



Partners in Science Program Awards
M. J. Murdock Charitable Trust, Vancouver, WA
February 2016

Dr. Lawrence K. Duffy, University of Alaska Fairbanks -- 907-474-7525

Monitoring Climate Change: Mercury in Lichens

Jeffrey (Patrick) Malone -- Hoonah City Schools, Hoonah, AK -- 907-945-3730

Dr. Cheryl Jorcyk, Boise State University -- 208.426.4287

Investigating Prostate Tumor Cell Migration

Steven Tipping -- Borah High School, Boise, ID -- 208854-4370

Dr. Ernest Keeley, Idaho State University -- 208.478.7491

Using Bioenergetic Calculations to Determine Habitat Quality for Stream Fishes

Eric Rude -- Pocatello High School, Pocatello, ID -- 208.233.2056

Dr. Andrea Stierle, University of Montana -- 406.243.2094

Exploration of Molecules that Block the Metastatic Spread of Cancer

Lily Apedaile -- Billings Career Center, Billings, MT -- 406.281.5340

Dr. Dong Wang, University of Montana -- 406.243.4290

Oxidation Catalysts Based on Earth-Abundant Transition Metals and Redox-Active Ligands

Charlie Bruner -- Victor Public School, Victor, MT -- 406.642.3221

Dr. Andrew Ware, University of Montana -- 406.243.6221

In Situ Measurements of Turbulence and Relative Estimation Error

Joe Youngberg -- Frenchtown High School, Frenchtown, MT -- 406.626.2600

Dr. Dean Atkinson, Portland State University -- 503.725.8117

A Field-Deployable Instrument for Measuring RH-Dependent Aerosol Extinction

Alicia Ryan -- Cascade High School, Turner, OR -- 503.749.8010

Dr. Benjamin McMorran, University of Oregon -- 541.346.8624

Electron Interferometry Using Nanofabricated Gratings

Asher Tubman -- South Eugene High School, Eugene, OR -- 541.790.8000

Dr. Kerry McPhall, Oregon State University -- 541.737.5808

Natural Products Chemistry and Ecology of Fungi Important to Human Health and Agriculture

Emily Parent -- McNary High School, Keizer, OR -- 503.399.3233



Dr. Tawnya Peterson, Oregon Health and Science University -- 503.346.3423

Determining the Fate of the Anti-Diabetic Drug, Metformin, in Aquatic Systems

Roxanne Kilpatrick -- Oregon City High School, Oregon City, OR -- 503.785.8900

Dr. Frank Vignola, University of Oregon -- 541.346.4745

Characterizing and Testing of Photovoltaic Modules

Evan Munger -- Winston Churchill High School, Eugene, OR -- 541.790.5100

Dr. Bree Yednock, South Slough National Estuarine Research Reserve -- 541.888.8270 ext.302

Survey of European Green Crabs in the Coos Estuary

Christina Geierman -- North Bend High School, North Bend, OR -- 541.751.8328

Dr. Amoret Bunn, (PNNL) Pasco School District #1 -- 509.372.4782

Evaluations of Sage-Brush Environments to Measure Effects of Pesticide Applications on Human Health and the Ecosystem

Molly Tuinstra -- Pasco High School, Pasco, WA -- 509.547.5581

Dr. Daniel Burgard, University of Puget Sound -- 253.879.1570

Investigating the Removal of Emerging Contaminants from a Surface Water Biofiltration System

Matt Lonsdale -- Science and Math Institute, Tacoma, WA -- 253.571.2300

Dr. Thomas Collins, (WSU-Richland) Washington State University Foundation -- 509.372.7515

Characterizing the Chemical Composition of Washington State Wines

Frederick Burke -- Chiawana High School, Pasco, WA -- 509.543.6786

Dr. John Finke, (UW-Tacoma) University of Washington -- 253.692.4351

Carbohydrate Modification of Anti-Inflammatory Human Antibody Drugs

Hali Hill -- Rogers High School, Puyallup, WA -- 253.841.8717

Dr. David Geist, (PNNL) Richland School District -- 509.371.7248

Effects of Hydropower on Fishes

Trevor Macduff -- Three Rivers HomeLink, Richland, WA -- 509.967.6090

Dr. Josef Matyas, (PNNL) Kennewick School District -- 509.372.6023

Explore Boundary for High Alkali Glasses for Low Activity Waste Glasses for Vitrification

Randy Hoover -- Southridge High School, Kennewick, WA -- 509.222.7200

Dr. Vijay Murugesan, (PNNL) Richland School District -- 509.371.9322

Designing Next Generation Battery from Molecules to Stack Cells

Carolyn Sturges -- Three Rivers HomeLink, Richland, WA -- 509.967.6090

Dr. Ljiljana Pasa-Tolic, (PNNL) Pasco School District #1 -- 509.308.9401

Unraveling Plant-Microbe Interactions in a Fluctuating Nutrient Environment

Kentin Alford -- Chiawana High School, Pasco, WA -- 509.543.6786



Dr. Naidu Rayapati, (WSU-Prosser) Washington State University Foundation -- 509.786.9215

Elucidate Genetic Diversity of Viruses in Washington Vineyards

Emily Jordan -- Chiawana High School, Pasco, WA -- 509.543.6786

Dr. Frances Smith, (PNNL) Pasco School District #1 -- 509.375.5645

Effects of Extreme Conditions on Aluminum Oxyhydroxide Material Behavior

Devin Olson -- New Horizons High School, Pasco, WA -- 509.543.6796

Dr. Elly Sweet, (WSU-Tri Cities) Washington State University Foundation -- 509.372.7525

Effects of Thyroid Hormone on Skull Development and Jaw Biomechanics

Amy Verderber -- Kamiakin High School, Kennewick, WA -- 509.222.7000

Dr. Russell Van Gelder, University of Washington -- 206.543.4043

Restoration of Light Response to Blind Retinas with Small Molecules

Larry Bencivengo -- Mercer Island High School, Mercer Island, WA -- 206.230.6355

Dr. Sylvia Yang, Western Washington University -- 360.293.2188

Resilience and Restoration of Coastal Eelgrass Habitats in Washington State

Victor Garcia -- Anacortes High School, Anacortes, WA -- 360.293.2166

Dr. Xiao-Ying Yu, (PNNL) Pasco School District #1 -- 509.372.4524

Liquid Time-of-Flight Secondary Ion Mass Spectrometry

John Weisenfeld -- Pasco High School, Pasco, WA -- 509.547.5581

Dr. Xiao Zhang, (WSU-Tri Cities) Washington State University Foundation -- 509-372-7647

New Renewable Materials from Cellulose Nanocrystallites

Robert Edrington -- Southridge High School, Kennewick, WA -- 509.222.7200





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Alaska

Dr. Douglas Causey, University of Alaska-Anchorage -- 907.786.1310

Absorption and Effects of Contaminants Associated with Microplastic Marine Debris in Seabirds

Ghodsie Anna Sabri -- West High School, Anchorage, AK -- 907.742.2500

Idaho

Dr. Kevin Ausman, Boise State University, Boise, ID -- 208.426.3476

Environmental Chemistry of Aqueous Buckminsterfullerene Colloids: Cluster Stability and Oxidative Behavior

Sharon Cates -- Capital High School, Boise, ID -- 208.854.4490

Dr. John Cossel, Northwest Nazarene University, Nampa, ID -- 208.467.8893

*Assessing Disease Risk in a Population of the Critically Endangered Forest Frog, *Lithobates vibicarius**

Alicia Hedrick -- Fruitland High School, Fruitland, ID -- 208.452.4411

Dr. Jennifer Forbey, Boise State University, Boise, ID -- 208.426.4426

Understanding the Role of Structural and Chemical Diversity in the Sagebrush Steppe

Gina Lockwood -- Borah High School, Boise, ID -- 208.854.4370

Mr. Gregory Kaltenecker and Dr. Jay Carlisle, Boise State University, Boise, ID -- 208.426.4354

Assessing the Breeding Bird Community at a Low-Elevation Riparian Site in Comparison to a High-Elevation Montane Site in Southwest Idaho

Steve DeMers -- Rocky Mountain High School, Meridian, ID -- 208.350.4340

Dr. Jennifer Pierce, Boise State University, Boise, ID -- 208.426.5380

Communities at Risk: Hazards from Post-Wildfire Erosion in the Boise Wildland Urban Interface

DJ, Donald Eberlin, Jr. -- Borah High School, Boise, ID -- 208.854.4370

Dr. Jeffrey Rosentreter, Idaho State University, Pocatello, ID -- 208.282.4281

Development of a Chemical Sensor for Cyanide in Blood

Matt Alexander -- Pocatello High School, Pocatello, ID -- 208.233.2056



Dr. Juliette Tinker, Boise State University, Boise, ID -- 208.426.5472

Characterization of ArtAB: A Novel Enterotoxin from Salmonella enterica Typhimurium

Sarah Westcott -- Ambrose School, Meridian, ID -- 208.323.3888

Oregon

Dr. Jerri Bartholomew, Oregon State University, Corvallis, OR -- 541.737.1856

Effects of Temperature on the Salmon Parasite, Ceratonova shasta: Implications for Global Climate Change

Deidra Spencer -- Sweet Home High School, Sweet Home, OR -- 541.367.7145

Dr. Catherine de Rivera, Portland State University, Portland, OR -- 503.725.9798

Ghosts of Competition Part? The Effect of Dying High Marsh Vegetation from Increased Inundation on the Establishment Success of Lower Marsh Biota

Erin Cole -- Valley Catholic High School, Beaverton, OR -- 503.644.3745

Dr. Taal Levi, Oregon State University, Corvallis, OR -- 831.332.7873

Indirect Effects of Brown Bears (Ursus arctos) on Small Mammals Populations in Coastal Ecosystems

Megan Miller -- Silverton High School, Silverton, OR -- 503.873.6331

Dr. Michiko Nakano, Oregon Health & Science University, Portland, OR -- 503.346.3430

Role of Phosphorylation in the Activity of ResD Response Regulator in Bacillus subtilis

Tai Quirke -- Sam Barlow High School, Gresham, OR -- 503.258.4850

Dr. Norma Velazquez-Ulloa, Lewis and Clark College, Portland, OR -- 503.768.7509

Effect of Nicotine Exposure on Perception: Olfaction and Taste Behaviors and Neural Circuits in Drosophila melanogaster

David Valenzuela -- Madision High School, Portland, OR -- 503.916.5220

Washington

Dr. Gretchen Rollwagen-Bollens, Washington State University-Vancouver, WA -- 360.546.9115

Enhanced Monitoring and Investigation of the Spread and Potential Impact of Aquatic Invasive Mussels in the Columbia River Basin

Carol Sandison -- Columbia River High School, Vancouver, WA -- 360.313.3900

Dr. Tina Saxowsky, Pacific Lutheran University, Tacoma, WA -- 253.538.6375

Manipulating Oxidative Stress in Non-Growing Yeast Cells, and the Effects of this Treatment on Adaptive Mutagenesis

Nancy Mouat-Rich -- Bethel High School, Spanaway, WA -- 253.683.7000





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Alaska

Dr. Eric Bortz -- University of Alaska-Anchorage, AK (907.786.4858)
Studies of Cancer Cell Evasion of Immune Response
Debra Brewer -- Lumen Christi High School, Anchorage, AK (907.245.9231)

Idaho

Dr. James R. Belthoff -- Boise State University, Boise, ID (208.426.4033)
Effects of Spatial, Geometric, and Biotic Factors in Vehicle-Barn Owl Collisions
Jeremy Thompson -- Borah High School, Boise, ID (208.854.4370)

Dr. Jennifer R. Chase -- Northwest Nazarene University, Nampa, ID (208.467.8892)
Genome Studies of "Gemella haemolysans" and Three Potentially Pathogenic E. coli Strains
Marria Coriell -- Glens Ferry High School, Glens Ferry, ID (208.366.2056)

Dr. Cheryl L. Jorcyk -- Boise State University, Boise, ID (208.426.4287)
Assessing the Potential Role of Oncostatin N in Prostate Cancer
John Doherty -- Capital High School, Boise, ID (208.854.4490)

Montana

Dr. James N. Barron -- Montana State University Billings, Billings, MT (406.657.2918)
Ecological Monitoring of Alpine Regions in Montana
Craig Beals -- Billings Senior High School, Billings, MT (406.281.5400)

Dr. Tracy A.O. Dougher -- Montana State University Bozeman, Bozeman, MT (406.994.6772)
Protocol Development for Production of Montana Native Plants
Joe Bradshaw -- Bozeman High School, Bozeman, MT (406.522.6200)

Dr. Stuart Snyder, Montana State University Billings, Billings, MT (406.657.2190)
Investigation of Atmospheric Ozone
Aaron Snyder -- Poplar High School, Poplar, MT (406.768.6600)



Oregon

Dr. Andy Berglund, University of Oregon, Eugene, OR (541.346.5097)

Effects of Structural Stabilization of CCUG Repeats in Myotonic Dystrophy

Danielle Tubman -- Pleasant Hill High School, Pleasant Hill, OR (541.747.4541)

Dr. Erik Bodegom, Portland State University, Portland, OR (503.725.4230)

Effect of Well Size on Digital Imagers' Performance

Angela McVay -- Lincoln High School, Portland, OR (503.916.5200)

Dr. Kristine Coleman, Oregon National Primate Research Center at OHSU, Beaverton, OR (503.533.2418)

Factors Underlying Stereotypical Behavior in Rhesus Macaques

Donovan Kim -- Yamhill-Carlton High School, Yamhill, OR (503.852.7600)

Dr. Michael V. Danilchik, Oregon Health and Science University, Portland, OR (503.494.8568)

Effects of Extracellular Microvesicles on Embryonic Development

Crystal Wulff -- Union High School, Camas, WA (360.604.6220)

Dr. Angela Hoffman, University of Portland, Portland, OR (503.943.7173)

Investigating a Pigweed Extract for Antibiotic, Anticancer, and Herbicidal Activities

Gina Portillo -- Valley Catholic High School, Beaverton, OR (503.644.3745)

Dr. Martin Lafrenz, Portland State University, Portland, OR (503.725.3163)

Effects of Salt Marsh Vegetation on Ecosystems

Angelica Huston -- McMinnville High School, McMinnville, OR (503.565.4200)

Dr. Pui-Tak Leung, Portland State University, Portland, OR (503.725.3818)

Optical Studies of Plasmonics with Metallic Nanoparticles and Metamaterials

Fabian Mak -- Westview High School, Portland, OR (503.259.5218)

Dr. Henryk F. Urbanski, Oregon National Primate Research Center at OHSU, Beaverton, OR (503.690.5306)

Effects of Steroid Hormones on the Aging Brain

Korin Riske -- Sunset High School, Portland, OR (503.259.5050)

Dr. Ralf Widenhorn, Portland State University, Portland, OR (503.725.3898)

Interpreting Activation Energies in Charged-Coupled Devices

Dave Holz -- Southridge High School, Beaverton, OR (503.259.5400)

Washington

Dr. Clyde H. Barlow, Evergreen State College, Olympia, WA (360.867.6053)

Measurement of P_{O2} and pH in Aqueous Systems Using Luminescent Microspheres

Jacqueline Hall -- Capital High School, Olympia, WA (360.596.8000)



Dr. Mark Groudine, Fred Hutchinson Cancer Research Center, Seattle, WA (206.667.4497)

Studies of Protein Interactions with Topoisomerase II in Developing Erythrocytes

Cynthia McIntyre -- Everett High School, Everett, WA (425.385.4400)

Dr. Brandon Sack and Dr. Stefan Kappe, Seattle Biomedical Research Institute, Seattle, WA (206.256.7131)

Mechanisms of Protection in Cross Stage Immunity Induced by Genetically Attenuated Parasites

Dawn Tessandore -- Highline High School, Burien, WA (206.631.6700)

Dr. Eric A. Shelden, Washington State University, Pullman, WA (509.335.2368)

Heat Shock Protein Regulation and Function During Zebrafish Development

Ron Miller -- Lakeside High School, Plummer, ID (208.686.1937)

Dr. Douglas B. Walsh, Washington State University, Pullman, WA(509.786.9287)

Quantifying Mating Frequency of Alkali Bees "Nomia melanderi" by Microsatellite Analysis

Aaron Sonnichsen -- Prosser High School, Prosser, WA (509.786.1224)

Dr. Edus H. Warren, Fred Hutchinson Cancer Research Center, Seattle, WA (206.667.6441)

B Cell Receptor Specificity in Endemic Burkitt Lymphoma

Alicia Morales -- Phoenix Academy, Bremerton, WA (360.473.470)



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ALASKA

Dr. John M. Kennish, Ph.D. - University of Alaska-Anchorage 907.786.1236
Raphia B. Maglinao -Kotlik School, Kotlik, AK Hs 907.899.4415
Study of Trace Metals in the Kotlik River Ecosystem

IDAHO

Dr. Jeffrey P. Hill, Ph.D. - Idaho State University 208.282.2650
Robert Miron -Century High School, Pocatello, ID Hs 208.478.6863
Studies of Nutrient Stoichiometry in Plants

Dr. Gregory S. Kaltenecker, Ph.D. - Boise State University 208.426.4354
Lindsey Lockwood -Sage International School, Boise, ID Hs 208.995.0300
Studies of Breeding and Migrant Bird Communities

Dr. Crystal A. Kolden, Ph.D. - University of Idaho 208.885.6018
Richard K. Neves -Clark County High School, Dubois, ID Hs 208.374.5215
Studies of Wildfire and Invasive Species Effects of Landcover

Dr. Dan Lawrence, Ph.D. - Northwest Nazarene University 208.467.8662
Cynthia Lapp -Nampa High School, Nampa, ID Hs 208.498.0551
Vibrational Analysis Using Holographic Interferograms

Dr. Jamee C. Nixon, Ph.D. - Northwest Nazarene University 208.467.8677
Tawny Olsen -Victory Charter High School, Nampa, ID Hs 208.442.9400
Studies of Human Monocyte Response to Antibiotic Treatment of Methicillin-Resistant "Staphylococcus aureus"

Dr. Keith Reinhardt, Ph.D. - Idaho State University 208.282.2933
Andrew Bosworth -Ririe High School, Ririe, ID Hs 208.538.7311
Effects of Precipitation Seasonality on Carbon Pools in Cold-Desert Ecosystems

Dr. Dale Russell, Ph.D. - Boise State University 208.426.3795
Michael D. Fisher -Kuna High School, Kuna, ID Hs 208.922.0200
Development and Field Testing of an Arsenic Sensing Electrode

Dr. Dmitri A. Tenne, Ph.D. - Boise State University 208.426.1633
Eric Thies -Rocky Mountain High School, Meridian, ID Hs 208.350.4340
Studies of Ferroelectric and Multiferroics Nanostructures

MONTANA

Dr. Ragan Callaway, Ph.D. - University of Montana 406.243.5077
Patrick Murphy -Three Forks High School, Three Forks, MT Hs 406.285.3224
Studies of Invasive "Solidago canadensis"

OREGON

Dr. Jerri Bartholomew, Ph.D. - Oregon State University 541.737.1856
Darrelle M. Fiorito -Central Linn High School, Halsey, OR Hs 541.369.2811
Field and Molecular Studies of a Salmon Parasite

Dr. Anna G. Cavinato, Ph.D. - Eastern Oregon University 541.962.3561
Molly Blatz -Irrigon Junior/Senior High School, Irrigon, OR Hs 541.922.5551
Development of Aptamer-Based Biosensors for Bacterial Detection

Dr. Dirk Iwata-Reuyl, Ph.D. - Portland State University 503.725.5737
David Burmester -Grant High School, Portland, OR Hs 503.916.5160
Studies of the Threonylcarbamoyl Adenosine Synthetase Complex

Dr. Gyorgyi Nyerges, Ph.D. - Pacific University 503.352.2223
Eric Layton -North Powder Charter School, North Powder, OR Hs 541.898.2244
Studies of Antibiotic Resistant Microorganisms in Agricultural Soils

Dr. Larry S. Sherman, Ph.D. - Oregon National Primate Research Center
at Oregon Health & Science University 503.690.5217
Angela Little -Westside Christian High School, Lake Oswego, OR Hs 503.697.4711
Study of Receptor-Mediated Remyelination Failure

Dr. David Wooster, Ph.D. - Hermiston Agricultural Research and Extension Center - Oregon State University 541.567.6337
Brandon Galvez -La Grande High School, La Grande, OR Hs 541.663.3301
Studies of Behavior and Morphology of Invasive Crayfish

Dr. Mary B. Zelinski, Ph.D. - Oregon National Primate Research Center
at Oregon Health & Science University 503.690.5367
Larry Hiday -Columbia Adventist Academy, Battle Ground, WA Hs 360.687.3161
Studies of Ovarian Cryopreservation for Fertility Preservation

WASHINGTON

Dr. Marion Avril, Ph.D. - Seattle Biomedical Research Institute 206.256.7200
Tim Renz -Foster High School, Tukwila, WA Hs 206.901.7900
Effects of Binding Mechanisms in "Plasmodium falciparum" on Cerebral Malaria

Dr. Nitin S. Baliga, Ph.D. - Institute for Systems Biology 206.732.1266
Tamara Caraballo -Glacier Peak High School, Snohomish, WA Hs 360.563.7501
Employing Systems Models to Study Consequences of P53 Protein Sequence Variation and Structural Changes

Dr. Stephen M. Bollens, Ph.D. - Washington State University-Vancouver Teridee Newman -La Center High School, La Center, WA <i>Studies of Aquatic Invasive Mussels</i>	360.546.9116 Hs 360.263.1700
Dr. Champak Chatterjee, Ph.D. - University of Washington Deborah E. Alan-LaZerte -Bishop Blanchet High School, Seattle, WA <i>Effects of Chemically Changed Histone Proteins on Gene Structure and Function</i>	206.543.2349 Hs 206.527.7711
Dr. John I. Clark, Ph.D. - University of Washington Karl Englert -Nathan Hale High School, Seattle, WA <i>Studies of Eye Lens Protein Aggregate Disease</i>	206.685.0950 Hs 206.252.3680
Dr. John M. Finke, Ph.D. - University of Washington, Tacoma Amanda Graves -Mount Tahoma High School, Tacoma, WA <i>Studies of Antibody Targeting of Beta-amyloid Protein Clusters in Alzheimer's Disease</i>	253.692.4351 Hs 253.571.3804
Dr. Monica V. Orellana, Ph.D. - Institute for Systems Biology Jennifer L. Duncan-Taylor -Port Angeles High School, Port Angeles, WA <i>A Systems Approach to Characterize Diatom Response to Environmental Changes</i>	206.732.1302 Hs 360.452.7602
Dr. Catherine Peichel, Ph.D. - Fred Hutchinson Cancer Research Center Carole Tanner -H. M. Jackson High School, Mill Creek, WA <i>Studies of Genetic Basis of Repeated Evolution of Lake-Stream Stickleback</i>	206.667.1628 Hs 425.385.7000