RECOMBINANT BOVINE GROWTH HORMONE (rBGH or rBST)

Physicians For Social Responsibility
Oregon Chapter

Rick North, Project Director
Campaign For Safe Food
RECOMBINANT BOVINE GROWTH HORMONE (rBGH) Or rBST

- Genetically engineered drug produced by Monsanto
- Increases milk production 5-15%
- Estimated 15-20% of dairy cows injected nationwide; 10-15% in Oregon
OUR GOAL

Discontinue the production of any dairy products from cows treated with rBGH
OUR METHOD

Grassroots education campaign so that citizens can make an informed decision

www.pluk.org
THE PROBLEMS WITH rBGH

- Increases rates of 16 medical conditions occurring in cows – reduced pregnancy rates and birth weight of calves, increased diarrhea, foot disorders, lesions, somatic cell counts (pus), mastitis.

Condemned by:

- Animal Protection Institute
- Humane Society of U.S.
- Humane Farming Association
- Farm Sanctuary

- Mastitis/antibiotic resistance connection in humans

- IGF-1 and cancer in humans
rBGH, IGF-1 AND CANCER

NOT IN DISPUTE

- IGF-1 is present and identical in cows and humans
- rBGH increases IGF-1 in cows’ milk
- Elevated IGF-1 promotes cancer in humans

IGF-1 survive digestion?

Promotes cancer in humans

Elevated IGF-1
In humans

Increases IGF-1 in cows’ milk

rBGH
CASEIN PROTECTS IGF-1

“Casein (was) effective in preserving IGF-1 structural integrity (80%) and receptor binding activity...”

(C.J. Xian et al, “Degradation of IGF-1 in the adult rat gastrointestinal tract is limited by a specific antiserum or the dietary protein casein,” Journal of Endocrinology, v. 146, 1995.)

“This paper clearly showed that IGF-1 can survive digestion (67%) when in the presence of casein.”


“Casein greatly enhanced the stability of IGF-1...”

FDA
THE MONSANTO-FDA REVOLVING DOOR

Michael Taylor

Margaret Miller

Suzanne Sechen
FDA Primary Review Officer for rBGH (1988-90). Previously a graduate student at Cornell doing rBGH research.

www.infosecuritymag.com
DISSENT WITHIN THE FDA

Alexander Apostolou, Director of Toxicology: “Sound scientific procedures for evaluating human food safety of veterinary drugs have been disregarded.”

- Forced to quit FDA

Joseph Settapani, Chemist in charge of quality control: Described “a systematic human food-safety breakdown at the Center for Veterinary Medicine. Dissent is not tolerated if it could seriously threaten industry profits.”

- Reprimanded, threatened with dismissal, stripped of duties as supervisor
DISSENT WITHIN THE FDA

Richard Burroughs, Reviewer for rBGH for nearly five years: “. . . the Center decided to cover up inappropriate studies and decisions.” Officials “suppressed and manipulated data . . .”

- Fired

On human food safety risks:

“... we were unable to acquire the data from either the University of Vermont or from Monsanto ...”


“These risks are not covered by the FDA guidelines and have not been addressed for rBGH.”

(GAO, “Recombinant Bovine Growth Hormone, FDA Approval Should Be Withheld Until the Mastitis Issue Is Resolved,” August 6, 1992.)
FDA does not require labeling of any product from cows treated with rBGH - it is voluntary.

FDA recommendation for dairies not using rBGH:
“No significant difference has been shown between milk derived from cows treated with rBGH and those not treated with rBGH.”
“Both procedural and data gaps were found which fail to properly address the human safety requirements of this drug . . . .”

“. . . sterility, infertility, birth defects, cancer and immunological derangements were not addressed.”

“IGF-1 also can survive the GI tract . . . . The full significance of this finding also was not investigated.”

“. . . an association between IGF-1 and breast and prostate cancer is supported by epidemiological studies.”

“An increased use of antimicrobial substances in the treatment of rBST related mastitis which might lead to an increased risk of residue formation in milk and to the selection of resistant bacteria.”

INTERNATIONAL OPPOSITION

The Codex Alimentarius Commission, the U.N.’s main food safety body, declined to declare rBGH safe in 1997 and 1999. It has not been brought up since.

Industrialized nations banning rBGH:
European Union (25 nations), including Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, Spain, Sweden, United Kingdom
New Zealand
Japan
Canada
Australia
Health Care Without Harm opposes the use of recombinant Bovine Growth Hormone, (rBGH or rBST) . . . due to its adverse impacts on animals and potential harm to humans. We therefore encourage health care providers to purchase non-rBGH milk from suppliers.”
NORTHWEST rBGH-FREE RESPONSE

- April ‘05: Tillamook cheese (not ice cream, butter, yogurt, sour cream)
- June ‘05: Eberhard totally
- Nov. ‘05: Alpenrose totally
- Nov. ’05: Darigold starts one line of milk; Feb. ’06: all yogurt; Sept. ’06 – all fluid milk
- July ’06: Wilcox totally
- Jan. ’07: Safeway (NW) milk only
- Jan. ’07: Starbucks asks all suppliers nationwide
2006-07 NATIONAL DE RIPPLE EFFECT

- June ’06: Darigold, Meadow Gold - Montana
- June ’06: Garelick - New Jersey
- Oct. ’06: Dean Foods - Texas, New Mexico
- Feb. ’07: Byrne - New York
- Feb. ’07: Sinton - Colorado
- Aug. ’07: California Dairies, Inc. - California
- April ’07: Publix Super Markets - Florida
- Sept. ’07: Southeast Milk, Inc. - Florida
- Feb. ’08: Kroger - Ohio
WHAT YOU CAN DO

- Buy dairy products from dairies not using rBGH

- Tell people you know

- Stay informed - get on the PSR e-mail update list (approx. 2x per month)

- Set up presentations to other groups
GARFIELD

THERE ARE A LOT OF THINGS GOING ON IN THE WORLD YOU DON'T KNOW ABOUT

AND LET'S KEEP IT THAT WAY.
ADDITIONAL

SLIDES
THE rBGH DIFFERENCE IN MILK

- Monsanto’s rBGH adds one amino acid to the cow’s natural growth hormone protein.

- rBGH is twice as immunogenic for certain antibodies than natural BGH.

- IGF-1 levels in milk from rBGH-treated cows significantly increased

Consumer Policy Institute: “... 20 to 30 percent of the rats in the high dose group developed primary antibody responses to rBGH, suggesting it was being absorbed into the bloodstream. In the view of the Canadian scientists, and in our view as well, these are toxicologically significant changes, and should have triggered a full human health review ...”

2000 EDITORIAL

“Given the increasing evidence of the risk of cancer, caution should be exercised in the exogenous use of either insulin-like growth factor-1 or substances that increase concentrations of it.”

“Laboratory studies have shown that IGF’s exert strong mitogenic and antiapoptotic actions on various cancer cells.”

“The role of IGF’s in cancer is supported by epidemiologic studies, which have found that high levels of IGF-1 . . . are associated with increased risk of several common cancers . . .”

(Herbert Yu, Thomas Rohan, “Role of the Insulin-Like Growth Factor Family in Cancer Development and Progression,” Journal of the National Cancer Institute, v. 92, Sept. 20, 2000.)
Recent evidence from epidemiologic studies has confirmed an association between serum levels of IGF’s and several malignancies . . .”

“It is now well established that IGF-1 enhances mitogenicity of breast cancer cells via a variety of mechanisms.”