University of Nebraska Medical Center's

Youth Enjoy Science

Research Education Program

Personnel Directory

The Youth Enjoy Science (YES) Research Education Program is supported by the National Cancer Institute (Grant R25CA221777).

Marurice Godfrey, PhD

Principal Investigator

YES! Program

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Maurice Godfrey was born and raised in Addis Ababa, Ethiopia. He earned a Bachelor of Science degree in Biology from Monmouth College in West Long Branch, New Jersey and graduate degrees, including the Ph.D. in Pathobiology and Immunology from Columbia University in New York. He did a postdoctoral fellowship with the late David Hollister at the Shriners Hospital for Crippled Children and the Oregon Health Sciences University in Oregon. He has been a Graduate Faculty Fellow and Professor at the Munroe-Meyer Institute of the University of Nebraska Medical Center in Omaha for more than twenty years. He spent a year as a Visiting Professor in the Department of Human Genetics of the University of Ghent, Belgium. With his late mentor he pioneered immunohistochemical and molecular studies in the Marfan syndrome. Among his awards, Dr. Godfrey has been recognized as a Basil O'Connor Scholar of the March of Dimes and Established Investigator of the American Heart Association. He also received the Antoine Marfan Award of the National Marfan Foundation; the Chief Standing Bear Organizational Award from the Nebraska Commission on Indian Affairs; the UNeMed Corporation Research Innovation Award from the University of Nebraska; Friend of American Indian Education from the Nebraska Department of Education, and the Friend of Science Award from the Nebraska Academy of Sciences. He has been funded by the American Heart Association, National Marfan Foundation, March of Dimes Birth Defects Foundation, Nebraska Department of Education, and the National Institutes of Health. He has published numerous papers and book chapters and presented his research at meetings worldwide. His passion for mentoring and education America's youth began early in his training. High school and college undergraduate he has mentored are now physicians, scientists, pharmacists, and other professionals from coast to coast. Since 2005 he has led a National Institutes of Health program to bring science to schools and communities on Indian reservations in Nebraska and South Dakota. Dr. Godfrey also teaches courses in molecular biology, genetics and molecular basis of human disease.

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YOUTH ENJOY SCIENCE

Joyce Solheim, PhD

Principal Investigator

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In the University of Nebraska Medical Center (UNMC) Fred & Pamela Buffett Cancer Center, Joyce Solheim, Ph.D., is a Professor in the Eppley Institute for Research in Cancer & Allied Diseases, and serves on the Senior Leadership Council of the Cancer Center as the Associate Director for Training and Education. At UNMC, Dr. Solheim has also assisted in the National Cancer Institute (NCI)-funded Pancreas Cancer Specialized Program of Research Excellence (SPORE) by serving as the Co-Director of the Career Enhancement Program for junior faculty and as the Co-Director of the Developmental Research Program for pilot research projects. In the National Institutes of Health (NIH)-sponsored Center of Biomedical Research Excellence (COBRE) program on Nanomedicine at UNMC, Dr. Solheim mentors junior faculty members, and Dr. Solheim also served as a mentor for junior faculty members in a previous UNMC COBRE program focused on Cell Signaling. As the Director of the Cancer Research Doctoral Program and as the Associate Director of the NCI-sponsored T32 Cancer Biology Training Program, Dr. Solheim leads cancer education programs for graduate students at UNMC. Dr. Solheim is also the Co-Principal Investigator of an NCI R25 Youth Enjoy Science Research Education Grant for educational outreach to Native American middle school students, high school students, undergraduates, and community members in the area of cancer-related education. In her research laboratory at the Cancer Center, much of the work has focused on the assembly and functions of proteins that play vital roles in the immune defense against tumors. Additional projects in her laboratory have been devoted to the development of novel immunotherapies for cancer. Her research group has also analyzed the functions of certain proteins that are overexpressed in tumor cells, in regard to the molecular mechanisms underlying their abilities to influence cancer cell growth and migration. Dr. Solheim has served on a wide array of NIH study sections and review panels and as a reviewer for many journals related to cancer and immunology. In total, Dr. Solheim has an established record in cancer research and experience in training new scientists at many educational levels to enter this field.

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Regina Idoate, MA, PhD

Co-Investigator

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Regina Idoate, enrolled member of the Cherokee Nation of Oklahoma, is a proud descendent of Nayehi Ward. She is the great-granddaughter of a teacher, granddaughter of an artist, and the daughter of a nurse and a builder. Dr. Idoate is a teacher and researcher who serves as Assistant Professor in the Department of Health Promotion in the College of Public Health at the University of Nebraska Medical Center. Her active research falls into three broad areas: 1) Medical Humanities 2) Health Disparities and 3) Preventive and Societal Medicine. She has a PhD in Preventive and Societal Medicine, MA degrees in Spanish Language and Culture & Christian Spirituality and a graduate certificate in Maternal and Child Health. Regina loves to collaborate across disciplines, colleges and cultures. She specializes in Indigenous research methods and works in partnership with public schools, non-profit organizations, campuses, communities and tribes to promote health and wellness. She currently serves as a Co-Investigator for two projects funded by the NIH National Cancer Institute: 1) Indigenous Qualitative Inquiry in Implementation Science for Whole-of-Community Systems Interventions involving Community Hub Coalitions (investigating the relationship between individual and collective cultural characteristics and diffusion of evidence-based practices to promote cancer prevention through youth physical activity) and 2) Ignite-Engage-Sustain: a comprehensive approach to motivate, involve, educate, and mentor Native American students and their communities in cancer prevention, treatment, and research (a workforce development program aiming to increase the number of Native American cancer research and health care professionals). Regina is affiliated with the Fred and Pamela Buffett Cancer Center at the University of Nebraska Medical Center and the Medical Humanities at the University of Nebraska at Omaha. Regina currently serves on the Board of Governors at the Center for Great Plains Studies and as the President of the Omaha Professional Chapter of the American Indian Science and Engineering Society.

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Aislinn Rookwood, MPH

Program Manager

YES! Program

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Aislinn Rookwood is a mother, a researcher, and an instructor who grew up in between Polson, Montana and Phoenix, Arizona. She graduated with an AS in Biology from Phoenix College in Phoenix, Arizona before attending the Mel and Enid Zuckermann College of Public Health (MEZCOPH) at the University of Arizona in Tucson, Arizona. to obtain her BS in Public Health with a minor in Soil and Water Science followed by a Master of Public Health in Environmental and Occupational Health. She is a doctoral student in the Department of Health Promotion in the College of Public Health at the University of Nebraska Medical Center focused on understanding how to better address environmental justice topics through community-engaged research, research training, and bi-directional learning. Aislinn has extensive quantitative research method experience investigating acute respiratory responses to exposures in underground mining, enforcing construction safety and health standards, industrial hygiene monitoring for various contaminants, assessing living conditions of migrant worker health. However, she is focused on better understanding the "why" to many environmental health problems through the application of qualitative research methods and mixed-methods research. Past project experiences include investigating barriers and facilitators of underrepresented minority students pursuing health education programs and examining community's awareness of efforts to address cancer. In her current role as the Program Manager for the National Cancer Institute-funded Youth Enjoy Science (YES!) program, Aislinn collaborates with an interdisciplinary team to develop culturally-relevant and anti-racist curriculum, mentor Native American youth interested in research, and coordinates educational programs that support students with experience to become public health and biomedical researchers.

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Misty Pocwierz-Gaines, BS
Program Coordinator
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Misty Pocwierz-Gaines is the Education Coordinator for the cancer research graduate programs within the Eppley Institute and Fred & Pamela Buffett Cancer Center at the University of Nebraska Medical Center. Misty works with graduate students from recruitment through graduation and beyond. Misty manages the Summer Undergraduate Research participants and the YES! Interns within the Eppley Institute. She is a first-generation student and understands the winding path that students may take during their education. She began her educational journey with a degree in Culinary Arts from the Culinary Institute of America, after that she achieved an AA in biology and a BS in Animal Science. She is currently pursuing an MA in Education Administration and has an expected graduation date of May 2021; she hopes to pursue a PhD in Educational Leadership and Higher Education after completing her MA. She is passionate about creating diversity in biomedical research programs and supporting the development of students.

Liliana Bronner, MHSA, MBA
Program Coordinator
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Liliana Bronner is currently an Assistant Professor and Clinical Education Manager in the Family Medicine Department at the University of Nebraska Medical Center (UNMC). Here, she provides leadership, vision setting and coordination of training for students, as well as managing multi-professional primary care education projects. She received a bachelor's degree in Health Science Education at the University of Florida, a master's degree in Health Services Administration at Florida International University, and an Executive MBA. at University of Nebraska Omaha. She is currently completing her PhD dissertation work in UNMC's Health Practice and Medical Education Research program. Bronner has significant experience in project management of several sizeable federal grants. She is the Co-Principal Investigator on two NIH grants. Bronner serves on several UNMC campus committees including the UNMC Legislative Team, Inclusivity Committee, and serves as president of the Interdisciplinary Association of Minority Health Professionals of the Omaha Metropolitan Area. Bronner is also one of the co-founders of the American Indian Science and Engineering Society (AISES) Omaha Chapter.

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Kiana Borengasser, BS
Evaluation Consultant
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Kiana Borengasser is a native Hawaiian, born and raised on the island of Oahu. She is a mother, a researcher, an athlete and a first generation college graduate. She received her BS in Disease and Human Health from Peru State College where she gained mentored research experience studying gregarines, an obligate gut parasite of insects. Upon graduating from Peru State she developed extensive experience working in biomedical research, profiling immune subsets in pre-onset and recent onset diabetes patients. Her graduate studies in public health, specializing in Health Promotion, give her a holistic perspective of medicine and balance her understanding of lab sciences with social services. Kiana was taught as a child to preserve the island ecosystem, values and culture which connect us to our ancestors and all generations to follow. Growing up in Hawaii she was rarely asked what she wanted to be when she grew up but rather what she was going to do to give back to her community. As a young child she learned a Hawaiian proverb, "Ua ola loko i ke aloha, He'e ali'i ka la'i, he ha ku'ulani na" which means, life is an echo, what you give out comes back. By supporting the evaluation of community-based initiatives, she hopes to make a positive impact and create innovative solutions to health problems like cancer, obesity, diabetes and pathogenic pandemics. She believes that building strong relationships with one another and using our talents combined can prevent disease and promote health and wellness in any community. In her current role as a program evaluator for the National Cancer Institute-funded Youth Enjoy Science (YES!) program, Kiana collaborates with the YES! team and the American Indian population to contribute to continuous quality improvement in YES! curriculum, outreach and research education programming for Native American youth interested in public health and biomedical cancer research.

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Shrawan Kumar, MS, PhD

Scientist

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Dr. Shrawan Kumar, MS, PhD, has worked as an Associate Professor and Staff Scientist at the Creighton University School of Medicine and Boys Town National Research Hospital. Currently, he is working at the University of Nebraska Medical Center as an Education Specialist. He has more than 30 years of teaching (Biology, Physical Anthology and Medical Genetics) and research experience in Molecular Genetics. Dr. Kumar's research focused on discovering gene(s) associated with kidney and hearing loss. He worked as a NIH Principal Investigator for more than 15 years (including RO1) resulting the discovery of two genes, which has health benefits and lifesaving consequences. The name of the two genes are BOR (Branchio-oto-renal syndrome) and ADPKD2 (Autosomal dominant polycystic kidney disease). He has published more than 45 papers in various international journals and books. Dr. Kumar served on a various NIH study sections also as a Committee member for four years (NIDCD study section). For the last 12 years, he has been working with Native communities, focusing on basic science and cancer education

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Organizations With Whom We've Worked

- American Indian Higher Education Consortium (AIHEC)
- Andes Central School District
- Bluebird Cultural Initiative
- Creighton University – Creighton Intercultural Center
- Enemy Swim
- Little Priest Tribal College
- Marty Indian School
- Nebraska Indian Community College
- Nebraska Urban Indian Health Coalition
- Omaha Healthy Kids Alliance (OHKA)
- Omaha Metropolitan Community College
- Omaha Public Schools Native Indigenous Centered Education (NICE) Program
- Omaha Tribe
- Pierre Indian Learning Center
- Ponca Professional Enrichment Program (PEP)
- Rosebud Tribe
- Santee Community School
- Santee Tribe
- Sisseton-Wahpeton Tribe
- St. Augustine Indian Mission School
- St. Francis Indian School
- Tiospa Zina Tribal School
- Todd County School District
- Umonhon Nation Public Schools
- University of Arizona
- University of Nebraska at Omaha Medical Humanities
- University of Nebraska at Omaha Service Learning Academy
- University of Nebraska Kearney Pre-Health Counselors
- University of Nebraska Lincoln Pre-Health Counselors
- University of Nebraska Omaha Pre-Health Counselors
- Wagner Community Schools
- Walthill Public School
- Water for Food Institute
- White River Schools
- Winnebago Public School
- Winnebago Tribe
- Yankton Tribe

Research Mentors

- **Regina Idoate, Ph.D., Assistant Professor:** Dr. Idoate will be building on existing trusting relationships, years of experience in community-based participatory research, and teaching and public service specific to the American Indian population within the Great Plains to help students develop public health based cancer research projects. These experiences will be focused on health promotion topics grounded in indigenous methods of researc
- **Chandran Achutan, PhD, CIH, Associate Professor:** Dr. Achutan's research interests are in evaluating and controlling occupational and environmental exposures. His specific interests include occupational noise exposures and hearing loss, air pollution, dust and pesticide exposures among farm workers, heat stress, physical and chemical environmental exposures, environmental tobacco smoke exposure, global health, and occupational stress.
- **Jesse Bell, PhD, Claire M. Hubbard Professor of Health and Environment:** Dr. Bell's research is focused on the relationships of extreme weather, climate variability, and climate change on natural and human processes. The goal of his work is to understand these linkages between climate and health, so that we can help prepare our populations for climate- and weather-related disasters. To determine these relationships, he uses a variety of climate and environmental data sources to explore associations with human health outcomes.
- **Aislinn Rookwood, MPH:** Ms. Rookwood will be working with students interested in the intersection of environmental exposures to specific contaminants that can contribute to cancer risk. The focus of these projects will be based in environmental health topics with a focus on developing qualitative and quantitative research methods. She is also interested in data mining and visualizing health statistics emphasizing skills development in Tableau and/or ArcGIS.
- **Jennifer Black, Ph.D., Professor:** Dr. Black's laboratory program focuses on signal transduction in cancer, with the major goals of understanding the role of members of the protein kinase C family in control of tissue homeostasis and transformation and exploring the potential of targeting protein kinase C signaling for cancer therapy. Dr. Black is the Principal Investigator of the NCI T32 Cancer Biology Training Grant at UNMC, and she is a Program Leader for the Fred & Pamela Buffett Cancer Center Gastrointestinal Cancer Program. In this NCI R25 YES Program, she will serve as a member of the Internal Advisory Committee, as well as a faculty mentor.
- **Jixin Dong, Ph.D., Associate Professor:** Dr. Dong's major research focus is to define regulatory mechanisms and functions of the Hippo tumor suppressor pathway in cancer. His work addresses the role of Hippo-YAP signaling in mitosis, metastasis, and growth of cancer cells, using both pancreatic cancer and prostate cancer models.

Research Mentors (Cont'd)

- **Michael A. (Tony) Hollingsworth, Ph.D., Professor:** Dr. Hollingsworth's laboratory investigates the biology of pancreatic cancer. His research program is highly translational and seeks to identify novel biomarkers for diagnosis and prognosis of pancreatic cancer and to develop new therapies for the disease. Dr. Hollingsworth is the Associate Director for Basic Research for the Fred & Pamela Buffett Cancer Center. He serves as the Principal Investigator of an NCI-sponsored Specialized Program of Research Excellence, which involves multiple projects by several laboratories that each have both a basic/translational and a clinical researcher as the project leaders. Dr. Hollingsworth received the 2014 UNMC Outstanding Mentor of Graduate Students Award recognizing his commitment to cancer education.

  Robert Lewis, Ph.D., Professor: Dr. Lewis' laboratory defines intracellular mechanisms regulating cell fate. His research focuses on the function of the molecular scaffolds Kinase Suppressor of Ras 1 and 2 in regulating cell fate through the sensing of cellular energy levels and the regulation of both anabolic and catabolic metabolism. Dr. Lewis is a member of the Fred & Pamela Buffett Cancer Center Senior Leadership Council and serves as Program Leader for Cancer Genes & Molecular Regulation Program.
- **Amar Natarajan, Ph.D., Professor:** Dr. Natarajan's laboratory is interested in developing small molecule inhibitors against cancer-related protein interactions and kinase targets. Members of his research group use, in parallel, an unbiased approach (which involves the development of high throughput assays and screening of chemical libraries to identify new inhibitors) and a targeted approach (which includes structure-guided synthesis and evaluation of inhibitors).
- **Pankaj Singh, Ph.D., Associate Professor:** Dr. Singh's research goals are to identify and characterize new therapeutic approaches for effective clinical treatment of metastatic cancer. He is using a systems biology approach encompassing RNA-Seq, proteomics, and metabolomics to understand metabolic aspects of cancer that impart therapy resistance and facilitate metastasis.
- **Youri Pavlov, Ph.D., Professor:** Dr. Pavlov's research is investigating the mechanisms of maintenance of genome stability. In particular, his laboratory seeks to understand the mechanisms underlying global and regional regulation of mutation in various cell types and in cancer.
- **Joyce Solheim, Ph.D., Professor:** Dr. Solheim's research area is cancer immunology. Her laboratory is studying the molecular mechanisms by which cancer cells indicate to immune cells that they are abnormal, and thereby provide immune cell attack. Her group is also engaged in translational projects developing chemokine immunotherapy approaches for cancer treatment. Dr. Solheim is one of the PIs for this proposed R25 YES Program, as well as the Director of the Cancer Research Doctoral Program and the Assistant Director of the T32-funded Cancer Biology Training Program for UNMC.

Research Mentors (Cont'd)

- **Nicholas Woods, Ph.D., Assistant Professor:** Dr. Woods' work is on novel regulatory mechanisms in the DNA damage response network through proteomic profiling of interactions among proteins. His laboratory integrates proteomics discovery, bioinformatics analysis, and functional profiling of the effects of protein interactions by biochemical approaches. His studies seek to discover DNA damage response mechanisms that can be exploited for the development of precision therapies for cancer.
- **Kusum Kharbanda Ph.D., Professor:** Dr. Kharbanda has been actively involved in the field of alcoholic liver injury for more than 25 years, with special emphasis on alcohol's deleterious effects in altering the methionine metabolic pathway and lowering the ratio of the methyl donor, S-adenosylmethionine (SAM), to its product, S-adenosylhomocysteine (SAH).
- **Shannon Bartelt-Hunt, P.E., Professor:** Dr. Bartelt-Hunt's areas of research and professional interest are physicochemical fate of contaminants in soil and water, contaminant fate and transport in landfills, and water reuse in agricultural systems.This includes avian influenza virus, prion proteins, veterinary pharmaceuticals and steroid hormones — contaminants which are typically associated with various animal management and agricultural practices. She is especially interested in conducting research at the interface between environmental engineering and human and animal health.
- **Eleanor Rogan, Ph.D., Professor:** Dr. Rogan's research centers around elucidating mechanisms of activation of carcinogens, identifying carcinogen-DNA adducts, and correlating adducts with oncogenic mutations. From a previous study of polycyclic aromatic hydrocarbon (PAH) metabolism and DNA adducts, her research team has demonstrated that the predominant adducts are lost by depurination, leaving mutagenic apurinic sites in the DNA. This research involved identification and quantitation of PAH-DNA adducts and correlation of the adducts with Harvey-ras mutations in mouse skin papillomas induced by the PAH. Her research team has extended these studies to endogenous catechol estrogen metabolites and found that the carcinogenic metabolites form depurinating N3Ade and N7Gua adducts in DNA.
- **Polina Shcherbakova, Ph.D., Professor:** Dr. Shcherbakova's laboratory is interested in the origin of mutations that create genetic variability and cause human diseases, particularly cancer. The majority of mutations result from errors made by DNA polymerases during genome duplication. Our research focuses on the function of these enzymes, the mechanisms controlling the accuracy of DNA synthesis, and the relationship between DNA polymerase defects and cancer. The experimental approaches include genetic studies in the yeast Saccharomyces cerevisiae, cultured normal and cancerous human cells and human tumor tissues, as well as biochemical analysis of DNA replication with purified proteins.

Research Internship Participants

- **Alec Ferreira**
  Exposures to known carcinogens in agricultural settings and through agricultural run-off in surface waters
- **Alex Nelson**
  Identification of the types of immune cells infiltrating human tumors
- **Audrey Bavari**
  Analyzing proteins that contribute to the growth and spread of pancreatic cancer
- **Bobbie (McWilliams) Leesley**
  A case study investigating the experience of living with skin cancer through portraiture
- **Carlee Rigatuso**
  Exposures to known carcinogens in our environment that contribute to pediatric cancers
- **Cecilia Barbosa**
  Investigation of the inhibition of cancer cell growth by a new drug that controls the processing of amyloid precursor-like protein 2 in the cells
- **Chaulette Decora**
  INDIGENIST: An art-based research study investigating the process of health advocacy among women in an urban American Indian Midwest community
- **Chelsea Claw**
  Project determining the extent to which gene mutations have a functional role in chemotherapy resistance in breast cancer tumors
- **Erica Lafferty**
  Development and characterization of a non-alcoholic steatohepatitis-induced hepatocellular carcinoma (liver cancer) mouse model
- **Hadaly Prosser**
  Development of understanding of how an anti-cancer therapy affects the immune response against the cancer cells, as well as interfering with the growth of the cells
- **Hannah Butler-Robbins**
  Investigating the association of high GILT expression and MHC class II antigen presentation in melanoma specimens
- **Hayli Spellman**
  Development of understanding of how an anti-cancer therapy affects the immune response against the cancer cells, as well as interfering with the growth of the cells
- **Jazlyn Gil**
  Analysis of the effects of a protein called CTDP1, which is involved both in normal development and in cancer
- **Kristiann Ferreira**
  Examining the extent to which mTOR or AMPK pathway activation is protective against doxorubicin-induced cardiac and skeletal muscle toxicity.

Research Internship Participants (Cont'd)

- **Liliana Tamayo**
  Investigating Community Readiness to address the issue of cancer
  INDIGENIST: An art-based research study investigating the process of health advocacy among women in an urban American Indian Midwest community
- **Mariah Abney**
  Investigating how specific parts of DNA polymerase zeta regulate its functions
  Tecnosovereignty: Digital storytelling of lived experience with cancer
- **Marissa Fast Horse**
  Indigenous diet, ways of being, and cultural protective factors against cancer
- **Mira Norman**
  Assessment of the patterns of protein expression that are characteristic of tumor subtypes and correlation of those patterns with the effectiveness of specific therapies
- **Tada Vargas**
  Determination of the functions of a DNA replication protein and its impact on cell viability and the frequency of mutation
- **Treyten Ozuna**
  Investigating Community Readiness to address the issue of cancer

Artwork titled "They're Back" by Donel Keeler
Artwork has been purchased for use by the
Youth Enjoy Science (YES) Research Education program.