

# The Center

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The Center is a newsletter compiled by WRRC to alert potential partners of technology transfer opportunities.

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## CRADA OPPORTUNITY: PROCESSED FOODS RESEARCH FOR MAINTAINING A HEALTHY DIET

There is a great need to better utilize food processing technologies to produce novel functional foods that can provide healthy choices for American consumers. For example, the nation's obesity epidemic may soon overtake tobacco as the leading cause of preventable disease in the United States. Health care costs associated with obesity total an estimated \$117 billion annually. Of particular concern is the epidemic in childhood obesity. In part, prevention of diet related illnesses can be achieved through increased consumption of healthful foods. Presently fewer than half of Americans consume the USDA recommended daily allowances of many healthful foods, such as fruits, vegetables and grains.

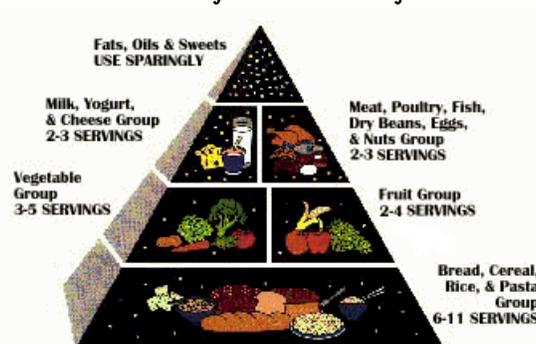
The Processed Food Research (PFR) unit of WRRC is uniquely positioned to perform research on healthful food products and processes. The unit has scientific expertise in food processing and nutrition and state of the art food processing and animal research facilities. We are

presently investigating a variety of new technologies for processing functional foods for health. Effects of food processing on lycopene, limonoid compounds, fiber, anthocyanins, and other health promoting compounds are presently being explored. In several cases, low value byproducts from processed fruits, vegetables and grains can be upgraded through further processing to higher value snack or convenience foods. The unit has extensive capabilities for gas chromatographic and mass spectroscopic analyses of virtually all food components including antioxidants, phenolic compounds, neutral sterols and bile acids to increase understanding of the role of plant components in improving human health. In addition, PFR scientists have the capability to characterize large biopolymers such as dietary fiber by size exclusion chromatography and multiangle laser light scattering detection. State of the art processing technologies such as extrusion, canning, drying, forming and many others are available for study. The unit is also equipped with a sensory evaluation laboratory to test consumer acceptability of final products.

We seek CRADA partners interested in working with us on these important efforts.

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### Recommended by USDA for a Healthy Adult



## WRRC Patent Activity

July 2001 - July 2002

### U.S. Patent Applications Allowed:

April 5, 2002

Serial No. 09/482,611

“Ubiquitin-Lytic Peptide Fusion Gene Constructs, Protein Products Deriving There-from, and Methods of Making and Using Same”

USDA Inventor: W. Belknap

### U.S. Patents Issued:

May 28, 2002

Patent No. 6,395,879

“Monoclonal Antibodies Against Campylobacter Jejuni and Campylobacter Coli Outer Membrane Antigens”

USDA Inventor: R. Mandrell

### Licenses Granted:

November 15, 2001

License No. 08/918,832-601

“Restructured Fruit & Vegetable Products and Processing Methods”

Licensee: HR Mtn. Sun Inc

USDA Inventors: T. McHugh, C. Huxsoll

November 14, 2001

License No. 08/586,331-101

“Glutenin Genes and Their Uses”

Licensee: University of Minnesota

USDA Inventors: A. Blechl, O. Anderson

July 19, 2001

License No. 08/586,331-601

“Glutenin Genes and Their Uses” and “Altering Dough Viscoelasticity with Modified Glutenins”

Licensee: Grain Biotech - Australia

USDA Inventors: A. Blechl, O. Anderson

### How Do Businesses Get Access to These Technologies

WRRC is seeking private companies interested in licensing technologies which have been patented or for which a patent application has been filed. We are also looking for companies interested in becoming our partners in Cooperative Research and Development Agreements (CRADAs). CRADA partners have the first right to negotiate an exclusive license for each invention which is made as part of the CRADA. We encourage small and minority-owned businesses to take part in our technology transfer programs.



*High-fiber extruded grain and legume products*

### Animal Models for Food Processing Research

WRRC in Albany, CA is unique among USDA Agricultural Research Service regional research centers in having a dedicated animal research facility. The facility has been recently upgraded. Research animals are cared for by certified staff 365 days per year.

Scientists in the Processed Foods Research (PFR) unit have developed several unique hamster models to investigate effects of diet on cholesterol and insulin resistance. Effects of dietary fiber and plant sterols on cholesterol reduction are being investigated. PFR investigators have found that a diet rich in saturated fat and fish oil will induce high levels of low density lipoprotein (LDL) cholesterol in the hamster plasmas. Humans carry cholesterol in the plasma in the form of LDL, whereas the typical rodent carries cholesterol in high density lipoprotein (HDL). This model is sensitive at normal human intake levels of fiber and plant sterols. High LDL levels also induce fatty streaks in the aorta in hamsters. This model is being used to study the role of antioxidants in food on cholesterol levels.

A second unique hamster model was recently developed to investigate the role of dietary fiber and other food components to reduce diet-induced insulin resistance. The novel hamster model for insulin resistance allows testing of soluble fiber and other food components leading to an increased understanding of the role of diet in type II diabetes. We have shown that high fat and/or simple carbohydrate diets induce insulin resistance and damage the liver and the pancreas in hamsters. Feeding high fiber diets ameliorates this effect.

The combination of PFR's scientific expertise and state of the art animal research facility position the unit effectively to work with numerous potential cooperators to test the effects of various dietary components on both cholesterol reduction and insulin resistance. We welcome the opportunity to show our facility to and discuss potential collaborative research projects with interested collaborators.

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