

# **California Breast Cancer Research Program: Special Research Initiatives**

*July 7, 2010*

*Presentation to Institute of Medicine Committee  
on Breast Cancer and the Environment*

## *Special Research Initiatives (SRI)*

A \$23 million answer to:

- What role does the environment play in breast cancer?
- Why do some groups of women bear a greater burden of disease?



# *Special Research Initiatives (SRI)*

## Vision and Goals

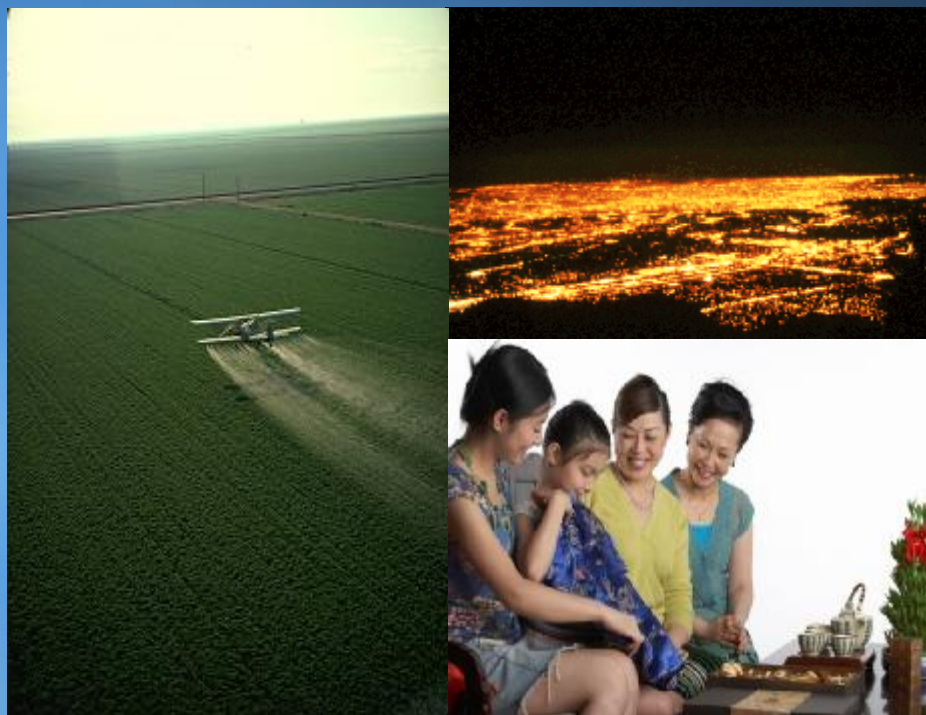
- **VISION:** to identify and support research strategies that increase understanding of, **and create solutions to**, environmental links to breast cancer and disparities in breast cancer.
- **GOALS:**
  - Support a coordinated statewide effort to explore innovative ideas and new theories
  - Leverage California's unique and diverse geographic and population resources
  - Undertake critical studies that significantly move these fields forward

# *Special Research Initiatives (SRI)*

## Rationale

California is uniquely positioned for large-scale research in these areas:

- Extensive research infrastructure
- Established cancer registry and pesticide databases
- Regional and geographic diversity
- Racial, ethnic, and socioeconomic diversity



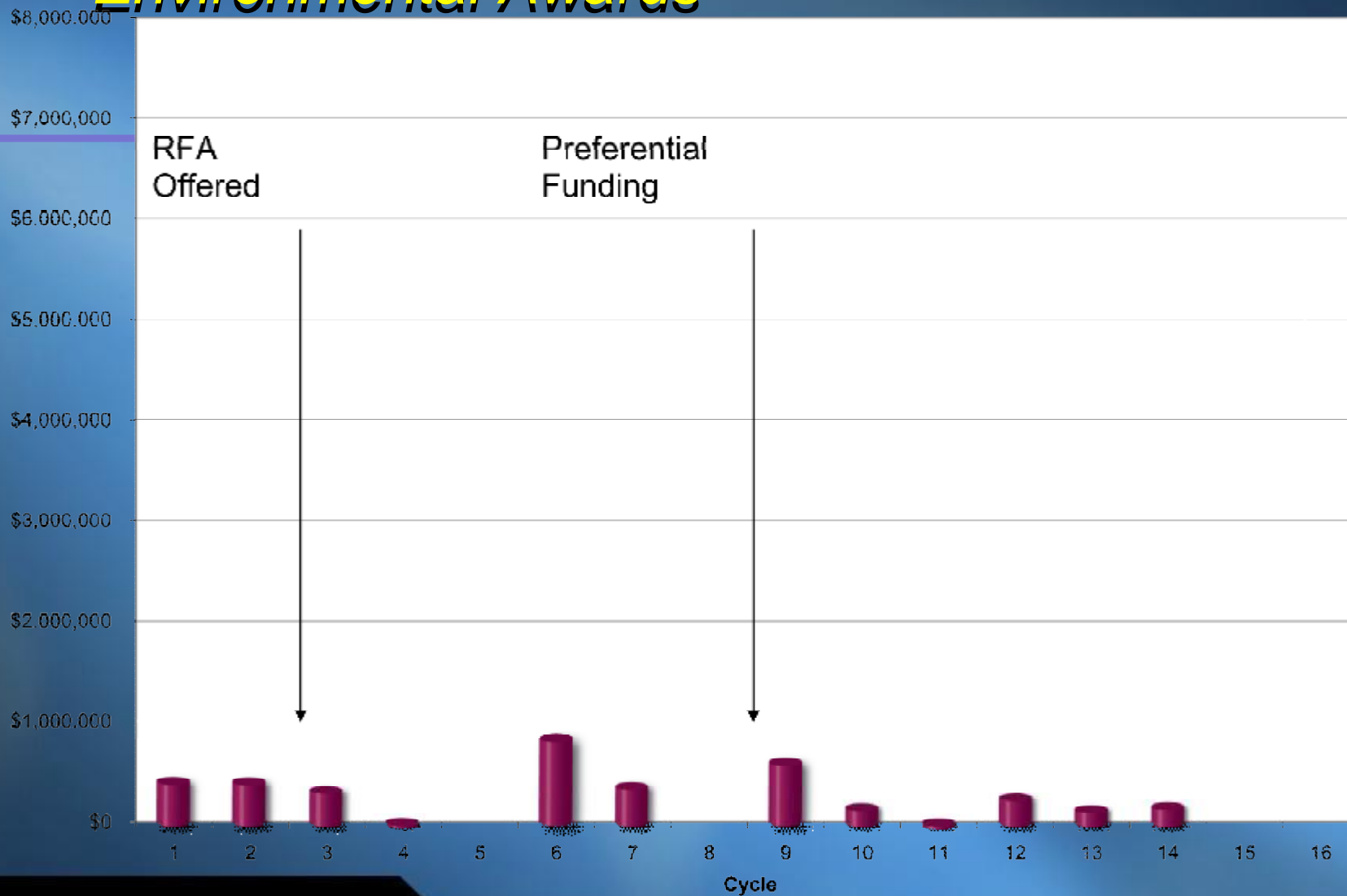
## *Previous Attempts in These Areas*

- “Additional Criteria” rated in Programmatic Review: Special consideration given to applications that fulfilled targeted criteria
- Funds set aside for RFAs in targeted areas
- High Priority areas received preferential status in funding decisions.

## *Disparities Awards*



# Environmental Awards



## *The Vision –More Details*

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- Create New Mechanisms
- NOT Investigator-Initiated Grants
- High Impact Projects
  - Not done otherwise
  - link together resources available in California
- Model for Other Funders

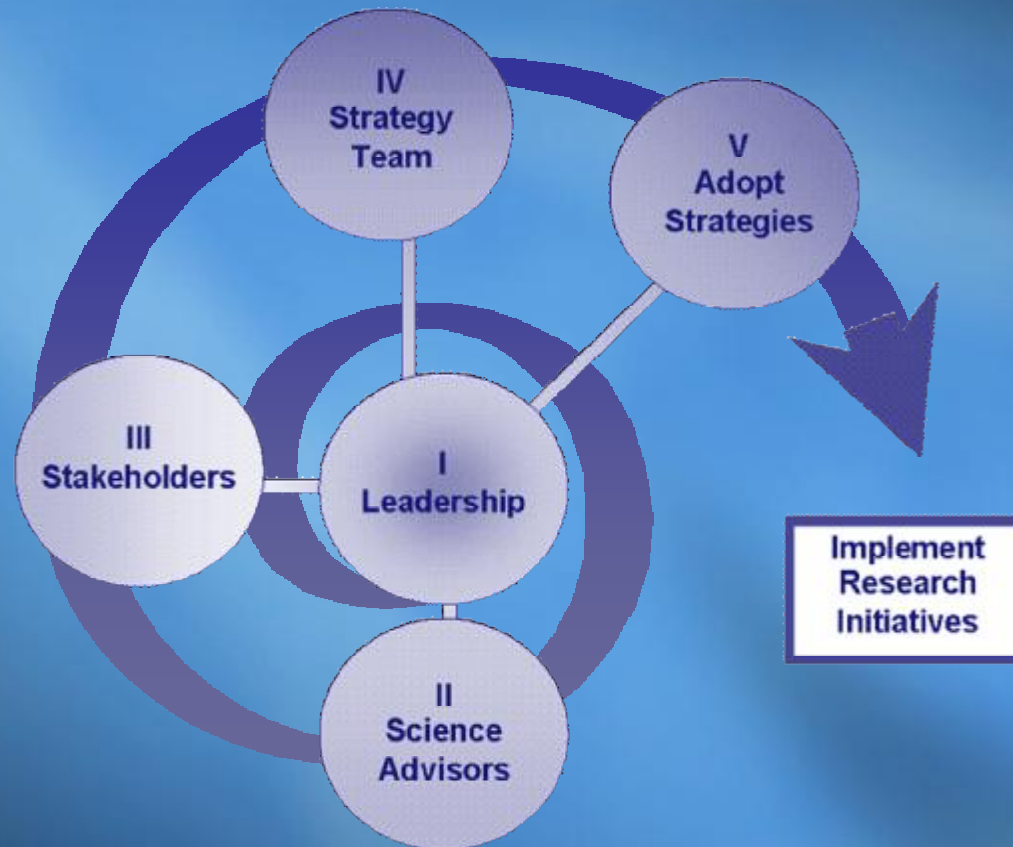


## *Requirements for the Planning Process*

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- Establish the Scientific Credibility of the Process
- Ensure Transparent Process
- Establish Accountability
- Provide for public input
- Meet stakeholders desires
- Support research that is useful NOW!
- CBCRP has an implied mandate to take risks; this is the pool of money we are using for risk-taking (our core funding portfolio will continue to produce solid outcomes)

# The Five Phases of the SRI Strategy Development Plan



## *Phase I: Leadership*

*Recruited and formed a steering committee to provide guidance*

Julia G. Brody, PhD  
Silent Spring Institute



Susan Matsuko Shinagawa  
Asian and Pacific Islander  
National Cancer Survivors  
Network



Olufunmilayo I (Funmi) Olopade,  
MD, FACP  
University of Chicago, Depts of  
Medicine and Human Genetics



David R. Williams, PhD  
Harvard University, Depts of  
Public Health, African &  
African American Studies  
and Sociology



Sandra Steingraber, PhD  
Ecologist, author, cancer  
survivor



Marion Kavanaugh  
-Lynch, MD, MPH  
California Breast Cancer  
Research Program



## *Phase II: Assessing Gaps and Promising Opportunities*

- Produced “Identifying Gaps In Breast Cancer Research: Addressing Disparities and the Role of the Physical and Social Environment”
  - 50 writers and science editors
  - 500+ pages
  - 1800+ citations
  - 295 recommendations
- Full text at: [www.CABreastCancer.org/sri/reports/](http://www.CABreastCancer.org/sri/reports/)

## *Phase III: Stakeholder Engagement*

- 200 advocates, scientists, clinicians, and other Californians participated in 6 regional in-person meetings and teleconferences and generated hundreds of research ideas.
- Information provided and input sought on Web Site and e-newsletter
- Hundreds of attendees at Research Symposium learned about and engaged in SRI process
- Developed a resources database of 191 researchers and community-based collaborators

## *Phase IV: Strategy Development*

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- 600 ideas generated through stakeholder meetings, teleconferences, state of the science review, and e-alerts through numerous organizations and listservs.
- 600 ideas consolidated into a set of 98 ideas
- 500 people invited to sort and rate these 98 ideas.
- Concept Maps were created from the group sortings

## *Phase IV: Strategy Development*

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- 40 person Strategy Team selected from throughout California and the nation, including advocates, researchers, clinicians from various disciplines
- Strategy Team reviewed prioritization, requested presentations and additional information, worked during and in-between three meetings to develop the final strategies that they believe would have the most potential impact and are most unique to California

## *Phase V: Adopt Strategies*

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CBCRP Research Council in March 2008 chose a funding strategy for CBCRP to implement that will significantly advance our understanding of and find solutions to the role of the environment and lifestyle in breast cancer, and the unequal burden of breast cancer.



# What are the Gaps

## Areas to Explore:

Chemicals

Air Pollution

Drinking Water

Pesticides

Radiation

Personal Care  
Products

Light at Night

## Measuring Exposures & Impact:

- Remote Exposures
- Timing of Exposure
- Multiple Exposures
- Susceptible Populations
- Sources

## Gathering Data:

- PBDEs, phthalates, BPA
- Chemicals in fuels, combustion by-products, and metabolites
- PAHs
- known mammary carcinogens
- Women and girls in farm worker communities
- Subpopulations with increased risk from mammography and radiation therapy
- Genetic susceptibility
- Carcinogens in cosmetics, sunscreens, and other personal care products
- Sleep behaviors and hormones

## Solutions:

Better policies and  
enforcement

Design safer  
chemicals

## ***Funding Strategy: Environment & Disparities in Breast Cancer***

- Approved \$23 million allocation on 10 research initiatives;
- Initiatives focused on collaborative and transdisciplinary studies, including creating research teams proactively;
- Includes incremental and big-step research;
- Utilizes California's diverse resources to advance research and serve the public;
- Structured as Cooperative Agreements with active funder participation.

# *Environmental Links to Breast Cancer*

## Chemicals Policy and Breast Cancer

Green Chemistry Initiative: Statewide policy being developed to increase our knowledge of the health and safety of chemicals

Bring breast cancer issues to the forefront in this process

- Biological pathways
- Chemical safety tests

**\$160,000**

## Make Chemicals Testing Relevant to Breast Cancer

Develop/evaluate comprehensive battery of existing tests to screen chemicals for activity in pathways known or suspected to play a role in breast cancer.

Develop new technology that advances our understanding of breast cancer and leads to faster, biologically relevant, cost-effective tests.

**Estimated \$5,000,000**



## *Environmental Links to Breast Cancer*

### Environmental Causes of Breast Cancer Across Generations

Test whether in utero exposure to certain chemicals increases the risk of breast cancer later in life.

Long-term follow-up to discover more about how chemical exposures at various stages of life and across generations contribute to a woman developing breast cancer.

\$5,000,000



## *Intersections of Multiple Factors*



### **Biological/Ecological Models of Breast Cancer Causation and Prevention**

Focus breast cancer research on the web of relationships among multiple variables that contribute to causing or preventing breast cancer over the life course.

Develop a complexity-theory based model of breast cancer causation that takes into account many events over time on many levels.

**\$230,000**

## *Intersections of Multiple Factors*

### New Statistical Models to Address Disease Complexity

Develop new or apply existing statistical analysis methods to address how multiple environmental and social exposures across a woman's full life course may interact to affect her breast cancer risk. Testing new models on existing breast cancer data.

**\$1,075,000**



## *Intersections of Multiple Factors*

### Racial/Ethnic Disparities, Environmental Exposures and Breast Cancer Among California Cohorts

Explore environmental exposures, racial/ethnic disparities, and breast cancer among a large, diverse cohort of women. Two studies show promise:

- California Teachers Study: Cohort of more than 133,000 female active and retired teachers across the state, examining breast cancer incidence.
- Research Program on Genes, Environment, and Health (RPGEH): Northern California HMO cohort of over 200,000 women.

Two pilot projects offered at **\$100,000** each. Funding for a full study will be **\$5 - 6 million**

## *Disparities in Breast Cancer Incidence & Survival*

- Demographic Questions for California Breast Cancer Research

\$430,000

- An Integrated Approach to Understanding Factors Affecting Breast Cancer Among Immigrants

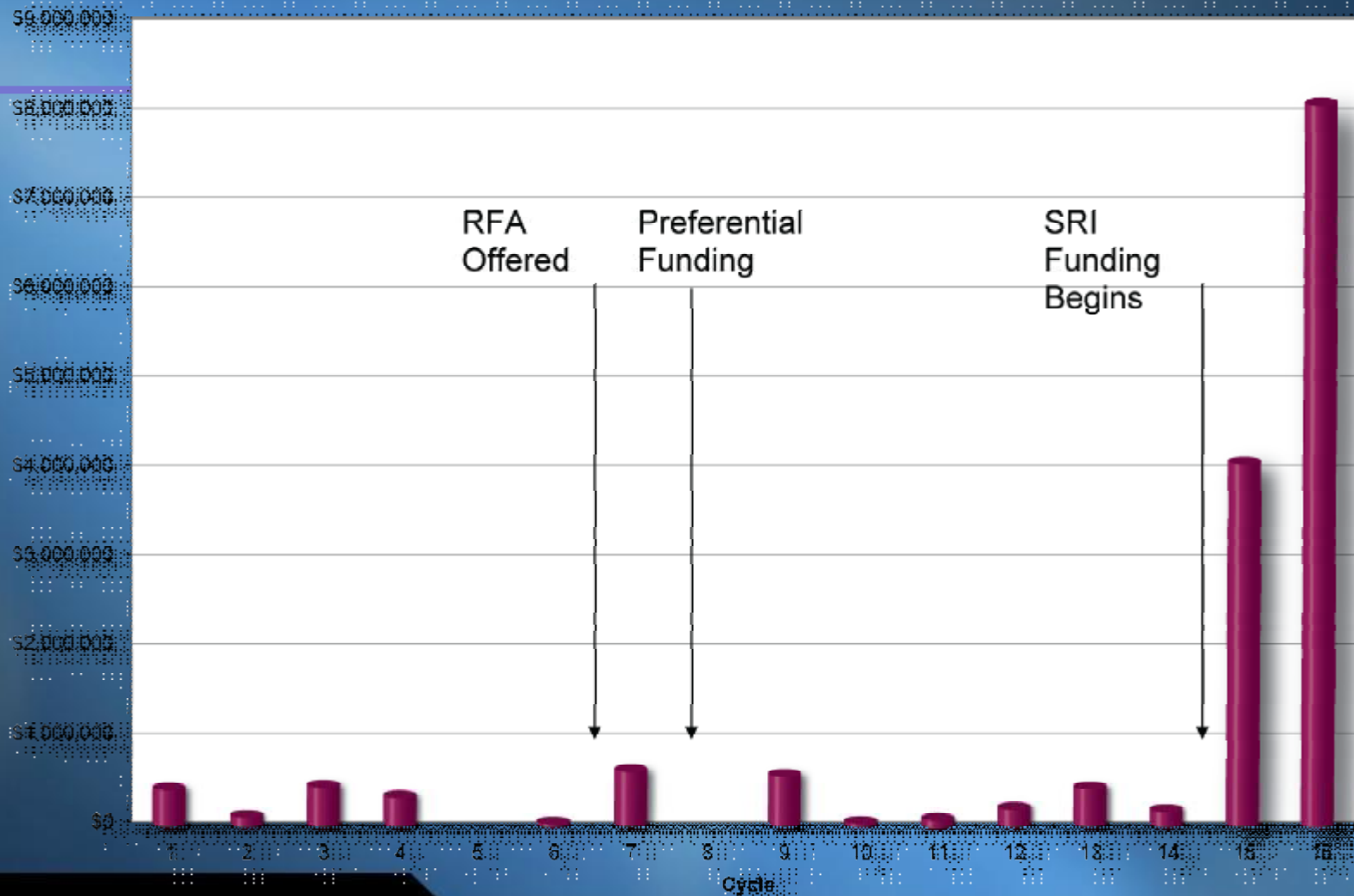
Estimated \$1,680,000

- Understanding Racial/Ethnic Differences in Stage Specific Breast Cancer Survival

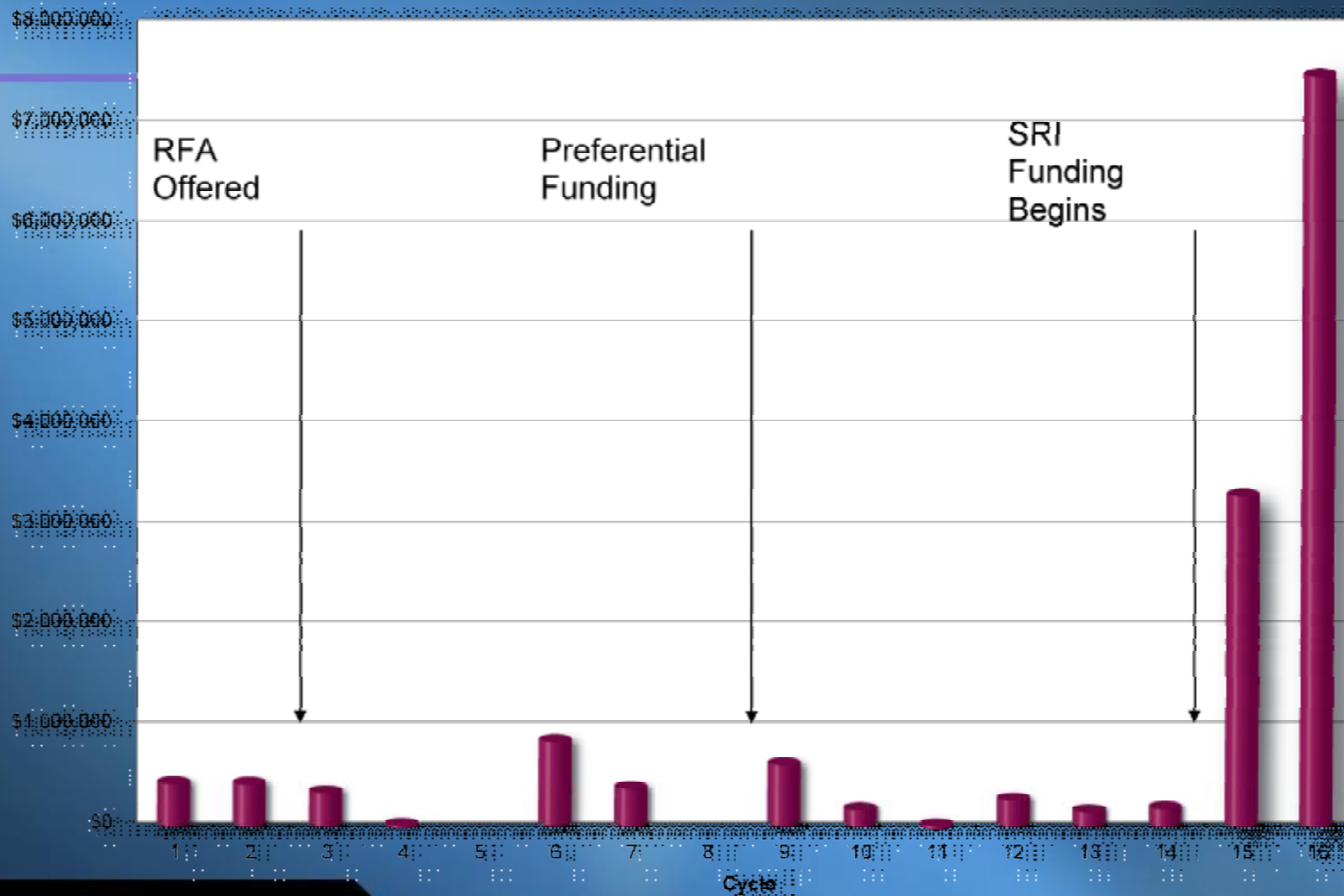
Estimated \$4.2 million



# Disparities Awards



# Environmental Awards



## *Rationale for Increasing Investment in SRI*

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- Successfully addressing goal of focusing on California-specific issues
- Strong potential to move rapidly into practice and influence policy
- Addressing research questions that are important to Californians
- Successfully addressing under-researched topics and fields.
- Potential to have the same sort of impact in the area of breast cancer prevention.

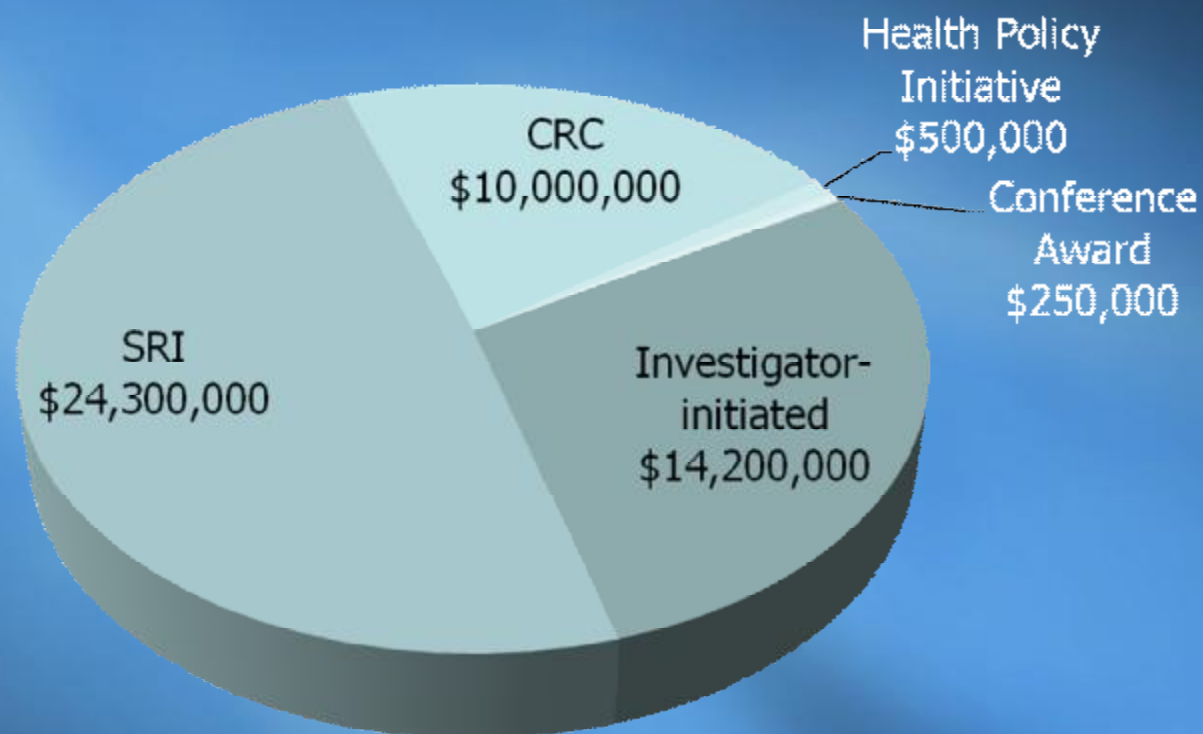
## ***SRI 2011 - 2015***

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50% of CBCRP research funds will be devoted to directed, coordinated, and collaborative research into:

- Identification and elimination of **environmental causes** of breast cancer;
- Identification and elimination of **disparities/inequities** in the burden of breast cancer in California;
- **Population-level interventions** (including policy research) on known and suspected risk factors and protective measures;
- **Targeted interventions for high-risk individuals** including new methods for identifying or assessing risk.

## *New Funding Distribution 2011-2015*



## *Future Directions*

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- We hope the CBCRP SRI can serve as a model for others interested in addressing these issues.
- Recognize that individual behavior has very little demonstrated relationship to breast cancer incidence.
- Leverage the growing number of expert reports that detail strong scientific evidence of a link between breast cancer and the environment; use the recommendations from these reports to develop a national program.
- Support research that addresses the gaps identified by CBCRP and others.

## *Future Directions cont'd*

- Build on animal research; focus human research on the health effects of known mammary carcinogens.
- Recognize that the complexity of these issues does not lend them well to single-investigator approaches; rather large-scale, directed, collaborative, transdisciplinary approaches are required.
- Leverage the vast tools and resources that have been created to support population-based, high throughput, and molecular research to address environmental research.
- Focus on research that can be rapidly applied to impact human health (health policy, chemicals policy, community-level interventions).

## *Future Directions cont'd*

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- Recognize that this is a young and messy field of science; imperfect science is better than no science.
- Do not avoid addressing scientific questions out of fear that the public will be confused about the results; the public can cope with scientific uncertainty.
- Community engagement enhances the conduct, quality, dissemination and application of research.
- Funder involvement may be necessary to ensure that funded projects maintain a strong focus on environment.