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AMIF Opposes Exclusion of Food Science Research Funding Under AFRI Grant Program

Removing food science related research from the Agriculture and Food Research Initiative grant program is a mistake that could impact food safety throughout the food chain, according to AMI Foundation Director of Scientific Affairs Betsy Booren, Ph.D.

Booren made her statement at a June 2, 2010, stakeholder meeting hosted by USDA's National Institute of Food and Agriculture (NIFA) held to gather comments about how the agency should develop funding requests for its 2011 Agriculture and Food Research Initiative (AFRI). AFRI is the flagship competitive research grant program by NIFA, which was established by the 2008 Farm Bill.

Booren said the AMI Foundation (AMIF)

strongly supports funding for extension education programs to solve food safety problems throughout the entire food chain, but the removal of food science and other agricultural disciplines from the AFRI program compromises food safety challenges facing the industry.

"Research on food processing technologies, food ingredients, animal production and other critical multi-disciplinary areas in the food sciences are needed to solve the problems facing today's agricultural community. These multi-disciplinary areas are integral to food safety research," Booren stated.

Booren said the exclusion of food sciences-related research may also create *(see page 8)*

AMI Foundation Releases Request for Pre-proposals

The American Meat Institute Foundation (AMIF) released its 2010-2011 request for pre-proposals (RFP) in early June. AMIF is inviting pre-proposals on applied and fundamental research that will improve the control of microbial pathogens in meat and poultry products.

AMIF is soliciting pre-proposals on controlling *Listeria monocytogenes* on ready-to-eat (RTE) meat and poultry products, *Escherichia coli* O157:H7 in fresh beef products and *Salmonella* in meat and poultry products. The priorities are listed by pathogen and are further categorized within each. For example, pre- and post-harvest *E. coli* research, information to enhance *E. coli*, *Listeria* and *Salmonella* risk assessments, innovative pathogen interventions for *Listeria* and *Salmonella*, as well as operational and post production research to reduce *Listeria*.

In a departure from previous RFPs, AMIF has developed a Priority Focus category within each pathogen. This category *(see page 3)*

AMIF Funds Three Supplemental Research Projects

In response to the AMI Foundation's January 2010 supplemental request for proposals (SRFP), three research projects on controlling *Escherichia coli* O157:H7 and *Salmonella* in beef products were recently approved for funding. These three projects totaling more than \$200,000 bring AMIF's 2010 funding to nearly half a million dollars and total program funding to more than \$7.4 million.

The SRFP solicited highly detailed proposals on research topics developed by the AMI Foundation Research Advisory Committee and were determined to be of the highest priority. The newly approved research includes:

Antimicrobial interventions/application methods for the reduction of *Escherichia coli* O157:H7 and *Salmonella* in beef trimming and/or ground beef
University of Arkansas

The main focus of this research *(see page 2)*

Dietary Guidelines Committee Releases Final Technical Report

Document Will Serve as Basis for Revisions to *Dietary Guidelines for Americans*

The Dietary Guidelines Committee (DGAC) released its final technical report, which will serve as the basis for a revision of the *Dietary Guidelines for Americans*. The Department of Health and Human Services (HHS) and U.S. Department of Agriculture (USDA) are expected to publish their revisions later this year.

AMI Foundation President James H. Hodges responded to the report, noting, “The health of our customers is the driving force in the production of meat and poultry products, not only with respect to improving the safety of meat and poultry products, but also in offering diverse nutritional products to consumers so they can make an educated decision in choosing the food that best fits their personal lifestyle and family needs.”

In response to the Committee’s sodium reduction recommendations, Hodges pointed out that an analysis of the top 20 sodium contributing foods consumed by Americans shows that only three of these foods are meat products or food products that contain meat.

Still, the meat industry is actively responding with efforts to offer a wide variety of reduced or low-sodium products to meet different nutrition needs. Today’s meat case also features an abundant variety of lean, low-fat and fat-free options.

“AMI has been actively engaged in the development of the 2010 *Dietary Guidelines for Americans*, participating in all six Dietary Guidelines Advisory Committee meetings and twice submitting detailed comments concerning sodium’s role in meat and poultry products and the health benefits of consuming animal-based proteins as part of a balanced diet,” Hodges said.

“We look forward once again to participate actively during this most recent comment period. It is AMI’s hope that USDA and HHS will consider the full body of evidence, which clearly demonstrates that meat is a healthy part of a balanced diet, as

they translate the Advisory Report of the Committee into the 2010 *Dietary Guidelines for Americans*,” he added.

To view the report, go to www.cnpp.usda.gov/dietaryguidelines.htm.

Access to Data

In the days leading up to the report’s release, AMI with other food industry groups requested access to the USDA’s Nutrition Evidence Library (NEL) when the departments release a draft of the 2010 Dietary Guidelines Advisory Committee (DGAC) report.

The letter stated while valuing the USDA’s and DHHS’s efforts for an “open and transparent process in terms of data and methods of analysis to ensure that the reproducibility standard applicable to influential scientific, financial, or statistical information is adhered to as outlined in the Data Quality Act, there were concerns that without access to the data from which the DGAC drew its conclusions and recommendations, the public may not be able to provide meaningful comments.”

The letter concluded, “Without access to the NEL report and an understanding of the basis of evidence documented in it, it will not be possible for the public to accurately assess and comment on the DGAC technical report.”

This request has since been granted, and can be accessed at www.nutritionevidencelibrary.com/default.cfm.

The *Dietary Guidelines for Americans* was first released in 1980 and is the basis for federal nutrition policy and education. The DGAC is an expert committee convened to review, revise and recommend nutrition policy every 5 years. The 2010 *Dietary Guidelines for Americans* is anticipated to be released in Fall 2010.

AMI Foundation Approves Three Supplemental Research Projects

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is to utilize and validate antimicrobial properties of organic acids alone or in combination with a non-ionic surfactant on beef trimmings to achieve maximum product safety with minimum chemical residues without altering product quality through effective treatment application technologies.

Evaluation of chemical decontamination treatments for beef trimmings against *Escherichia coli* O157:H7, non-O157 shiga toxin-producing *E. coli* and antibiotic resistant and susceptible *Salmonella* Typhimurium and *Salmonella* Newport
Colorado State University

The objective of the proposed study is to determine whether interventions known for reducing *Escherichia coli* O157:H7 contamination on beef trimmings are also effective in reducing multiple drug resistant (MDR) and susceptible *Salmonella* Typhimurium and *Salmonella* Newport, and non-O157 shiga toxin-producing *E. coli* (STEC).

Efficacy of commonly used antimicrobial compounds on decontamination of Shiga toxin-producing *Escherichia coli* serotypes O45, O121, and *Salmonella* inoculated fresh meat

USDA-ARS-U.S. Meat Animal Research Center

The overall objective is to validate effectiveness of antimicrobial compound treatments on inactivation of STEC and *Salmonella* (MDR versus non-MDR strains) inoculated fresh beef. This study will complement research recently funded by AMIF on the following non-O157 STECs: O26, O103, O111 and O145 by adding the other two non-O157 STECs from the Centers for Disease Control’s top six and include MDR and non-MDR *Salmonella* Typhimurium and Newport.

AMI Foundation Offers Strong Critique of New Study Alleging Link Between Processed Meat and Coronary Heart Disease, Diabetes

A new study linking processed meats with coronary heart disease and diabetes has numerous weaknesses that call into question the strong claims made in the study's release, according to the AMI Foundation.

The Harvard School of Public Health study, published in the June 2010 *Circulation*, concluded that consumption of processed meats, but not red meats, was associated with higher incidence of coronary heart disease and diabetes mellitus. The researchers performed a systematic review and meta-analysis of evidence for relationships of red, processed and total meat consumption with the incident of coronary heart disease, stroke and diabetes mellitus. An AMI Foundation (AMIF) review of the paper found weak associations and flawed assumptions about sodium nitrite.

AMIF President James H. Hodges responded formally with a statement that was quoted widely in reporting of the study.

While the paper was characterized as a comprehensive meta-analysis, a careful read of the study indicates that the data for processed meats and coronary heart disease were based upon just six studies and one of the six was given 83 percent the statistical weight. AMIF previously expressed strong concerns about methodological issues in the study that were given so much weight.

Studies used in the meta-analysis note the difficulty in separating the potential effect of processed meat consumption from other confounders. In fact, the authors of the analysis state in the paper that "associations of processed meat consumption with diabetes mellitus or coronary heart disease could relate to generally less healthy diet or lifestyle rather than causal effects of processed meats" and note that their conclusions cannot be used to recommend dietary changes.

AMIF also noted that the paper suggests that nitrite in cured meats is a risk factor and ignores the major sources of nitrite in the diet when less than 5 percent of human nitrite intake comes from cured meats. Ninety-three percent comes from leafy green and root vegetables such as spinach, beets, celery and lettuce, which contain nitrate that is converted to nitrite in human saliva and swallowed.

The human body makes nitrite as a critical signaling compound of the normal human nitrogen cycle, AMIF observed. This important natural human pathway has been documented to have many health promoting benefits including wound healing, regulating blood pressure, preventing preeclampsia in pregnant women and it performs many other essential functions.

Wires That Shock: How Single Studies Become Scares

By Janet Riley
AMI Senior Vice President of Public Affairs
and Member Services

Readers of nutrition news coverage may have seen AMI Foundation experts use the term "nutrition whiplash." This is how we often characterize the herky-jerky advice dispensed to consumers through the media. Media reports told us at one point, oat bran was going to save us all from coronary heart disease, but later studies said its benefits were overstated. One week red wine offered dietary salvation, but then we were warned that consumption may do harm.

On meat specifically, we've heard that red meat offers more absorbable iron than other foods, but then we've heard some researchers report that the more absorbable "heme" iron may cause cancer. We've been told that grilling reduces fat, but then later we were warned about compounds formed during grilling. We've been told to avoid red meat altogether, but then later told that maybe it's just processed meat we should worry about.

So how do these wildly conflicting recommendations become part of the public dialogue? To understand why media report them they way they do, it is important to understand how the media has changed and how studies are released by journals.

Media analysis tells us that stories based upon "new landmark findings" are typically reporting about epidemiological studies and they seldom deliver the insight that the full body of research can offer. Epidemiological studies measure the strength of associations numerically. Patients (see page 4)

AMI Foundation Releases 2010-2011 Request For Pre-proposals

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highlights the areas of greatest concern within a given pathogen research area. Priority Focus replaces the previously defined Targeted Research area.

Priority Focus areas include: Is *E. coli* O157:H7 contamination on blade tenderized and/or enhanced whole muscle beef products a potential public health concern?; Determine the most effective location(s) in the production chain for ground beef to apply interventions to maximize reduction of microbial contamination; Improve and augment data on food attribution for listeriosis, both sporadic and outbreak cases and Develop data to support future risk assessments of *Salmonella* and to estimate the human health risks attributable to beef, pork and/or poultry products.

Each of the above referenced Priority Focus areas have further

defined parameters and questions that should be addressed in the pre-proposal.

Research priorities that are outside of the scope of the three referenced pathogens are listed under Other Food Safety Research.

Pre-proposals are due by 5 p.m. EDT on Friday, July 30. Fully developed proposals that result from this initial review will be brought before the AMI Foundation Board of Directors for approval in January 2011.

Further detail on pre-proposal submission and the complete RFP is available at www.amif.org. Please contact AMI Foundation's director of research Susan Backus at sbackus@meatami.com or 202-587-4220 with any questions about the RFP.

Wires That Shock: How Single Studies Often Become Scares

(from page 3) with a particular disease may report diet and other

lifestyle factors and epidemiologists try to identify common factors that may be causing the condition at issue. In some studies, people record their diet and other factors going forward, and those who develop diseases are compared to identify commonalities. This is called a prospective or cohort study, which is commonly used today. Two well-known ongoing studies with results reported in the media are the CDC's National Health and Nutrition Examination Survey (NHANES) and the NIH – AARP Diet and Health Study.

In another formerly more common approach called “case control,” a group of people with a disease is compared to a group without the disease. These studies ask people to recall key habits (what foods they consumed, how much they smoked, how much they exercised in the past, sometimes several years ago.)

Epidemiological studies can be difficult for the lay person to understand because they use statistical terminology. In epidemiological studies, if the relative risk of daily consumption of a single glass of wine on development of colon cancer is neutral, the relative risk will be “1” meaning it neither increased or reduced the risk. If the relative risk is 1.2, it means the risk was increased by 20 percent.

The problem is that *relative* risk of often confused with *absolute* risk. Absolute risk is the chance of an outcome occurring during a lifetime. In other words, if your chance of being diagnosed with colon cancer in your lifetime is two percent, then two out of every 100 people will develop colon cancer. Those who drink a glass of wine, have a 2.4 percent chance – not a 20 percent chance.

In the epidemiological community, relative risks are the subject of much debate. Many experts say that given the imprecise nature of epidemiology and its reliance on people to report their behavior either in the past or at single instances in time, only studies showing relative risks of at least two or even three should raise concern. When cigarettes and lung cancer were linked, the relative risks identified in these studies were in the 15-25 range – a far different finding than a study showing 1.2. Still, the pressure to generate publicity prompts journals to highlight studies, even when researchers themselves include clear caveats about the study's limitations.

“In the pressure to be first, journalists should not neglect the balance that comes from noting other studies that have reached different or opposite conclusions.”

- AMI Senior Vice President of Public Affairs Janet Riley



A great deal of breaking health news originates on wires like Reuters and AP. Health writers receive embargoed studies from journals that typically provide summary press releases. On some occasions, reporters phone before the embargo is lifted and seek comment, but often they are reluctant to provide the study prior to the embargo, which makes providing an informed comment nearly impossible. In many cases, we become aware of studies when we see a story move on the wire.

The recent flap over meat and coronary heart disease based upon a Harvard study in the journal *Circulation* offers an excellent case study. AMIF obtained a copy of the study in advance. We dissected the study and released a statement with the same criticisms that we've made many times before: epidemiological studies are not designed to determine cause and effect; the study's reported relative risk for coronary heart disease was just 1.42 per 50 gram serving of processed meat and for diabetes it was 1.19 per 50 gram serving of processed meat – way too low to raise concern. We also argued that the most prudent course of action is to consume a balanced diet.

The journal's embargo was scheduled for 4 p.m. May 17. AMIF's statement was sent in advance to reporters whom we were confident would file a story. At 4:01, Reuters health led the coverage, as they often do, with a story that said that red meat was not associated with CHD, but processed meats were. The lead referred to hot dogs and bacon as “the real bad boys of the meat case.” Reuters did not quote AMIF or any other expert or industry group.

In response, we wrote to Reuters and asked that our comments be included. We also complained about what we believed

to be editorializing in the lead. We were told that we needed to provide other peer-reviewed studies that supported our criticisms, which we did. Reuters reacted strongly to our suggestion of bias and maintained its phrasing in the lead, though to their credit, they did include our quote. The story was picked up nationally, Reuters sided with the reporter and the lead remained.

While this is just one example, it is fairly typical of the challenge we face when epidemiological studies are released. We are fighting to be included in a story that is already written and often already on the wire. And our criticism of their use of studies with low relative risk numbers is not something that fits in the dozen-word quote that we may be allotted.

So what's the solution? In my view, if the public health is our greatest concern, there are three actions that need to be taken.

First, medical journals must exercise greater restraint in their promotion of single studies. They must provide context and they must not over-promote studies with low relative risks.

Second, health and medical writers must do a better job of offering context. They must cease using broad phrases like “this study confirms that conventional wisdom” or “the widely held-view that meat causes cancer.” Whose conventional wisdom? Whose widely-held view? In the pressure to be first, journalists should not neglect the balance that comes from noting other studies that have reached different or opposite conclusions.

And third, our industry must continue to fight to be represented in stories in a timely fashion. With wires leading news coverage in an almost instant fashion, tomorrow's statement on today's study is simply too late. And when balance is not included in the first wire version, all industry communicators need to understand that a wire story can always be updated and we must all be persistent in ensuring accuracy and balance.

It is also increasingly important to find third party, university-based experts who are willing to provide comment. Reporters increasingly reject industry comments.

The real question in all this is – how much are consumers really listening and how much are they tuning out? A study may be warranted to determine the relative risk to our health – and possibly our stress levels – of paying attention to isolated studies. I'd venture a guess that the relative risk would be high enough to warrant action.

AMIF Q&A With Peter Taormina, Ph.D., Author of ‘Implications of Salt and Sodium Reduction on Microbial Food Safety’

While much attention lately has been placed on reducing salt intake, there is ample evidence that sodium chloride is effective against pathogenic and spoilage microorganisms — something that should be considered before rushing into regulatory action, says a new research review by Peter Taormina, Ph.D., principal scientist with John Morrell Food Group.

The review was recently published in *Critical Reviews in Food Science and Nutrition* (2010, Volume 50).

The AMI Foundation sat down with Taormina recently to find out more about his groundbreaking study.

Your review states that salt is a key food safety hurdle for microbiologically sensitive foods. What are some examples of these types of foods? Also, what impact do you believe this will have on meat and poultry products?

Since civilization began, salt (sodium chloride) has been used to extend the length of time that food is wholesome and consumable. In my view, preservation with salt and other additives should continue as a responsible way to reduce waste. Either people get to eat food or microorganisms do. Salt helps us win this kind of digestive race against microorganisms. Some scientists have said that salt is no longer as necessary since we now have modern refrigeration. However, psychrotrophic (cold-tolerant) pathogens like *Listeria monocytogenes* grow just fine under refrigeration, so additional hurdles like salt are necessary. Salt (NaCl) is an important hurdle against foodborne bacterial pathogens in most ready-to-eat refrigerated foods, such as deli meats, hot dogs, hams, prepared salads and cheeses. Added salt in fresh meat and poultry is more important for restricting the growth of spoilage microorganisms, since presumably cooking would inactivate pathogens should they inadvertently be present.

How does salt work to combat foodborne pathogens in these foods?

The key mechanism of action of salt is

lowering of water activity (the biologically available water) in foods. Simply put, NaCl dehydrates food better than pretty much any other solute and restricts the availability of water to microorganisms necessary for their survival and growth. In the presence of salt, microbial cells struggle to maintain osmotic balance and various enzymatic processes are disrupted. The chloride (Cl⁻) ion itself is also toxic to bacteria, which is the basis for the use of KCl (potassium chloride) or other salts in place of NaCl.

Cation replacement is the principle approach for reducing sodium intake in food formulations and for table salt usage. What did your review reveal in regards to the microbial impact of ion replacement? Are there other approaches the food industry can take, outside cation replacement when trying to reduce sodium levels?

Based on my review of the literature, the efficacy of KCl versus NaCl against microorganisms in foods seems to be dependent upon the food matrix and the microorganism. Some studies concluded that KCl was just as antimicrobial as NaCl, while other studies showed that properties of the food, like pH for example, interact with the efficacy of KCl. Blended salts like MgCl₂ + NaCl or KCl + NaCl appeared to be just as antimicrobial as NaCl alone in some food systems and more antimicrobial than the non-sodium single salts. Herbs and plant extracts have shown some promise as potentially contributing to preservation systems in foods, but use can be limited by flavor and other compatibility issues. These technologies need further research and should be validated on a product by product basis.

Another approach to increasing safety of reduced sodium foods is post-packaging pasteurization. This could include thermal as well as certain non-thermal processes like high hydrostatic pressure, aqueous antimicrobials, or ultraviolet light (UV). As always, the best approach will be product dependent.

What do you see as the potential food safety implications of regulatory actions reducing salt/sodium?

Given the clear efficacy of NaCl, the biggest food safety implication of restricting sodium chloride use could be the growth or survival of pathogens in foods that would have otherwise been controlled in large part by salt. It would cause more reliance on the other hurdles against pathogens, like refrigeration.

Economic implications?

It is likely that spoilage microorganisms would become more active in reduced sodium formulations unless mitigated by some other hurdle. This could ultimately cause a reduced shelf-life for many foods leading to economic stress on the food industry. If salt is replaced with more expensive lower sodium inhibitors, this could increase the cost of food at a time when some economists are predicting higher food prices in the near future.

Are there any challenges of sodium reformulation in making low-fat meat and poultry products?

The biggest challenge besides achieving the same degree of microbiological control would be the impact on food product flavor and the cost of formulations. Many low salt ingredients contain potassium chloride (KCl), and potassium can impart a metallic flavor to foods. Herb mixtures and flavor masking agents used to combat the metallic taste can both increase the cost of the preservative system. Some of the flavor enhancers will increase dietary phosphorus, which can be a medical concern for individuals with impaired kidney function.

What advice would you give to those bodies considering restrictions to salt in food formulations?

Consult experts in microbial food safety and food science regarding possible impacts of restrictions on the use of salt in microbiologically sensitive foods. Make sure proper risk assessments are performed.

Science Soundbites

Cetylpyridinium Chloride (CPC) Reduces Pathogen Levels on Moisture-Enhanced Beef

Cetylpyridinium chloride (CPC) is effective at reducing pathogen levels in moisture-enhanced beef, according to a new, AMIF-funded study by Colorado State University evaluating brining ingredients and antimicrobials for their potential effect on thermal inactivation of *E. coli* O157:H7 in a moisture-enhanced beef model system.

Overall, under the conditions of this study, the effect of the beef fat content (5 percent to 15 percent) on heat inactivation of *E. coli* O157:H7 at 65 degrees Celsius was negligible. No immediate reduction in bacterial numbers was achieved by any chemical treatment.

After 24 hours of storage at 4 degrees Celsius, microbial counts were not affected by any treatment, except for samples treated with CPC, which reduced pathogen levels by approximately 1 log. Surviving pathogen numbers in cooked samples were the lowest in samples treated with CPC, while nisin and pediocin also increased heat inactivation. Other tested compounds, including NaCl, phosphates, organic acids and their salts, sodium metasilicate, or hops beta acids did not influence thermal inactivation of the pathogen.

According to the authors, these data should be useful in development and/or optimization of brining formulations to control *E. coli* O157:H7 in moisture enhanced beef products. This information may also be utilized in development or updating risk assessments for *E. coli* O157:H7 infections from contaminated moisture-enhanced meat products.

Journal of Food Science. (2010) 75(4): M209-M217.

Preharvest Interventions for *E. coli* O157:H7 Should Focus on Truckload-Level Hide Mitigation

Preharvest interventions for reducing *E. coli* O157:H7 contamination of carcasses should focus on truckload (cohort)-level and hide mitigation strategies, according to

a new study by Kansas State University that evaluates the associations among fecal, hide and preevisceration carcass prevalence of *E. coli* O157:H7.

Fecal, hide and preevisceration carcass samples were collected from up to 32 cattle on each of 45 truckloads presented to a midwestern U.S. abattoir. Enrichment and selective culture were used to assess fecal, hide and carcass prevalence and direct plating was used to identify cattle shedding high levels of *E. coli* O157:H7 in feces.

Although researchers found truckload-level correlations among fecal (both high and low shedders), hide and carcass prevalence that have been previously reported, their use of multivariable models to simultaneously quantify effects of multiple variables affecting carcass contamination provides a unique assessment.

All truckload-level variables significantly contributed to carcass contamination, whereas hide contamination, the only animal level variable, was associated with carcass contamination.

Journal of Food Protection. (2010) 73(6): 1030-1037.

Real-Time PCR Suitable Method for Detection of *Campylobacter*

Real-time PCR is a suitable method for direct detection, quantification and differentiation of *Campylobacter* from carcasses, and could permit time-efficient

surveillance of these zoonotic agents, a new study by the Institute of Veterinary Bacteriology in Switzerland finds.

Researchers tested the use of multiplex real-time PCR for detection and quantification of *Campylobacter jejuni* and *Campylobacter coli* on broiler carcass neck skin samples.

Results from an established TaqMan assay based on two different targets (*hipO* and *ceuE* for *C. jejuni* and *C. coli*, respectively) were corroborated with data from a newly developed assay based on a single-nucleotide polymorphism in the *fusA* gene, which allows differentiation between *C. jejuni* and *C. coli*.

There was good correlation in detection and enumeration between real-time PCR results and quantitative culture, with real-time PCR being more sensitive.

Overall, 251 (71.5 percent) of the samples were PCR positive for *Campylobacter*, with 211 (60.1 percent) in the *hipO-ceuE* assays, 244 (69.5 percent) in the *fusA* assay and 204 (58.1 percent) of them being positive in both PCR assays. Thus, the *fusA* assay was similarly sensitive to the enrichment culture (72.4 percent positive); however, it is faster and allows for quantification.

In addition, real-time PCR allowed for species differentiation; roughly 60 percent of positive samples contained *C. jejuni*, less than 10 percent *C. coli*, and more than 30 percent contained both species. *Applied and Environmental Microbiology.* (2010) 73(6): 1057-1063.

Nutrition News Corner

Two New Studies Examine Benefits of Vitamins A and D, Found in Meat

Two new studies have found additional health benefits linked to vitamins A and D, both found in meat.

Vitamin B6, found in meat and poultry in plentiful amounts, is being linked to a lower risk of developing lung cancer, according to a new study in the *Journal of the American Medical Association*.

The European study, led by the International Agency for Research on Cancer (IARC) and funded by the World Cancer Research

Fund (WCRF), followed 520,000 participants from 10 countries between 1992 and 2000. Blood samples taken at the start of the study were measured for four B-vitamins (B2, B6, folate (B9) and B12), as well as methionine and homocysteine.

Overall, the study found that people with above average levels of B6 and methionine had less than half the risk of developing lung cancer than those with below average levels. A lower risk was also seen with higher levels of folate consumption. The results were the same for smokers, for people who had never smoked and those who had (see page 7)

Senate Agriculture Committee Approves USDA Nominations

The Senate Agriculture Committee has unanimously approved the nominations of Elisabeth Hagen, M.D., to the position of United States Department of Agriculture's (USDA) Under Secretary for Food Safety, and Catherine Woteki, Ph.D., to the position of USDA's Under Secretary for Research, Education and Economics. The next step in the nominating process is for these appointees to be considered by the full Senate for confirmation.

Hagen currently serves as USDA's Chief Medical Officer. Previously, she was a senior executive at the Food Safety and Inspection Service (FSIS), where she played a key role in developing and executing the agency's scientific and public health agendas.

In a previous hearing, Hagen was asked about the technical limits to testing and whether zero tolerance for pathogens a realistic goal for FSIS to pursue.

"Currently, FSIS has a zero tolerance policy for *E. coli* O157:H7. This policy has spurred important industry innovations to effectively combat this pathogen, and we have seen decreased contamination and foodborne illness rates since that policy was instituted," she said. "While testing does have its technical limits, it is one critical tool that both industry and FSIS use to monitor the safety of our food supply. If confirmed, I will use the best science and technology available to build upon past successes to ensure the safety of the food supply."

In response to a question raised regarding FSIS's delay in responding to the 2005 American Meat Institute petition to classify low-dose carcass irradiation as a processing aid, Hagen replied, "I understand the frustration associated with the delayed responses to the beef carcass irradiation petition." Hagen went on to say that if confirmed, she would immediately review the current status and concerns associated with this petition.

Hagen also responded to questions about chemical and antibiotic residues, antibiotic resistance, validation, catfish and

performance standards for *Salmonella* and *Campylobacter*.

Hagen indicated that she would work to share information with other partner agencies, industry and other stakeholders to bring our food safety system into this new generation of science and capability.

Previously, Woteki served as the first Under Secretary for Food Safety at USDA, oversaw the U.S. government's Office for the Codex Alimentarius Commission and coordinated U.S. government food safety policy development and USDA's continuity of operations planning from 1997-2001.

When asked about the land grant system rapidly expanding its partnerships with other federal departments and agencies and the role that REE has in this expansion, Woteki responded, "Science, education, and analysis underpin program and policy decisions across not only the Department of Agriculture, but also the broad food and agricultural system ... I will work with both internal and external stakeholders to assure that our science is relevant to the programs, policies and practices of the Department, and to the many decisions that producers, processors and consumers in the food system face daily." Woteki also said she plans to continue efforts to utilize the nationwide Cooperative Extension System supported through land-grant universities.

In response to questions regarding the National Institute of Food and Agriculture's (NIFA) plan to cut basic agronomy and livestock production research, Woteki acknowledged that although the change is perceived negatively by some in the scientific communities who have in the past enjoyed the certainty of a minimal level of funding through discipline-specific programs, she believes that offering funding through interdisciplinary, issue-based programs is the most effective way to use public dollars to create public value. "NIFA believes the scientific community is resilient enough to adjust to this change in format," stated Woteki.

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(from page 6) quit smoking prior to the start of the study. The lower risk was also observed regardless of time interval since blood collection, indicating the results were not explained by the early stages of the disease.

For more information, go to www.iarc.fr/.

Metabolic pathways for vitamin D, which is also found in meat, have been discovered in the hippocampus and cerebellum areas of the brain involved in planning, processing, and forming new memories. This suggests that vitamin D may be implicated in cognitive processes, according to a new study supported by the Agriculture Research Service (ARS).

Cognitive function is measured by the level at which the brain is able to manage and use available information for activities of daily life. Alzheimer's disease, the most common form of age-related dementia, affects about 47 percent of adults 85 years or older in the U.S. Identifying nutritional factors that lower cognitive dysfunction and help preserve independent living provides economic and public health benefits, according to authors.

The study involved more than 1,000 participants receiving home care. The researchers evaluated associations between measured vitamin D blood concentrations and neuropsychological tests. Elders requiring home care have a higher risk of not getting enough vitamin D because of limited sunlight exposure and other factors.

The participants, ages 65 to 99 years, were grouped by their vitamin D status, which was categorized as deficient, insufficient or sufficient. Only 35 percent had sufficient vitamin D blood levels. They had better cognitive performance on the tests than those in the deficient and insufficient categories, particularly on measures of "executive performance," such as cognitive flexibility, perceptual complexity, and reasoning. The associations persisted after taking into consideration other variables that could also affect cognitive performance.

The 2009 study appears in the *Journals of Gerontology*, Series A, Biological Sciences and Medical Sciences (<http://biomedgerontology.oxfordjournals.org/>).

AMIF Opposes Exclusion of Food Science Research in AFRI Program

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a shortage of trained food scientists. “The Foundation strongly encourages NIFA and the AFRI program to reexamine the data used to determine funding priority areas that will reduce the public health risk of consuming certain foods,” Booren stated. “The AFRI program should target these areas, the areas of greatest societal impact, for the development of future RFAs.”

AMIF supports an increased focus on basic research and believes that having the fundamental understanding of biological, physical, microbial and

chemical properties will only improve the ability to find solutions to the problems facing the agriculture and food industries. In closing, Booren noted that in AMIF’s experience, solutions to food safety problems have often been found when it is not the primary objective of the research. Allowing scientists the freedom to rise to the challenge to develop new and creative solutions to food safety problems has led to successful innovation. By not being strictly prescriptive, AMIF has discovered ideas and research that never would be

evaluated for funding under a traditional review program.

“The AMI Foundation encourages NIFA to allow for investigator-initiated research ideas to be considered, if not funded. As this country’s public funding organization for food and agriculture it is your responsibility, not to be a roadblock to discovery, but be an organization that fosters it,” Booren concluded.

To view Booren’s comments in their entirety, go to www.meatami.com/ht/a/GetDocumentAction/i/59981.

Institute of Medicine Report Says FDA Lacks Comprehensive Vision For Food Safety

The U.S. Food and Drug Administration lacks a comprehensive food safety vision and a change is needed to protect the nation’s food supply properly, according to a new Institute of Medicine (IOM) committee report *Enhancing Food Safety: the Role of the Food and Drug Administration*.

The *Congressionally requested report*, released June 8 after 18 months of deliberation, examined the gaps in the current food safety system under FDA and identified needed tools to improve food safety.

The Committee recommended that FDA adopt a culture change to allow the agency to have a more proactive versus reactive approach to food safety and this could be achieved by adopting a risk-based approach. This risk-based approach would allow decisions makers to comprehensively evaluate and create a systematic approach to addressing and preventing food safety programs.

The Committee highlighted six components that are essential in a risk-based system: strategic planning; public health risk ranking of hazards; targeted information gathering such as surveillance; analyzing and selecting interventions; designing an intervention plan and monitoring and review.

The report underscored the essential nature of staffing the agency with food safety experts who have the needed skills for success, as well as data sharing between other food safety agencies. The Committee recommended FDA review and develop plans to improve data sharing and training in a timely manner by federal, state and local food safety systems.

The report also recommended enhancing the efficiency of food inspections, which could include alternative regulatory approaches. The Committee encouraged FDA to leverage its inspection resources through delegation of inspections to state and local agencies. In order for that to be successful, IOM recommended that FDA set minimum standards for the frequency and intensity of inspections.

Congressional action also is needed to provide FDA the necessary authority to meet its food safety expectations, according to IOM, which recommended a move towards a single food agency and the creation of a centralized, risk-based analysis and data management center, that would ensure the comprehensive data needs to support the recommended risk-based system are met.

The report can be viewed at www.iom.edu.

USDA Appoints New Members to NACMCF

The United States Department of Agriculture (USDA) appointed nine new members to the National Advisory Committee on Microbiological Criteria for Foods (NACMCF). These new members will join the ten returning members and will serve as scientific experts representing disciplines related to health and food safety issues. Eleven additional experts will be appointed later this year to form the full 30-member committee.

The nine new members of the committee are: Wafa Birbari, Ph.D., Sara Lee Corp.; Dr. Robert Dole, U.S. Department of Defense Veterinary Services Activity; David Golden, Ph.D., University of Tennessee Department of Food Science & Technology; Margaret Hardin, Ph.D., Texas A&M University Department of Animal Science; Dallas Hoover, Ph.D., University of Delaware Department of Animal & Food Sciences; Lee Johnson, Ph.D, West Liberty Foods; Nandini Natrajan, Ph.D., Keystone Foods LLC; Robert Whitaker, Ph.D., Produce Marketing Association and Martin Wiedmann, Ph.D., Cornell University Department of Food Science.

NACMCF, established in 1988, provides scientific advice on public health issues relative to the safety and wholesomeness of the U. S. food supply. The committee also assists in the development of microbiological criteria and reviews and evaluates epidemiological and risk assessment data as well as methodologies for assessing microbiological hazards.

The Secretary of Agriculture appoints committee members following consultation with the Secretary of Health and (see page 10)

Ongoing AMI Foundation Research

E. coli O157:H7

<u>Investigator</u>	<u>Institution</u>	<u>Project Title</u>
Norasal Kalchayanand, Terrance Arthur, Joseph Bosilevac, John Schmidt, Steve Shackelford, Tommy Wheeler	USDA-ARS-U.S. Meat Animal Research Center	Evaluation the Efficacy of Commonly used Antimicrobial Interventions on Shiga toxin Producing <i>E. coli</i> Serotypes O26, O103, O111, O145 and O157
Fred Pohlman, Steven Ricke, Palika Dias-Morse, Anand Mohan, Sara Milillo, Peggy Cook, Karen Beers	University of Arkansas, Safe Foods International	Antimicrobial interventions/application methods for the reduction of <i>Escherichia coli</i> O157:H7 and <i>Salmonella</i> in beef trimming and/or ground beef
John Sofos, Hua Yang, Ifigenia Geornaras, Kendra Nightingale, Keith Belk, Dale Woerner, Gary Smith	Colorado State University	Evaluation of chemical decontamination treatments for beef trimmings against <i>Escherichia coli</i> O157:H7, non-O157 shiga toxin-producing <i>E. coli</i> and antibiotic resistant and susceptible <i>Salmonella</i> Typhimurium and <i>Salmonella</i> Newport
Norask Kalchayanand, Terrance Arthur, Joseph Bosilevac, Dayna Brichta-Harhay, John Schmidt, Steven Shackelford, Tommy Wheeler	USDA-ARS-U.S. Meat Animal Research Center	Efficacy of commonly used antimicrobial compounds on decontamination of Shiga toxin-producing <i>Escherichia coli</i> serotypes O45, O121, and <i>Salmonella</i> inoculated fresh meat

Listeria monocytogenes

<u>Investigator</u>	<u>Institution</u>	<u>Project Title</u>
Mary Alice Smith, Joseph Frank	University of Georgia	Refinement of <i>Listeria monocytogenes</i> (<i>L. monocytogenes</i>) Low Dose Data from Pregnant Guinea Pigs for Human Risk Assessment
Kathy Glass, Jeff Sindelar	University of Wisconsin	Evaluation of anti-Listerial Properties of Natural and/or Organic Ingredients in Ready-to-Eat Meat and Poultry Products
Phil Crandall, John Marcy, Steve Ricke, Mike Johnson, Betty Martin, Corliss O'Bryan, Sara Rose Milillo	University of Arkansas	Cost Effective Treatments to Minimize In-Store Deli Meat Slicer Cross Contamination of Ready-To-Eat Meats by <i>Listeria monocytogenes</i> , Phase II
Sophia Kathariou, Dana Hanson	North Carolina State University	Genetic Attributes Associated with the Ability of Different Serotypes of <i>Listeria monocytogenes</i> to Colonize the Meat Processing Plant Environment and to Contaminate Read-to-Eat Meat Products (Chicken, Turkey, Pork and Beef)
Richard Meinersmann, Mark Berrang, Tim Hollibaugh, Joseph Frank	Agricultural Research Service, USDA, University of Georgia	Role of Protozoa in the Persistence of <i>Listeria monocytogenes</i> in a Ready-to-Eat Poultry Processing Plant
Amy Wong, Charles Kaspar, Charles Czuprynski	University of Wisconsin	Formation, Survival, and Virulence of Stress-induced Filamentous <i>Listeria monocytogenes</i>
Robin Kalinowski, Erdogan Ceylan	Silliker Inc., Food Science Center	Validation of Quaternary Ammonia for Control of <i>Listeria monocytogenes</i> in Ready-to-eat Meat and Poultry Plants

Salmonella

<u>Investigator</u>	<u>Institution</u>	<u>Project Title</u>
Michael Doyle, Tong Zhao	University of Georgia	Reduction of <i>E. coli</i> O157:H7 and <i>Salmonella</i> in Ground Beef
Margaret Hardin, Jayne Stratton, Marcos Sanchez-Plata	Texas A&M University, University of Nebraska-Lincoln, Inter-American Institute for the Cooperation in Agriculture	Evaluation and Performance of the Premi-Test™ <i>Salmonella</i> Serotyping System on Pork and Poultry Isolates from Commercial Sources
John Sofos, Ifigenia Geornaras, Jarret Stopforth, Dale Woerner, Keith Belk, Gary Smith	Colorado State University	Development of an Intervention to Reduce the Likelihood of <i>Salmonella</i> Contamination in Raw Poultry Intended for use in the Manufacture of Frozen, Not Ready-to-Eat Entrees

Other Food Safety

<u>Investigator</u>	<u>Institution</u>	<u>Project Title</u>
Randy Wehling, Michael Zeece, Harshavardhan Thippareddi	University of Nebraska	Evaluation and Analysis of Meat Products Contaminated by Low Levels of Ammonia (Targeted Research)
John Sofos, Ifigenia Geornaras, Jarret Stopforth, Dale Woerner, Keith Belk, Gary Smith	Colorado State University	Development of an Intervention to Reduce the Likelihood of Salmonella Contamination in Raw Poultry Intended for use in the Manufacture of Frozen, Not Ready-to-Eat Entrees

Diet and Health

<u>Investigator</u>	<u>Institution</u>	<u>Project Title</u>
J. Scott Smith, Terry Houser, Melvin Hunt	Kansas State University	Analysis of Heterocyclic Amines (HCAs) Formation in Various Cooked Meat Products (Targeted Research) ¹
Ellin Doyle	University of Wisconsin	Understanding Sodium Replacements from a Food Safety and Health Risk Perspective
Susan Brewer, Terry Hatch	University of Illinois	Nutritional Benefits of Meat. A White Paper
Dominik Alexander	Exponent, Inc.	Processed Meat Intake and Stomach Cancer

¹ Co-funded with the National Pork Board

Upcoming Events**Listeria Workshop**

November 9-10, 2010
Chicago Marriott O'Hare
8535 West Higgins Road
Chicago, Illinois

AMI Meat, Poultry and Seafood Convention and Exposition

April 13-16, 2011
McCormick Place
Chicago, Illinois

Hodges Elected to AMSA Board

James H. Hodges, president of the American Meat Institute Foundation, was recently elected to the American Meat Science Association (AMSA) Board of Directors. Hodges began his three-term this summer in Lubbock, Texas, at AMSA's 63rd annual Reciprocal Meat Conference. Hodges has previously been recognized by AMSA with the organization's 1998 Extension-Industry Service Award and 2001 Signal Service Award.

New Members Appointed to NACMCF

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Human Services. Appointees are scientists from academia, industry and government. Committee members serve a two-year term.

Many of members of the NACMCF are current or past members of the AMI Foundation Research Advisory Committee. This committee advises the AMI Foundation on food safety priority issues within the meat and poultry industry and recommends research to the AMI Foundation Board of Directors for funding.

For more information and to view the complete listing of NACMCF, go to www.fsis.usda.gov/about_fsis?NACMCF_Members/index.asp.

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