training physicians in Idaho.

US News and World Report (2022): Best Value in the West #1, Best Value Schools #28, Top Public Schools #88, Best Colleges for Veterans #112, National Universities Category #179, Top Performers for Social Mobility #59, Best Undergraduate Engineering Programs #147

UNIVERSITY OF IDAHO VICE PRESIDENT FOR RESEARCH AND ECONOMIC DEVELOPMENT
Dr. Nomura currently serves as the Vice President for Research and Economic Development (VPRED) at the University of Idaho, where he acts as the University's Chief Research Officer. In this role, he facilitates university-wide strategic research growth activities, strategic planning, and implementation; directs multiple and diverse constituencies in support of the research enterprise; manages > $100 million annually in external research funding; provides oversight of the regulatory and compliance environment for research; and promotes the research commercialization and technology transfer for the benefit of the State of Idaho and the nation. Dr. Nomura works closely with the Deans and faculty to catalyze, encourage, and support research and scholarly activities; to support the creation of new knowledge; to promote the use of this knowledge; and to ensure its integrity.

As the University's Chief Research officer and principal point of contact for the university in all research-related matters, Dr. Nomura represents the University of Idaho regional, national, and international research interests for major research funding agencies and foundations, to regional and national research consortia, to national laboratories, to federal and state agencies, and to the private sector. Currently, he is spearheading initiatives for the University to advance in the ranks of research institutions. As a member of the President's executive team, Dr. Nomura works cooperatively to achieve the University's goals and objectives. In this role, he participates in formulating strategic plans, directions, and policies for the institution. Some of Dr. Nomura's current responsibilities include advising the President and senior University of Idaho administrative officers on all matters pertaining to the operation and management of research and economic development activities, management of Federal relations firm interactions on behalf of the university, investigation of new research and economic development opportunities, collaboration with other university Vice Presidents on research issues, policies, and initiatives in their respective areas, and working with the advancement team and Deans towards capital campaigns for the institution. The following are descriptions of areas that Dr. Nomura leads as the VPRED of the University of Idaho:

1. ***Supervision of the Office of Research and Economic Development (ORED)***
   Dr. Nomura provides leadership and oversight for the Office of Research and Economic Development (ORED) and manages an operating budget of > $12 MM and research expenditures of >$100 MM annually. ORED is the supervising organization of all research administration for the University of Idaho. Dr. Nomura supervises the Senior Associate Vice President for Research and Economic Development, Assistant to the Vice President for Research and a team consisting of the unit's administrative fiscal operations. In this role, Dr. Nomura directs multiple and diverse constituencies in support of the research enterprise; manages significant research funding; provides oversight of the regulatory and compliance environment for research; provides administrative leadership for commercialization and technology transfer. Dr. Nomura holds management authority and budget oversight for the following units:

Office of Research Assurances (ORA)
The Office of Research Assurances (ORA) leads the University of Idaho's overall efforts to ensure responsible and compliant conduct of research. This unit has subject matter experts on research related regulations, policies and guidelines and provides oversight of this area. This unit leads overall effort to ensure the responsible and compliant conduct of its research enterprise and collaborates with researchers to ensure policy compliance and ethical practices. Dr. Nomura serves as the Research Integrity Officer (RIO) for the University of Idaho and supervises a team ten FTEs that work in following areas of responsibility: Institutional Review Board (IRB); Institutional Biosafety Committee (IBC); Responsible Conduct of Research (RCR); Financial Conflict of Interest (FCOI); Institutional Animal Care and Use Committee (IACUC); Foreign Interests in Academic Research; Unmanned Aircraft Systems; and Export Controls.

Office of Sponsored Programs (OSP)
The Office of Sponsored Programs (OSP) consists of the Director of OSP, Assistant to the Director and Contracts Review Unit. The Director Oversees all OSP functions and serves as the Authorized Organizational Representative of the institution and reports directly to Dr. Nomura. This unit further oversees the Pre-Award Administration Unit responsible for reviewing all proposals prior to submission to ensure compliance with University of Idaho and sponsoring agency policies, Post-Award Administration which is responsible for managing projects that have been funded by a sponsoring agency, award modifications and requests for prior approval, and awards set up, Cost Accounting Unit which is responsible for preparing the facilities and administrative (F&A) proposal, tracking cost share, processing subcontract invoices, overseeing effort reporting, preparation of special financial reports, and working with external auditors, and Financial Unit responsible for fulfilling any contractual or regulatory obligations regarding invoicing and financial reporting to sponsors, monitoring expenses for compliance with university and sponsor policies and preparing awards for closeout.

Highlights: A reorganization in leadership for OSP has resulted in improved relations with two key stakeholder and sponsor groups (Idaho State Department of Agriculture and Idaho National Laboratory) leading to easier contracting and better reporting with these organizations. Approved remote working to replace high turnover in the unit and expand job applicant pools for open positions. Hired outside consultant to interview key stakeholders both internal and external of the unit to improve customer service. This unit completed three audits (USDA, NSF, and state) with minimal issues. NSF highlighted that we had the fewest issues for an institution of our size during the exit interview.

Office of Research and Faculty Development (RFD)
The Office of Research and Faculty Development (RFD) provides resources and services to enhance competitiveness of faculty proposals and operates under a director with four proposal development specialists. RFD is also responsible for coordinating our external federal relations partner with faculty opportunities and grants development. The office works broadly across three areas: proposal development, research development, and faculty development. Some of the areas of support and responsibility include:

- Facilitates university-wide strategic research growth activities, strategic planning, and implementation.
- Manages, leverages and coordinates with U of I campuses located statewide, external stakeholders, partnering institutions, and federal agencies, formulating research directions and policies for the institution as a whole.
- Brings corporate experience to facilitate institutional change in strategically pursuing large funding opportunities.
- Fosters collaboration, individual grantsmanship, faculty annual awards applications, fellowships, and grantsmanship training.
- Management of limited submission opportunities.
- Identification of potential funding sources
- *NSF CAREER All Year-*a training and development program for helping Assistant Professors develop their NSF CAREER proposals that includes modules on developing tasks and timeline for proposals, contacting your program officer, requesting a letter of support from your Department Chair, development of your education plan, integrating education and research, broader impacts, writing the overview, writing the summary, and polishing your proposal. Selected proposals were subjected to a mock review panel and faculty members received external reviews from a red team to improve their proposals prior to submission.

RFD is also responsible for our *Operation Resubmission Success* program which is aimed at providing supplementary funds to faculty who were unsuccessful in initial grant submissions but have received strong feedback

from their reviewers and program officers about their submitted proposed work. This program has successfully leveraged those reviews to provide our faculty PIs with more data to strengthen resubmissions with the ultimate goal of being awarded competitive extramural funds for their projects.

RFD has just initiated *Operation NIH Funding Success*, a two-part professional development program designed to enhance faculty readiness and secure NIH funding for U of I faculty who have not applied for or have not been successful in obtaining extramural NIH funding. There has been a cohort of 11 faculty who have participated in this pilot program.

Highlights: We have invested $115,134 in *Operation Resubmission Success* projects that have resulted in $6,056,963 in new awards, a >50-fold return on investment. RFD has had some major successes in the past two years working with faculty including proposal development work resulting in a $18.9M mid-scale infrastructure award to build a Deep Soil Ecotron facility from NSF and a recent $55M award from USDA NRCS for *Climate Smart Commodities for Idaho: A Public, Private, Tribal Partnership*, the largest award in the history of the University of Idaho.

Office of Technology Transfer (OTT)
The Office of Technology Transfer (OTT) provides the framework for transferring University of Idaho technologies and providing benefit to the public through licensing to both established companies and start-ups. Under Dr. Nomura's direction, OTT has begun working with other universities in Idaho to establish the Idaho Ignite I-Corps program. This program is based on the larger NSF I-Corps programs and is meant to educate faculty, staff and students interested in entrepreneurial activities to develop their business vision and case for commercializing their technologies.

- Oversees management, protection, and commercialization of the intellectual property created by university personnel.
- Helps business and industry connect and collaborate with university researchers.
- Coordinates economic development programs and develops effective economic development strategies.

Highlights: From 2020-2022, the University of Idaho processed 91 invention disclosures, had 27 patent applications, 5 patents issued, and 24 licenses. In FY22, the University of Idaho received >$2.5M in licensing revenues from patents and plant variety protections. The university had 20 invention disclosures, 2 licenses were executed, 14 patent applications, with 2 patents issued and 5 plant variety protections. Worked with Arizona State University as the lead of consortium consisting of the Arizona universities, Hawaii universities, UNLV, UC San Diego, Boise State University and University of Idaho to successfully compete for an NSF I-Corps hub grant with a goal to improve the entrepreneurial landscape across our region. Engaged with One Palouse (formerly Palouse Knowledge Corridor), a local economic development organization between Whitman County in Washington and Latah County in Idaho, to develop an inventory of economic development activities within the region and develop workshops on value-added agriculture.

Federal Relations for Research and Institutional Support
Dr. Nomura supervises the Federal Relations program at the University of Idaho and works to communicate the federal funding and policy needs of the institution with Idaho's Congressional representatives in Washington, D.C. These outreach efforts are conducted with an external federal relations firm located in Washington D.C. to develop the institutional strategy for interaction with members of executive agencies, Congressional committees and other decision-makers at the federal level.

Highlights: In 2020 we worked with Congressman Mike Simpson to develop a community-based project to support infrastructure build out at Rinker Rock Creek Ranch, an important site in Idaho that provides a research platform to examine the complexities between rangeland use for ranching, public use, and conservation efforts ($1.5M). In 2021, again partnering with Congressman Simpson and federal partners at the USDA ARS laboratory in Kimberly, ID, we developed a community project ask for $1M in infrastructure funds to build out lagoons for manure treatment at the University of Idaho's Center for Agriculture and Environment (CAFE) which will be the largest research dairy in North America.

2. *Oversight of University Centers, Institutes, and Programs*

Dr. Nomura provides oversight and leadership for the full array of research issues related to the administration of the University's Level III Research Entities. In this regard, he acts as a chief advocate to cultivate relationships and increase research dollars allocated to the University and provides a leadership role in the development and implementation of new University research centers and institutes. Centers and programs include:

- Aquaculture Research Institute (ARI)
- Institute for Modeling Collaboration and Innovation (IMCI)
- Idaho Water Resources Research Institute (IWRRI)
- Institute for Interdisciplinary Data Science (IIDS)
- Idaho NSF EPSCoR Program
- Integrated Research and Innovation Center (IRIC)
- Lab Animal Research Facility (LARF)
- Electron Microscopy (EM) Center
- Center for Advanced Energy Studies (CAES)

Highlights: IIDS helped to manage the acquisition of the operations of the FALCON Supercomputer (35,000 cores) from the Idaho National Laboratory on behalf of the three 4-year public higher education institutions across the state of Idaho (U of I, ISU, BSU). This is the 12th fastest supercomputer at public universities in the country.

3. *Strategic investments to enhance research*

Dr. Nomura manages and prioritizes strategic, high-level, and targeted institutional research investment programs on behalf of the University of Idaho including: Allocation of P3 (Public-Private Partnership) funds towards postdoctoral and graduate student fellowships to help advance the University of Idaho priority to advance from R2 to R1 in the Carnegie classification system, the Stillinger Trust, the Higher Education Research Council (HERC) Infrastructure Program, U of I Seed Grants such as Operation: Resubmission Success, and the U of I Excellence Awards. Some highlights of these activities are included:

P3-R1 Program: The University of Idaho is classified as a Carnegie R2 (high research activity) institution of higher education and aspires to move to be classified as an R1 (very high research activity) institution. A committee of external and internal stakeholders performed an analysis on our research programs across the university and deemed that we needed to increase both the university's doctoral degree production as well as doctoral holding research staff across the university. To finance investments into these areas, the university negotiated a public-private partnership such that a private partner entered into a long-term lease agreement to operate the university steam facilities. The agreement resulted in an upfront investment in the university that has allowed us to spend $3M annually to increase the number of Ph.D. students, postdoctoral fellows, and doctoral research staff. A description of these programs follows.

Ph.D. matching program: We have developed a program where for every two funded Ph.D. students on an external award with full federally negotiated F&A, this program will fund a third Ph.D. student and tuition at the same level for that PI and length of time committed to on the externally funded grant. Proposals are submitted by PIs who have been awarded a grant and reviewed for eligibility by a committee of Deans and ORED.

Postdoctoral fellow matching program: For every funded postdoctoral researcher on an external award with full federally negotiated F&A, this program will fund a postdoctoral fellow at the same level for that PI and length of time as the externally funded grant. Proposals are submitted by PIs who have been awarded a grant and reviewed for eligibility by a committee of Deans and ORED.

Philanthropic/endowment matches towards research: We worked with the Dean of the College of Engineering to secure funding from a donor for an endowed professorship. Funds were set aside for Ph.D. and postdoctoral fellow investments to match funds in the endowment. We also worked with the Dean of the College of Letters, Arts, and Social Sciences (CLASS) to match endowed funds to develop the Idaho Society of Fellows program to sponsor 3 postdoctoral fellows for two years in the fields of political science, history, anthropology, and international/global studies. We also worked with the Dean of CLASS to develop a Ph.D. fellowship program for humanities and social science students.

Doctoral staff expansion program: Based on discussions with Deans and Institute Directors, 80 proposals were reviewed from colleges to increase the number of doctoral level research staff to enhance research programs across campus. Areas that were chosen were aligned with strategic initiatives and research directions for the university and included investments to expand doctoral staff in the following areas: Artificial Intelligence, Data Sciences, and Bioinformatics Cluster, Computational Modeling Cluster, Biostatistician in support of NIH funded research, promotion of an EPSCoR postdoctoral fellow to a research scientist based on external NSF committee review, Postdoctoral position in Science Writing, Staff positions for a Center for Critical Minerals, Earth Resources and Idaho Economy, Staff Scientist for Northwest Water Initiative, Staff Scientists for the Aquaculture Research Institute, postdocs and scientists for Dean priority lists for CEHHS, CALS, COE, CNR, and COL.

Highlights: These programs have resulted in a near doubling (100 to 170) in the number of doctoral research staff at the university and have been lauded by faculty as great incentives for pursuing higher levels of research funding.

4. ***Board, committee, council and panel participation***
To move the University of Idaho research enterprise forward, Dr. Nomura serves on the following boards, councils and committees:

- President's Cabinet
- Provost Council
- Promotion and Tenure Committee
- University of Idaho Industry Summit, Participant
- University of Idaho, Capital Campaign, Participant
- University of Idaho Center for Agriculture, Food, and the Environment (UI CAFE) Committee
- Stillinger Advisory Committee Member
- Center for Advanced Energy Studies (CAES) Steering Committee
- Cybersecurity Symposium Advisory Board
- IDeA Network of Biomedical Research Excellence (INBRE) Steering Committee Member
- HIBAR Research Alliance (HRA) Member
- Mountain West Research Consortium Executive Committee Member
- Higher Education Research Council (HERC) Member
- Idaho Regional Optical Network (IRON) UI Alternate Board Member
- Leadership in Nuclear Energy (LINE) 3.0 Commission Member
- Idaho Global Entrepreneurial Mission (IGEM) Council Member
- Laboratory for Applied Science & Research (LASR) Board Member
- University of Idaho Council on Research
- National Academy of Sciences Government-University-Industry-Research Roundtable (GUIRR)
- American Public Land Grant Universities Council on Research (APLU COR)
- Battelle Energy Alliance Board of Managers Science and Technology Committee for Idaho National Laboratory
- Idaho Statewide EPSCoR Committee Member, (2020-present)
- Idaho Global Entrepreneurial Mission (IGEM) Council Member, (2020-present)
- Idaho Higher Education Research Council (HERC), Member, State Board of Education (2020-present)
- Idaho Higher Education Research Council (HERC), Chair, State Board of Education (2021-2022)
- EPSCoR/IDeA Coalition Board of Directors, Board Member (2021-present)
- Idaho Cybersecurity Taskforce, Member (2021-present)
- Idaho Governor's Cybersecurity Taskforce, Member (2021-2022): Developed a roadmap for Governor Brad Little regarding cybersecurity across the state of Idaho.
- One Palouse (formerly known as Palouse Knowledge Corridor), Board of Directors (2021-present): An economic development organization in the Palouse (parts of eastern Washington and western Idaho).
- American Association for the Advancement of Science (AAAS), Committee on Science, Engineering and Public Policy (COSEPP), Member (2022-2023)
- National Academies of Science, Engineering, and Medicine, 2023 Issues in Science and Technology Panelist for virtual session: **Federal Research Funding: Is There a Fairer Way to Share the Pie?**

January 2017 – October 2020
The State University of New York (SUNY) and SUNY College of Environmental Science and Forestry (ESF)
Profile: The State University of New York is one of the largest public higher education systems in the US with annual research expenditures ~ $1B. Comprised of 64 campuses statewide, ESF founded in 1911, is one of the 13 doctoral-granting institutions within the SUNY system with a specialized focus on environmental science and forestry. ESF is unique in that it offers degree programs from the Associates Degree up to the Ph.D. ESF has 125 faculty spanning eight departments with approximately 1,700 undergraduate students and 300 graduate students and features a number of regional campuses on more than 25,000 acres throughout Central New York and the Adirondacks with instructional and research programs conducted on most sites. For FY 2018-2019, ESF had R2 Carnegie classification and total research expenditures of ~$15M and ~$16M in new funding for research. Despite its small size, ESF has received a number of accolades from different organizations including:

US News and World Report (2020): Best Value Schools #38, Top Public Schools #46, National Universities Category #106, Best Undergraduate Engineering Programs #179

The Chronicle of Higher Education (2020): #10 in the country for the highest graduation rate among four-year institutions, #1 among public institutions in the U.S. for enrolling and graduating women in engineering.

Princeton Review (2020): #2 in the list of Top Green Colleges.

Sierra magazine (2020): Ranked #3 among the nation's top "Cool Schools" out of 280 schools surveyed.

SUNY ESF VICE PRESIDENT FOR RESEARCH
Dr. Nomura's role as the Vice President for Research (VPR) was to lead, highlight and stimulate the research programs at ESF. He led initiatives to identify research opportunities and ensure that faculty and staff members have access to the resources needed to compete at a high level for extramural funding. As VPR, He was the Chief Research Officer of the institution and I oversaw the Division of Research, an umbrella for administrative and technical support functions for the research enterprise at ESF. He directly supervised the Office of Research Finance, which is responsible for research finance, technology transfer, compliance and operations management from the Research Foundation of SUNY on behalf of ESF on the ESF campus, the Office of Research Programs, which is responsible for the pre-award and post-award research administration, and Analytical and Technical Services, which manages core equipment and facilities and provides technical support for research space and in collaboration with the Provost, allocation of research space at the College. In this capacity, I report directly to the President, am a member of the President's Executive Cabinet, and establish and coordinate administrative functions with the Chief Operating Officer, Provost, Vice President for Administration and Chief Financial Officer, Vice President for Strategic Initiatives and Government Relations, and other members of the Executive Cabinet to lead initiatives and maximize efficiency at the College. The following are descriptions of responsibilities and achievements accomplished during my time as VPR at ESF.

1. ***Coordination with the SUNY Vice Chancellor of Research and Economic Development, Vice Presidents for Research, and Research Council on research strategies across the SUNY system***
   Dr. Nomura represented ESF at SUNY system meetings with the other Vice Presidents of Research from the SUNY doctoral granting campuses led by the Vice Chancellor of Research and Economic Development. This group looks towards developing both strategic initiatives for research across the SUNY system and policies regarding compliance related issues. From these discussions, SUNY has taken on 9 categories to focus on system wide as research topics. These include Artificial Intelligence, Next-generation Computing and Communication, Aging, Substance Addiction Research, Clinical Trials and Translational Biomedical Research, Clean Energy, Resilience of Community and Critical Infrastructure, and Environmental Health and Medicine. At ESF Dr. Nomura worked with faculty, staff, and students to engage in multiple SUNY-wide development programs: SUNY DOD day, SUNY NSF CAREER Award Grant Writing Workshop, and SUNY NSF Graduate Research Fellowship Webinar series. Currently I am a member of the SUNY system-wide Research Re-opening Task Force for the COVID-19 pandemic working to help develop guidelines for the system in this endeavor.

2. ***Operations Manager for the Research Foundation of SUNY at ESF***
   All SUNY schools are subject to rules that govern New York State Agencies regarding the acceptance of external funding. The Research Foundation of SUNY (RF SUNY) is a 501c3 organization and fiduciary agent of SUNY. RF

SUNY manage outside contracts, sponsored research, etc. for all SUNY institutions. In that regard, Dr. Nomura served as the campus Operations Manager on behalf of the business and administrative functions of the RF SUNY at ESF. The Office of Research Finance and Office of Research Programs act as a liaison between RFSUNY and ESF and are responsible for pre- and post-award management and administration at ESF. Personnel in the Office of Research Finance includes the Assistant Vice President for Research Finance, three professional level administrators and one clerical staff member and the Office of Research Programs include the Director of Research Programs, Assistant Director of Research Programs, three sponsored program administrators, three clerical/administrative staff and two post-award administrators. Dr. Nomura developed and streamlined a team-based environment and lead a group that is responsible for rolling out the new electronic Pre-Award and Compliance System (PACS) to faculty and staff in addition to supporting submission of proposals as well as Pre-Award and Post-Award grants management. This staff is also responsible for administration of, and training for responsible conduct in research, conflicts of interest, and working with Institutional Biosafety Committee (IBC), Institutional Animal Care and Use Committee (IACUC), and Institutional Review Board (IRB) of Syracuse University to make sure research at ESF is compliant with federal standards. These teams also coordinate with RF SUNY central office to work on facilities and administration (F&A) rate proposals, audit coordination and responses, conflict of interest management, technology transfer and a myriad of other activities. Because of the breadth of external funding opportunities that the faculty apply for and receive, Dr. Nomura and his team dealt with a number of scenarios regarding cost-sharing, limited F&A recovery, and other sponsored requirements in order to receive and administer grants.

3. ***Supervision of Analytical and Technical Services (A&TS) core facilities***
Analytical and Technical Services (A&TS) was established at the College in the early 1970s and provides a broad spectrum of core instrumental analytical methods and support services that contribute to ESF programs in research, teaching and public outreach. The A&TS team is a technologically diverse collection of skilled professionals who provide an array of centralized analytical and support services for the benefit of ESF and its research partners. Dr. Nomura supervised the Director of the ESF core research instrumentation facility known as A&TS who currently has 5 full-time FTEs under his supervision. This centralized core enables faculty and external partners to use high-end research equipment which can be found here (https://www.esf.edu/ats/) and includes a Bruker 800 MHz NMR, 600 MHz NMR, JEOL JSM 2000EX TEM, JEOL JSM-IT100LA Scanning electron microscope, Additionally, Dr. Nomura worked with our Vice President for Strategic Initiatives and Government Relations, faculty, and Director of A&TS to secure $3M to develop a state-of-the-art Environmental Laboratory Assurance Program (ELAP) mass spectroscopy (MS) and environmental analysis lab with capacity for both targeted and discovery protocols for examining environmental contaminants and small molecule identification and quantitation. This was a partnership with Thermo-Fisher Scientific who will provide faculty and staff with valuable assistance in developing new methods, unlimited access to their environmental scientists and MS specialists.

4. ***Collaboration with other members of the administration to improve ESF***
In his role as Vice President for Research, Dr. Nomura interacted frequently with other members of the administration to move institutional goals forward. The following are some examples of those interactions and accomplishments:
   a. *Helped to develop and facilitate data driven model of state supported graduate assistant (GA) lines across the college:* For many years, the assignment of state supported GA lines across the college was historically arbitrary with no basis in the needs of the college. We faced a very difficult problem in demands from our graduate student population to raise stipends for state line graduate assistant support with no increase in budget to address this. Given this limitation, in order to accomplish the goal to increase the stipends, the total number of positions supported would have to be decreased. Furthermore, we needed to figure out how to allocate the limited number of positions among the academic departments across the college. Because the graduate assistant lines address a multitude of needs on campus (e.g. instructional support and graduate student recruitment) I worked with the Provost and Associate Provost for Instruction, and the Chairs to develop a model based on the number of undergraduate student FTEs per course (instructional support needs), number of Ph.D. students graduated (to meet Carnegie requirements), research expenditures, and number of extramurally or externally funded graduate students to create a baseline for a living document that could be adjusted as needs or priorities change for ESF.
   b. *Space allocation:* Space on any campus is in great demand and the allocation of this resource is of the utmost importance to meet the needs of research. The original concepts were vetted with the Academic Governance appointed Committee on Research (CoR) which is comprised of faculty representatives from each of the departments, three staff members, a graduate student representative and undergraduate student

representative. In collaboration with the Provost, Facilities, and an outside consulting architectural group working on the campus-wide Facilities Master Plan, we looked comprehensively at research space available across campus, usage, and extramural support to develop an equitable and successful formula for space allocation across the campus.

c. *Interviewing of all faculty hires to assess and evaluate research needs:* I have interviewed every faculty candidate since my appointment as VPR to explain research opportunities and responsibilities to them. Once final candidates are selected, I work closely with the Provost and Department Chairs to evaluate available resources and start-up funding requests. This close relationship with the Provost and the Departments and my deep understanding of research needs has allowed us to maximize limited resources to make competitive offers to new faculty.

d. *Helped develop the ESF SUNY Promoting Recruitment, Opportunity, Diversity, Inclusion, and Growth (PRODiG) proposal:* The SUNY PRODiG initiative aims to increase historically underrepresented minorities and women STEM (WSTEM) faculty across SUNY. I worked with ESF's Chief Diversity Officer on the initial drafts of the proposal and helped to successfully advocate for salary support through this program for the recruitment of two recent WSTEM tenure-track hires in the departments of Chemistry and Forest and Natural Resources Management.

e. *COVID-19 Executive Response Team:* During the COVID-19 pandemic worked with ESF Executive Cabinet, SUNY Central Office, and The Research Foundation of SUNY to develop guidelines for depopulating the campus and for personnel for remote work. Working collaboratively with Director of Environmental Health and Safety at ESF to message to faculty on how to safely put their research labs into hibernation. I am also a member of the COVID-19 Point of Contact Group, who along with the Director of Environmental Health and Safety, and a Professor of Epidemiology, which was formed based on guidance by the CDC for universities. The responsibilities of this group include review of unit/departmental return to work plans, consultation with working groups on re-opening plans, seeking consultation as necessary with the New York and Onondaga County Departments of Health and medical professionals, investigation of approval to perform contact tracing in accordance with applicable regulations, and coordination with Syracuse University for related issues.

5. ***Successfully negotiated increases in indirect facilities and administrative (F&A) cost rates with non-federal sponsors of research***

F&A recovery is important to pay for the assessment of research on any campus. These are examples of successful negotiations with extramural sponsors that I have achieved during my time as VPR.

a. *Negotiation with state agencies to improve F&A rates:* Through negotiation and collaborative engagement with the NY Department of Environmental Conservation (NYDEC). I have led efforts to increase the indirect rates associated with contracts with this agency from 19.7% to 26% of total direct costs for research projects and 24% of total direct costs for projects and personnel programs where most facilities and administrative costs are borne by NYDEC. This 26% indirect rate was applied to a recently approved 10-year $30M MOU with NYDEC for projects with the Division of Water and will be applied to all future research projects with NYDEC. I also negotiated a raise of the indirect rate from 19.7% to 29% total direct costs for NY Department of Parks, Recreation and Historic Preservation on a 5-year $2.1M MOU.

b. *Negotiation with county agencies to set F&A rate:* I have successfully negotiated a 38% total direct cost indirect rate on projects from the Onondaga County Economic Development Corporation.

c. *Negotiation with private partner for maximal indirect rate:* I worked with the ESF College Foundation and Development Office to negotiate a 59% total direct cost indirect rate for a faculty project sponsored by the private company, Chobani.

d. *Worked with the ESF College Foundation to develop a standard F&A rate:* I have worked with the Research Foundation of SUNY, the ESF College Foundation and SUNY Central Administration to develop a standardized rate to help offset administrative costs for gifts and philanthropy to be used for research purposes. This F&A rate for administrative charges of 26%. Additionally, we have worked on a form so that institutional compliance necessary for research regardless of funding source (IRB, IACUC, IBC, COI, etc.) can be vetted up front for this form of sponsored research.

These negotiated indirect recoveries are much needed and will help to offset assessment costs associated with administration of the awards.

6. ***Development of external partnerships to build research capacity at ESF***

Since starting my position, I have developed relationships with academic and industry partners to improve the research and academic enterprise at ESF. Some highlights include relationships built with:

a. *Ichor Therapeutics*: Ichor Therapeutics is a privately-owned start-up biotechnology company that has successfully garnered venture capital and contracts in supporting the development of therapeutics to address age-related diseases. I have developed a pilot program with Ichor Therapeutics to have their employees enroll in the graduate program at ESF. In this program, the students perform their thesis work in the facility of the industrial partner while taking coursework and working with ESF faculty advisors who supervise their projects. There are currently four students in enrolled in the Ph.D. program in Biochemistry at ESF through this initiative. Ichor Therapeutics pays full tuition for these students and supports the costs of their thesis project onsite. This model could prove attractive to other industrial partners and represents a new way for employers to retain employees through the value-added education provided. Additionally, we have developed a memorandum of understanding (MOU) with Ichor to pay for an operator and partial maintenance contract for our cryoTEM facility (~$180K/year).
b. *Bristol-Myers Squibb (BMS)*: Bristol-Myers Squibb (BMS) is a publicly traded global biopharmaceutical company. I have worked with faculty and staff to secure and coordinate a series of corporate gifts from BMS consisting of bioreactors, freezers, and incubators for researchers and laboratories in Biology, Chemistry, and Engineering Departments at ESF.
c. *Arcadis:* Helped develop an MOU between Arcadis, a global environmental services firm, and ESF to work together on collaborations including employment of ESF graduate students as interns that fit within their curriculum and where those students bring advanced perspectives to projects, support of ESF extramural award applications as a collaborator, and to support ESF researchers in field verification of its research at industrial project sites.
d. *Attis Industries:* Attis Industries is a multi-faceted start-up company aiming to develop biorefineries to produced biofuels and bio-based materials from renewable plant-based feedstocks. I have worked with Attis Industries in a MOU to develop a pilot-scale biofuels facility and collaborative student training program with a focus on workforce development for the biorefinery industry that will be led by ESF faculty and engineers from Attis.
e. *SUNY Upstate Medical University:* Working collaboratively with SUNY Upstate Medical University, we have successfully secured funding from SUNY's Empire Innovation Program for a cluster hire in Environmental Medicine with two faculty members going to SUNY Upstate and one faculty member at ESF for the Center of Environmental Medicine housed at SUNY Upstate. This award provided $1.5M in start-up funds for the faculty hires ($500K for ESF). I participated in the vetting and recruitment of the Center Director at Upstate and we are currently recruiting new faculty to fill out the cluster hire positions between Upstate and ESF.
f. *Clarkson University:* Working with Interim President Amberg, Vice President for Strategic Initiatives and Government Relations, Maureen Fellows, and leadership from Clarkson University, I helped to advocate for our institutions to receive designation for a New York Center of Excellence (CoE) in Healthy Waters Solutions funded by the Empire State Development's Division of Science, Technology, and Innovation (NYSTAR). This program will focus on economic development and leverage the strengths of the faculty from both Clarkson University and ESF. First year funding for the CoE was $125K and I continue to work with external and government relations to reach our goal of $1M in annual funding for our CoE.
g. *Syracuse University:* As VPR for ESF I manage our McIntire-Stennis allocation from the US Forest Service. As part of this research program and to help meet matching requirements, I have worked with Syracuse University as part of their CUSE seed grant program to identify collaborative projects between ESF and Syracuse University faculty that meet the McIntire-Stennis required areas for research advancement, to co-fund projects to the benefit of forestry research. We have also hosted a webinar NSF grant writing workshop for ESF and Syracuse University faculty in coordination with the Research Office at Syracuse University. Additionally, I have collaborated with the New York State Science & Technology Law Center at Syracuse University to work on an innovative program involving MBA students from Syracuse University's Whitman School of Management and Syracuse Law Students to do evaluate ESF technologies for patent and market share potential. This program results in a Capstone presentation by these student teams to faculty inventors and has proved invaluable as we evaluate the commercialization potential of disclosed technologies and increase the competitiveness of tech spinoffs for NSF I-Corps participation or for SBIR applications.
h. *Beijing University of Chemical Technology (BUCT):* Worked with the Provost, counsel and Department of Paper and Bioprocess Engineering to develop a transfer articulation program with BUCT. Students take their first three years of coursework at the Beijing campus and then complete their final year at ESF to complete a BS program in Bioprocess Engineering. This has resulted in cohorts of 35-40 students per year from BUCT at ESF. All students pay their own tuition for this final year at ESF.

7. ***Experience with vision, goal setting and strategic planning***
I have worked closely with my co-Chairs, Prof. Don Leopold, and Dr. Tim Volk to develop a process for the Discovery Group as part of the Discovery Challenge strategic planning process to promote wide faculty participation and collaboration to define and support areas of research excellence at ESF. The Discovery Challenge was created by Chancellor Kristina Johnson and Interim President David Amberg to invigorate ESF faculty to put their most creative and groundbreaking ideas forward. We came up with a proposal process through which 5 proposals were funded at $200K per year over three years. The process consisted of preproposals submitted by faculty (a total of 26 were submitted), followed by selection of a diverse set of faculty spanning every academic Department on campus, followed by what we called the Discovery Challenge Speed Talks that ultimately resulted in a number of groups merging and reimagining their ideas for a final set of proposals (13 total) of which the final five were selected for funding by a committee of faculty and alumni. This process generated great discussions and positive energy across campus and will have a large impact on future directions of the College. The progress of these projects will be reported out to the campus community and celebrated on an annual basis, which further serves to strengthen our community. Additionally, I have worked with the Development Office and the ESF College Foundation to develop promotional materials for a philanthropy campaign centered on the Discovery Challenge initiatives.

8. ***Promotion of faculty recognition and success***
During my time as Vice President for Research I have worked on promoting faculty excellence and contributions in research with the Academic Governance Awards Committee and Committee on Research. With the Awards Committee, we successfully nominated Professor James Gibbs and Professor David Kieber for promotion to the rank of SUNY Distinguished Professors, the highest rank within the SUNY system. For 2020, we received word that ESF had successfully nominated Professor Karin Limburg to SUNY Distinguished Professor, the first woman to receive this honor at ESF. Prior to these nominations, there had been only one other Professor at ESF promoted to this position (other faculty have achieved the rank of Distinguished Teaching or Distinguished Service Professor) over the past 30 years. I have also worked closely with the Academic Governance appointed Committee on Research to recognize SUNY ESF Exemplary Researcher. This is an award that recognizes the research and scholarship productivity of faculty at the early, mid, or lifetime achievement and are generally coupled with seminars by these faculty on their research that are open to the public to help disseminate the best work at ESF to the local community. These awards recognize the fantastic contributions of our faculty and increase the visibility of ESF research internally, locally, nationally, and globally.

Research Experience

October 2020 – Present

University of Idaho

1. Production and characterization of polyhydroyxalkanoate (PHA) biodegradable polymers

A large effort in Dr. Nomura's group is spent on developing strategies to produce biodegradable and biocompatible poly-(*R*)-3-hydroxyalkanoate (PHA) polymers. PHAs are polyesters that are natively produced by some bacteria as carbon and energy storage materials, and they have attracted attention as biodegradable substitutes for petroleum-based plastics and as biomaterials for biomedical applications. Dr. Nomura's lab has focused on engineering recombinant bacterial platforms to produce PHA polymers and copolymers with specific material properties. These experiments require intimate knowledge about bacterial metabolism in order to meet the precursor requirements for PHA production. The lab has engineered several strains that can produce PHA copolymers from a variety of carbon feedstocks. The most recent developments have resulted in the development of the first strain where the repeating unit composition of PHAs can be controlled, leading to the ability to tailor physical properties by simply by varying the feedstock for the microorganism. It is expected that these new materials will have a broad impact on our ability to make customized biobased polymers with specific material properties.

2. Synthetic biology of *Bacillus licheniformis*

Working with collaborators from Hubei University, Dr. Nomura continues to investigate the synthetic biology and metabolic engineering of *Bacillus* species to further the platform as a chassis for the production of biomolecules and proteins. *Bacillus licheniformis* is a generally regarded as safe (GRAS) microorganism that is widely used in industrial production of biomolecules and has been the subject for much of the studies. The first study that Dr. Nomura participated in was in engineering *B. licheniformis* to produce *meso*-2,3-butanediol as a potential biofuel. Further studies using *B. licheniformis* have focused on metabolic engineering the strain to produce the biopolymer

poly-γ-glutamic acid and the antibiotic bacitracin. Recent studies have focused on how to improve heterologous protein production in *B. licheniformis* by manipulating the ribosome binding site (RBS) structure and frequency to improve protein translational frequency.

3. Characterization of RpoN regulatory networks in bacteria

The most recent studies the lab involved the identification and characterization of transcription factors and their relation to virulence factor production in the nosocomial pathogen *P. aeruginosa.* These studies led to a number of consecutively funded NIH-sponsored research projects in Dr. Nomura's group. In our initial study we were able to identify and characterize an enhancer binding protein (EBP), PA2449, a critical transcription factor involved in glycine metabolism and pyocyanin production in *P. aeruginosa* PAO1. This initial characterization suggested that important metabolic pathways were under the transcriptional regulation of the alternative sigma factor RpoN. This sigma factor is unique in bacteria since it can bind to its cognate promoter in the absence of RNA polymerase and that formation of the open complex and transcription only occurs after the RNA polymerase-RpoN complex interacts with a specific EBP partner. RpoN has already been implicated in the production of a number of virulence factors (biofilm, alginate, quorum sensing, flagella, pili, pyocyanin, pyoverdine) in *P. aeruginosa* and we have sought to identify and characterize the metabolism of the various EBP partners in this microorganism. In our second study related to this topic we were able to characterize the role of the EBP PA5155 in C5-dicarboxylic acid metabolism in *P. aeruginosa.* This EBP was originally identified as an important regulator for biofilm formation in *P. aeruginosa* and our studies suggest that α-KG could be an important signal for this virulence factor. Because these studies indicated that EBPs play important roles in general metabolism as well as virulence factor production, we have examined inhibiting RpoN-RNA polymerase/EBP interactions through the development of peptide analog of RpoN. This synthetic "molecular roadblock" binds to RpoN promoters and inhibits the production of virulence factors and we have been awarded two US Patents on this technology.

April 2006 – September 2020

SUNY ESF

1. Engineering of metabolic pathways and proteins for the production of biodegradable plastics and other chemicals

My lab focuses on developing biocatalysts for the value-added production of biopolymers and value-added biobased chemicals. Transcriptome analysis of biopolymer producing bacterial strains is used facilitate the identification of genes and modes of regulation. Genes encoding proteins that play a role in biopolymer production are targeted for enhancement of specific activity or substrate specificity modification via protein engineering. Metabolic engineering is used to maximize flux through biochemical pathways and to introduce novel metabolic pathways into cells for bioproduct production. Polymers produced by recombinant organisms are characterized experimentally using GC, GPC, DSC, and NMR. Current chassis include *E. coli* and *B. licheniformis.*

2. Expansion of polyhydroxyalkanoate polymer applications through chemical synthesis

We are using a suite of 'click' chemistry techniques to modify polyhydroxyalkanoate biopolymers to increase the functionality of the materials. These new materials are expected to play key roles in the development of new, targeted drug delivery vehicles and tissue engineering scaffolds.

3. Identification and characterization of prokaryotic transcriptional regulators

We are currently investigating methods to define transcriptional regulation in bacteria. This is being achieved through a number of approaches. The first is by using an engineered peptide designed to bind specifically to the highly conserved RpoN promoter sequence motif. Temporal expression of this peptide allows us to interrogate RpoN regulated genes through transcriptomics in bacteria in response to specific growth conditions and offers numerous advantages for understanding how this sigma factor dictates gene expression in response to environmental stimuli as compared to examination of RpoN-deficient strains. The second approach is through the characterization of specific deletions of genes encoding putative enhancer binding proteins (EBPs). EBPs are essential for activation of gene transcription via RpoN. This combination of approaches has allowed us to identify a number of new transcriptional regulators in bacteria.

July 2001 – March 2006

RIKEN Institute

Host researcher: Yoshiharu Doi

Engineering proteins and metabolic pathways for the production of biodegradable polymers
New metabolic routes were proposed for biodegradable polyhydroxyalkanoate (PHA) copolymer production *in vivo* from the fatty acid biosynthetic pathway. Fatty acid biosynthetic enzymes were rationally designed based on their X-ray crystal structures to alter their substrate specificity. Changes in substrate specificity and monomer-supplying ability of the enzymes were tested experimentally in *E. coli* by co-expression with other PHA biosynthesis genes and the thermal and physical properties of the PHA copolymers produced were characterized via DSC, GPC, and NMR. This study produced the first short-chain-length-medium-chain-length PHA copolymers from non-related carbon sources in recombinant *E. coli.*

September 1994 – May 2001
The Pennsylvania State University
Advisor: Donald A. Bryant
Electron transport proteins of *Synechococcus* sp. PCC 7002
Over 40 different genes from the cyanobacterium, *Synechococcus* sp. PCC 7002 were cloned by heterologous hybridization. Physiological roles of various electron transport proteins were determined by interposon or deletion mutagenesis. Mutant phenotypes were characterized by growth under various conditions and the roles of various gene products in response to oxidative and high light stress were assessed.

July 1992 – May 1994
University of California – Santa Cruz
Advisor: C. Leo Ortiz
Elephant seal immunology
We studied passive immunity between northern elephant seal mothers and pups. Sera were isolated from northern elephant seals and immunoglobulins were isolated via size-exclusion and affinity chromatography. RID and ELISA assays were designed to quantify the IgM and IgG concentrations within sera and milk samples and the results were statistically analyzed. Additionally, sleep apnea studies were conducted on molting southern elephant seals.

Products

Peer-Reviewed Publications

1. Lundgren, B.R., Sarwar, Z., and **C.T. Nomura** (**2023**). The enhancer-binding proteins (EBPs) of *Pseudomonas aeruginosa*: Key components for gene regulation, pathogenesis and environmental response. *Front Microbiol. In preparation.*

2. Li, D., Rao, X., Su, Z., **Nomura, C.T.**, Chen, S., and Q. Wang (**2023**). A reliable and predictable smart RBS library to fine-tune gene expression in *Bacillus* species. *Nucleic Acids Res. Submitted.*

3. Ji, Y., Liang, Y., Li, L., Wang, Y., Pi, Y., Xing, P., **Nomura, C.T.**, Chen, S., and Q. Wang (**2023**). A new platform for efficient extracellular production of cytoplasmic enzymes: Engineering the Tat-secretion pathway of *Bacillus licheniformis* for the secretion of arginase. *Appl Microbiol Biotechnol. Submitted.*

4. Mierzati, M., Sakurai, T., Ishii-Hyakutake, M., Miyahara, Y., **Nomura, C.T.**, Tauchi, S., Abe, H., and T. Tsuge (**2023**). Biosynthesis, characterization, and biodegradation of elastomeric polyhydroxyalkanoates consisting of α-dimethylated monomer units. *Biomacromol. Submitted.*

5. Miyahara, Y., Nakamura, T., Mierzati, M., Qie, Z., Shibasaka, T, **Nomura, C.T.**, Taguchi, S., Abe, H., and T. Tsuge (**2023**). Thermal and crystallization properties of a polyhydroxyalkanoate binary copolymer containing 3-hydroxybutyrate and 3-hydroxy-2-methylvalerate units. *Processes.* 11(7), 1901. https://doi.org/10.3390/pr11071901

6. Sivashankari, R.M., Mierzati, M., Miyahara, Y., Mizuno, S., **Nomura, C.T.**, Taguchi, S., Abe, H. and T. Tsuge (**2023**). Exploring class I polyhydroxyalkanoate synthases with broad substrate specificity for polymerization of structurally diverse monomer units. *Front Bioeng Biotechnol.* 11. https://doi.org/10.3389/fbioe.2023.1114946

7. Zhang, M., Song, J., Xiao, J., Jin, J., **Nomura, C.T.**, Chen, S., and Q. Wang. (**2022**). Engineered translation initiation

sites: A novel tool to tune protein production in industrially relevant bacteria. *Nucleic Acids Res.* gkac1039. https://doi.org/10.1093/nar/gkac1039

8. Thomas, C.M., Kumar, D., Scheel, R.A., Ramarao, B., and **C.T. Nomura** (**2022**). Production of polyhydroxyalkanoate copolymers and blends from agro-industrial waste streams. *Biocatal Agric Biotechnol.* 43. 102385. https://doi.org/10.106/j.bcab.2022.102385

9. Ceneviva, L.V.S., Mierzati, M., Miyahara, Y., **Nomura, C.T.**, Taguchi, S., Abe, H., and T. Tsuge (**2022**). Poly(3-mercapto-2-methylpropionate), a novel α-methylated bio-polythioester with rubber-like elasticity, and its copolymer with 3-hydroxybutyrate: A biosynthesis and characterization study. *Bioengineering.* 9(5), 228. https://doi.org/10.3390/bioengineering9050228

10. Tomita, H., Satoh, K., **Nomura, C.T.**, and K. Matsumoto (**2022**). Biosynthesis of poly(glycolate-co-3-hydroxybutyrate-co-3-hydroxyhexanoate) in *Escherichia coli* expressing sequence-regulating polyhydroxyalkanoate synthase and medium-chain-length 3-hydroxyalkanoaic acid coenzyme A ligase. *Biosci Biotechnol Biochem.* 86 (2), 217-223. https://doi.org/10.1093/bbb/zbab198

11. Thomas, C.M., Scheel, R.A., **Nomura, C.T.**, Ramarao, B., and D. Kumar (**2021**). Production of polyhydroxybutyrate and polyhydroxybutyrate-*co*-MCL copolymers from brewer's spent grains by recombinant *E. coli. LSBJ. Biomass Conv Biorefinery.* https://doi.org/10.1007/s13399-021-01738-w

12. Lundgren, B.R., Shoytush, J.M., Scheel, R.A., Sain, S., Sarwar, Z., and **C.T. Nomura** (**2021**). Utilization of L-glutamate as a preferred or sole nutrient in *Pseudomonas aeruginosa* PAO1 depends on genes encoding for the sigma factor RpoN, the enhancer-binding protein AauR and the glutamate-transporter complex AatJQMP. 21 (1), 1-20 *BMC Microbiol.* https://doi.org/10.1186/s12866-021-02145-x

13. Furutate, S., Kamoi, J., **Nomura, C.T.,** Taguchi, S., Abe, H., and T. Tsuge (**2021**). Superior thermal stability and fast crystallization behavior of a novel, biodegradable α-methylated bacterial polyester.13(1), 1-11. *NPG Asia Materials.* https://doi.org/10.1038/s41427-021-00296-x

14. Scheel, R.A., Ho, T., Kageyama, Y., Masisak, J., McKenney, S., Lundgren B.R., and **C.T. Nomura** (**2021**). Optimizing a fed-batch high-density fermentation process for medium-chain-length poly(3-hydroxyalkanoates) in *Escherichia coli*. 9, 134. *Front Bioeng Biotechnol.* doi.org/10.3389/fbioe.2021.618259

15. Sarwar, Z., Wang, M.X., Lundgren, B.R., and **C.T. Nomura** (**2020**). MifS, a DctB-family histidine kinase, is a specific regulator of α-ketoglutarate response in *Pseudomonas aeruginosa* PAO1. *Microbiology.* doi.org/10.1099/mic.0.000943.

16. Xiao, J., Su, Z., Liu, A., Hu, Y., **Nomura, C.T.**, Chen, S., and Q. Wang (**2020**). Facilitating protein expression with portable 5'-UTR secondary structures in *Bacillus licheniformis. ACS Synth Biol.* https://doi.org/10.1021/acssynbio.9b00355.

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20. Lundgren, B.R., Sarwar, Z., Feldman, K.S., Shoytush, J.M. and **C.T. Nomura** (**2019**). SfnR2 regulates dimethylsulfide

utilization in *Pseudomonas aeruginosa* PAO1. *J Bacteriol.* 201(4). pii: e00606-18. doi: 10.1128/JB.00606-18

21. Fadzil, F.I.M., Mizuno, S., Hiroe, A., **Nomura, C.T.**, and T. Tsuge (**2018**). Low carbon concentration feeding improves medium-chain-length polyhydroxyalkanoate biosynthesis in *Escherichia coli* strains with defective β-oxidation. *Frontiers Bioeng Biotechnol.* 6. 178 doi: 10.3389/fbioe.2018.00178.

22. Hiroe, A., Watanabe, S., Kobayashi, M., **Nomura, C.T.**, and T. Tsuge (**2018**). Increased synthesis of poly(3-hydroxydodecanoate) homopolymer by random mutagenesis of polyhydroxyalkanoate synthase. *Appl Microbiol Biotechnol.* 102(18) 7927-7934. doi.org/10.1007/s00253-018-9230-z.

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26. Huo, Y., Zhan, Y., Wang, Q., Li, S., Yang, S. **Nomura, C.T.**, and S. Chen (**2018**). Acetolactate synthase (AlsS) in *Bacillus licheniformis* WX-02: Enzymatic properties and efficient functions for acetoin/butanediol and L-valine biosynthesis. *Bioprocess Biosyst Eng.* 1-10. doi.org/10.1007/s00449-017-1847-2

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31. Wang, D., Wang, Q., Qiu, Y., **Nomura, C.T.**, Li, J., and S. Chen (**2017**). Untangling the transcription regulatory network of the bacitracin synthase operon in *Bacillus licheniformis* DW2. *Res Microbiol.* 168(6). 515-523. doi:10.1016/j.resmic.2017.02.010.

32. Salamanca-Cardona, L., Scheel, R.A., Mizuno, K., Bergey, N.S., Stipanovic, A.J., Matsumoto, K., Taguchi, T., and **C.T. Nomura** (**2017**). The effect of acetate as a co-feedstock on the production of poly(lactate-*co*-3-hydroxyalkanoate) by *pflA*-deficient *Escherichia coli* RSC10. *J Biosci Bioeng.* 123(5). 547-554. doi:10.1016/j.jbiosc.2016.12.019.

33. Lundgren, B.R., Bailey, F.J., Moley, G., and **C.T. Nomura** (**2017**). DdaR (PA1196) regulates expression of dimethylarginine dimethylaminohydrolase for the metabolism of methylarginines in *Pseudomonas aeruginosa* PAO1. *J Bacteriol.* 199(8). e00001-17. doi: 10.1128/JB.00001-17.

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Book Chapters and Conference Proceedings

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Patent Applications, Issued Patents, and New Technology Disclosures

91. Thomas, C., Scheel, R., Ramarao, BH., and **C.T. Nomura** (**2021**). Method of making polyhydroxyalkanoate copolymers from diverse substrates. US Provisional Patent 63/225,074

92. Ramarao, B., Min, B., Rengasamy, K., Jampana, V.S. and **C.T. Nomura** (**2018**). Polyhydroxyalkanoates from coconut coir pith wastes by pretreatment followed by enzymatic hydrolysis. *RFSUNY New Technology Disclosure.*

93. **Nomura, C.T.** and B.R. Lundgren. (**2018**). Synthetic peptide for repressing transcription and/or gene expression from a binding site of interest. US Patent 9,879,051 (2nd patent in family related to US Patent 20,160,362,452).

94. **Nomura, C.T.** and A. Pinto (**2018**). Engineered strain of *Escherichia coli* for production of poly-*R*-3-hydroxyalkanoate polymers with defined monomer unit composition and methods based thereon. Continuation-in-part: Click-chemistry enabled polyhydroxyalkanoate polymers. US Patent 10005880

95. **Nomura, C.T.**, Tappel, R.C. and Q. Wang (**2018**). Engineered strain of *Escherichia coli* for production of specific *R*-3-hydroxyalkanoic acids and poly-*R*-3-hydroxyalkanoate polymers with defined monomer unit composition and methods based thereon. US Patent 15,650,265.

96. **Nomura, C.T.** and B.R. Lundgren. (**2016**). Synthetic peptide for repressing transcription and/or gene expression from a binding site of interest. US Patent 20,160,362,452.

97. Nakas, J.P., Zhu, C., Perrotta, J.A., and **C.T. Nomura**. (**2015**). Methods for producing polyhydroxyalkanaotes from biodiesel-glycerol. US Patent 8,956,835.

98. **Nomura, C.T.**, Tappel, R.C. and Q. Wang (**2013**). Engineered strain of *Escherichia coli* for production of specific *R*-3-hydroxyalkanoic acids and poly-*R*-3-hydroxyalkanoate polymers with defined monomer unit composition and methods based thereon. US Patent App. 14/371,025.

99. **Nomura, C.T.** and J. Lu. (**2009**). Hydrophobic compound capture-apparatus made from biodegradable polymers and methods based thereon. US Patent App 12/503,719.

Popular Press

100. Our work on collaboration was featured in: Gewin, V. (**2015**) Collaborations: Recipe for a team. *Nature.* 523. 245-247. doi:10.1038/nj7559-245a

101. Our work on RpoN molecular roadblock was featured on Syracuse.com (**2013**). http://www.syracuse.com/news/index.ssf/2013/03/esf_scientists_create_protein.html

102. Our butter to biodiesel project was featured in the Daily Orange (**2013**). http://dailyorange.com/2012/09/running-on-dairy-SUNY ESF-to-turn-sculpture-into-biodiesel-fuel/

103. Our work on RpoN molecular roadblock was featured on ScienceDaily (**2013**). http://www.sciencedaily.com/releases/2013/01/130123133411.htm

104. Our work on constructed wetlands highlighted on Pollution Online (**2010**). http://www.pollutiononline.com/doc/cleaning-toxins-from-our-water-0001

105. Our butter to biodiesel project was featured on NPR's Morning Edition (**2008**). http://www.npr.org/templates/story/story.php?storyId=93784616

Funding

Funding at University of Idaho

NSF

NSF Innovation Corps Hubs Program (I-Corps™ Hubs) Desert and Pacific Region (DPR)

Total Award: $1,111,313
Award Period Covered: 01/01/23-12/31/27

University of New Mexico
NIH ASCEND, Accelerating Solutions for Commercialization and Entrepreneurial Development in the Mountain West IDeA States
PI: C.T. Nomura
Total Award: $120,000
Award Period Covered: 09/01/20-08/31/24

Funding at SUNY ESF
USDA/McIntire-Stennis
FY 19-20 McIntire-Stennis Cooperative Forestry Research
PI: **C.T. Nomura**
Total Award: $663,789
Award Period Covered: 10/01/19-09/30/20

Clarkson University/NYSTAR
NY Center of Excellence: Healthy Water Solutions
PI: **C.T. Nomura**
Total Award: $62,500
Award Period Covered: 07/01/19-06/30/20

USDA/McIntire-Stennis
FY 18-19 McIntire-Stennis Cooperative Forestry Research
PI: **C.T. Nomura**
Total Award: $663,789
Award Period Covered: 10/01/18-09/30/19

NIH NIGMS
R15: Defining the inputs and outputs of enhancer-binding protein regulation in *Pseudomonas aeruginosa*
PI: **C.T. Nomura**
Co-PI: B.R. Lundgren
Total Award: $377,000
Award Period Covered: 08/01/18-07/31/20

NYS Department of Environmental Conservation
Central New York Regional HABs Summit
PI: **C.T. Nomura**
Total Award: $116,017
Award Period Covered: 02/01/18-04/30/18

USDA/McIntire-Stennis
FY 17-18 McIntire-Stennis Cooperative Forestry Research
PI: **C.T. Nomura**
Total Award: $663,861
Award Period Covered: 10/01/17-09/30/18

USDA/McIntire-Stennis
FY16-17 McIntire-Stennis Cooperative Forestry Research
PI: **C.T. Nomura**
Total Award: $663,879
Award Period Covered: 10/01/16-09/30/17

USDA Forest Service
Enhanced effectiveness of planning and managing urban forests

PI: **C.T. Nomura**
Total Award: $40,500
Award Period Covered: 09/22/16-12/31/19

RFSUNY Technology Accelerator Fund (TAF)
Polyhydroxyalkanoate (PHA) nanocarriers for targeted drug delivery of anticancer agents
PI: **C.T. Nomura**
Total Award: $50,000
Award Period Covered: 08/01/16-07/31/17

NIH NIGMS
R15: Characterization of enhancer binding proteins in *Pseudomonas aeruginosa*
PI: **C.T. Nomura**
Total Award: $469,041 (including diversity supplements)
Award Period Covered: 03/01/16-02/28/18

RF Materials and Advanced Manufacturing
MAM: Green Composite Materials Network Workshop II
PI: **C.T. Nomura**
Co-PIs: I. Gitsov (ESF), J. Welch (Albany), J. Cho (Binghamton), D. Hwang (Stonybrook), M. Alkhader (Stonybrook), M. Bergkvist (CNSE), M. Driscoll (ESF)
Total Award: $50,000
Award Period Covered: 05/01/15-02/28/17

RFSUNY 4E Network
4E Network: Biomimicry as a cross-disciplinary research and collaborative platform
PI: N. Cady (CNSE)
Co-PI: **C.T. Nomura,** B. Pfeifer (SUNY Buffalo)
Total Award: $135,000
Award Period Covered: 06/01/15-12/31/16

NSF CBET: Biotechnology, Biochemical, and Biomass Engineering (BBBE)
SusChEM: Engineering *E. coli* for improved production of polyhydroxyalkanoate (PHA)-based biodegradable plastics
PI: **C.T. Nomura**
Total Award: $511,000
Award Period Covered: 06/15/13-05/31/17

NYSERDA
Process improvements in the fermentation of biomass-derived sugars to ethanol biofuel using Electron Beam technology
PI: A.J. Stipanovic
Co-PIs: **C.T. Nomura,** D. Kiemle
Total Award: $99,021
Award Period Covered: 08/15/14-12/14/16

Research Foundation of SUNY
4E: Understanding and overcoming barriers to communication in complex socio-ecological systems: an integrative approach to interdisciplinary research, policy translation, and educational application
PI: P.D. Hirsch
Co-PIs: **C.T. Nomura,** V. Luzadis, C. Carrion-Flores (SUNY Binghamton), K. Friedman, K. Shockley (SUNY Buffalo), R. Johnson (SUNY Albany).
Total Award: $135,000.
Award Period Covered: 02/01/14-05/31/16

NIH NIGMS
Diversity supplement for: Characterization of a new key regulator for phenazine production in pseudomonads
PI: **C.T. Nomura**

CV
Christopher T. Nomura, Ph.D.

Total Award: $96,197
Award Period Covered: 08/01/14-08/31/16

NIH NIGMS
R15: Characterization of a new key regulator for phenazine production in pseudomonads
PI: **C.T. Nomura**
Total Award: $377,705
Award Period Covered: 09/01/13-08/31/16

Research Foundation of SUNY
4E: Biomimicry as an Approach to Research on Energy and the Environment
PI: N. Cady (SUNY CNSE)
Co-PIs: **C.T. Nomura**, L. Schultz (SUNY CNSE)
Total Award: $3,000
Award Period Covered: 02/01/14-12/31/15

NYSERDA
Polycysteine crosslinkers: Using a biomimetic approach to reduce energy for crosslinking reactions
PI: **C.T. Nomura**
Co-PI: A.J. Stipanovic
Total Award: $50,000
Award Period Covered: 05/01/14-04/31/16

Hill Collaboration
Bio-based polymeric strategies for improved drug delivery
PI: R.A. Bader
Co-PIs: **C.T. Nomura**, J. Moffat (Upstate)
Total Award: $15,000
Award Period Covered: 06/01/15-05/31/16

Hill Collaboration
Controlling hospital-acquired infection by targeting bacterial persistence
PI: D. Ren (SU)
Co-PIs: **C.T. Nomura**, W. Javaid (VA, Upstate), T. Endy (Upstate), J. An (Upstate)
Total Award: $15,000
Award Period Covered: 07/01/15-06/30/16

Research Foundation of SUNY
Materials and Advanced Manufacturing: Green Composite Materials
PI: **C.T. Nomura**
Co-PIs: M. Alkhader (SUNY Stonybrook), D. Hwang (SUNY Stonybrook), M. Bergkvist (SUNY CNSE), J. Cho (SUNY Binghamton), J. Welch (SUNY Albany), M. Driscoll (SUNY ESF), I. Gitsov (SUNY ESF)
Total Award: $60,000
Award Period Covered: 07/01/14-12/30/15

ESF Seed Grant
Folate-modified polyhydroxyalkanoate (PHA)-based biomaterials for drug delivery
PI: **C.T. Nomura**
Total Award: $6,800
Award Period Covered: 07/01/14-06/30/15

NYSERDA
Bio-prospecting for enzymes: Biomimicry at work in the isolation of lignocellulosic degrading microbes from red panda (*Ailurus fulgens*) fecal matter
PI: A.J. Stipanovic
Co-PI: **C.T. Nomura**

Total Award: $50,000
Award Period Covered: 09/01/13-08/31/14

Sustainable Enterprise Partnership (SEP) Mini-Grant
Reduction of pharmaceutical compounds in wastewater
PI: K. Doelle
Co-PI: **C.T. Nomura**
Total Award: $7,500
Award Period Covered: 05/01/12-12/31/13

NYSERDA
Production of polyhydroxyalkanoates with defined repeating unit composition
PI: **C.T. Nomura**
Total Award: $75,000
Award Period Covered: 06/01/12-12/31/13

USDA-CSREES/McIntire-Stennis
Use of synergistic pretreatments to produce fermentable sugars from forest biomass
PI: A.J. Stipanovic
Co-PI: **C.T. Nomura**
Total Award: $53,801
Award Period Covered: 10/01/11-09/30/13

USDA-CSREES/McIntire Stennis
Biochemical conversion of forestry-derived feedstocks to biodiesel
PI: **C.T. Nomura**
Total Award: $53,801
Award Period Covered: 08/01/10-09/30/13

National Science Foundation
Protein and metabolic engineering for biodegradable plastic production
PI: **C.T. Nomura**
Total Award: $378,000
Award Period Covered: 07/01/09 – 06/31/12 (no cost extension until 06/31/13)

New York State Environmental Facilities Corporation Green Innovation Grant Program (GIGP)
Feasibility study for low impact destruction of pharmaceutical and personal care products in wastewater using modified constructed wetland technology powered by renewable energy from food waste/biosolids anaerobic co-digestion in Minoa, NY
PI: S. Giarusso
Total Award: $750,000
Co-PIs: D.L. Johnson, **C.T. Nomura**, K. Doelle, A. Terrinoni, G. Sgromo

NYSERDA/Blue Highway LLC
Biodegradable Plastics from Renewable Sources for Manufacturing Medical Products in Central New York
PI: A. J. Di Rienzo
Co-PIs: D. Dana, A. Drauter, J. Nakas, **C.T. Nomura**, J. Fieschko
Total Award: $350,000
Award Period Covered: 01/01/09 – 12/31/11

Syracuse Campus-Community Entrepreneurship Initiative
Business Development ESF/SU Green Energy Cooperative
PI: M. Kelleher
Co-PIs: S. Lloyd, F. Carranti, N. Abrams, C. Watters, **C.T. Nomura**
Total Award: $50,000
Award Period Covered: 07/01/09-06/30/11

US Department of Energy
Hot water extraction of hardwood chips and utilization of the residual chips and wood II
PI: T. Amidon
Co-PIs: J. Nakas, B. Ramarao, G. Scott, R. Francis, S. Liu, and **C.T. Nomura**
Total Award: $738,000
Award Period Covered: 10/01/08 – 10/31/09

Metropolitan Development Association
Manufacture and use of biodegradable polymers in medical applications
PI: J. Fieschko
Co-PIs: **C.T. Nomura**, J. Nakas.
Total Award: $75,000
Award Period Covered: 03/01/08 – 02/28/09

US Department of Energy
Hot water extraction of hardwood chips and utilization of the residual chips and wood
PI: T. Amidon
Co-PIs: J. Nakas, B. Ramarao, G. Scott, R. Francis, S. Liu, and **C.T. Nomura**
Total Award: $500,000
Award Period Covered: 10/01/07 – 10/31/08

NYSERDA
Production of value-added biodegradable plastics from NY State low-value biodiesel process-glycerin
PI: **C.T. Nomura**
Co-PI: J. Nakas
Total Award: $74,983
Award Period Covered: 07/25/07 – 02/28/09

USDA-CSREES/McIntire Stennis Program
Role of nitrogen limitation in polyhydroxyalkanoate production by pseudomonads
PI: **C.T. Nomura**
Total Award: $50,911
Award Period Covered: 10/01/06 – 09/30/08

Tokyo University of Science (NEDO)
Development of new in vitro engineered acyl transferase and efficient production of biodegradable polyesters by transgenic plants
PI: **C.T. Nomura**
Total Award: $120,590
Award Period Covered: 11/30/06 – 03/20/08

US Department of Energy
Woody biomass project at SUNY ESF
PI: T. Amidon
Co-PIs: J. Nakas, B. Ramarao, G. Scott, R. Francis, S. Liu, and **C.T. Nomura**
Total Award: $674,000
Award Period Covered: 01/01/06 – 06/30/08

Funding at the RIKEN Institute

Japan Society for the Promotion of Science Supplementary Grant
Genetic engineering of *fabH* for PHA production
PI: **C.T. Nomura**
Total Award: $12,000
Award Period Covered: 04/01/04-03/31/05

NIH MHIRT sub-award through UC Santa Cruz
Role of FabG in recombinant PHA production
PI: C. Leo Ortiz
Co-PI: **C.T. Nomura**
Total Award: $23,000
Award Period Covered: 06/01/04-08/31/04

Japan Society for the Promotion of Science Supplementary Grant
Metabolic pathway engineering for PHA production
PI: **C.T. Nomura**
Total Award: $12,000
Award Period Covered: 04/01/05-03/31/06

Supervisory Experience for Research

SUNY ESF

Visiting professors
Dr. Kohei Mizuno (2014, JSPS visiting scholar from Kitakyushu University)

Postdoctoral scholars & Research scientists
Dr. Ryan Scheel (2019-2020, currently a postdoc in the lab of Prof. David Kaplan, Tufts University)), Dr. Benjamin R. Lundgren (2010-2020, Currently a Visiting Research Scientist at The College of New Jersey), Dr. Atahualpa Pinto (2014-2018, currently a tenure-track Assistant Professor of Chemistry at US Naval Academy), Dr. Zaara Sarwar (2014-2018, currently a tenure-track Assistant Professor at The College of New Jersey).

Graduate students (current)
Joseph Shoytush (2014-present), Kris Grohn (2017-2020, Ichor Fellow), Kyle Parella (2018-2020, Ichor Fellow), Yuki Kageyama (Aug-Sep 2019, visiting graduate student from Prof. Ken'ichiro Matsumoto's lab at Hokkaido University), Meegan Sleeper (2019-2020, Ichor Fellow).

Graduate students (former)
Tomoyo Tanaka, M.S. in Biochemical Engineering at RIKEN (2006, currently scientist Biotec Japan), Alexander P. Mueller, M.S. in Biochemistry (2011, currently a scientist at LanzaTech), Ayaka Hiroe, (2011, visiting Ph.D. student from Tokyo Institute of Technology, currently Associate Professor at Tokyo University of Agriculture), Qin Wang, Ph.D. (2012, postdoctoral researcher in the lab of David Kaplan, Tufts University, currently Associate Professor at Hubei University), Ryan Tappel, Ph.D. (2013, postdoctoral researcher in the lab of Pat Mather, Syracuse University, currently Scientist at LanzaTech), Thatiane Mendonça, (2013-2014, visiting Ph.D. student in Microbiology, University of Sao Paulo, currently a Scientist at Zoetis), Leticia Izquierdo M.P.S.GPES (2014), Xian Wang, M.S. Chemistry (2014), Shoji Mizuno (2015, visiting Ph.D. student from Tokyo Institute of Technology), Alex Levine, (2017, Ph.D., currently analytical chemist at Cellibre), Joshua Harris (2018, M.S., currently MD/Ph.D. candidate, SUNY Upstate), Ryan Scheel (2015-2019, Ph.D., currently postdoctoral researcher in David Kaplan's lab at Tufts University), Dan Kalina (2020, M.S.).

Co-advised graduate students
Lucia Salamanca-Cardona, Ph.D. in Chemistry, co-advised with Art Stipanovic (2014, currently research associate with Kayvan Keshari at Memorial Sloan Kettering Cancer Center), Chengjun Zhu, Ph.D. in Biology, co-advised with Jim Nakas (2011, postdoctoral researcher in the lab of Anthony Garza, Syracuse University; currently a Senior Research Fellow in charge of R&D at Ausinorigin, Wuhan, China), Wenyang Pan, Ph.D. in Biology, co-advised with Jim Nakas (2013, currently a researcher at Facebook), Steven Chiu, M.S. in Bioengineering at Syracuse University, co-advised with Jeremy Gilbert (2012, currently flow cytometrist, Columbia University), Ray Randall M.S. in Paper Science and Bioprocess Engineering, co-advised with Tom Amidon (2008, currently manager of fermentation technology, Bristol Myers Squibb, Syracuse, NY), Bradley Sutliff (2018, M.S., co-advised with Patrick Mather, Syracuse University, currently a Ph.D. student at Virginia Tech).

Undergraduate and high school students

SUNY ESF

2016-present

Truong Ho (2018-2019, Winner of the 2019 SUNY EOP Student Chancellor's Award), Padraig Morrissey (2016-2017-Biotechnology), Alexander Kirschner (2016-2017, Biotechnology, currently technician at Upstate Medical University), Matt Lerro (2016-2017, Chemistry), Thomas McKean III (2016-2017-Syracuse University, Chemical Engineering), Jerusha Owusu-Barnie (2016-2017, Biotechnology), Sarah-Marie Mohsen Alam El Din (2016-2017, Chemistry, currently graduate student Johns Hopkins University), Shiomi Kuwabara (2017, Biotechnology), Sonia Mensah (2017, Biotechnology).

2015-2016

Alex Goldsmith (2015-2016-Environmental Health), Max Sosa (2015-2017, currently Ph.D. student, UC Berkeley), Adriana Palucci (2015-2016-Chemistry, MS Nutrition Sciences Baylor, currently intern at The Sage Colleges), Ellen Conti (2015-2016-Bioprocess Engineering, currently Process Manager at International Paper), Allison Houseman (2015-Bioprocess Engineering, currently Process Innovation Research Associate at Birla Carbon), Ashley Daniul (2015-2016-Bioprocess Engineering, currently Scientist at Pall Corporation), Caroline Luella Bond (2015-2016-Environmental Engineering, farmer, Second Spring Farm), James Capanegro (2015-2017-Biotechnology), Mike Wang (2015-2016- Bioprocess Engineering, currently Ph.D. student at UC San Diego), Alexander Fusi (2015-2017, Environmental Science, currently graduate student in the Nordic Five Technology Alliance at Aalto University in Finland and KTH Sweden), Felicia Natale (2015-2017-Biotechnology, currently Medical Technologist at MedStar Georgetown University Hospital), Tyler Lyons (2015-2016-Bioproces Engineering), Eric Mietz (2015-2016-Bioprocess Engineering), Michael Greener (2015-2016-Environmental Biology, currently Veterinary School at UIUC), Jason Pauldine (2015-2016-Chemistry currently sales rep for Johnson & Johnson), Ricky de la Sota (2015-Biotechnology, transferred out of SUNY ESF), Nicholas Fiore (2015-2017- Syracuse University Bioengineering, currently Ph.D. student in Bioengineering at Tufts), Kyle Feldman (2015-2017-Biotechnology, currently lab technician at Pitt), Kyna Sanchez (2016-Biotechnology), Eric Benderski (2016-Chemistry, currently in MA program in Education, SUNY Oswego), Gabriella Moley (2016, C-STEP Fellow), Robbin Jang (2016, REU student from University of Rochester).

2014-2015

Alyssa Avanzato (2014- Syracuse University, Biology, currently Biochemist at Siemens Helathineers), Samuel Dudevski (2014-2015-Bioprocess Engineering, currently lab technician at PRC Composites), Craig Henderson (2014-2015- Bioeconomics), Seamus McKinney (2014-2016-Biotechnology, currently a graduate student at Northeastern University), Bradley Sutliff (2014-SUNY CNSE, NSF REU student currently co-advised graduate student at Syracuse University in Pat Mather's lab), Brian Grzeskowiak (2014-2015-Biotechnology, currently Process Technician at GlobalFoundries), David Digirolamo (2014-2015-Biotechnology), Jessica Ciesla (2014-2015-Biochemistry, currently Ph.D. student at University of Rochester), Jordan Pitt (2014- Chemistry, currently graduate student Woods Hole Oceanographic Institute), Chris Houston (2013-present-Chemistry), Frank Bailey (2014-2016-Biotechnology, currently medical student at SUNY Upstate Medical University), Candace Barnes (2015-SBI REU student from Hampton University, Biology, currently a technician, University of Florida), Liyuan Ji (2015-SUNY STEM Passport student from SUNY Potsdam, currently Research Scientist at Biometrix Inc.), Eric Stevens (2014-2015- Chemistry, currently Ph.D. student at UC Davis).

2013-2014

Joshua Harris (2012-2014-Biotechnology and Chemistry, currently a Chemistry graduate student at SUNY ESF), Joseph Shoytush (2012-2014-Biotechnology, currently a Chemistry graduate student at SUNY ESF), Kavya Krishna (2012-2014-Biotechnology, currently graduate student at University of Wisconsin-Madison), Ryan Scheel (2012-2014- Biology, currently a Chemistry graduate student at SUNY ESF), Devin Hansen (2012-2013-Environmental Science, CSTEP scholar, currently graduate student at SUNY ESF), Christopher Esworthy II (2013-2014-Biotechnology, currently applying to Physician Assistant programs), Morgan Connolly (2013-2014-Biology, NREL intern, currently a Ph.D. student at UC Davis), Michael Norman (2013-2014- Biotechnology, CSTEP scholar, currently Microscopy Specialist at HSE Consulting Services, LLC), Adebukola B. Abiola (2013-2014-Biotechnology, CSTEP scholar, currently at Bristol-Myers Squibb), Tiffany Brookins-Little (2014-Biotechnology, currently Project Manager at Bristol-Myers Squibb), Angelina Sparano (2013-2014-Biochemistry, currently a Production Scientist at Acumen Detection), Brandon Myers (2013-2014, Biotechnology), Gillian Herbert (2014-Biology, currently Lab Technician at the Center for Tropical and Emerging Global Diseases), Ryan Biel (2014- Chemistry), Daniel Conroy (2014-Margaretville Central High School).

2012-2013
Louis Huang (2012- Syracuse University- Civil Engineering), Christopher Ashe (2010-2013- Biotechnology, currently graduate student at Arizona State University), Michael Grassa (2012-2014, Biotechnology, currently in dental school at Temple University), Graham Heberlig, (2012-2013- Chemistry, currently a Ph.D. student with Christopher Boddy, University of Ottawa), Gabrielle Fanfan (2012-Biotechnology, currently Associate Scientist at Pfizer), Ivory Patterson (2013-Hampton University, NSF REU student, currently Quality Improvement Coordinator at Molina Healthcare), Michelle McDonough (2012-Biotechnology).

2011-2012
Alex Mottern (2009-2012-Chemistry, currently Project Manager at Soil Solutions Environmental Services), Connor Boyle (2010-Chemistry, currently a graduate student at University of Massachusetts, Amherst), William Thornton (2012-Chemistry, graduate student in Forensic Science, George Washington University), Jiaho (Johnny) Lin (2012-Chemistry), John (Jack) Ganley (2012-2015, Chemistry, Ph.D. candidate at Duke University 2020, Postdoc in Mohammed Seyedsayamdost's lab, Princeton), Michael R. Cook (2011-Biotechnology, currently a Process Engineer at Pratt Industries) Diana Dunn (2009-2013-Biotechnology, Ph.D. SUNY Upstate, currently postdoc at University of Rochester), Jessica Mastroianni (2011-2012-Biotechnology, currently Research Associate at Regulus Therapeutics), Katie McKissick (2011-2012-Biotechnology, currently a Blood Bank Medic al Technologist at Albany Medical Center), Ada Ozumba (2011-Ohio State University, SBIREU student, LSAMP student), Thomas (Drew) Starkey (2012-Biotechnology).

2010-2011
Fengrong Wang (2010-SUNY-Oswego summer student, currently Ph.D. student at Johns Hopkins University), Tommy Yancone (2011-2012-Bioprocess Engineering-currently a Process Scale-Up Technician at DuPont Nutrition and Health), Jason Kucharski (2011-2012-Bioprocess Engineering-currently a reliability engineer at Georgia-Pacific), Cameron Winfield (2011-Bioprocess Engineering, Systems Engineer at Engineers Gate), Matt Zeile (2012-Bioprocess Engineering, currently Engineer at Georgia-Pacific, LLC), Jennifer Quinn (2010-Clarkson University, SBIREU student, LSAMP student)

2009-2010
Joseph Gredder (2009-2010- Biotechnology, currently Senior Scientist at BASF), Leticia Izquierdo (2009-2010- Biotechnology, MPS student GPES, SUNY ESF), Masami Nonaka (2009-2010- Biotechnolgy), Joshua McEnaney, (2010- Chemistry, Ph.D. Penn State University, currently postdoc Stanford University), Giselle (Schlegel) Johnston (2010– Syracuse University-Chemical Engineering, currently Process and Validation Engineer at Laporte Consultants), Dottie Klein (2010-2012-Bioprocess Engineering, currently a process engineer for Georgia Pacific).

2008-2009
Alexander Mueller, Biochemistry (2008-2009-MS in Chemistry at SUNY ESF in 2011, currently, Senior Scientist at LanzaTech), Benjamin Murphy, Biochemistry, (2007-2009 – currently in Officer Candidacy School), David Sgroi, Biochemistry (2009 – Lead Chemist at Revere Copper Products).

2007-2008
Matthew R. Martino, Biochemistry (2007-2008-formerly Research Associate, Metabolix, Inc., currently high school chemistry and science teacher in New York) Greg D. Boyd, Biotechnology (2007-2008- assistant scientist with the SEA program, currently Nearshore Science Technician at Scripps Institute of Oceanography), Erica Hansen, Biochemistry (2007-2008-Research Associate, Agios), Jaclyn Mueller (2007-2008-received Ph.D. from the University of Hawaii in 2015, currently a Technical Applications Scientist II at Thermo Fisher Scientific), Jingnan Lu (2007-2009, received Ph.D in Chemistry from MIT 2014, currently Associate Director of Business Development at Solid Biosciences)

2006-2007
Hoa Nguyen, Biochemistry (2007-Doctor of Pharmacy, Texas Southern University, currently Pharmacy manager at Walmart)

RIKEN Institute

2003-2006
Tomoyo Tanaka (2003-2006- undergraduate senior thesis research and M.S. thesis research, currently scientist Biotec Japan). Tenai E. Eguen (2005- MHIRT Undergraduate Research Fellow from the University of California – Santa Cruz, Ph.D. UCSD), Alexandria S. Appah (2005- MHIRT Undergraduate Research Fellow from the University of California – Santa Cruz, MS in Public Health, currently Product Manager at Health Leads, Baltimore, MD).

The Pennsylvania State University
1997-2001
Research supervisor for Kirstin J. Milks, undergraduate honors student (Stanford Graduate student, currently teacher), and Matthew Gerstberger, undergraduate honors student (Currently M.D. in PA). Research supervisor for Søren Persson, research associate from Denmark (Currently Ph.D. scientist in Statens Serum Instutut, Copenhagen Denmark). Research supervisor for Gwendolyn M. Lewis, undergraduate student (Currently M.D. in PA).

University of California, Santa Cruz
Teaching assistant for UC Santa Cruz (1993) – Watsonville Minority High School Outreach Program.

Teaching Experience (SUNY ESF)

FCH797 Section 2. Environmental Chemistry and Biochemistry Seminar: ACS 20 min Talk.
1 hour per week. Highlights include Gantt chart and time management for projects. Refworks overview for referencing materials for publications from the SUNY ESF library staff and 20 min presentation of students' research. I place an emphasis on developing presentations for ACS/ASM meetings (20 min format). Segments of talks are videotaped so that students can self-examine their presentations.

FCH797 Section 1. Bioplastic Metabolism/Molecular Metabolism.
1 hour per week. Review of literature pertinent to synthetic biology, metabolic engineering, and protein engineering. Graduate students present one paper per class and discussion on the quality of work/data ensues.

ERE501/EFB501. Microbiology for Bioprocessing
4 hours of lecture per week. Topics discussed: Enzyme kinetics, biochemistry, microbiology, metabolic pathway engineering, growth and growth yield for fermentation processes. Emphasis on use of BioFlo 310 fermentors for "real lab/real world" experience in microbial fermentation.

ESF-SCIENCE Corp. and Stewards of Syracuse (SOS): In conjunction with SUNY ESF Outreach-Biodegradable Plastics seminar and chemical phase and liquid nitrogen demonstration for underrepresented and Syracuse inner city youth (grades 5-10).

FCH 532. Biochemistry II. 3 credits.
Three hours of lecture per week. Topics discussed include biochemistry of metabolism, sugars, polysaccharides, glycolysis, pentose phosphate pathway, glycogen formation, gluconeogenesis, glyoxylate shunt, TCA cycle, electron transport and oxidative phosphorylation, fats, fatty acid metabolism, amino acid metabolism, purine and pyrimidine metabolism, and photosynthesis.

FCH 530. Biochemistry I. 3 credits.
Three hours of lecture per week. Topics discussed include amino acid chemistry, protein structure, protein purification, enzyme kinetics, molecular biology, bioinformatics, nucleic acids, DNA structure, DNA replication, DNA repair, transcription, translation.

FCH 531. Biochemistry Lab. 3 credits.
Two hours of lecture and six hours per week in the lab on the basic techniques used in biochemical research with an emphasis on proteins, enzymes, and kinetics. Techniques include spectrometry, chromatography, electrophoresis, kinetics, inhibition, coupled assays, and isolation and characterization of enzymes.

Graduate Student Committees

SUNY ESF

Defense examiner/committee member

2016-Ryan Scheel, Ph.D., Chemistry, Josh Harris, M.S., Chemistry, Joe Shoytush, M.S., Chemistry, Bradley Sutliff, M.S., Chemical Engineering, Syracuse University, Kara Phelps, Forestry (Chair)
2015-Alex Levine, Ph.D., Chemistry, Aaron Wolfe, Ph.D., SB3
2014-Lucia Salamanca-Cardona, Ph.D., Chemistry, Xingfei Wang, Ph.D., SB3, Lili Wang, Ph.D., Chemistry, Jesse Crandall, Ph.D., Chemistry, Joanna Kinsey, Ph.D., Chemistry, Yang Wang, Ph.D., Paper and Bioprocess Engineering Daniel Nicholson, Ph.D., Paper and Bioprocess Engineering, Thomas Brumbelow, M.S., Biology, Carolyn Huynh, M.S., GPES, Lacey Kucerak, M.S., GPES, Xian Wang, M.S., Chemistry, Leticia Izquierdo, M.P.S. GPES.
2013-Collin Fisher, Ph.D., SB3, Syracuse University, Wenyang Pan, Ph.D., Biology (currently postdoc Cornell University), Rosanna Stoutenberg, Ph.D., biology, Ryan Tappel, Ph.D. Biochemistry (currently scientist at LanzaTech), Anna Flach, Ph.D. Chemistry, Lili Wang, Chemistry.
2012-Alan Shupe, Ph.D. Paper and Bioprocess Engineering
2011-Alexander P. Mueller, M.S. Biochemistry (currently scientist, LanzaTech), Chengjun Zhu, Ph.D. Biology (currently senior research fellow Ausrinorigin), Qin Wang, Ph.D., Chemistry (currently Associate Professor at Hubei University), SB3/Biochemistry, DeAnn Barnhardt, Ph.D. SB3/Biochemistry, Chris Addona, M.S. Biology
2010-Caiping Lin, Ph.D. Polymer Chemistry, Christopher Spiese, Ph.D. Chemistry (currently Assistant Professor at Ohio Northern University), Ju Feng, Ph.D. Chemistry.
2009-Brenden Dutter, M.S. Chemistry
2007-Amber Hotto, Ph.D. Biochemistry, Jacob Goodrich, Ph.D. Chemistry (currently Scientist, Eastman Chemical Co.), Ray Randall, M.S. Paper and Bioprocess Engineering (currently Fermentation Lead, Bristol Myers Squibb), Mangesh Goundalkar, M.S. Chemistry

Ph.D. candidacy examiner/committees

2016-Ryan Scheel, Chemistry
2015-Timothy Ivanicic, Environmental Engineering (Chair), Aaron Wolf, SB3
2014-N. Scott Bergey, Chemistry, Megan Gribble, Microbiology, SUNY Upstate, Dieter Scheibel, Chemistry
2013-Lucia Salamanca-Cardona, Chemistry, Adam Stringer, Chemistry
2012-Jesse Crandall, Chemistry, Alexander Levine, Chemistry, Yang Wang, Paper and Bioprocess Engineering
2011-Xingfei Zhao, SB3/Polymer Chemistry, Lili Wang, Chemistry, Dan Nicholson, Paper and Bioprocess Engineering, Rosanna Stoutenberg, Biology, Wenyang Pan, Biology, John Buyondo, Paper and Bioprocess Engineering, Jenny Wang, Paper and Bioprocess Engineering, Amelia Bo Zhang, Biology
2010- Anna Flach, Chemistry, DeAnn Barnhardt, SB3/Biochemistry, Alan Shupe, Paper and Bioprocess Engineering, Ryan Tappel, Biochemistry
2009-Qin Wang, SB3/Biochemistry, Andrew Henwood, Biology
2008-Jessica Hatch, SB3/Biochemistry
2006-Christopher Spiese, Chemistry

Outside examiner/committee at other universities/colleges

Xuan (Jade) Jiang (2010), Ph.D., Queen's University, Kingston, ON, Canada
Kimberly Tilbrook (2011), Ph.D., Queensland University, Australia

Professional Activities

Editorial Boards

Editorial Advisory Board, *ACS Biomaterials Science and Engineering* (2014-present)
Editorial Board, *Frontiers in Bioengineering and Biotechnology* (2018-present)

Ad Hoc Reviewer and Referee Activities

ACS Biomaterials Science and Engineering, ACS Chemical Biology, ACS Omega, ACS Symposia Series, ACS Sustainable Chemistry and Engineering, Applied and Environmental Microbiology, Applied Microbiology and Biotechnology, Applied Polymer Science, Archives of Microbiology, Biochemistry, Biomacromolecules, Bioresource Technology, Biotechnology Progress, Canadian Journal of Chemistry, Chemosphere, Electronic Journal of Biotechnology,

Encyclopedia of Industrial Biotechnology, Engineering in Life Sciences, Enzymes and Microbial Technology, FEMS Microbiology Letters, Frontiers in Bioengineering and Biotechnology , Frontiers in Microbiology, International Journal of Biological Macromolecules, Journal of the American Oil Chemists Society, Journal of Applied Microbiology, Journal of Applied Polymer Science, Journal of Bacteriology, Journal of Biobased Materials and Bioenergy, Journal of Biomolecular Screening, Journal of Bioprocess Engineering and Biorefinery, Journal of Bioscience and Bioengineering, Journal of Biotechnology, Journal of Chemical and Biotechnology, Journal of Polymers and the Environment, Journal of Visual Experimentation, Macromolecules, Metabolic Engineering, Microbiology, Nature Chemical Biology, New Biotechnology, Plant Biotechnology, PLOS One, Polymers, Polymer Bulletin, Polymer Degradation and Stability, Polymer International, Scientific Reports

Granting Agency Reviews
USDA Panel Action Agricultural Research Service Office of Scientific Quality Review, USDA CSREES McIntire-Stennis Reviewer, USDA CSREES SBIR Reviewer, Biomedical Research Fellowship Programme for India Reviewer, EPA-NSF Virtual Panelist/Reviewer, NSF CBET Panelist/Reviewer, NSF DMR Panelist/Reviewer, NSF MCB ad hoc reviewer, Portuguese Foundation for Science and Technology-FCT reviewer, Sun Foundation Reviewer, ERA SynBio Reviewer, NSF MCB/CBET CAREER Panelist, NSF HBCU-Up ad hoc reviewer, NSF PIRE Panelist/Reviewer, NIH AREA Reviewer, European Science Foundation Reviewer, Natural Sciences and Engineering Research Council of Canada (NSERC) Reviewer

Conference and Workshop Organization
SUNY Academic Industry Roundtable – Moderator for Precision Medicine Panel, New York, NY (2016)
Panelist, SUNY 4E Workshop-Facilitative Leadership for Collaborative Team Research: Navigating complexity in process and problems, Feb 6-7, Syracuse, NY (2015)
Chair and organizer, RFSUNY Green Composite Materials Workshop II, Aug 28-29. Albany, NY (2014)
Panelist and Co-chair, Cellular Approaches, Assemblies, and Polymers, for the NSF and Air Force Office for Scientific Research Advanced Biomanufacturing Workshop, Jul 17-20. Talloires, France (2014).
Chair and organizer, RFSUNY Green Composite Materials Workshop I, May 20. Syracuse, NY (2014)
Organizing Committee, 39th Annual Northeast Bioengineering Conference, Apr 5-7. Syracuse, NY. (2013).
Chair, 2012 ACS NERM Biopolymer Session, Sep. 30-Oct. 3, Rochester, NY (2012).
Co-organizer of Pacifichem Symposium: Biodegradable and Biomass Plastics, Dec 15-20. Honolulu, HI (2010)

SUNY and college service
ESF SCIENCE Corps Faculty Member– SUNY ESF (2007-2017)
Stewards of Syracuse Faculty Member – SUNY ESF (2007-2017)
Syracuse Biomaterials Institute (SBI) – Syracuse University, SUNY ESF, SUNY Upstate (2010-2020)
SB3 Program, ESF Faculty Representative–Syracuse University, SUNY ESF, SUNY Upstate (2006-2020)
CSTEP (Collegiate Science and Technology Entry Program) Faculty Mentor, SUNY ESF (2012-2020)
Syracuse University SBI and NSF REU Biomaterials Faculty Member (2010-2020)
ESF STEM Advisor (2013-2020)
The Research Foundation of SUNY Advanced Materials and Manufacturing Center of Excellence Campus Representative (2013-2017)
The Research Foundation of SUNY Green Composite Materials Group Leader (2014-2017)
The Research Foundation of SUNY Academic Industry Roundtable (AIR) Steering Committee and Moderator (2014)
Syracuse Biomaterials Institute Collaboration Committee (2015-2017)
American Public Land Grant University Council on Research (APLU COR) Working Group on Research Security and Related Compliance Issues (2020)

Departmental, college, and SUNY system committee work
SB3 executive committee (2012-2020)
SUNY ESF SB3 faculty representative (2012-2020)
Graduate Program in Environmental Science – Environmental Systems and Risk Management (GPES ESRM) Interim Area Leader (2011-2012)
Biochemistry Qualifying Exam Committee (2006-2015)
Chair, Biochemistry Qualifying Exam Committee (2011-2013)
Chemistry Seminar Committee (2006-2012)
Chemistry Department Promotion and Tenure Committee (2011-2015)

Undergraduate Academic Progress Committee (2012)
SUNY ESF Microbiology Faculty Search Committee (2013)
SUNY ESF Committee on Research (2014-2016)
SUNY ESF ACS Curriculum Committee (2014-2015)
SUNY ESF Organization Vision Co-Chair (2014-2015)
CSTEP (Collegiate Science and Technology Entry Program) Faculty Mentor, SUNY ESF (2012-2020)
SUNY ESF Biosafety Committee (2015-2020)
SUNY ESF Biochemistry Assessment Committee (2015-2020)
SUNY ESF Epidemiology Faculty Search Committee (2015-2016)
SUNY ESF Provost and Executive Vice President Search Committee (2016)
SUNY ESF Chief Information Officer Search Committee (2017)
SUNY ESF Empire Innovation Professor of the Center for Environmental Health and Medicine Search Committee (2017-2020)
SUNY ESF Discovery Challenge Co-Chair (2018-2019)
SUNY ESF Bioprocess Engineering Faculty Search Committee, ex-officio (2018-19)
SUNY ESF Biochemistry Faculty Search Committee, ex-officio (2018-19)
SUNY System Director of Research Advancement Search Committee (2019-20)
SUNY System Research Re-Opening Task Force (2020)

Presentations (full list of scientific presentations available upon request)

Invited Presentations

1. **Nomura, C.T. (2019).** Click-able polyhydroxyalkanaotes (PHAs): Potential for targeted drug delivery. *International Symposium on Biopolymer Synthesis and Biodegradation. Hokkaido University.* July 29-30th. Sapporo, Japan

2. **Nomura, C.T. (2018).** A day in the life of a VPR: Fostering Collaboration. Keynote: Upstate Librarians Meeting. *Syracuse University*. November 2. Syracuse, NY, USA.

3. **Nomura, C.T. (2018).** Enzyme and Metabolic Engineering: Development of chemically modifiable polyhydroxyalkanoates. *Syracuse University*. October 30. Syracuse, NY, USA.

4. **Nomura, C.T. (2018).** Development of chemically modifiable polyhydroxyalkanoates. *International Symposium on Biodegradable Polymers.* October 22. Beijing, China.

5. **Nomura, C.T. (2018).** Engineering a peptide switch to interrogate RpoN-mediated bacterial transcription. *Utica College.* April 11. Utica, NY, USA.

6. **Nomura, C.T. (2018).** Chemistry of Lipids. *Utica College.* April 11. Utica, NY, USA.

7. **Nomura, C.T. (2017).** Engineering a peptide switch to interrogate RpoN-mediated bacterial transcription. *RIKEN Institute.* June 11. Wako-shi, Japan.

8. **Nomura, C.T. (2017).** Metabolic engineering to polymer science: Next generation polyhydroxyalkanoates (PHAs) for biomedical research. *Syracuse Biomaterials Institute*, Syracuse University. September 13. Syracuse, NY, USA

9. **Nomura, C.T. (2016).** Developing next-generation biopolymers for biomedical applications. *CNY Biotechnology Accelerator-Upstate Medical University.* August 10. Syracuse, NY, USA.

10. **Nomura, C.T. (2016).** Biopolymers and biopeptides for biomedical research. *Bristol-Myers Squibb.* July 26. Syracuse, NY, USA.

11. **Nomura, C.T. (2016).** Engineering a peptide switch to interrogate RpoN-mediated bacterial transcription. *Hubei University.* June 13. Wuhan, China.

12. **Nomura, C.T. (2016).** Engineering bacterial biocatalysts for the production of biodegradable polyhydroxyalkanoate (PHA) plastics. *Nanjing University.* May 20. Nanjing, China.

13. Ren, D., An, J., Endy, T., Javaid, W., and **C.T. Nomura (2016)**. Hill Collaboration: Controlling Hospital-acquired Infections by targeting bacterial persistence. *8th Annual New York State Biotechnology Symposium. SUNY ESF.* May 19. Syracuse, NY, USA.

14. **Nomura, C.T. (2016).** Controlling PHA repeating unit composition. *Tokyo University.* April 21. Tokyo, Japan.

15. **Nomura, C.T. (2015).** Engineering bacterial biocatalysts for the production of biodegradable plastics. *8th Sino-US Joint Conference of Chemical Engineering.* Oct 13-16. Shanghai, China.

16. **Nomura, C.T. (2015).** Engineering bacterial biocatalysts for the production of biodegradable plastics. *Hofstra University.* Sep 11. Hempstead, NY, USA.

17. **Nomura, C.T.** and A. Pinto **(2015).** Nomura Research Technologies. *Syracuse University - School of Law.* Sep 1. Syracuse, NY, USA.

18. **Nomura, C.T.** and A. Pinto **(2015).** Nomura Research Technologies. *Syracuse University - Whitman School of Management.* Aug 19. Syracuse, NY, USA.

19. **Nomura, C.T. (2015).** Engineering bacteria for the production of biodegradable plastics. *ACS NERM 2015: Green Polymers—CO_2 and Non-Petroleum Based Symposium.* June 10-13. Ithaca, NY, USA.

20. **Nomura, C.T. (2015).** Engineering bacterial biocatalysts for the production of biodegradable plastics. *Hubei University.* May 13-22. Wuhan, China.

21. **Nomura, C.T. (2015).** Engineering a peptide switch to interrogate RpoN-mediated bacterial transcription. *Hubei University.* May 13-22. Wuhan, China.

22. **Nomura, C.T. (2015).** Engineering a peptide switch to interrogate RpoN-mediated bacterial transcription. *SUNY Institute for Environmental Health and Environmental Medicine. SUNY Upstate Medical University.* April 24. Syracuse, NY, USA.

23. **Nomura, C.T. (2015).** Engineering bacterial biocatalysts to produce biodegradable plastics. *41st Annual Northeast Bioengineering Conference. Rensselaer Polytechnic Institute.* April 17-19. Troy, NY.

24. Bader, R.A., Choiniere, P.M.*, Levine, A., Pinto, A., and **C.T. Nomura** (**2015**) Click-chemistry customizable polyhydroxyalkanoate nanoparticles for drug delivery. *Society for Biomaterials.* Charlotte, NC. Apr 15-18. *Presented by Phil Choiniere.

25. **Nomura C.T. (2015).** Green Composite Materials Exemplar for Collaboration. *Facilitative Leadership for Collaborative Team Research: Navigating Complexity in Process and Problems Workshop*. Feb 6-7, Syracuse, NY.

26. **Nomura C.T. (2015).** Engineering bacterial biocatalysts for the production of biodegradable plastics. *Rochester Institute of Technology.* Jan 29, Rochester, NY.

27. **Nomura C.T. (2014).** Engineering bacterial biocatalysts for the production of biodegradable plastics. *Lebanon Valley College.* Nov 11. Annville, PA.

28. **Nomura C.T. (2014).** Engineering bacteria to produce biodegradable plastics. *University of Sao Paulo*. Oct 2. Sao Paulo, Brazil.

29. **Nomura C.T. (2014).** Engineering bacterial biocatalysts for the production of polyhydroxyalkanoate (PHA) polymers. *International Symposium on Biopolymers*. Sep 28-Oct 1. Santos, Brazil.

30. **Nomura C.T.** (**2014**). Engineering bacteria to produce biodegradable plastics. *University of North Texas.* September 12. Denton, TX.

31. **Nomura C.T.** (**2014**). Biodegradable plastics from wood-based sugars. *Advances at ESF Toward a Wood-Based Biorefinery.* Syracuse, NY, May 19.

32. **Nomura C.T. (2014).** Engineering bacterial biocatalysts to produce bacterial bioplastics. *CNY Biotechnology Symposium: Opening the Biotechnology Toolbox.* May 15,16. Syracuse, NY.

33. Levine, A.C. and **C.T. Nomura** (**2014**). Polyhydroxyalkanoates as versatile bioplastics. *6th Annual Biotechnology Symposium: Opening the Biotechnology Toolbox.* Syracuse, NY, May 15, 16.

34. Lundgren, B.R. and **C.T. Nomura** (**2014**). The PA2449 gene is essential for glycine metabolism and pyocyanin biosynthesis in the opportunistic pathogen *Pseudomonas aeruginosa. 6th Annual Biotechnology Symposium: Opening the Biotechnology Toolbox.* Syracuse, NY, May 15, 16.

35. **Nomura C.T. (2014).** Engineering bacterial biocatalysts for the production of bacterial bioplastics. *University of Buffalo, State University of New York.* April 17. Buffalo, NY.

36. **Nomura C.T. (2014).** Polyhydroxyalkanoates: versatile biodegradable plastics. *Clarkson University.* March 14. Potsdam, NY.

37. **Nomura C.T. (2014).** Polyhydroxyalkanoates: versatile biodegradable polymers. *SUNY ESF.* February 19. Syracuse, NY

38. **Nomura C.T. (2014).** Shared Experiences with ESF/UMU Collaborations in Infectious Disease Research: Engineering a peptide for potential antimicrobial activity. *From Lab to Landscape: Integrated Infectious Disease.* January 24. Syracuse, NY.

39. **Nomura C.T. (2013).** Biological switches for deciphering bacterial physiology. *ESF Board of Directors.* November 1-2. Canandaigua, NY.

40. **Nomura C.T.** (**2013**). Engineering bacteria to produce biodegradable plastics. *RF Board of Directors Meeting.* September 12. New Paltz, NY.

41. **Nomura C.T. (2013).** Developing bacterial biocatalysts for the production of biodegradable plastics. *University of Ottawa.* September 4. Ottawa, ON, Canada.

42. **Nomura C.T. (2013).** Biological switches for deciphering bacterial physiology. *SUNY ESF Board of Trustees.* January 24. Syracuse, NY.

43. **Nomura, C.T. (2012).** Metabolic engineering for the production of biodegradable plastics. *Tokyo Institute of Technology.* December 21. Yokohama, Japan.

44. **Nomura, C.T. (2012).** Metabolic engineering for the production of biodegradable plastics. *RIKEN Institute.* December 19. Wako-shi, Japan.

45. **Nomura, C.T. (2012).** Metabolic engineering for the production of biodegradable plastics. *Wells College.* October 12. Aurora, NY.

46. **Nomura, C.T. (2012).** Coupling biofuel and bioplastic production. *Houghton College.* April 17. Houghton, NY.

47. **Nomura, C.T. (2011).** Coupling biofuel and bioplastic production. *LeMoyne College.* November 4. Syracuse, NY.

48. **Nomura, C.T. (2011).** Designing metabolic pathways for biochemical production of biodegradable plastics. *Buffalo State University.* October 6. Buffalo, NY.

49. **Nomura, C.T. (2011).** Production of medium-chain-length polyhydroxyalkanaotes from unrelated carbon sources. *Queens University.* September 22. Ontario, Canada.

50. **Nomura, C.T. (2011).** Metabolic and protein engineering for the production of biodegradable plastics**.** Adaptive Peaks Seminar. *SUNY ESF.* September 15. Syracuse, NY.

51. **Nomura, C.T. (2011).** Polyhydroxyalkanoate production and novel applications. *SUNY Brockport.* April 21. Brockport, NY.

52. **Nomura, C.T.** (**2011**). Protein and metabolic engineering for the production of polyhydroxyalkanoate (PHA) biodegradable plastics. *SUNY Binghamton.* February 18. Binghamton, NY, USA.

53. **Nomura, C.T.** (**2010**). Protein and metabolic engineering for the production of polyhydroxyalkanoate (PHA) biodegradable plastics. *Middlebury College.* September 10. Middlebury, VT, USA.

54. **Nomura, C.T. (2010).** Protein and metabolic engineering for the production of polyhydroxyalkanoate (PHA) biodegradable plastics. *SB3 Research Symposium at Syracuse University.* July 14. Syracuse, NY, USA.

55. **Nomura, C.T. (2010).** Protein and metabolic engineering for the production of polyhydroxyalkanoate (PHA) biodegradable plastics. *USDA ARS Arid Lands Agricultural Research Center.* May 24. Maricopa, AZ, USA.

56. **Nomura, C.T. (2010).** Polyhydroxyalkanoate (PHA) biodegradable plastics: Production and novel applications. *SUNY-Oswego*. May 7. Oswego, NY, USA.

57. **Nomura, C.T.** (**2010**). Protein engineering for polyhydroxyalkanoate production. *239th ACS National Meeting & Exposition.* March 21-25. San Francisco, CA, USA.

58. **Nomura, C.T.** (**2010**). Production of biodegradable plastics from biodiesel process waste glycerol. *Villanova University.* February 2. Philadelphia, PA, USA.

59. **Nomura, C.T.** (**2009**). Polyhydroxyalkanoates production and potential applications. *Cornell University.* Ithaca, NY, USA.

60. **Nomura, C.T.** (**2009**). Advances in *in vivo* polyhydroxyalkanoate production via molecular methods. *Nazareth College.* Rochester, NY, USA.

61. **Nomura, C.T.** (**2009**). Biological production of biodegradable plastics. *Cornell University Geneva Agricultural Station.* Geneva, NY, USA.

62. Nicholson, D. and **C.T. Nomura.** (**2009**). Use of biodiesel waste glycerol in the bacterial production of polyhydroxyalkanoate (PHA) biodegradable plastic. *Fueling the School. Pennsylvania's First Intercollegiate Biodiesel Conference. Dickinson College.* April 3-4. Carlisle, PA, USA.

63. Bohn, J. and **C.T. Nomura** (**2009**). Current biodiesel production program at ESF. *Fueling the School-Pennsylvania's First Intercollegiate Biodiesel Conference.* April 3-4. Dickinson College, Carlisle, PA, USA.

64. **Nomura, C.T.** (**2009**). Production of biodegradable plastics from biodiesel process waste glycerol. *University of Scranton.* February 18. Scranton, PA, USA.

65. **Nomura, C.T.** (**2008**). Protein and metabolic pathway engineering for the production of polyhydroxyalkanoates. *International Symposium on Biological Polyesters (ISBP).* November 23 - 27. Auckland, NZ.

66. Martino, M.R., Boyd, G.D., Wang, Q., Tappel, R., and **C.T. Nomura**. (**2008**). Coupling biofuel and bioplastic production. *International Symposium on Polymers and the Environment: Emerging Technology and Science*. October 7 -10. Nashua, NH, USA.

67. **Nomura, C.T.** (**2008**). Sustainable Concepts in Practice: Biofuels to Bioplastics. *2008 SUNY ESF Alumni and Family Weekend.* September 27. Syracuse, NY, USA.

68. **Nomura, C.T.** (**2008**). Bacterial production of polyhydroxyalkanoates from biodiesel process waste glycerol. *World Congress on Industrial Biotechnology and Bioprocessing.* April 27-30. Chicago, IL, USA.

69. **Nomura, C.T.** (**2008**). Production of biodegradable plastics from biodiesel-process waste glycerol. *Claflin University.* Orangeburg, SC, USA.

70. **Nomura, C.T.** (**2008**). Biodiesel process waste glycerol and recombinant bacteria for PHA production. *USDA ARS ERRC*. Wyndmoor, PA.

71. **Nomura, C.T.** (**2008**). Sustainable concepts in practice: biofuels to bioplastics. *Hokkaido University.* Sapporo, Japan.

72. **Nomura, C.T.** (**2007**). Elements for improved biodegradable plastics production. *Ithaca College.* Ithaca, NY, USA.

73. **Nomura, C.T.** (**2006**). Engineering microbes for production of plastics. *Fifth Annual Retreat SUNY ESF Working Groups in Forest Biotechnology and Bioproducts/Bioenergy.* Adirondack Ecological Center, Newcomb, NY.

74. **Nomura, C.T.** (**2006**). Genetic engineering for biopolymer production. *Western Michigan University*, Kalamazoo, MI, USA

75. **Nomura, C.T.** (**2006**). Molecular design for polyhydroxyalkanoate (PHA) biosynthesis. *Syracuse University*, Syracuse, NY, USA.

76. **Nomura, C.T.** (**2006**). Genetic engineering for polyhydroxyalkanoate synthesis. *University of California, Santa Cruz*, Santa Cruz, CA, USA.

77. **Nomura, C.T.** (**2005**). Protein and metabolic engineering for polyhydroxyalkanoate (PHA) production. *Kwansei Gakuin University*, Sanda, Japan.

78. **Nomura, C.T.** (**2005**). Polyhydroxyalkanoate biosynthesis using fatty acid biosynthesis enzymes. *Kanazawa Institute of Technology*, Kanazawa, Japan.

79. **Nomura, C.T.** (**2005**). Polyhydroxyalkanoate biosynthesis using fatty acid biosynthesis enzymes. *Tsinghua University*, Beijing, China.

80. **Nomura, C.T.** (**2005**). Molecular design and properties of microbial polyhydroxyalkanoates (PHA). *Chinese Academy of Sciences*, Beijing, China.

81. **Nomura, C.T.** (**2005**). Genetic engineering for PHA biosynthesis. *RIKEN Institute,* Wako-shi, Japan.

82. **Nomura, C.T.** (**2005**). Engineering of recombinant *Escherichia coli* for polyhydroxyalkanoate biosynthesis using fatty acid biosynthesis enzymes. *Universiti Sains Malaysia*, Penang, Malaysia.

83. **Nomura, C.T.** (**2005**). Polyhydroxyalkanoate production through metabolic and protein engineering. Waste 2 Gold Workshop. *Scion Research*, Rotorua, New Zealand.

84. **Nomura, C.T.** (**2005**). Metabolic and protein engineering for the production of polyhydroxyalkanoates. *State University of New York - ESF*, Syracuse, NY, USA.

85. **Nomura, C.T.** (**2005**). Metabolic engineering of *Escherichia coli* for the production of polyhydroxyalkanoates. *Polytechnic University*, Brooklyn, NY, USA.

86. **Nomura, C.T.** (**2004**). Use of multiple monomer-supplying pathways to produce SCL-MCL polyhydroxyalkanoate copolymer from glucose. *USDA-ARS Western Regional Research Center*, Albany, CA, USA.

87. **Nomura, C.T.** (**2001**). Characterization of electron transfer components and genetic engineering of novel metabolic pathways in *Synechococcus* sp. PCC 7002. *Kanazawa Institute of Technology,* Kanazwa, Japan.

88. **Nomura, C.T.** (**2001**). Characterization of electron transfer components and genetic engineering of novel metabolic pathways in *Synechococcus* sp. PCC 7002. *Kanazawa University,* Kanazawa, Japan.

Contributed Oral Presentations

89. Marshall, W.L., **Nomura, C.T.**, Eck, K., and P.D. Hirsch (**2015**). Overcoming multi-scale challenges to academic-industry research collaboration: The Green Composite Materials SUNY Network of Excellence. *The Collaboration Conundrum Conference.* University of Notre Dame. Notre Dame, IN, USA. Nov. 5-6.

90. Stevens, E.T.*, Lundgren, B.R., and **C.T. Nomura** (**2015**). Heterologous expression of the fatty acid methyltransferase PhcB in *Escherichia coli* for the production of fatty-acid methyl esters (FAMEs). *7th Annual New York State Biotechnology Symposium*. Upton, NY, USA. May 12-13. *Presented by Eric Stevens.

91. Ciesla, J.*, Pinto, A., and **C.T. Nomura** (**2015**). Progress towards the synthesis and *in vivo* incorporation of "click"-ready fatty acids into poly-[(*R*)-3-hydroxyalkanoate] biopolymers. *Western New York ACS Symposium.* Apr 11. D'Youville College, Buffalo, NY. *Jessica received 2nd place for this presentation.

92. Tappel, R.C. and **C.T. Nomura** (**2012**). Biological synthesis of biodegradable polymers with precise control over composition. *38th ACS NERM.* Rochester, NY, USA. Sep. 30-Oct. 3.

93. Salamanca-Cardona, L., Stipanovic, A.J., and **C.T. Nomura**. (**2012**). Consolidated Bioprocessing of poly-3-hydroxybutyrate from xylan by genetically modified *Bacillus subtilis*. *38th ACS NERM.* Rochester, NY, USA. Sep. 30-Oct. 3.

94. **Nomura, C.T.** (**2005**). Metabolic engineering of recombinant *Escherichia coli* for short-chain-length-medium-chain-length polyhydroxyalkanoate biosynthesis. *229th American Chemical Society-National Meeting & Exposition*, San Diego, CA, USA.

95. **Nomura, C.T.** (**2004**). Metabolic engineering of recombinant *Escherichia coli* for SCL-MCL polyhydroxyalkanoate biosynthesis. *Bioenvironmental Polymer Society 12th Annual Meeting*, Monterrey, Mexico.

96. **Nomura, C.T.** (**2004**). Enhancement of short-chain-length-medium-chain-length polyhydroxyalkanoate copolymer production from glucose by coexpression of genes from two different monomer-supplying pathways in *Escherichia coli*. *International Symposium on Biodegradable Polymers*, Beijing, China.

97. **Nomura, C.T.** (**2003**). Improvements of PHA copolymers by coexpression of genetically engineered synthesis genes. *Bioenvironmental Polymer Society 11th Annual Meeting*, Denver, CO, USA.

98. **Nomura, C.T.** (**2001**). Cloning and characterization of the *ctaCIDIEI* and *ctaCIIEIIDII* genes from *Synechococcus* sp. PCC 7002. Cytochrome oxidases play a role in high-light and oxidative stress responses *Synechococcus* sp. PCC 7002. *American Society for Microbiology, Allegheny Branch Meeting*, State College, PA, USA.

99. **Nomura, C.T.** (**2001**). A comparative study of electron transport proteins in the cyanobacterium *Synechococcus* sp. PCC 7002. *Xth International Symposium on Phototrophic Prokaryotes*, Barcelona, Spain.

100. **Nomura, C.T.** (**2000**). Cloning and characterization of a bi-directional hydrogenase-like operon from *Synechococcus* sp. PCC 7002. *The Third Environmental Chemistry Symposium*, University Park, PA, USA.

101. **Nomura, C.T.** (**1998**). Characterization of three potential mobile electron carriers in *Synechococcus* sp. strain PCC 7002. *The VIth Cyanobacterial Workshop*, Pacific Grove, CA, USA.

102. **Nomura, C.T.** (**1998**). Characterization of mobile electron carriers from *Synechococcus* sp. PCC 7002. *Eastern Regional Photosynthetic Meeting*, Woods Hole, MA, USA.

103. **Nomura, C.T.** (**1997**). Characterization of cytochrome c_6 from *Synechococcus* sp. PCC 7002. *IXth International Symposium on Phototrophic Prokaryotes*, Vienna, Austria.