

# Report of the Interim Director, Division of Extramural Research and Training

Gwen W. Collman, Ph.D.  
September, 2009



## American Reinvestment and Recovery Act (ARRA), FY 2009-2010



- NIH received \$10 Billion
- NIEHS received \$168 million for ES and 19.4 for SF
- As of September 13, the NIEHS had allocated \$161 million for ES and 19.1 for SF awards and supplements
- DIR equipment- \$840,000 (.005%)
- Research and Development contracts- \$23.3 million (14%)
- Administrative costs up to 2%

# NIEHS ARRA Activities



- Extend the pay line for grants already reviewed
  - R01s, P01s (percentiled)
  - R03s, R21s, R15s (unpercentiled)
- Administrative supplements (within scope of parent grant, up to 24 month awards)
  - Research Project Grants, Centers, Careers, Diversity Supplements, Summer Supplements, Worker Education, Superfund
- Competitive revisions (expands the scope of the parent grant)
- Challenge Grants (RC1)
- Grand Opportunities program (RC2)
- Research to Address the Heterogeneity in Autism (ARRA O9 RFA)
- Research and Development Contracts

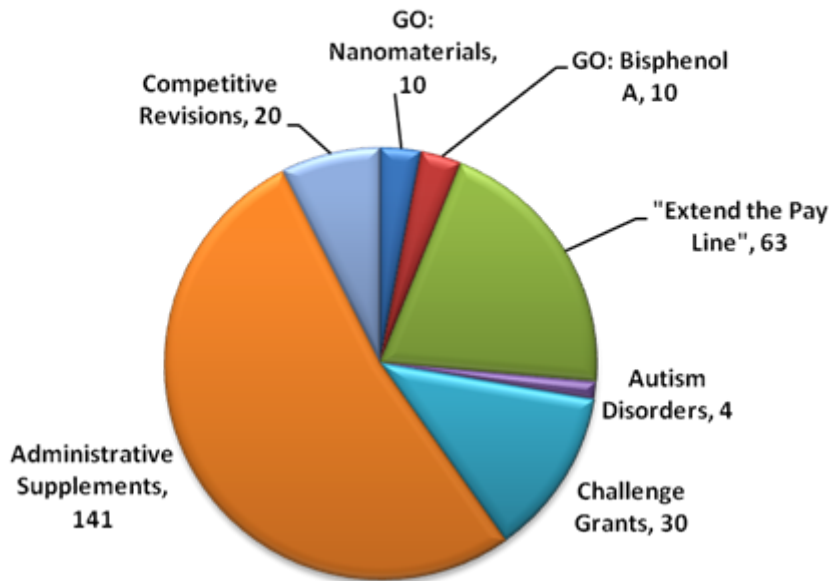
# Summary of NIEHS ARRA Activities

Type of program	Receipt Date	Number received	Number reviewed	Date of Funding Plan	Number funded	NIEHS ARRA Funding
Existing R01/P01s	2008/2009	24/40	N/A	April/May 2009	28	\$29 million
Existing R21/R03/R15	2008/2009	101	N/A	April/May 2009	35	\$14.1 million
Summer EST suppl	April 23	57	57	May 15	40 (NIEHS) 11 (OD co-fund)	\$1.3 million \$676,630
Admin suppl: RPG*	May 11	331	331	July 29	80	\$21.5 million
Admin suppl: Centers	May 13	28	28	July 29	11	\$3.7 million
Admin suppl: Careers	May 15	25	25	June 17	6	\$741,996
Admin suppl: WTP	May 19	22	22	August 6	18	\$6.8 million
Admin suppl: SRP	May 18	95	95	August 5	24	\$11.9 million
Competitive revisions	April 27	55	45	September 2	20	\$11.2 million
Challenge Grants*	April 27	598	53	In process	30 (NIEHS) 8 (OD)	\$27.9 million \$7.3 million
Diversity Supplements	May 11	11	11	August 25	5	\$780,580
Autism RFA		530		September 4	4	\$3.7 million
GO: BPA & Nanosafety*	May 27	108	58	In process	17 (NIEHS) 3 (OD)	\$8 mill (6-Nano) \$14.2 mill (9-BPA) \$3.6 million (1-BPA, 4 Nano)

# NIEHS ARRA Funded Grants by Mechanism

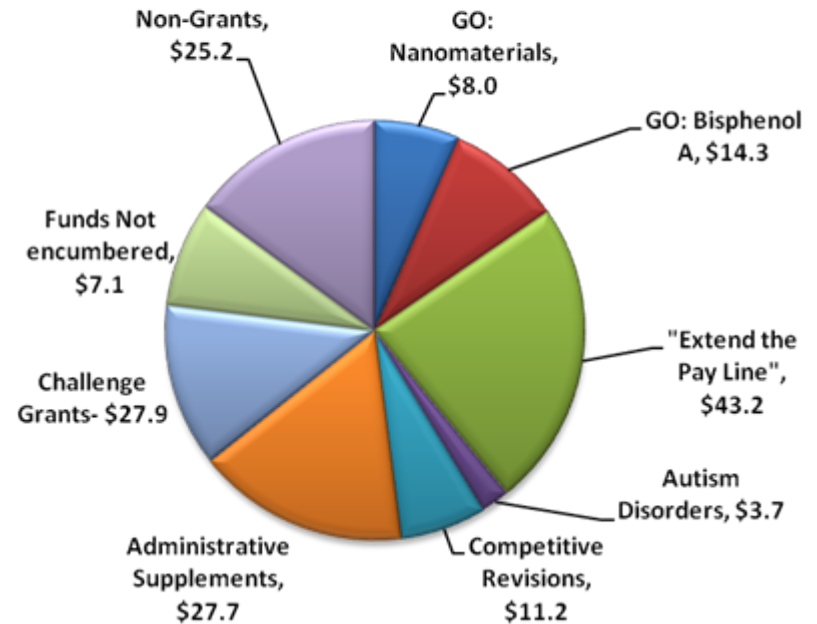
## ARRA Grants Approved for Funding

(As of 9/13/09, excludes Superfund and OD Contributions,  
Total = 278 Grants)



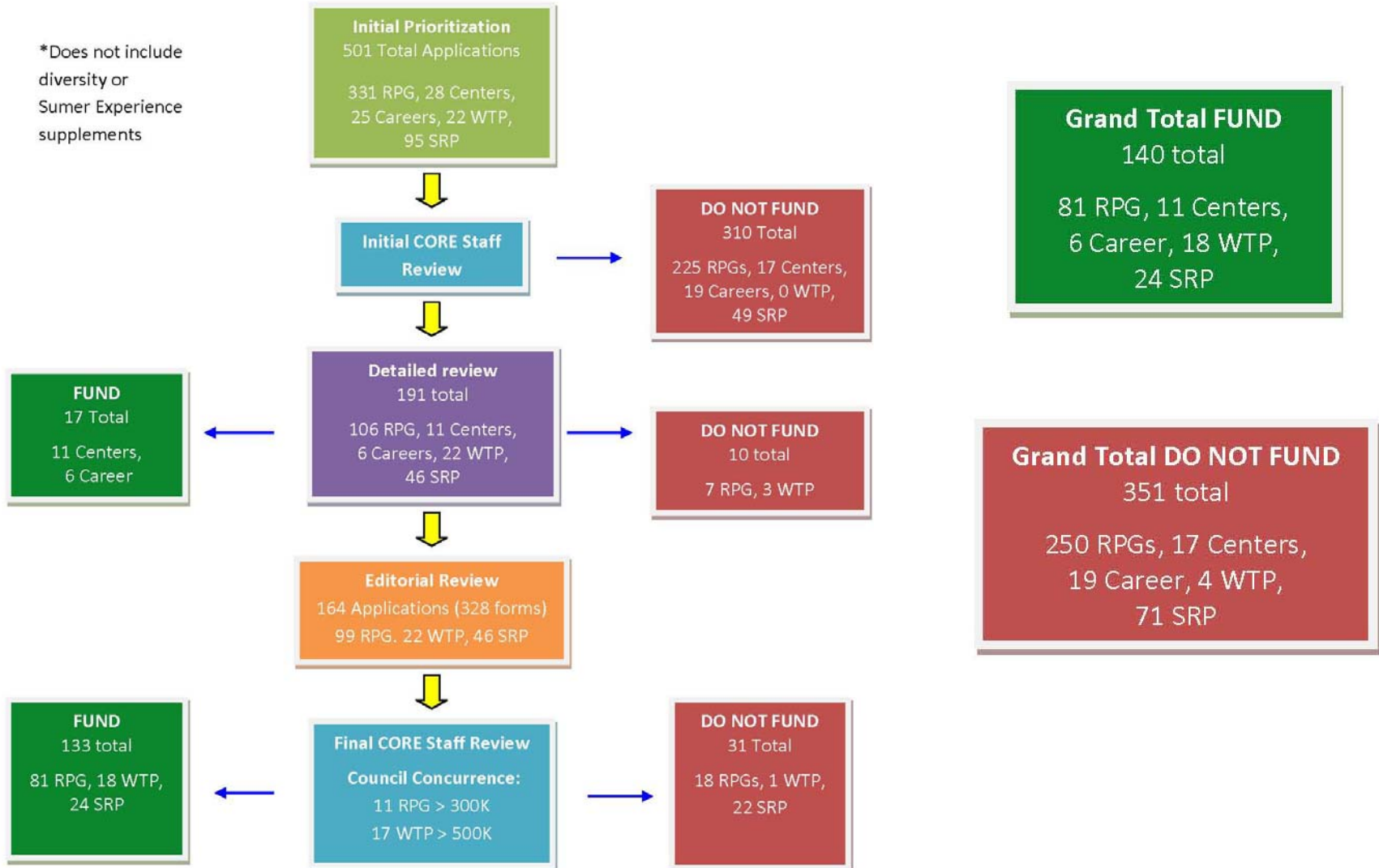
## ARRA Dollars Allocated

(As of 9/13/09, in Millions, excludes Superfund and OD Contributions, Total = \$168 M)



# ARRA Administrative Supplement Review Process

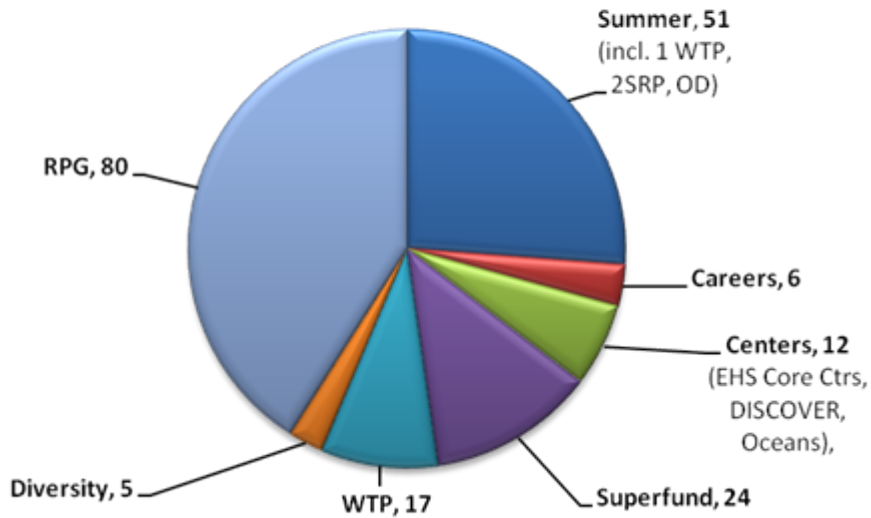
\*Does not include diversity or Summer Experience supplements



# ARRA Administrative Supplements

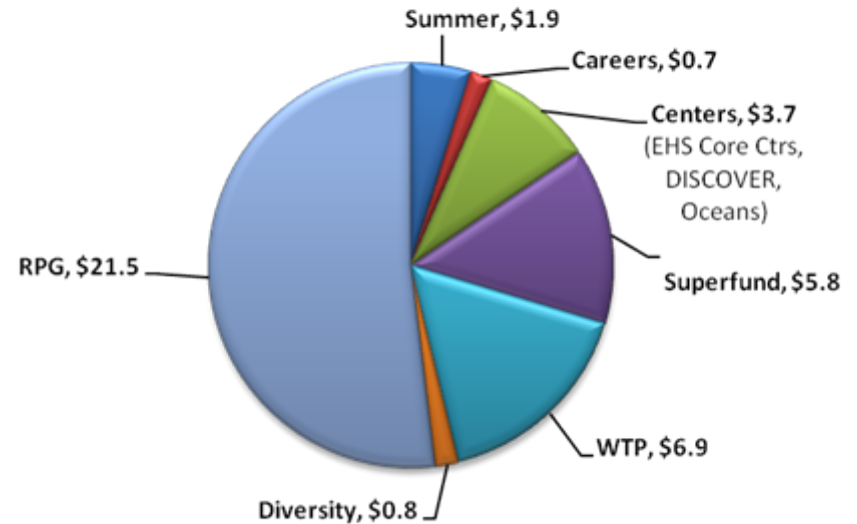
## Admin Supplement Grants Awarded

(As of 9/11/09, includes Superfund and OD Contributions,  
Total - 195 Grants)



## Admin Supplement Allocation

(As of 9/11/09, in millions, includes Superfund and OD  
Contributions, Total - \$44.1 M)



# ARRA: Administrative Supplements

## Good for Science, Good for the Economy

“The administrative supplement to our K01 will enhance our current study by (1) testing new hypotheses and (2) retrieving important missing data needed to enhance hypothesis-testing. Consequently, these two goals will fulfill the mission of the NIEHS Administrative Supplement to stimulate the American economy and advance scientific developments by hiring two part-time research assistants from the local Philadelphia community to work on the data sets, and assist the PI in the preparation and dissemination of findings through manuscript submission and conference presentations.



*-- Jianghong Liu, PhD, RN, Assistant Professor of  
Nursing University of Pennsylvania*

Recipient of an administrative supplement under the American Recovery and Reinvestment Act of 2009 (ARRA) for K01, "Environmental Toxicity, Malnutrition, and Children's Externalizing Behavior"



# ARRA: Administrative Supplements



## Good for Science, Good for the Economy

“I was thrilled and relieved to hear that an administrative supplement to my current grant was awarded through the ARRA program.

My initial research goal was to create heart specific transgenic zebrafish fluorescent reporter strains that would signal disruption of heart development in living embryos. These reporters will predict risk from exposure to toxins as encountered in real life—in complex mixtures of low doses. However, our initial studies of PCB and pesticide induced changes in gene expression in heart cells yielded four completely unexpected links between exposure and cardiac developmental malformations—one of which was the first evidence that pesticide exposure may lead to hypertrophic cardiomyopathy associated with sudden cardiac death. Just when I wanted to expand the research, our departmental funds and job opportunities disappeared.

This administrative supplement comes at an absolutely critical time. With it, I will establish a novel toxin-induced arrhythmia model in zebrafish, apply for funding to expand the reporter strains as models of adult illness, and will have the time needed to find a permanent position. Without the supplement, I would have lost my job. My heartfelt thanks NIEHS and all who facilitated my award. It truly has made all the difference.



*-Lisa Satterwhite,  
Duke University*

Recipient of an Administrative Supplement under ARRA for R03,  
“Novel Zebrafish Models to Study Toxicity of PCBs and Pesticides  
During Pregnancy “

# ARRA: Superfund Administrative Supplements

## Fostering Research Collaboration and Dissemination



Image courtesy of: [www.biomerieux-diagnostics.com](http://www.biomerieux-diagnostics.com)

“The supplement will team a data analyst from the Cambridge Health Department with a graduate student in computer science and a senior computer science researcher to adapt a piece of sophisticated software currently used in epidemiology only as an exploratory research tool and move it directly into local public health practice. The development of a software suite and user materials will stimulate a larger community of open source developers and integration.”

– *David Ozonoff, Boston University*

Recipient of an administrative supplement under ARRA for P42, “Superfund Basic Research Program at Boston University”

“ We are excited by the opportunities that the ARRA funding enables. In this project, researchers at UNC will work with the NC Department of Health and Human Services to identify populations at greatest risk from water contamination and provide public health action strategies to reduce exposure. This funding will also create new jobs at the university during this much needed time.”

-- *Rebecca Fry, University of North Carolina, Chapel Hill*

Recipient of an administrative supplement under ARRA for P42, UNC-CH and Medical Evaluation and Risk Assessment (MERA) in the North Carolina Department of Health and Human Services (NCDHHS) partnership to understand trends and patterns in well water contamination in North Carolina.



Image courtesy of: [www.co.brown.wi.us](http://www.co.brown.wi.us)

# ARRA: Worker Education Administrative Supplements

## Fostering Research Collaboration and Dissemination

"ICWUC/CBTU trainers and coordinators from Chicago, Anniston, AL and Oakland, CA are excited to be able to train unemployed and underemployed people to work in the stimulus, remediation and green jobs sectors. Using unemployed and retired trainers and their training experience, initial recruitment already underway and the ICWU Center resources they will be able to initiate training in the next few weeks."



*-- John Morawetz, International Chemical Worker Union Council*

For Frank Cyphers, recipient of an administrative supplement under ARRA for U45, "Worker Health and Safety Cooperative Agreement"

# ARRA: Summer Research Experiences

## Job Creation, Career Development & Scientific Advancement



I was able to hire 2 high school students, 2 undergraduates, and 1 high school science teacher, all with expressed interest in exploring science as a career. NIEHS funding of this supplement has:

- Enabled us to complete our studies in a more efficient manner, generating samples needed to run assays on the new equipment purchased for completion of the project
- Created opportunities for the graduate students to teach basic laboratory techniques to others, field questions, and think about their projects in new ways
- Facilitated the formation of a unique relationship between our department and the high school-- we were able to get a thermocycler and reagents donated to the school for teaching, and offer students the opportunity to observe "real world" laboratory science, which will hopefully inspire them to consider pursuing a degree in toxicology.

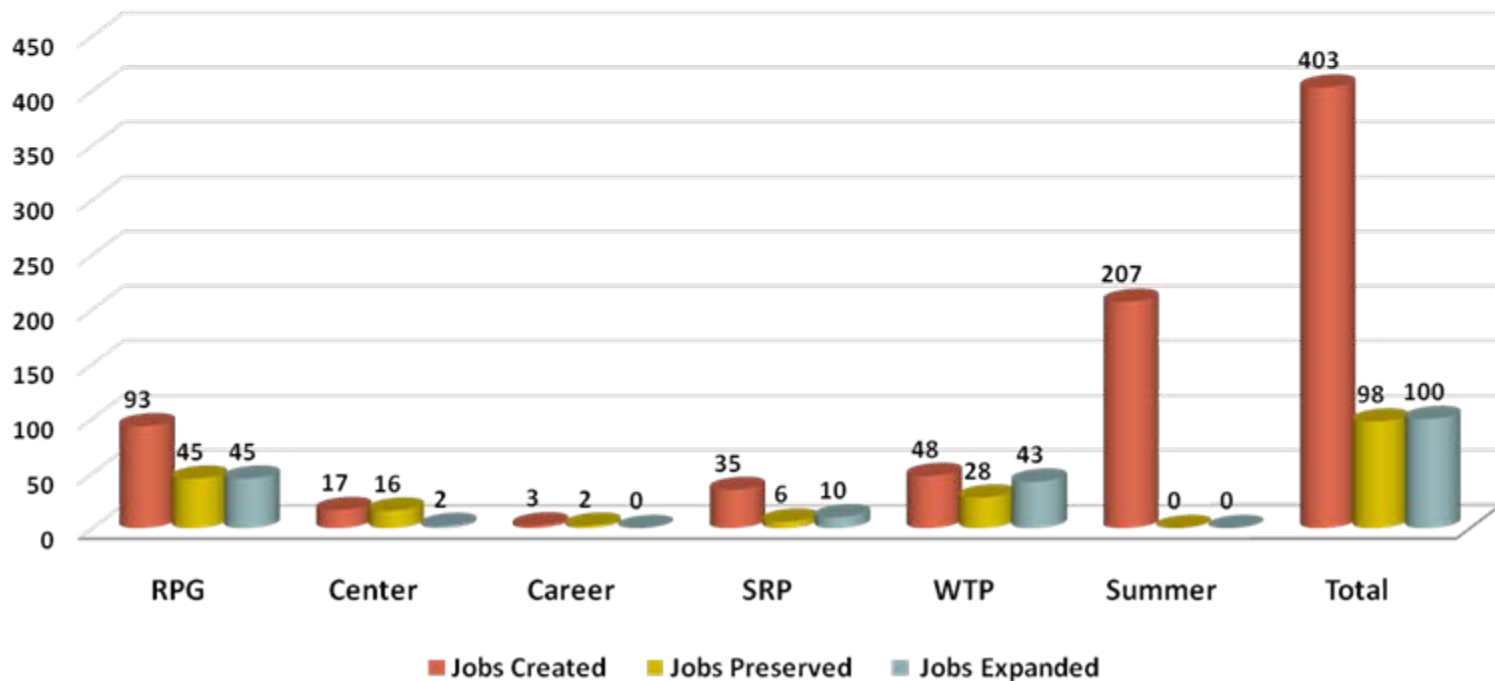


*-Angela Slitt, Ph.D., Assistant Professor  
University of Rhode Island*

Recipient of a Summer Student Supplement under the American Recovery and Reinvestment Act of 2009 (ARRA) for R01, "Effect of nutritional status on MRP2 expression and biliary excretion of bisphenol "

## Estimated Number of Jobs Created, Preserved, or Expanded by ARRA Funded Administrative Supplements

(Based on grant proposal estimates, includes Superfund and OD Contributions)

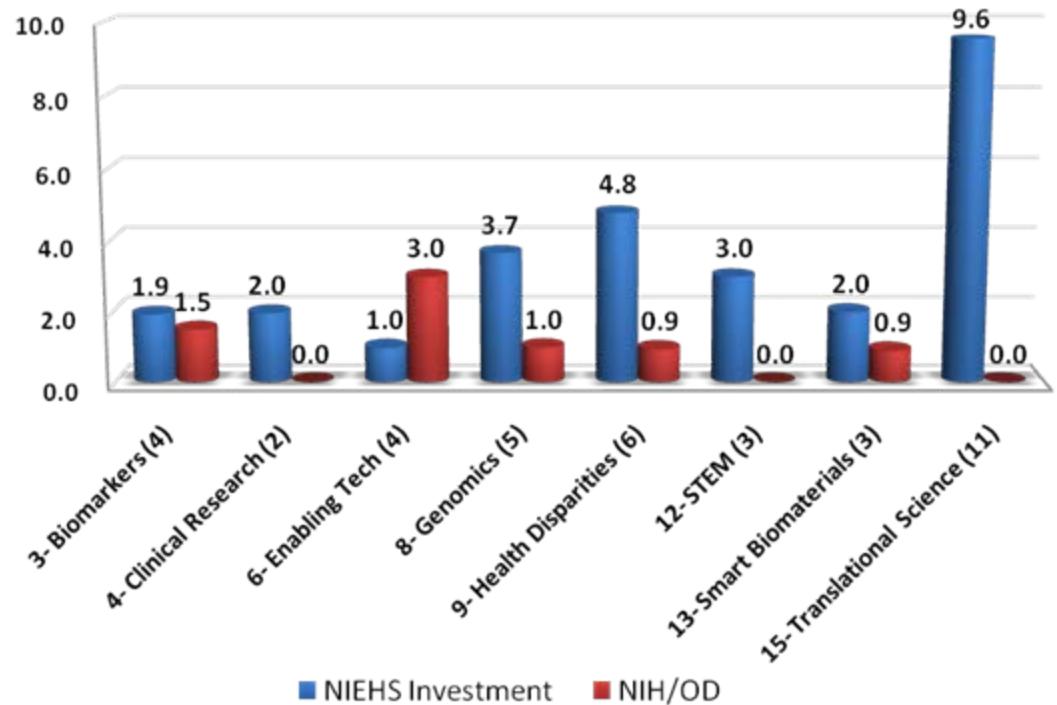


**ARRA Funded Jobs:** \$43 million in ARRA dollars funded the creation or expansion of approximately 600 positions through 174 Administrative Supplements

# Challenge Grants (RC1)

- 20,000 applications received by NIH
- 598 ES applications, 53 scored, 38 awarded
- \$27.9 million total NIEHS commitment to Challenge Grants
- \$7.3 million from NIH/OD for 8 ES grants
- \$ 216 million total NIH/OD funding across NIH
- 6% success rate (38/598) for NIEHS RC1

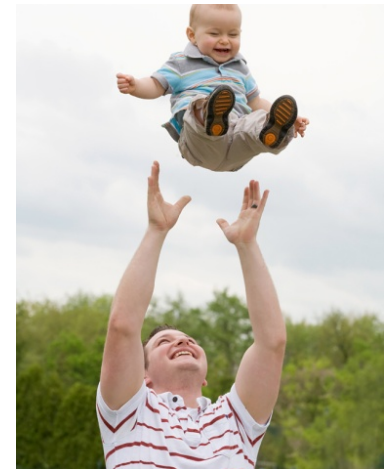
NIEHS and NIH/OD funding of Challenge Grants, in millions by topic area



# Validation & Pilot Testing of Methods for Assessing Infants' Dietary Exposure: (03) -- Biomarker Discovery and Validation

*Barry Ryan, Emory University*

- **Purpose:** Test and validate a high-throughput, low cost method for identifying pesticides in breast milk, infant formula and baby food.
- **Method:** Extract pesticides from samples, then using gas chromatography with electron capture detection, identify representative compounds in four classes of pesticides, organochlorines, organophosphates, carbamates, and pyrethroid insecticides. These compounds are neurotoxicants and likely exert effects during critical periods of neurodevelopment (postnatal - birth to 1 month and infancy - 1-12 months). The approach will be pilot tested and validated in samples from a prospective birth cohort from Northern Thailand.



- **Public Health Impact:** Successful development and validation of this method will have applicability to a wide variety of population studies, in addition to the study in Northern Thailand. This work addresses a critical gap in the knowledge of infant exposure to pesticides

# Tissue Engineered Models for Environmental Health: (06) -- Enabling Technologies

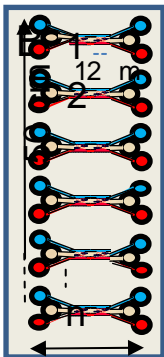
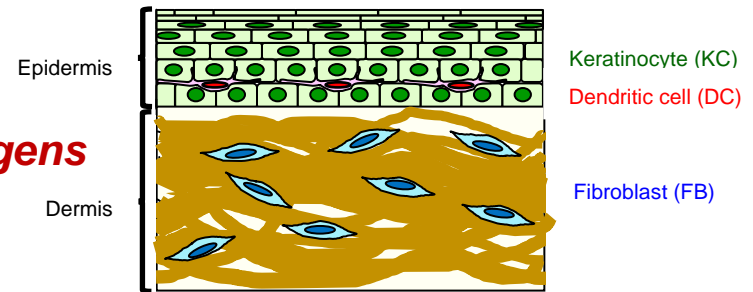


## *Mucocilliary clearance in the lung*

Richard Superfine, UNC

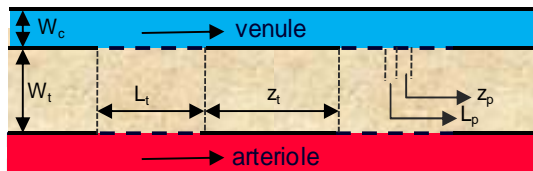
## *3D Skin model for HTP screening irritants and allergens*

Akira Takeshima, Toledo



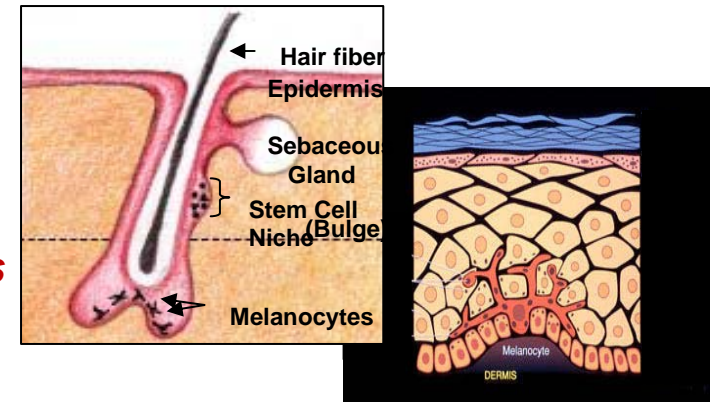
## *Biologically formed microvasculature*

Steven George, UC Irvine



## *Humanized 3D skin model for screening carcinogens*

Meenhard Herlyn, Wistar Institute





## Air Pollution Outreach, Education, and Research Capacity Building in Alaska Natives: (09)--Health Disparities

*ANTHONY JOHN WARD, University of Montana*

- **Purpose:** Collaboration between the University of Montana and the Alaska Native Tribal Health Consortium to work with seven rural Alaskan Native villages to improve indoor air quality conditions by increasing awareness of residents within the seven villages and, in turn, improve the respiratory health of the community members.
- **Method:** Recruit and train community residents as well as teachers and students to educate their communities about indoor air quality.
- **Public Health Impact:** This project will establish a public health network that will support the understanding and mitigation of air quality issues within seven Alaska Native villages. This project will also create multiple jobs at ANTHC, the University of Montana, and within seven tribal villages, while improving the air quality and respiratory health of the community members.



Image courtesy of: [http://www.alaska-in-pictures.com/data/media/21/inuit-children-playing\\_4578.jpg](http://www.alaska-in-pictures.com/data/media/21/inuit-children-playing_4578.jpg)

## Environmental Health Teachers' Domain: (12) –STEM Education

*Theodore Sicker, WGBH Educational Foundation*



- **Purpose:** Boston Public TV (WGBH) will create environmental health science educational materials that will be added to the PBS Teachers Domain, which is part of the nationally-expanding PBS Digital Learning Library.
- **Method:** Public TV staff will work with advisors (including two COECs) to develop a series of lesson plans and student activities that address curricular needs at the K-12 grade levels, correlated to national and state-specific curriculum standards, and shared, free-of-charge.
  - Lessons will incorporate videos and supporting materials from such PBS television programs as NOVA, Frontline, Nature, and Arthur.
- **Public Health Impact:** As a result, better informed students and teachers will be empowered to avoid adverse environmental exposures. Through this program viewers can become knowledgeable citizens who can assess and affect important public health issues.

# ARRA Autism Program

- 530 applications received, 56 applications considered for funding
- Collaborative Funding Across NIH
 

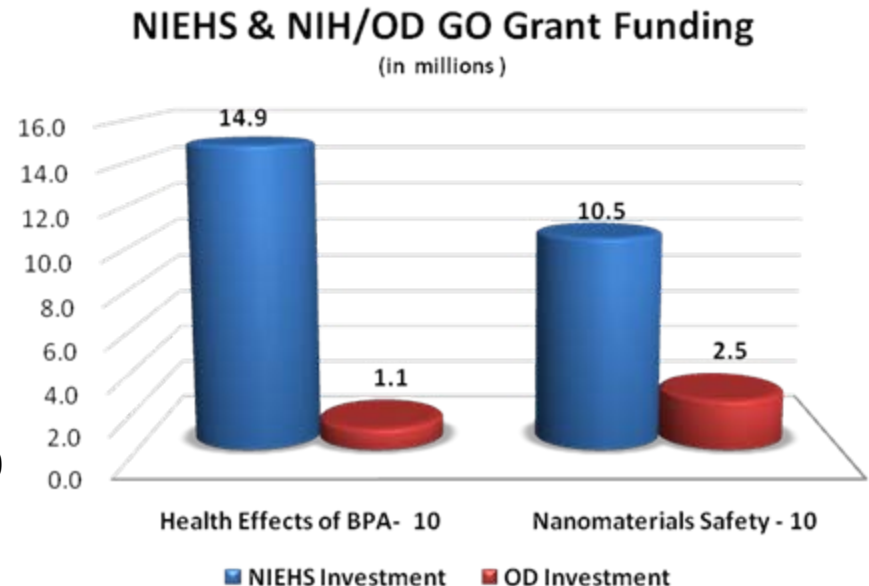
NIMH	16 applications	\$37 million
NICHD	24 applications	\$20.8 million
NIDCD	4 applications	\$2.3 million
NINDS	8 applications	\$5.6 million
NIEHS	4 applications	\$3.7 million
- NIH Total Investment 56 apps = \$69.5 million



Priority Score	PI Name	Institution	Title
39	Croen, Lisa	Kaiser Permanente Northern California	Prenatal Exposure to Polyfluoroalkyl Compounds in the Early Markers of Autism (EMA) Study
40	Brown, Alan	New York State Psychiatric Institute	Prenatal factors and risk of autism in Finnish birth cohort
42	Fallin, Danielle	Johns Hopkins University	Genome Wide Interaction Study for Autism: The SEED Study
48	McConnell, Robert	University of Southern California	Investigating Gene-Environment Interaction in Autism: Air Pollution.

# Grand Opportunities Program (RC2)

- **High impact, 2-yr projects that accelerate the pace of science**
  - Large-scale research projects on cutting-edge technologies and new approaches to improve the synergy and interactions among multi and interdisciplinary research teams
  - 108 applications received, 58 scored
  - 27 applications within the range of consideration
  - 20 applications funded, 19% success rate
- **NIEHS Areas of Scientific Priority**
  - **BPA: Research to Impact Human Health:** \$14.9 million over two years in support of 10 research project grants including \$1.1 million in NIH/OD co-funding.
  - **Engineered Nanomaterials Safety:** \$10.5 million over 2 years in support of 10 research project grants including \$2.5 million in NID/OD co-funding.



# NIEHS Signature Program

- **Bisphenol A: Research to Impact Human Health**

- GO Program: \$14.9M, including \$1.1M from NIH/OD, over two years for 10 research grants
- Challenge Program: \$3.3M from NIEHS over two years for 2 grants
- Administrative Supplements: \$ 1.6M from NIEHS for 5 grants
- Total ARRA BPA investment: \$19.8 M



Image courtesy of: [www.wellsphere.com](http://www.wellsphere.com)

- **Engineered Nanomaterials Safety**

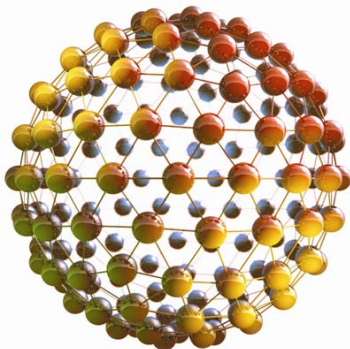


Image courtesy of:  
[www.nanoaction.org/nanoaction/page.cfm?id=223](http://www.nanoaction.org/nanoaction/page.cfm?id=223)

- GO Program: \$10.5M, including \$2.5M from NIH/OD, over two years for 10 grants
- Challenge Program: \$2.9M from NIEHS over two years for 3 grants
- Administrative Supplements: \$660,971 from Superfund for 3 applications
- 2-Year Conversion (R01): \$350,000
- Total ARRA Nano investment: \$14.4M

# Potential 2010 RFA's

- NIEHS will have approximate \$7 million in ARRA funds for FY 2010

RFA Number	Title	Release Date	Receipt Date
RFA-OD-09-008	Recovery Act Limited Competition: Biomedical Research, Development, and Growth to Spur the Acceleration of New Technologies (BRDG-SPAN) Pilot Program (RC3)	06/02/2009	09/01/2009
RFA-OD-09-009	Recovery Act Limited Competition: Small Business Catalyst Awards for Accelerating Innovative Research (R43)	06/02/2009	09/01/2009
RFA-OD-09-007	Recovery Act Limited Competition: Academic Research Enhancement Award (R15)	20/2009	09/24/2009
RFA-OD-09-010	Recovery Act Limited Competition: Building Sustainable Community-Linked Infrastructure to Enable Health Science Research (RC4)	To be announced	

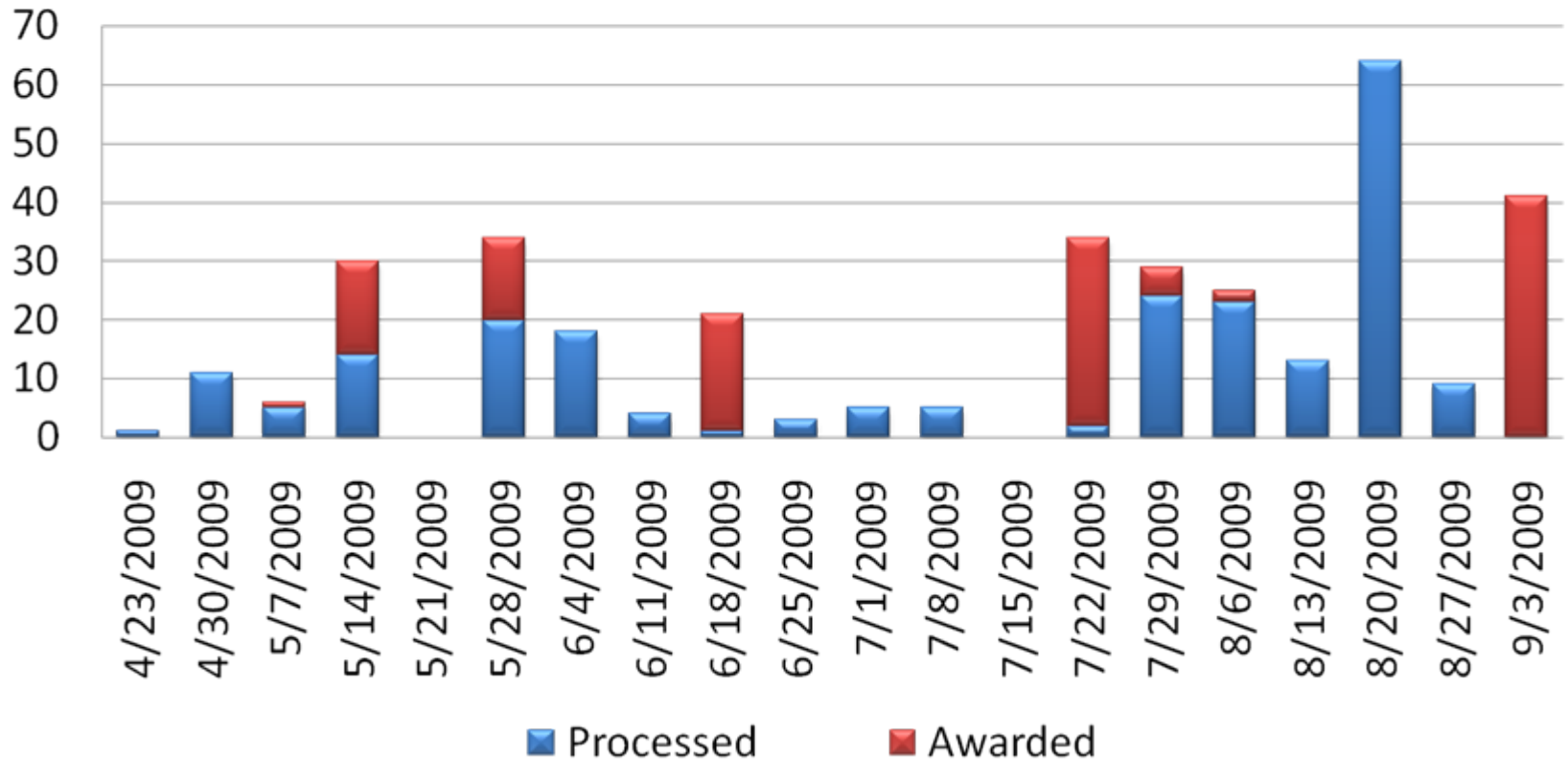
# ARRA Early Council Concurrence Actions

<b>ARRA Activity</b>	<b>ECC Date</b>	<b>Reviewer 1</b>	<b>Reviewer 2</b>	<b>Reviewer 3</b>
Admin Suppl > \$300K	July 17-22	Christiani	Essignmann	Phan
WTP Admin Suppl	July 17-22	Carpenter	Hines	Witherspoon
GO Nano	August 4-9	Leikauf	Schnoor	Phan
Challenge Grants	August 6-11	Bradfield	Graziano	Stephens
Autism	August 6-11	Christiani	Essignmann	Graziano
GO BPA	August 14-19	Finnell	Leikauf	Schnoor
Competitive Revisions	August 28-September 2	Bradfield	Carpenter	Finnell
Challenge II	September 4-9	Carpenter	Christiani	Lloyd
KOMP	September 4-9	Carpenter	Christiani	

# NIEHS ARRA Activities Workload

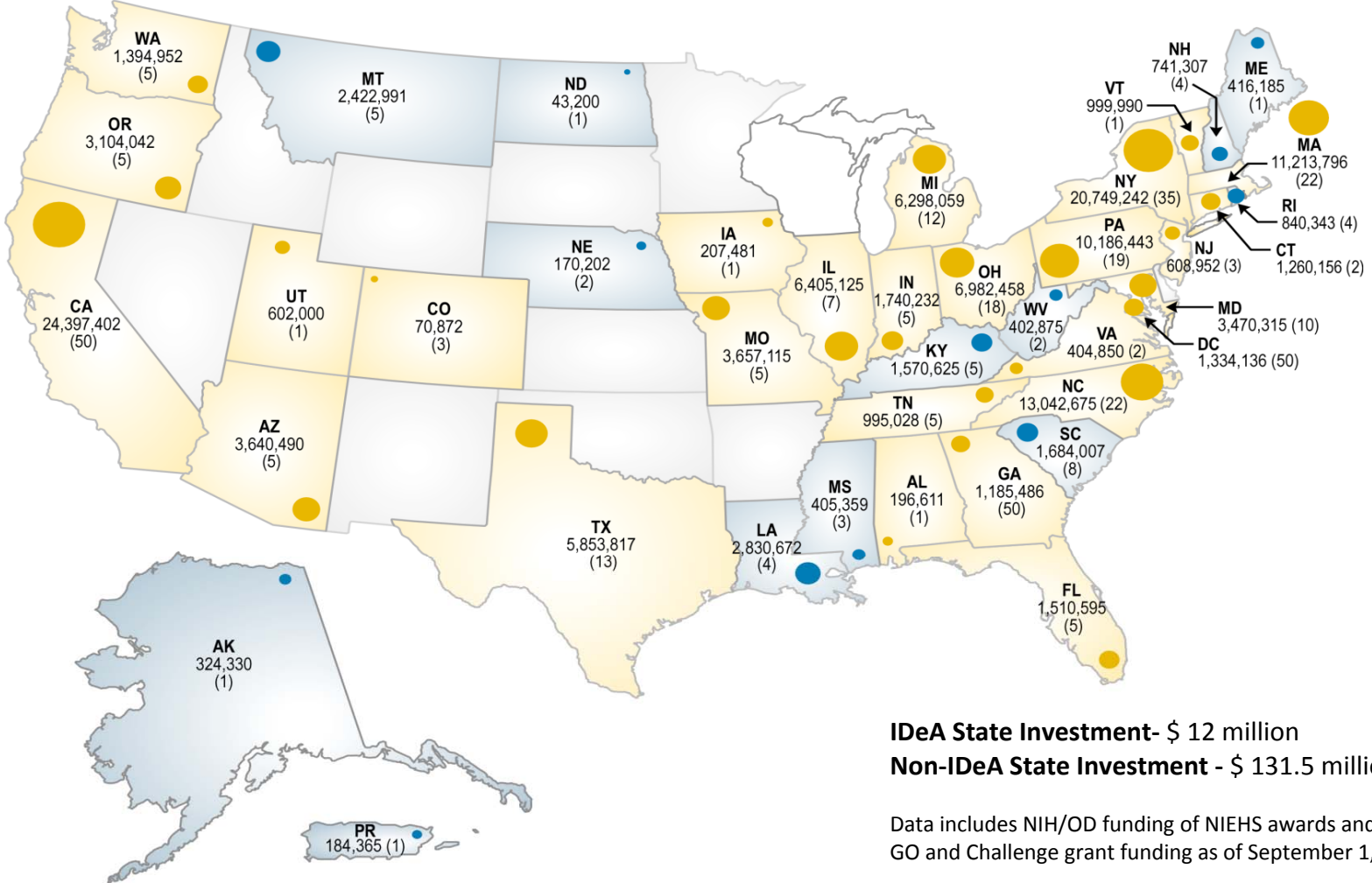
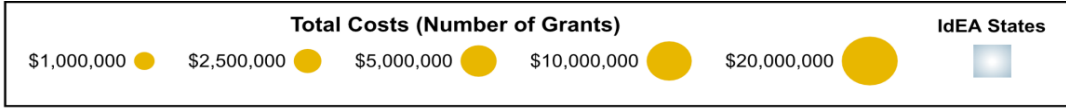
## ARRA Workload: Count of Grants Processed and Awarded by NIEHS, by week

Total processed- 222, Total awarded- 131 (as of Sept 4, 2009)





# Geographical Distribution of NIEHS ARRA Awards



**IdEA State Investment- \$ 12 million**  
**Non-IdEA State Investment - \$ 131.5 million**

Data includes NIH/OD funding of NIEHS awards and estimates of GO and Challenge grant funding as of September 1, 2009

# THANK YOU to the NIEHS ARRA TEAM

- All of the Program, Review, Grants Management and DERT/OD staff
- DERT Core staff for decision making for procedures and funding
- Michael Loewe and Benny Encarnacion for financial management
- Margarita Roque, Laurie Johnson and Human Resources for administrative management
- Christine Flowers and OCPL staff for website development and WH reporting
- Sheila Newton for scientific reporting
- Contracts office team for R&D contract awards
- Paul Jordan and developers at Open Intelligence
- Rachel Gross for overall coordination and reporting information to NIH/OD



# DISCUSSION