MMHCC
the Mouse Models of Human Cancers Consortium

MMHCC Newsletter June 2008

MouseLine

Reducing Intake Of Dietary Fat Prevents Prostate Cancer In Mice

Scientists with UCLA's Jonsson Cancer Center and the Department of Urology have showed that lowering intake of the type of fat common in a Western diet helps prevent prostate cancer in mice, the first finding of its kind in a mouse model that closely mimics human cancer, researchers said.

The study, which appears in the April 15, 2008 issue of the journal Cancer Research, focused on fat from corn oil, which is made up primarily of omega-6 fatty acids, or the polyunsaturated fat commonly found in the Western diet. Omega-6 fats are found in high levels in baked and fried goods, said William Aronson, a Jonsson Cancer Center researcher and the study's senior author.

Researchers fed one group of mice a diet with about 40 percent of calories coming from fat, a percentage typical in men eating a Western diet. The other group received 12 percent of their calories from fat, a figure considered to be a very low fat diet. Researchers found there was a 27 percent reduced incidence of prostate cancer in the low-fat diet group. Aronson also studied cells in the prostate that were precancerous, or would soon become cancer, and found that the cells in the mice eating the low-fat diet were growing much more slowly than those in the high-fat group.

Previous studies in Aronson's lab showed that a low-fat diet slowed the growth of aggressive human prostate cancers in mice and helped the mice live longer. However, whether such a diet could prevent prostate cancer was unknown.

"We didn't know what to expect in terms of the role of reducing dietary fat in preventing prostate cancer," said Aronson, a professor of urology. "We think this is an important finding and we are presently performing further studies in animal models and conducting clinical trials in men."

Using a novel mouse model that develops cancer within the prostate over a period of six to nine months, Aronson and his team were able to study cancer incidence and cell growth. The mice were assigned to a dietary fat group at three weeks of age, when they first started ingesting food. The prostates and prostate cells were studied at seven months.

During the growth phase when the precancerous lesions develop, called PIN or prostate intraepithelial neoplasia, Aronson found that mice on the low-fat diet had higher levels of a protein in their bloodstreams that binds to insulin like growth factor, which spurs prostate cancer growth. Aronson believes that lowering dietary fat and increasing levels of the binding protein slows prostate cancer development by cutting off the growth factor that allows prostate cancer to thrive.

"A low-fat, high-fiber diet combined with weight loss and exercise is well known to be healthy in terms of heart disease and is known to reduce the risk of heart attacks and strokes, so that would be a healthy choice to make," Aronson said. "Whether or not it will prevent prostate cancer in humans remains to be seen."

Aronson is now conducting a short term study in men who are randomly assigned to a Western diet higher in polyunsaturated fat or a low-fat diet with fish oil supplements. The next step is to see how these diets affect malignant and benign human prostate tissue, Aronson said.

"We're looking at specific markers and growth factors in human tissue known to be important for development and progression of prostate cancer," he said. "It's this work we hope will lead to longer term prevention strategies incorporating dietary changes."

Source: http://www.sciencedaily.com/releases/2008/05/080515073031.htm
Publication:
Kobayashi N, Barnard RJ, Said J, Hong-Gonzalez J, Corman DM, Ku M, Doan NB, Gui D, Elashoff D, Cohen P, Aronson WJ.
Effect of low-fat diet on development of prostate cancer and Akt phosphorylation in the Hi-Myc transgenic mouse model.
Cancer Res. 2008 Apr 15;68(8):3066-73.
PMID: 18413778

Meetings

June 12 – 17, 2008
BIT's Annual World Cancer Congress 2008-Theme: From Basic Research to Therapeutics
Shanghai, China
Meeting Information: http://www.bitlifesciences.com/cancer2008/Program.htm

June 14 – 18, 2008
Molecular Imaging: Build on the Past, Define the Future
ISNM 2008 Annual Meeting
New Orleans, Louisiana
Meeting Information: http://www.snm.org/am

June 15 – 20, 2008
AACR-Cancer Research Imaging Program – AACR Joint Workshop
Durham, North Carolina
Meeting Information: http://imaging.cancer.gov/NewsAndMeetings/workshops/CRIC

Meetings cont.

June 18 – 20, 2008
AACR – Accelerating Anticancer Agent Development and Validation Workshop
North Bethesda, Maryland
Meeting Information: http://www.acceleratingworkshop.org

June 21 – 27, 2008
AACR- Methods in Clinical Cancer Research Workshop
Flims, Switzerland
Meeting Information: http://www.ecco-org.eu/Education/Flims/FLIMS-10/page.aspx/414

June 23 – 25, 2008
CHI's-6th Annual Protein Kinase Targets: Drug Discovery and Design
Boston, Massachusetts
Meeting Information: http://www.healthtech.com/KIN/overview.aspx

June 27, 2008
Nanotechnology and Cancer: The Power of Small Science
MIT Center for Cancer Research 7th Annual Symposium
Meeting Information: http://events.mit.edu/event.html?id=8230587&date=2008/6/27

July 6 – 13, 2008
AACR-Pathobiology of Cancer: The Edward A. Smuckler Memorial Workshop
Snowmass Village, Colorado
Meeting Information: http://www.aacr.org/home/scientists/meetings--workshops/educational-workshops--special-courses/pathobiology-of-cancer.aspx

July 11 – 18, 2008
AACR- Molecular Biology in Clinical Oncology
Aspen, Colorado
Meeting Information: http://www.aacr.org/home/scientists/meetings--workshops/educational-workshops--special-courses/molecular-biology-in-clinical-oncology.aspx

Notices and Funding Opportunities

NIH Grantees can now purchase Lexicon mice with funds from grants under the same terms as NIH contract
NOT-DA-08-015
National Institute on Drug Abuse
http://grants.nih.gov/grants/guide/notice-files/NOT-DA-08-015.html

Mouse Models Containing Human Alleles: Novel Tools to Study Brain Function (R21/R33)
PAR-08-158
National Institute of Mental Health
National Institute on Aging
National Institute on Alcohol Abuse and Alcoholism
National Institute on Drug Abuse
http://grants.nih.gov/grants/guide/pa-files/PAR-08-158.html

Request for Information (RFI): Priorities for Cancer-oriented Research and Development by Small Businesses
NOT-CA-08-015
National Cancer Institute
http://grants.nih.gov/grants/guide/notice-files/NOT-CA-08-015.html

Stem Cells and Cancer (R21)
PA-08-165
National Cancer Institute
National Institute on Aging
http://grants.nih.gov/grants/guide/pa-files/PA-08-165.html

National Cancer Institute (NCI) Policy for Clinical Trials Research and Associated Clinical Terms of Awards
NOT-CA-08-019
National Cancer Institute
http://grants.nih.gov/grants/guide/notice-files/NOT-CA-08-019.html

SBIR Phase II Bridge Awards to Accelerate the Development of New Cancer Therapies and Cancer Imaging Technologies Toward Commercialization (SBIR [R44])
RFA-CA-08-021
National Cancer Institute
http://grants.nih.gov/grants/guide/rfa-files/RFA-CA-08-021.html

To unsubscribe from this newsletter please send an email to Dr. Betty Tarnowski tarnowsb@mail.nih.gov Send meeting announcements and other information you would like to have included in this newsletter to Ulli Wagner: ulrike@mail.nih.gov

Notices and Funding Opportunities cont.

SCAW IACUC-Advanced Workshop on June 4, 2008 in Columbus, OH
NOT-OD-08-072
National Institutes of Health
http://grants.nih.gov/grants/guide/notice-files/NOT-OD-08-072.html

June IACUC 101 & 201 PLUS Workshops in Saint Paul, Minnesota
NOT-OD-08-074
National Institutes of Health
http://grants.nih.gov/grants/guide/notice-files/NOT-OD-08-074.html

NIA Mutant Mouse Aging Colony for Biogerontology Research
NOT-AG-08-004
National Institute on Aging
http://grants.nih.gov/grants/guide/notice-files/NOT-AG-08-004.html

Repository News

The MMHCC Mouse Repository is an NCI-supported resource for the distribution of mouse cancer models and associated strains. The Repository makes strains available to all members of the scientific community. Up to 3 breeder pairs of each available strain may be ordered.

Newly accepted strains
The following strain has recently been accepted into the MMHCC Repository and is available for distribution (*please click on the specific link, below, for additional information*):

1. STOCK-*Apc* $^{tm2.1Rak}$ (Apc Delta 580)
   http://mouse.ncifcrf.gov/available_details.asp?ID=01XP3

More information can be found on the Mouse Repository's website: http://mouse.ncifcrf.gov

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