

ENERGY BIOSCIENCES

FY 1999 ANNUAL REPORT

Chemical Sciences, Geosciences
and Biosciences Division
Office of Basic Energy Sciences
U.S. Department of Energy
19901 Germantown Road
Germantown, MD 20874-1290

FY 1999 ENERGY BIOSCIENCES ANNUAL REPORT

The Division of Energy Biosciences was provided approximately thirty-two million dollars in fiscal year 1999. The breakdown of how the resources were distributed is indicated in the following table.

	Number of Projects	FY 99 funding (in thousands)	Percent of total funds
University and Non-Profit Institutions	199	22,520	69
Michigan State University Plant Research Laboratory	15	3,200	10
National Laboratories Brookhaven National Lab Lawrence Berkeley Lab National Renewable Energy Lab.	11	2,340	7
Small Business Innovation Research (SBIR) contribution, and Miscellaneous		3,934	12
Conferences, Educational Activities	4	494	2
	<hr/> 229	<hr/> \$32,488	

INVENTORY OF RESEARCH ACTIVITIES

U.S. Department of Agriculture
Daniel R. Bush
"Biochemical and molecular analysis of a new control pathway in assimilate partitioning"
DE-AI02-99ER20339
dbush@uiuc.edu
\$127,444 (two years)

U.S. Department of Agriculture
Jerry D. Cohen
"Metabolic Regulation of the Plant Hormone Indole-3-acetic acid"
DE-AI02-94ER20153
cohen047@tc.umn.edu (moved to University of Minnesota FY 00)
\$94,000

U. S. Department of Agriculture
Steven C. Huber
"Role and Regulation of SNF-1-like Protein Kinases in Plant Carbohydrate Metabolism"
DE-AI02-91ER20031
steve_huber@ncsu.edu
\$97,000

U.S. Department of Agriculture
Archie R. Portis, Jr.
"Consequences of Altering Rubisco Regulation"
DE-AI02-97ER20268
arportis@uiuc.edu
\$55,200

U.S. Department of Agriculture

Sara Wright

"Controls on production, incorporation and decomposition of glomalin -- a novel fungal soil protein important to soil carbon storage"

DE-AI02-99ER20352

swright@asrr.arsusda.gov

\$66,491 (two years)

Arizona State University

Robert E. Blankenship

"Structure, Function and Regulation of Antenna Complexes of Green Photosynthetic Bacteria"

DE-FG03-97ER20267

Blankenship@asu.edu

\$118,000

Arizona State University

Wim Vermaas

"Chlorophyll-Binding Proteins in the Cyanobacterium Synechocystis sp. PCC 6803"

DE-FG03-95ER20180

wim@asu.edu

\$103,000

Arizona State University

Andrew N. Webber

"Excitation energy transfer in the photosystem I core antenna: function of the clustered and connecting chlorophylls"

DE-FG03-99ER20349

andrew.webber@asu.edu

\$200,000 (two years)

University of Arizona

Hans J. Bohnert

"Restructuring Metabolism for Photosynthesis Protection"

DE-FG03-95ER20179

bohnerth@u.arizona.edu

\$101,999

University of Arizona

Martha C. Hawes

"Role of Cell Wall Degrading Enzymes in the Programmed Separation of Cells from Root Caps"

DE-FG03-94ER20164

mhawes@u.arizona.edu

\$99,000

University of Arizona

Richard A. Jorgensen

"Transgene silencing, paramutation, and promoter-homology-based control of gene expression"

DE-FG03-98ER20308

rjorgensen@ag.arizona.edu

\$92,000

University of Arizona

Brian Larkins

"Dissection of Molecular Mechanisms Regulating Protein Body Formation in Maize Endosperm"

DE-FG03-95ER20183

larkins@biosci.arizona.edu

\$103,000

University of Arizona

Brian Larkins

"Regulation of DNA Endoreduplication in Maize Endosperm"

DE-FG03-96ER20242

larkins@biosci.arizona.edu

\$100,000

University of Arizona

Karen S. Schumaker

"Molecular Characterization of the Role of a Calcium Channel in Plant Development"

DE-FG03-93ER20120

schumake@ag.arizona.edu

\$92,000

University of Arizona
Elizabeth Vierling
"Cytosolic HSP100 Proteins and Stress Tolerance in Plants"
DE-FG03-99ER20338
vierling@u.arizona.edu
\$100,000

Brookhaven National Laboratory
Benjamin Burr
"Plant Molecular Genetics"
burr@bnl.gov
\$352,000

Brookhaven National Laboratory
Geoffrey Hind
"Regulation of Energy Conversion in Photosynthesis"
hind@bnl.gov
\$325,000

Brookhaven National Laboratory
John Shanklin
"Modification of Plant Lipids"
shanklin@bnl.gov
\$300,000

Boston College
Mary F. Roberts
"Osmoregulation in Methanogens"
DE-FG02-91ER20025
mary.roberts@bc.edu
\$97,995

Boyce Thompson Inst. for Plant Res
David B. Stern
"Post-transcriptional Gene Regulation in Chloroplasts"
DE-FG02-90ER20015
ds28@cornell.edu
\$91,000

Brown University
Samuel I. Beale
"The Magnesium Branch of the Chlorophyll Biosynthetic Pathway"
DE-FG02-88ER13918
sib@brown.edu
\$112,000

California Institute of Technology
Elliot Meyerowitz
"Molecular and Genetic Analysis of LEAFY, a Gene Controlling Floral Induction and Flower Development in Arabidopsis thaliana"
DE-FG03-88ER13873
meyerow@caltech.edu
\$139,000

University of California, Berkeley
Michael Freeling
"Genetically Programmed Cell Death in Maize"
DE-FG03-91ER20028
freeling@nature.berkeley.edu
\$105,000

University of California, Berkeley
Wilhelm Grissem
"Cellular Integration of MVA Synthesis and Protein Prenylation"
DE-FG03-85ER13375
grissem@nature.berkeley.edu
\$120,000

University of California, Berkeley
Andrew O. Jackson
"Protein and RNA Interactions Involved in the Pathogenesis of Tomato Bushy Stunt Virus"
DE-FG03-98ER20316
andyoj@uclink4.berkeley.edu
\$80,400

University of California, Berkeley
Steven E. Lindow
"Determinants of Environmental Stress Tolerance by Bacteria on Leaves"
DE-FG03-86ER13518
ICELAB@SOCRATES.BERKELEY.EDU
\$83,586

University of California, Berkeley
Peter H. Quail
"Phytochrome from Green Plants: Properties and Biological Function"
DE-FG03-87ER13742
quail@nature.berkeley.edu
\$107,000

University of California, Berkeley
Brian J. Staskawicz
"Molecular Analysis of Pathogen Recognition and Signal Transduction Events Specifying Plant Disease Resistance"
DE-FG03-88ER13917
stask@nature.berkeley.edu
\$113,000

University of California, Davis
John L. Bowman
"Developmental Genetics of Nectaries in Arabidopsis and Gossypium"
DE-FG03-97ER20272
jlbowman@ucdavis.edu
\$88,000

University of California, Davis
Deborah P. Delmer
"The Mechanism and Regulation of Cellulose Syntheses in Plants"
DE-FG03-96ER20238
dpdelmer@ucdavis.edu
\$105,000

University of California, Davis
Roy H. Doi
"Structure, Function and Assembly of the Clostridium cellulovorans Cellulosome"
DE-FG03-92ER20069
rhdoi@ucdavis.edu
\$119,000

University of California, Davis
John J. Harada
"Regulation of Embryonic Development in Higher Plants"
DE-FG03-94ER20139
jjharada@ucdavis.edu
\$97,000

University of California, Davis
William J. Lucas
"Cellular and Molecular Characterization of Vascular Plasmodesmata"
DE-FG03-94ER20134
wjlucas@ucdavis.edu
\$122,000

University of California, Davis
Valley Stewart
"Genetic Control of Nitrate Assimilation in Klebsiella oxytoca"
DE-FG03-99ER20326
vjstewart@ucdavis.edu
\$87,387

University of California, Davis
Steven Theg
"Protein Import and Assembly in Chloroplasts"
DE-FG03-93ER20118
smtheg@ucdavis.edu
\$99,000

University of California, Irvine
Janos K. Lanyi
"Membrane Bioenergetics of Salt Tolerant Organisms"
DE-FG03-86ER13525
jklanyi@uci.edu
\$200,001

University of California, Los Angeles
Robert B. Goldberg
"Suspensor Differentiation During Early Plant Embryogenesis"
DE-FG03-97ER20263
bobg@ucla.edu
\$105,000 (Sixteen and one-half months)

University of California, Los Angeles
Robert P. Gunsalus
"Molecular Biology and Genetics of the Acetate-Utilizing Methanogenic Bacteria"
DE-FG03-86ER13498
robg@microbio.lifesci.ucla.edu
\$109,742

University of California, Los Angeles
Eduardo Zeiger
"Sensory Transduction of the CO₂ Response of Guard Cells"
DE-FG03-90ER20011
zeiger@biology.ucla.edu
\$101,000

University of California, San Diego
Maarten Chrispeels
"The Signal Transduction Pathway of the Unfolded Protein Response"
DE-FG03-86ER13497
mchrispeels@UCSD.edu
\$101,000 – FY 98 funds – two years

University of California, San Diego
Julian I. Schroeder
"Physiology and Regulation of Calcium Channels in Stomatal Guard Cells"
DE-FG03-94ER20148
julian@biomail.ucsd.edu
\$95,000

University of California, Santa Cruz
Lincoln Taiz
"Regulation of Vacuolar pH in Citrus limon"
DE-FG03-84ER13245
taiz@darwin.ucsc.edu
\$104,000

Carnegie Institution of Washington
Shauna C. Somerville
"Powdery Mildew Disease Resistance"
DE-FG02-94ER20143
shauna@andrew2.stanford.edu
\$94,000

Carnegie Institution of Washington
Chris Somerville
"Genetic Engineering of Biomaterials"
DE-FG02-94ER20133
crs@andrew2.stanford.edu
\$531,509

University of Chicago
Robert Haselkorn
"Analysis of the Rhodobacter Genome Emphasizing Carbon Management"
DE-FG02-99ER20356
r-haselkorn@uchicago.edu
\$100,000

University of Chicago
Daphne Preuss
"Cell-cell Interactions pollen tube growth in Arabidopsis"
DE-FG02-96ER20240
dpreuss@midway.uchicago.edu
\$103,000

Cold Spring Harbor Laboratory
Robert A. Martienssen
"The lojap Gene in Maize"
DE-FG02-91ER20047
martiens@cschl.org
\$100,000

University of Colorado
R. Ray Fall
"Microbial Production of Isoprene"
DE-FG03-97ER20274
r.fall@colorado.edu
\$86,000

University of Connecticut
Kenneth M. Noll
"Sugar Transport and Metabolism in Thermotoga"
DE-FG02-93ER20122
noll@uconnvm.uconn.edu
\$89,000

University of Connecticut
Wolf-Dieter Reiter
"Genetic Analysis of Sugar Nucleotide Interconversions in Arabidopsis"
DE-FG02-95ER20203
wdreiter@uconnvm.uconn.edu
\$90,000

Cornell University
Maureen Hanson
"Energy Transduction in Plant Mitochondria"
DE-FG02-89ER14030
mrh5@cornell.edu
\$106,000

Cornell University
James P. Shapleigh
"Regulation of Denitrification in Rhodobacter sphaeroides"
DE-FG02-95ER20206
jps2@cornell.edu
\$94,000

Cornell University
Peter L. Steponkus
"Cold Acclimation of Herbaceous Species: Effect of Sugars on Membrane Cryostability"
DE-FG02-84ER13214
pls4@cornell.edu
\$114,000

Cornell University
David B. Wilson
"Studies of the Genetic Regulation of the Thermomonospora fusca Cellulase Complex"
DE-FG02-84ER13233
DBW3@Cornell.edu
\$95,000

University of Delaware
John S. Boyer
"Plant Growth with Limited Water"
DE-FG02-87ER13776
boyer@udel.edu
\$108,000

Donald Danforth Plant Science Ctr.
Roger N. Beachy
"Regulating Expression of Cell and Tissue-Specific Genes by Modifying Transcription"
DE-FG02-99ER20355
rnbeachy@danforthcenter.org
\$207,000 (two years)

East Tennessee State University
Carolyn M. Wetzel
"Functional Analysis of Chloroplast Early Light Inducible Proteins (ELIPs)"
DE-FG02-99ER20333
wetzelcm@etsu.edu
\$108,944

Florida State University
William H. Outlaw, Jr.
"Role of Sucrose in Modulating Stomatal Aperture"
DE-FG02-96ER20246
outlaw@bio.fsu.edu
\$82,000

University of Florida
Lonnie O. Ingram
"Ethanol-Tolerant Biocatalysts for Fuel Ethanol Production"
DE-FG02-96ER20222
Lingram@micro.ifas.ufl.edu
\$100,000

University of Florida
Donald R. McCarty
"Genetic Control of Abscisic Acid Biosynthesis in Plants"
DE-FG02-97ER20264
drm@gnv.ifas.ufl.edu
\$93,000

University of Georgia, Athens
Michael W. W. Adams
"The Metabolism of Hydrogen by Hyperthermophilic Microorganisms"
DE-FG02-95ER20175
adams@bmb.uga.edu
\$110,000

University of Georgia, Athens
Peter Albersheim
"Structures and Functions of Oligosaccharins"
DE-FG02-96ER20221
palbersh@ccrc.uga.edu
\$170,000

University of Georgia, Athens
Peter Albersheim and Alan Darvill
"Center for Plant and Microbial Complex Carbohydrates"
DE-FG02-93ER20097
palbersh@ccrc.uga.edu
\$605,000

University of Georgia, Athens
Alan Darvill
"Structural Studies of Complex Carbohydrates of Plant Cell Walls"
DE-FG02-96ER20220
adarvill@ccrc.uga.edu
\$385,000

University of Georgia, Athens
Jeffrey F.D. Dean
"Structure-Function Relationships in Plant Laccases"
DE-FG02-99ER20336
jeffdean@arches.uga.edu
\$90,999

University of Georgia, Athens
Lars G. Ljungdahl
"Fermentation of Cellulose and Hemicelluloses by Clostridia and Anaerobic Fungi"
DE-FG02-93ER20127
ljungdah@BSCF.uga.edu
\$170,000

University of Georgia, Athens
Robert J. Maier
"Roles of the Metal-Binding Protein Nickelin in Symbiotic Nitrogen fixation"
DE-FG02-99ER20321
rmaier@arches.uga.edu
\$106,000

University of Georgia, Athens
Russell L. Malmberg
"Genetic Analysis of Polyamine Synthesis in Arabidopsis"
DE-FG02-97ER20286
russell@dogwood.botany.uga.edu
\$106,000

University of Georgia, Athens
Richard B. Meagher
"Mechanisms and Determinants of RNA Turnover: The Role of PAB2 in the Post-Transcriptional Apparatus"
DE-FG02-95ER20177
meagher@bscr.uga.edu
\$103,993

University of Georgia, Athens
Michelle Momany
"Identification of Novel Cell Wall Components"
DE-FG02-97ER20275
momany@dogwood.botany.uga.edu
\$79,000

University of Georgia, Athens
Gregory W. Schmidt
"Molecular and Physiological Studies of Photosynthetic Adaptation in Nitrogen Deficiency"
DE-FG02-99ER20347
schmidt@dogwood.botany.uga.edu
\$200,000 (two years)

University of Georgia, Athens
Susan Wessler
"Structure, Regulation and Evolution of the R transcriptional activators from maize and rice"
DE-FG02-94ER20135
sue@dogwood.botany.uga.edu
\$110,000

University of Georgia, Athens
William B. Whitman
"Biochemistry and Genetics of Autotrophy in Methanococcus"
DE-FG02-97ER20269
whitman@arches.uga.edu
\$90,000

University of Georgia, Tifton
Wayne W. Hanna
"Development of Innovative Techniques and Principles That May Be Used as Models to Improve Plant Performance"
DE-FG02-93ER20099
whanna@tifton.cpes.peachnet.edu
\$56,955

University of Hawaii
David A. Christopher
"Mechanisms regulating blue light-activated psbD transcription in plant chloroplasts"
DE-FG03-97ER20273
dchr@hawaii.edu
\$76,446

University of Hawaii
Harry Y. Yamamoto
"Xanthophyll Cycle and Photoprotective Systems in Higher Plants"
DE-FG03-92ER20078
yamamoto@uhunix.uhcc.hawaii.edu
\$95,000 FY 98 funds – two years

University of Illinois, Chicago
Simon Silver
"Bacterial resistance to silver cations: molecular genetics, physiology and biochemistry"
DE-FG02-91ER20056
simon@uic.edu
\$111,000

University of Illinois, Urbana
Robert B. Gennis
"Studies on Cytochrome bo3 from E. coli"
DE-FG02-87ER13716
gennis@scs.uiuc.edu
\$150,000

University of Illinois, Urbana
Ralph S. Wolfe
"Studies on the Microbial Formation of Methane"
DE-FG02-87ER13651
\$82,746

Iowa State University
Philip W. Becraft
"Analysis of a signal transduction pathway involved in maize epidermis and aleurone differentiation"
DE-FG02-98ER20303
becraft@iastate.edu
\$92,000

Iowa State University
Alan DiSpirito
"Mechanism of Methane Oxidation in Cells Expressing the Membrane-Associated Methane Monooxygenase"
DE-FG02-96ER20237
aland@iastate.edu
\$93,224

Iowa State University
Steven R. Rodermel
"Regulation of Carotenoid Biosynthesis: The immutans Mutant of Arabidopsis"
DE-FG02-94ER20147
rodermel@iastate.edu
\$86,000

University of Iowa
Caroline Harwood
"Molecular Biology of Anaerobic Aromatic Biodegradation"
DE-FG02-95ER20184
caroline-harwood@uiowa.edu
\$92,000

Johns Hopkins University
Richard E. McCarty
"Transport of Ions Across the Inner Envelope Membrane of Chloroplasts"
DE-FG02-92ER20080
rem1@jhu.edu
\$104,000

KAIROS Scientific Inc
Douglas C. Youvan
"Macromolecular Scaffolds for Energy Transfer"
DE-FG03-96ER20211
dyouvan@Kairos-Scientific.com
\$136,000

University of Kentucky
Edward DeMoll
"Acetyl-CoA cleavage and synthesis in methanogens: Mechanistic, enzymological, and metabolic studies"
DE-FG02-97ER20270
eldemol@pop.uky.edu
\$97,000

University of Kentucky
Susheng Gan
"Molecular Regulatory Mechanisms of Two Senescence-Specific Genes in Arabidopsis"
DE-FG02-99ER20330
sgan@pop.uky.edu
\$93,000

University of Kentucky
Robert L. Houtz
"Mechanism and Significance of Post-Translational Modifications in the Large and Small Subunits of Ribulose Bisphosphate Carboxylase/Oxygenase"
DE-FG02-92ER20075
rhoutz@ca.uky.edu
\$88,195

Lawrence Berkeley National Laboratory
Mark D. Alper
"Biomolecular Materials"
mdalper@lbl.gov
\$150,000

Lawrence Berkeley National Laboratory
John E. Hearst
"Transferring Photosynthesis Genes to New Cellular Environments"
jehearst@lbl.gov
\$197,000

Lawrence Berkeley National Laboratory
Sung-Hou Kim
"Structural Basis of Plant Signal Transduction"
shkim@lbl.gov
\$117,000

Lawrence Berkeley National Laboratory
Melvin Klein
"Mechanism of Water Splitting and Oxygen Evolution in Photosynthesis"
mpklein@lbl.gov
\$210,000

Lawrence Berkeley National Laboratory
Kenneth Sauer
"Photosynthetic Pigment Proteins and Photosynthetic Light Reactions"
KHSAUER@LBL.gov
\$216,000

Lawrence Berkeley National Laboratory
Valerie Vreeland
"Vanadium Haloperoxidase: Functional organization and regulation of catalysis in Fucus zygote adhesion"
vjvreeland@lbl.gov
\$140,000

Life Sciences Research Foundation
Donald D. Brown
"Developing Research Capabilities in Energy Biosciences"
DE-FG02-89ER14025
englar@mail1.ciwemb.edu
\$369,000

Louisiana State University
Terry M. Bricker
"Identification of Chloride-Binding Domains in Photosystem II"
DE-FG02-98ER20310
btbric@lsuvm.sncc.lsu.edu
\$92,000

Marine Biological Laboratory
Caroline S. Harwood
"Investigations into the Metabolic Diversity of Microorganisms as Part of Microbial Diversity"
DE-FG02-85ER13361
caroline-harwood@uiowa.edu
\$25,000

Marquette University
K. Dale Noel
"Bacterial lipopolysaccharide structures required for root nodule development"
DE-FG02-98ER20307
6670NOELD@VMS.CSD.MU.EDU
\$93,000

University of Maryland
Caren Chang
"Suppressors and enhancers of an Arabidopsis ethylene receptor mutant"
DE-FG02-99ER20329
cc203@umail.umd.edu
\$75,000

University of Maryland
Elisabeth Gantt
"A New Pathway for Isopentenyl Pyrophosphate Synthesis in Bacteria and Plants"
DE-FG02-98ER20302
eg37@umail.umd.edu
\$97,008

University of Maryland
Zhongchi Liu
"Investigating the molecular mechanism of TSO1 function in Arabidopsis cell division and meristem development"
DE-FG02-97ER20281
zl17@umail.umd.edu
\$94,000

University of Maryland
Kevin R. Sowers
"Physiology and Genetics of Catabolic Metabolism in the Aceticlastic Methanogens"
DE-FG02-93ER20106
sowers@umbi.umd.edu.
\$94,000

University of Maryland
Heven Sze
"Structure and Regulation of Calcium-Pumping ATPases and Plants"
DE-FG02-95ER20200
heven_SZE@umail.umd.edu
\$97,000

University of Massachusetts
Alice Y. Cheung
"Molecular Analysis of the Interactions Between Pollen Tube Components and a Stylar Transmitting Tissue Pollen Tube Growth-Promoting and Attracting Protein"
DE-FG02-97ER20288
acheung@biochem.umass.edu
\$96,000

University of Massachusetts
Susan B. Leschine
"Microbial Fermentation of Abundant Biopolymers: Cellulose and Chitin"
DE-FG02-88ER13898
suel@microbio.umass.edu
\$100,000

University of Massachusetts
Derek R. Lovley
"Mechanisms for Microbial Reduction of Humics and Structurally Related Compounds"
DE-FG02-98ER20306
dlovley@microbio.umass.edu
\$94,000

Michigan State University/MSU-DOE Plant Research Laboratory
F.J. de Bruijn
"Molecular Basis of Symbiotic Plant-Microbe Interactions"
debruijn@pilot.msu.edu
\$

Michigan State University/MSU-DOE Plant Research Laboratory
Pamela J. Green
"Molecular Mechanisms That Regulate the Expression of Genes in Plants"
green@pilot.msu.edu
\$

Michigan State University/MSU-DOE Plant Research Laboratory
Gregg A. Howe
"Regulation of Plant Anti-herbivore Defense"
howeg@pilot.msu.edu
\$

Michigan State University/MSU-DOE Plant Research Laboratory
Hans Kende
"Action and Synthesis of Plant Hormones"
hkende@pilot.msu.edu
\$

Michigan State University/MSU-DOE Plant Research Laboratory
Kenneth Keegstra
"Chloroplast Biogenesis"
keegstra@pilot.msu.edu
\$

Michigan State University/MSU-DOE Plant Research Laboratory
Kenneth Keegstra
"Cell Wall Metabolism"
\$

Michigan State University/MSU-DOE Plant Research Laboratory
Hans Kende
"Photoperiodic Induction and the Floral Stimulus"
\$

Michigan State University/MSU-DOE Plant Research Laboratory
Lee McIntosh
"Interaction of Nuclear and Organelle Genomes"
mcintos1@pilot.msu.edu
\$

Michigan State University/MSU-DOE Plant Research Laboratory
N. V. Raikhel
"Molecular Mechanisms of Trafficking in the Plant Cell"
nraikhel@pilot.msu.edu
\$

Michigan State University/MSU-DOE Plant Research Laboratory
J. D. Walton
"Biochemical and Molecular Aspects of Plant Pathogenesis"
walton@pilot.msu.edu
\$

Michigan State University/MSU-DOE Plant Research Laboratory
C. Peter Wolk
"Developmental Biology of Nitrogen-Fixing Cyanobacteria"
22333cpw@ibm.msu.bitnet
\$

Michigan State University/MSU-DOE Plant Research Laboratory
C.P. Wolk
"Frankia Genetics"
\$

Michigan State University/MSU-DOE Plant Research Laboratory
Jan A.D. Zeevaart
"Environmental Control of Plant Development and Its Relation to Plant Hormones"
zeevaart@pilot.msu.edu
\$

Michigan State University
Christoph Benning
"Regulation of Thylakoid Lipid Head Group Biosynthesis in Arabidopsis thaliana"
DE-FG02-98ER20305
benning@pilot.msu.edu
\$91,000

Michigan State University
John B. Ohlrogge
"Biosynthesis of Triacylglycerol in Developing Oilseeds"
DE-FG02-87ER13729
ohlrogge@pilot.msu.edu
\$102,863

Michigan State University
Ken L. Poff
"Minority Summer Research Program in the Plant Sciences"
DE-FG02-97ER20284
klpoff@pilot.msu.edu
\$90,000

Michigan State University
Jack Preiss
"Structure-Function Relationships of ADP-Glucose Pyrophosphorylase: Manipulation of the Plant Gene for Increased Production of Starch in Plants"
DE-FG02-93ER20121
preiss@pilot.msu.edu
\$90,000

Michigan State University
C. A. Reddy
"Molecular Biology and Biochemistry of Basidiomycete Laccases"
DE-FG02-85ER13369
reddy@msu.edu
\$90,999

Michigan State University
J. Gregory Zeikus
"Molecular Physiology of Succinic Acid-Based Fermentations in Anaerobes: Control of Chemical Yield by CO₂ Fixation and Electron Donors"
DE-FG02-93ER20108
zeikus@pilot.msu.edu
\$90,000

University of Michigan
Steven E. Clark
"CLV Signaling in Meristem Development"
DE-FG02-96ER20227
clarks@umich.edu
\$93,000

University of Minnesota
Alan B. Hooper
"Biochemistry of Ammonia Monooxygenase of Nitrosomonas"
DE-FG02-95ER20191
hooper@umn.edu
\$105,000

University of Minnesota
Susan M. Wick
"Reverse Transposon Tagging of Maize Tubulin Genes"
DE-FG02-98ER20318
swick@biosci.cbs.umn.edu
\$110,000

University of Missouri
Tobias I. Baskin
"Cellulose and the control of growth anisotropy"
DE-FG02-94ER20146
baskint@missouri.edu
\$85,775

University of Missouri
James A. Birchler
"Dosage Analysis of Gene Expression in Maize"
DE-FG02-92ER20061
birchler@biosci.mbp.missouri.edu
\$107,000

University of Missouri
Judy Wall
"Genetics and Molecular Biology of Hydrogen Metabolism in Sulfate-Reducing Bacteria"
DE-FG02-87ER13713
wallj@missouri.edu
\$95,000

University of Montana
Matthias C. Rillig
"Controls on production, incorporation and decomposition of glomalin -- a novel fungal soil protein important to soil carbon storage"
DE-FG03-99ER20353
matthias@selway.umt.edu
\$130,039 (two years)

Mount Sinai School of Medicine
Terry Ann Krulwich
"The Respiratory Chain of Alkalophilic Bacteria"
DE-FG02-86ER13559
krulwich@msvax.mssm.edu
\$114,000

NASA Ames Research Center
Jonathan Trent
"The molecular basis of hyperthermophily: the role of HSP60/chaperonins in vivo"
DE-AI03-99ER20354
jtrent@mail.arc.nasa.gov
\$100,000

National Renewable Energy Laboratory
Maria L. Ghirardi
"Regulation of H₂ and CO₂ Metabolism: O₂ Sensor Involvement in Partitioning of Photosynthetic Reductant in Green Algae"
maria_ghirardi@nrel.gov
\$49,000

National Renewable Energy Laboratory
Michael Seibert
"The Water-Splitting Apparatus of Photosynthesis"
mike_seibert@nrel.gov
\$134,000

University of Nebraska
T. Jack Morris
"Protein and RNA Interactions Involved in the Pathogenesis of Tomato Bushy Stunt Virus"
DE-FG03-98ER20315
jmorris1@unl.edu
\$53,600

University of Nebraska
Stephen W. Ragsdale
"Enzymology of Acetoclastic Methanogenesis"
DE-FG03-98ER20297
sragdale1@unl.edu
\$107,000

University of Nebraska
Robert Spreitzer
"Role of the Rubisco Small Subunit"
DE-FG03-00ER15044
rspreitzer1@unl.edu
\$94,000

New York University
Gloria Coruzzi
"Asparagine Synthetase Gene Regulation and Plant Nitrogen Metabolism"
DE-FG02-92ER20071
coruzg01@mcrcr6.med.nyu.edu
\$111,000

North Carolina State University
Robert M. Kelly
"Proteolysis in Hyperthermophilic Microorganisms"
DE-FG02-96ER20219
rmkelly@eos.ncsu.edu
\$117,408

University of North Carolina
Jeffery L. Dangl
"Functions of the Pseudomonas syringae avrRpm1 Gene During Disease Resistance and as a Virulence Factor in Arabidopsis thaliana Cell"
DE-FG02-95ER20187
dangl@email.unc.edu
\$132,000

University of North Carolina
Sara R. Grant
"Characterization of Arabidopsis Genes Involved in Gene Silencing"
DE-FG02-95ER20186
sgrant@email.unc.edu
\$96,000

Ohio State University
Charles J. Daniels
"The Role of Multiple TBP and TFB in Archaeal Gene Expression"
DE-FG02-91ER20041
daniels.7@osu.edu
\$101,000

Ohio State University
P. E. Kolattukudy
"Biosynthesis of Hydrocarbons and Other Wax Components"
DE-FG02-93ER20109
kolattukudy.2@osu.edu
\$100,000

Ohio State University
Joseph A. Krzycki
"Transmethylation Reactions During Methylootropic Methanogenesis in Methanosarcina barkeri"
DE-FG02-91ER20042
krzycki.1@osu.edu
\$98,000

Ohio State University
John N. Reeve
"Regulation of Methane Genes and Genome Expression"
DE-FG02-87ER13731
reeve.2@osu.edu
\$122,000

Ohio State University
F. Robert Tabita
"A Model System to Probe the Biochemistry and Molecular Control of a Globally Significant Alternative Mechanism to Sequester and Metabolize Carbon Dioxide"
DE-FG02-91ER20033
tabita.1@osu.edu
\$106,000

Ohio State University
F. Robert Tabita
"Summer Workshop: Molecular Basis, Physiology, and Diversity of Microbial Adaptation"
DE-FG02-94ER20161
tabita.1@osu.edu
\$50,000

Oklahoma State University
Andrew Mort
"The Structure of Pectins from Cotton Cell Walls"
DE-FG03-96ER20215
amort@biochem.okstate.edu
\$105,000

University of Oklahoma
Michael J. McInerney
"Enzymology and Energetics of Syntrophic Benzoate Metabolism"
DE-FG03-96ER20214
mcinerney@ou.edu
\$94,999

Oregon Graduate Institute of Science & Technology
James M. Cregg
"Regulation of Gene Expression by Methanol in the Yeast Pichia pastoaris"
DE-FG03-00ER15088
james_cregg@kgi.edu
\$83,000

Oregon Graduate Institute of Science & Technology
Michael Gold
"Biochemical Genetics of Lignin Degradation by Phanerochaete chrysosporium"
DE-FG03-96ER20235
mgold@bmb.ogi.edu
\$135,000

Oregon Graduate Institute of Science & Technology
V. Renganathan
"Cloning and Expression of Cellobiose Dehydrogenases"
DE-FG02-99ER20320
vreng@bmb.ogi.edu
\$92,001

Oregon State University
Daniel J. Arp
"Regulation of the Genes Involved in Nitrification"
DE-FG03-97ER20266
arpd@bcc.orst.edu
\$92,000

University of Oregon
Alice Barkan
"Genetic Analysis of Chloroplast Translation in Maize"
DE-FG03-99ER20343
abarkan@molbio.uoregon.edu
\$200,000

Pennsylvania State University
Jean E. Brenchley
"The Characterization of Psychrophilic Microorganisms and Their Potentially Useful Cold-Active Glycosidases"
DE-FG02-93ER20117
jeb7@psu.edu
\$106,000

Pennsylvania State University
Donald A. Bryant
"Energy Transduction in Green Sulfur Bacteria"
DE-FG02-94ER20137
DAB14@PSU.EDU
\$94,000

Pennsylvania State University
Daniel J. Cosgrove
"Regulation of Plant Cell Growth: Structure and Function of Beta-Expansins in Rice and Maize"
DE-FG02-84ER13179
dcosgrove@psu.edu
\$109,000

Pennsylvania State University
Richard J. Cyr
"Elongation Factor 1Alpha and the Plant Cytoskeleton"
DE-FG02-91ER20050
rjc8@psu.edu
\$96,000

Pennsylvania State University
James G. Ferry
"Enzymology of the Pathway for Acetate Conversion to Methane in Methanosarcina thermophila"
DE-FG02-95ER20198
jgf3@psu.edu
\$108,000

Pennsylvania State University
John H. Golbeck
"Primary Electron Transfer in Green Photosynthetic Bacteria"
DE-FG02-98ER20314
jhg5@psu.edu
\$93,000

Pennsylvania State University
Mark J. Guiltinan
"Molecular-Genetic Analysis of Maize Starch Branching Enzyme Isoforms"
DE-FG02-96ER20234
mjj9@psu.edu
\$94,000

Pennsylvania State University
Ming Tien
"Characterization of Lignin and Mn Peroxidases from Phanerochaete chrysosporium"
DE-FG02-87ER13690
mxt3@psu.edu
\$117,000

University of Pennsylvania
Anthony R. Cashmore
"Light Responses and Photoperiodism in Arabidopsis thaliana"
DE-FG02-87ER13680
cashmor@sas.upenn.edu
\$134,000

University of Pennsylvania
Fevzi Daldal
"Membrane-Attached Electron Carriers in Photosynthesis and Respiration"
DE-FG02-91ER20052
fdaldal@sas.upenn.edu
\$116,000

University of Pennsylvania
Joseph R. Ecker
"Molecular and Genetic Analysis of Hormone-Regulated Differential Cell Elongation in Arabidopsis"
DE-FG03-93ER20104
ecker@salk.edu
\$103,000

University of Pennsylvania
Scott Poethig
"The function of the EARLY TRICHOMES gene in Arabidopsis in maize"
DE-FG02-99ER20328
spoethig@sas.upenn.edu
\$100,000

University of Pennsylvania
Philip A. Rea
"Biochemical Basis of YCF1-Dependent Vacuolar Glutathione-S-Conjugate Transport"
DE-FG02-91ER20055
parea@sas.upenn.edu
\$100,000

Purdue University
Nicholas Carpita
"Mechanisms of synthesis of mixed-linkage B-glucan, and the CeSA gene family of rice"
DE-FG02-88ER13903
carpita@btny.purdue.edu
\$99,000

Purdue University
Clinton C. S. Chapple
"Ferulate-5-hydroxylase: requirements for expression and activity"
DE-FG02-94ER20138
chapple@biochem.purdue.edu
\$195,000

Purdue University
David Rhodes
"Engineering Plant One-Carbon Metabolism"
DE-FG02-99ER20344
rhodes@hort.purdue.edu
\$37,738

Purdue University
Louis Sherman
"The Impact of Environmental Stress on the Regulation of Photosynthesis"
DE-FG02-99ER20342
Lsherman@bilbo.bio.purdue.edu
\$220,000 (two years)

Purdue University
Christopher J. Staiger
"Identification of Actin-Binding Proteins from Maize Pollen"
DE-FG02-99ER20337
cstaiger@bilbo.bio.purdue.edu
\$96,000

Rensselaer Polytechnic Institute
Jackie L. Collier
"A Novel, Photosynthesis-Associated Thioredoxin-Like Gene"
DE-FG02-99ER20340
collij3@rpi.edu
\$209,000 (two years)

Rice University
Janet Braam
"Complex Regulatory Controls of TCH Gene Expression"
DE-FG03-99ER20331
braam@bioc.rice.edu
\$100,000

University of Rochester
J.H. David Wu
"The Structure-Function Relationship of the Clostridium thermocellum Cellulosomal Dockerin"
DE-FG02-94ER20155
davidwu@che.rochester.edu
\$82,000

The Rockefeller University
Nam-Hai Chua
"Function of Rac GTPases in Plants"
DE-FG02-94ER20142
chua@rockvax.rockefeller.edu
\$99,000

Rutgers University
Paul Falkowski
"Molecular Bases and Photobiological Consequences of Light Intensity Adaptation in Photosynthetic Organisms"
DE-FG02-99ER20324
falko@imcs.rutgers.edu
\$90,000

Rutgers University
Joachim Messing
"Corn Storage Protein - A Molecular Genetic Model"
DE-FG02-95ER20194
messing@mbcl.rutgers.edu
\$116,000

The Salk Institute for Biological Studies
Joanne Chory
"Signal Transduction Pathways that Regulate CAB Gene Expression"
DE-FG03-89ER13993
chory@salk.edu
\$116,000

The Salk Institute for Biological Studies
Detlef Weigel
"Regulation of the floral homeotic gene AGAMOUS"
DE-FG03-98ER20317
weigel@salk.edu
\$101,000

The Scripps Research Institute
Jeffrey F. Harper
"Membrane Targeting of P-type ATPases in Plant Cells"
DE-FG03-94ER20152
harper@scripps.edu
\$98,000

The Scripps Research Institute
Stephen P. Mayfield
"Nuclear Genes Regulating Translation of Organelles mRNAs"
DE-FG03-93ER20116
mayfield@scripps.edu
\$99,257

University of South Carolina
Beth A. Krizek
"Regulatory role of ANT in organ initiation and growth"
DE-FG02-98ER20312
krizek@biol.sc.edu
\$95,000

Southern Illinois University
David P. Clark
"Regulation of Alcohol Fermentation by Escherichia coli"
DE-FG02-88ER13941
clark@micro.siu.edu
\$100,000

Stanford University
Sharon R. Long
"R. meliloti-Medicago nodulation genes and signals: genetic and genomic approaches"
DE-FG03-90ER20010
FA.SRL@FORSYTHE.STANFORD.EDU
\$274,000

University of Tennessee
Fred C. Hartman
"Rubisco Mechanism: Dissection of the Enolization Partial Reaction"
DE-FG02-99ER20348
ffh@ornl.gov
\$200,000 (two years)

University of Tennessee
Gary Stacey
"Plant recognition of rhizobial Nod factors"
DE-FG02-97ER20260
gstacey@utk.edu
\$84,000

University of Tennessee
Albrecht G. von Arnim
"Mechanism of Regulated Protein Transport between Nucleus and Cytoplasm"
DE-FG02-96ER20223
vonarnim@utk.edu
\$99,000 FY 98 funds – two years

Texas A&M University
Hagan P. Bayley
"Novel Biomaterials: Genetically Engineered Pores"
DE-FG03-97ER20271
bayley@tamu.edu
\$82,500
(funded jointly with Division of Materials Sciences)

Texas A&M University
James W. Golden
"Regulation of Development and Nitrogen Fixation in Anabaena"
DE-FG03-98ER20309
jgolden@tamu.edu
\$93,000

Texas A&M University
John E. Mullet
"Regulation of Chloroplast Division in Higher Plants"
DE-FG03-98ER20304
mullet@bioch.tamu.edu
\$96,000

Texas A&M University
Kathryn A. VandenBosch
"Mutants of the Legume Medicago truncatula Defective in Root Hair Development and Infection by Rhizobium"
DE-FG03-98ER20296
kate@bio.tamu.edu
\$117,000

Texas Tech University
Richard L. Blanton
"The Dictyostelium discoideum Cellulose Synthase: Structure/Function Analysis and Identification of Interacting Proteins"
DE-FG03-99ER20335
brlb@ttu.edu
\$100,000

Texas Tech University
David B. Knaff
"Ferredoxin-Linked Chloroplast Enzymes"
DE-FG03-99ER20346
knaff@ttacs.ttu.edu
\$199,700 (two years)

University of Texas
R. Malcolm Brown, Jr.
"Structural and Functional Analysis of the Cellulose-synthesizing Complex in Vascular Plants"
DE-FG03-94ER20145
rmbrown@mail.utexas.edu
\$96,000

University of Texas
Karen S. Browning
"Phosphorylation of Plant Protein Synthesis Initiation Factors"
DE-FG03-97ER20283
kbrowning@mail.utexas.edu
\$92,000

University of Texas
Mark Estelle
"Function of the Arabidopsis TIR1 gene in auxin response"
DE-FG02-99ER20327
mestelle@mail.utexas.edu
\$93,999

TIGR - The Institute for Genomic Research
C. Robin Buell
"Sequencing of Chromosome 10 of Rice and Validation of Annotation Methods for Rice"
DE-FG02-99ER20357
rbuell@tigr.org
\$300,000

TIGR - The Institute for Genomic Research
Karen A. Ketchum
"Tandem-pore outward-rectifying K⁺ channels: Molecular partners of the proton ATPase in membrane potential regulation"
DE-FG02-97ER20265
kketchum@tigr.org
\$96,000

TIGR - The Institute for Genomic Research
J. Craig Venter
"Sequencing of Arabidopsis Chromosome 2 (and Beyond), and Development of Resources for Arabidopsis Genome Analysis"
DE-FG02-96ER20249
rounsley@tigr.org
\$249,999 FY 98 funds – two years

Virginia Polytechnic Institute & State University
Jiann-Shin Chen
"Enzymology of Acetone-Butanol-Isopropanol Formation"
DE-FG02-97ER20276
chenjs@vt.edu
\$103,000

University of Virginia
Michael P. Timko
"Protein Structure in Catalytic Function of NADPH: Protochlorophyllide Oxidoreductases"
DE-FG02-97ER20279
mpt9g@virginia.edu
\$98,000

Washington State University
John A. Browse
"Lipid Signaling and Membrane Function in Mutants of Arabidopsis"
DE-FG03-99ER20323
jab@wsu.edu
\$131,000 (13 months)

Washington State University
Rodney Croteau
"Regulation of Terpene Metabolism"
DE-FG03-96ER20212
croteau@mail.wsu.edu
\$110,000

Washington State University
Michael L. Kahn
"Carbon Metabolism and Dinitrogen Reduction in Symbiotic Nitrogen Fixation"
DE-FG03-96ER20225
kahn@wsu.edu
\$98,000

Washington State University
David M. Kramer
"The Energy Budget for Steady-State Photosynthesis"
DE-FG03-98ER20299
dkramer@wsu.edu
\$97,000

Washington State University
Norman G. Lewis
"A New Perspective on Phenoxyl Radical Coupling Reactions in vivo and Phenylpropanoid Pathway Regulation"
DE-FG03-97ER20259
lewisn@wsu.edu
\$109,500

Washington State University
Norman G. Lewis
"Washington State University Interdisciplinary Plant Biochemistry Research and Training Center"
DE-FG06-94ER20160
\$163,000

Washington State University
Norman G. Lewis
"An Advanced Course in Plant Biochemistry"
DE-FG03-96ER20247
\$33,000 FY 98 funds – two years

Washington State University
Thomas Okita
"Enhancement of Photoassimilate Utilization by Manipulation of ADPGlucose Pyrophosphorylase"
DE-FG03-96ER20216
tokita@wsu.edu
\$97,000

Washington State University
John C. Rogers
"Targeting and Processing of the Thiol Protease Aleurain"
DE-FG03-97ER20277
bcjroger@wsu.edu
\$98,000

Washington University
Himadri B. Pakrasi
"Biogenesis of Photosystems in Synechocystis 6803, a cyanobacterium"
DE-FG02-99ER20350
pakrasi@biology.wustl.edu
\$199,000 (two years)

University of Washington
Mary Lidstrom
"Genetics in Methylophilic Bacteria"
DE-FG03-96ER20226
lidstrom@u.washington.edu
\$106,000

University of Wisconsin
Sebastian Y. Bednarek
"Identification and characterization of Arabidopsis thaliana cell-plate proteins"
DE-FG02-99ER20332
bednarek@biochem.wisc.edu
\$75,000

University of Wisconsin
Anthony B. Bleecker
"Genetic Analysis of Ethylene Perception and Signal Transduction in Arabidopsis"
DE-FG02-91ER20029
bleecker@facstaff.wisc.edu
\$99,000

University of Wisconsin
Daniel Cullen
"Molecular Genetics of Ligninase Expression"
DE-FG02-87ER13712
dcullen@facstaff.wisc.edu
\$110,000

University of Wisconsin
Timothy J. Donohue
"Microbial Formaldehyde Oxidation"
DE-FG02-97ER20262
tdonohue@bact.wisc.edu
\$94,000

University of Wisconsin
Kenneth E. Hammel
"One-electron oxidative mechanisms for lignocellulose decay by fungi"
DE-FG02-94ER20140
kehammel@facstaff.wisc.edu
\$82,000

University of Wisconsin
Jerry L. Kermicle
"Epigenetic Silencing of the Maize r Gene"
DE-FG02-86ER13539
kermicle@facstaff.wisc.edu
\$90,000

University of Wisconsin
Paul W. Ludden
"The Biochemistry, Bioenergetics, and Physiology of the CO-Dependent Growth of Rhodospirillum rubrum"
DE-FG02-87ER13691
ludden@biochem.wisc.edu
\$103,000

University of Wisconsin
Thomas Sharkey
"Starch Conversion to Sucrose in Plant Leaves"
DE-FG02-99ER20345
tsharkey@facstaff.wisc.edu
\$243,000 (two years)

University of Wisconsin
Michael R. Sussman
"Molecular Mechanism of Energy Transduction By Plant Membrane Proteins"
DE-FG02-88ER13938
msussman@facstaff.wisc.edu
\$112,000

University of Wisconsin
Richard Vierstra
"Post-Translational Regulation of Phytochrome Action"
DE-FG02-88ER13968
vierstra@facstaff.wisc.edu
\$110,000

Xavier University of Louisiana
Robert Blake II
"Molecular Characterization of Bacterial Respiration on Minerals"
DE-FG02-96ER20228
rblake@xula.edu
\$110,515

Yale University
Clifford L. Slayman
"Calcium Mapping and Signalling in Yeast"
DE-FG02-85ER13359
clifford_slayman@qm.yale.edu
\$100,000

Yale University
Dieter Soll
"Essential Cysteine Metabolism in Archaea"
DE-FG02-98ER20311
soll@trna.chem.yale.edu
\$112,000