



RESEARCHING THE ENVIRONMENT AND WOMEN'S HEALTH

Breast cancer prevention: Beyond pink ribbons

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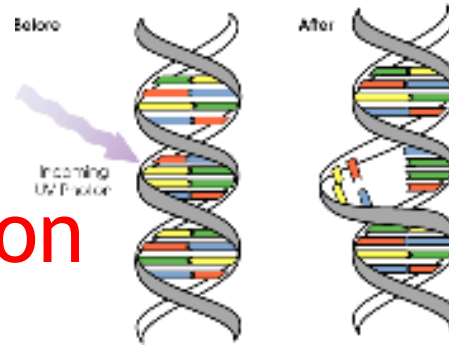
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How might chemicals increase breast cancer risk?

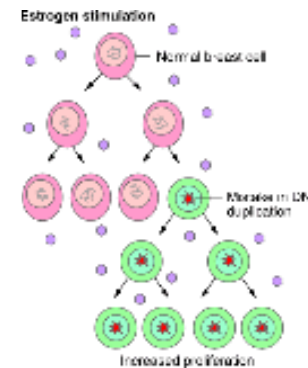
- Damaging DNA

Ionizing radiation



- Promoting tumor growth

HRT



- Disrupting development vulnerability ->

DES







Example mammary carcinogen and endocrine disruptor exposures



- Benzene
- 1,3-butadiene
- PAHs
- PFOA

What kinds of studies reveal cancer causes?

- High, well-defined exposures among large groups

	No disease	Disease
Not exposed		
Exposed		

What kinds of studies reveal cancer causes?

- Occupational studies
 - Men, chemicals, cancers (not breast)
 - And...



- Accidents/disasters (e.g. ionizing radiation)
- Pharmaceuticals (e.g. HRT)

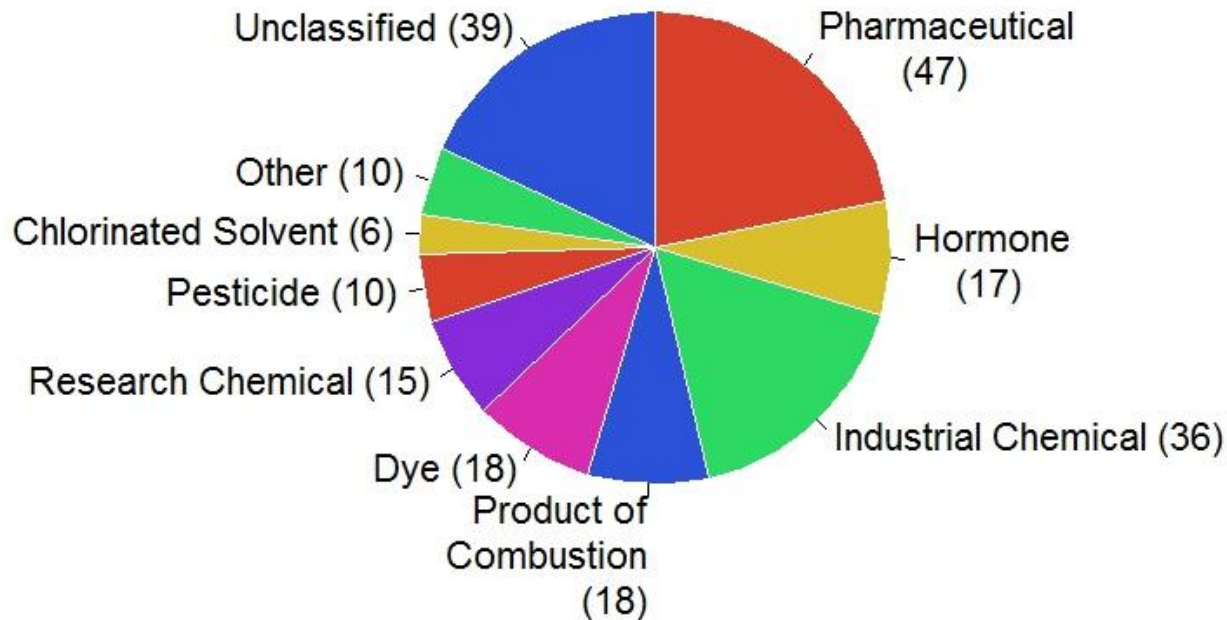
Human studies



- Other differences between groups?
 - HRT
- Appropriate measurements taken at an appropriate time?
 - DDT
- Other factors interacting with the exposure being studied?
 - PCBs

Animal Studies

- 216 chemicals found to cause mammary tumors in rodents



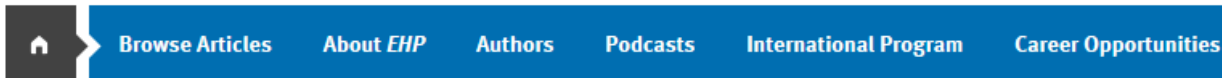
- Animals typically exposed only as adults

Animal Studies

- Rats aren't people!
- But rodent and human results are generally consistent

Exposure	Human Breast Cancer	Rodent Mammary Tumors
HRT (E + P)	+	+
HRT (E)	(+)	+
Oral Contraceptives (E + P)	+	+
DES	+	+
Griseofulvin, Furosamide, Metronidazole	(+)	+
Indomethacin, Nitrofurantin	(-)	+
Ionizing radiation	+	+
Alcohol	+	(+)
Heterocyclic amines (meat)	(+)	+
Sleep disruption	(+)	+
Ethylene oxide	(+)	+
PAH	(+)	+
Solvents	(+)	+
DDE (tested in adult)	-	-
DDT (early exposure)	(+)	Not tested
PCBs (testing adults, entire population)	-	-
PCBs (polymorphism)	(+)	Not tested
Dioxin (early exposure)	(+)	(+)

Rudel *et. al* 2014 *Environmental Health Perspectives*



ADVANCE PUBLICATION

Environ Health Perspect; DOI:10.1289/ehp.1307455

New Exposure Biomarkers as Tools For Breast Cancer Epidemiology, Biomonitoring, and Prevention: A Systematic Approach Based on Animal Evidence

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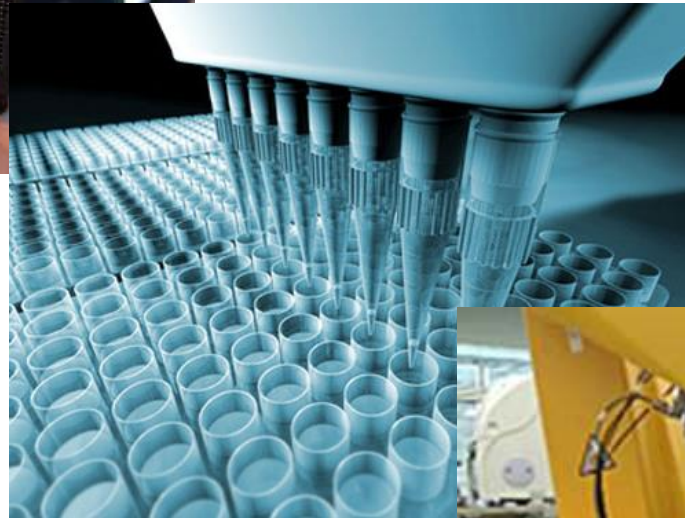
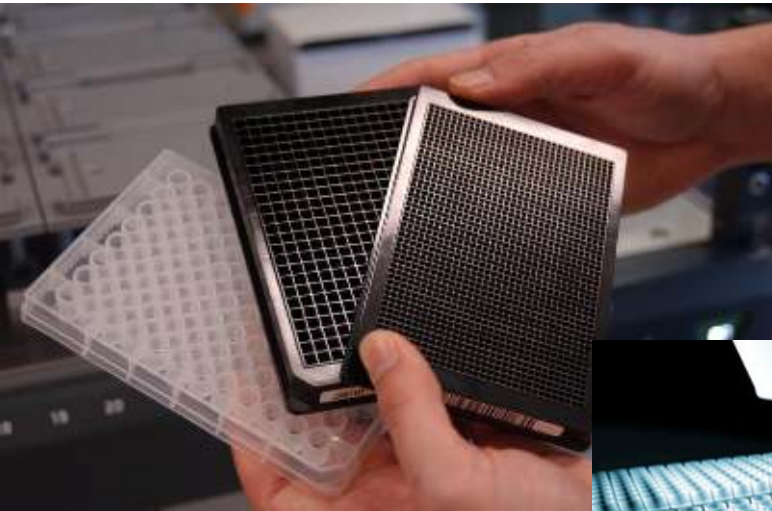
HEALTH CANCER

17 Everyday Chemicals Could Be Linked to Breast Cancer

Barbara Tasch | May 12, 2014



In vitro tests



A HEALTHIER FUTURE

View a brief introduction to Silent Spring Institute's research on the links between the environment and breast cancer, environmental health issues and the emerging field of green chemistry.

CLICK TO VIEW VIDEO



TOO CLOSE TO HOME: A new resource for reducing exposure

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Today's Environmental Health News

Silent Spring Institute researches the links between the environment

FEATURED RESEARCH

Pharmaceuticals and consumer product chemicals found in drinking water wells, septic systems are main source

Experts Call for Federal Government to Increase Cancer Prevention Efforts

Gathering Dust: Many Toxic Retardants Linger in Homes Sometimes at Levels Above Guidelines

Silent Spring scientists voice industry against overuse of chemical safety claims

Consumer products containing potentially harmful chemicals not listed on labels

Review finds early exposure to common chemicals may affect breast health



Too Close to Home

Silent Spring Institute studies reveal that our exposure to harmful chemicals often hits too close to home. But these findings also offer guidance for reducing those exposures.

Show All

Consumer Products

Flame Retardants

Food Packaging

Household Exposures

Water

Flame Retardant Update: After CA Ban, Lower Toxin Levels In Pregnant Women, WBUR's CommonHealth blog

DID YOU KNOW?

In the United States, a woman is diagnosed with breast cancer