

# MUSHROOMS AND HEALTH GLOBAL INITIATIVE BULLETIN



*An ISMS Global Initiative to increase the worldwide consumption of mushrooms through the collection, evaluation and dissemination of scientifically validated information.*



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## NEWS FROM THE INITIATIVE

Mary Jo Feeney

*The Bulletin provides ideas on how to communicate mushroom research.*

As this issue begins the 2014 publishing year, let's look back on 2013 to see how the *Bulletin* supports the Initiative's efforts to "increase the worldwide consumption of mushrooms through the collection, evaluation and dissemination of scientifically validated information."

The *Bulletin* does this by highlighting abstracts of scientific research and ways to share mushroom and health information with those in public relations, marketing, and media and to health professionals – key influencers who then relay messages to consumers. Although the Initiative does not directly fund research, national mushroom growers' organizations help to get media coverage of research presented at conferences or published in peer-reviewed journals. Read how the U.S. Mushroom Council pitches research to the media on page 5.

The *Bulletin* cited 31 abstracts during 2013, helping to collect scientifically validated information for you to reference. If you missed any of these following topics, visit the

Mushrooms and Health website to find past archived issues of the *Bulletin*: [www.mushroomsandhealth.com/mhgi-bulletin](http://www.mushroomsandhealth.com/mhgi-bulletin).

- Gut health, immune function, and potential as a prebiotic
- Weight loss and maintenance
- Diet quality of mushroom consumers
- Safety of UV light technology to produce vitamin D mushrooms
- Photobiology of vitamin D mushrooms
- Bioavailability of vitamin D mushrooms on health status of the Irish population, and vitamin D mushrooms ability to support bone in rats and improve memory in mice.

The *Bulletin* also reported on retail activities that helped raise awareness of the health, taste and culinary qualities of mushrooms - examples of how different countries customized scientific research to meet their needs. Spain's mushroom growers association ASOCHAMP partnered with a large supermarket and distributed over 800 servings of cooked white button mushrooms.

The South African Mushroom Farmers' Association (SAMFA) held food demonstrations outside major retailers that resulted in 158 punnets sold in a market where none were sold previously. Health partnerships also help spread the good news on mushroom nutrition. The Australia Mushroom Growers Association continued to exhibit at medical conferences; provided posters for medical offices; and held its popular breakfast for dietitians.

The *Bulletin* will continue to share research and communications ideas to help increase the worldwide consumption of mushrooms. Send what's happening in your country to: [info@mushroomsandhealth.com](mailto:info@mushroomsandhealth.com).

To see the 31 research articles abstracted during 2013, visit [mushroomsandhealth.com/mhgi-bulletin/](http://mushroomsandhealth.com/mhgi-bulletin/)

## MUSHROOM RESEARCH



### ***Ganoderma lucidum* Genome**

Li J, Zhang J, Chen H, Chen X, Lan J and Liu C. [Complete Mitochondrial Genome of the Medicinal Mushroom \*Ganoderma lucidum\*](#). *PLoS ONE* August 26, 2013; DOI: 10.1371/journal.pone.0072038.

According to the abstract, *Ganoderma lucidum* is among the worldwide well-known medicinal basidiomycetes. The mitochondrion, referred to as the second genome, is an organelle found in most eukaryotic cells and participates in critical cellular functions. Elucidating the structure and function of this genome is important to understand completely the genetic contents of *G. lucidum*. This study provides valuable information on the gene contents of the mitochondrial genome and their differential expressions at various developmental stages of *G. lucidum*. The results contribute to the understanding of the functions and evolution of fungal mitochondrial DNA.

### **White Button Mushrooms and *Salmonella* Vaccine Efficacy**

Wang J, Niu X, Du X, Smith D, Meydani SN and Wu D. [Dietary Supplementation with White Button Mushroom Augments the Protective Immune Response to \*Salmonella\* Vaccine in Mice](#). *Journal of Nutrition*. November 20, 2013, doi10.3945/jn.113.185165.

The investigators previously showed that dietary white button mushrooms (WBMs) enhanced natural killer cell activity and that in *vitro* WBM supplementation promotes maturation and function of dendritic cells (DCs). The current study investigated whether WBM consumption would enhance pathogen-specific immune response using a *Salmonella* vaccination and infection animal model.

C57BL/6 mice were fed diets containing 0%, 2%, or 5% WBM for 4 wks before oral vaccination with live attenuated *Salmonella typhimurium* SL1479. Four weeks after immunization, mice were orally infected with virulent *Salmonella typhimurium* SL1344. Immunization increased animal survival and, among immunized mice, the 2% WBM group had a higher survival rate than the other groups.

The investigators then fed mice 2% WBMs to determine the immunological mechanism underlying the WBM-potentiated protective effect. WBM supplementation increased *Salmonella*-specific blood immunoglobulin (Ig) G and fecal IgA concentrations. WBM-fed mice also had a higher IgG2a and unchanged IgG1 production, leading to an elevated IgG2a:IgG1 ratio and indicating an enhanced T helper 1 response.

Consistent with these results, WBM-fed mice had higher interferon- $\gamma$ , tumor necrosis factor (TNF)- $\alpha$ , and interleukin (IL)-17A production and unchanged IL-4 production in their splenocytes after polyclonal (anti-CD3/CD28) or antigen-specific stimulation. WBM-fed mice had more DCs in the spleen, and these DCs expressed higher levels of activation markers CD40 and major histocompatibility complex-II. These mice also produced more IL-12 and TNF- $\alpha$  post immunization.

WBMs may improve *Salmonella* vaccine efficacy through an enhanced adaptive immune response.

# NEWS FROM AUSTRALIA

Glenn Cardwell



Food Bloggers learn about mushroom research and health benefits at Crown Mushrooms farm.

## Food Bloggers

Eat, Drink, Blog, a national conference of food bloggers was held in Perth in November 2013. About 50 bloggers accepted an invitation to visit the Crown Mushrooms farm near Perth to see how mushrooms are grown, to cook lunch with mushrooms and to hear about the research on mushrooms and their health benefits. Using a mushroom cookbook and a limited range of ingredients they had 60 minutes to create two mushroom dishes, which were then judged, consumed and blogged (or maybe photographed, blogged then consumed). The photos show the food bloggers at the farm and in battle for the best mushroom dish.

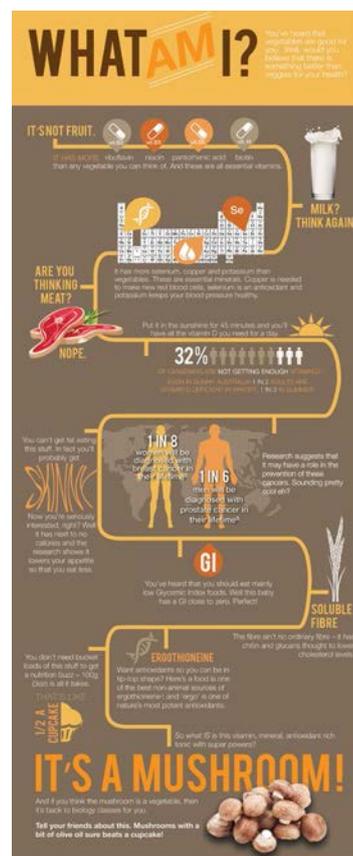
## Gluten & Glutamate Fact Sheet

As we have recently been asked questions on whether mushrooms are gluten-free (they are) and whether the glutamate in mushrooms is the same as MSG (it isn't) we have produced a simple fact sheet to answer both questions. The fact sheet is available here: [www.powerofmushrooms.com.au/health-nutrition/health-nutrition/coeliacs-and-gluten-intolerant](http://www.powerofmushrooms.com.au/health-nutrition/health-nutrition/coeliacs-and-gluten-intolerant).

## Infographic

With the superb help of Brittany Stager in Canada we have produced a simple and factual infographic on mushrooms. It is hoped that the infographic will have broad appeal and be used in social media and emailed around the world. It is available directly from me ([glenn@glenncardwell.com](mailto:glenn@glenncardwell.com)) or Brittany ([brittany@grouptalk.ca](mailto:brittany@grouptalk.ca)) if you would like a copy.

Use the mushroom infographic to get a health message to the public.



## Dietitian Promotion

The Australian Mushroom Growers have signed a major partner agreement with the Dietitians Association of Australia (DAA). The agreement allows mushrooms to be promoted four times during the year in their newsletter as well as acknowledgement at the annual conference. In addition, mushrooms will play a big part in this year's national Healthy Weight Week conducted by the DAA.

**Australian Mushrooms become a major partner with Dietitians Australia for 2014.**

## Health Professional Promotion

Mushrooms were part of the Queensland CheckUP census of doctors and health professionals at the end of 2013. The census included three questions on mushrooms and an option to respond if they wanted more information on mushrooms and to be able to receive our regular research updates. We will have the full results of the response to the mushroom questions by the end of February.

# NEWS FROM SPAIN

Maria Luisa Tello Martin



## Logroño Mushroom Tasting

The third edition of the Logroño Mushroom Tasting, part of the Tasting Cycle of Quality Food in La Rioja, was held last November. The event was organized by Electra Rioja Gran Casino in collaboration with La Rioja Capital. La Rioja Capital is an initiative promoted by the regional Ministry of Agriculture that brings together a wide range of activities to promote food and wine of La Rioja, and has potential

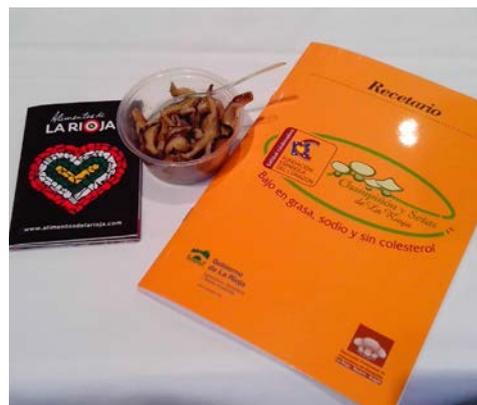
for tourism, heritage and culture. The program includes promotional and gastronomic events held not only in La Rioja, but also in national and international trade fairs.

The tasting, hosted by the Spanish Mushroom Growers Association (ASOCHAMP) and CTICH (Mushroom Technological Research Center), was developed by Vanessa Grifoll Garcia and

María Luisa Tello Martín. The most important topics discussed during the tasting were mushroom cultivation history in La Rioja region, the first region in growing rooms in Spain; the organoleptic characteristics of different fungi and their nutritional and tasting properties. Four mushrooms selected for the tasting included: white button (*Agaricus bisporus*), oyster, (*Pleurotus ostreatus*), Shiitake (*Lentinula edodes*) and king oyster (*Pleurotus eryngii*).

See [www.lariojacapital.com](http://www.lariojacapital.com).

**Mushrooms featured in gastronomic events and in trade fairs.**





# News from The United States

Heidi Gengler

**For mushrooms – a food that is available year-round – new research can serve as the “Why Now” moment to rekindle relationships with media contacts and spur consideration for new articles in both the short- and long-term.**

## Pitching Science to Score Media

The core tenet of the Mushroom Council’s (Council) news bureau is to generate articles and headlines in media outlets that target consumers and influencers turn to for food and health information. In addition to the market-specific storytelling global teams execute to create news, collectively, the industry’s global research pipeline provides excellent fodder for coverage. For mushrooms – a food that is available year-round – new research can serve as the “Why Now” moment to rekindle relationships with media contacts and spur consideration for new articles in both the short- and long-term.

Understanding the impact of the science is critical in managing media relations and packaging information. When studies break, they can be shared with media right away but coverage and “newsiness” comes down to context. Positive new research often falls into two categories, both with potential to deliver media results:

### 1. The study provides breaking news about mushrooms’ health and nutrition benefits.

New science with a direct impact on mainstream health outcomes can generate headlines across food and health media. When the Council promoted new abstracts presented at Experimental Biology last spring, the weight management and vitamin D studies (topics of interest for U.S. media) landed six million media impressions in mainstream news outlets. Science in lesser-covered areas of health can be shared when they break,

or pulsed out as reminders during relevant seasons. For example, from December through February when most of the U.S. is in the thick of cold (weather and flu) season, we leverage vitamin D and immunity (and of course weight management for the New Year) studies to affect dialogue. In the first week of January alone, twelve articles cited Mushroom Council funded research.

### 2. The study confirms existing mushroom research.

Studies that compound evidence can be woven together and married with cultural dialogue and food and health trends to generate ink. Here, science can provide the reason to believe in mushrooms. In the case of a recent story on [National Public Radio’s premier food blog](#), the Council packaged several research studies about the health benefits of mushrooms together to set the stage for a larger feature on the Blendability culinary technique. International studies and assets may fall into this category as well as they can serve as the tipping point for editors considering whether or not to take on a story.

For the Council, 2013 was a banner year for media with more placements and impressions than any years prior. Mushrooms’ unique nutrient profile, as supported by the industry’s expansive body of science, provided the core for media outreach efforts. From technical science beats to general consumer interest publications, research can help drive a robust news bureau.

# Mushrooms Get Social

## AUSTRALIA

[Power of Mushrooms Website](#)  
[My Mushrooms Blog](#)  
[Mighty Mushroom Twitter](#)  
[Mushroom Lovers Club Facebook](#)  
[Power of Mushrooms YouTube](#)

## CANADA

[Mushrooms Canada Website](#)  
[Mushrooms Canada Bog](#)  
[Mushrooms Canada Twitter](#)  
[Mushrooms Canada Facebook](#)  
[Mushrooms Canada Pinterest](#)  
[Mushrooms Canada YouTube](#)

## ITALY

[Italian Association Fungicoltori \(AIF\) Website](#)  
[Italian Association Fungicoltori \(AIF\) info@fun.go.it email](#)  
[Funghincucina Twitter](#)  
[Funghincucina Facebook](#)  
[Funghincucina Pinterest](#)

## NETHERLANDS

[Champignonidee Website](#)  
[Champignonidee Twitter](#)  
[Champignonidee Facebook](#)  
[Champignonidee Pinterest](#)  
[Champignonidee YouTube](#)  
[Champignonidee Google+](#)

## SOUTH AFRICA

[SAMFA Website](#)  
[Fresh Mushrooms Twitter](#)  
[MushroomsSA Facebook](#)

## SPAIN

[CTICH Website](#)  
[Champinonidea Website](#)  
[Asochamprioja Twitter](#)  
[Asoc Prof Cultivadores Champiñon de La Rioja, Navarra y Aragon Facebook](#)  
[Asochamprioja YouTube](#)  
[ASOC.PROF.CULT Campiñón DE LA RIOJA Google+](#)

## UNITED KINGDOM & IRELAND

[More to Mushrooms Website](#)  
[More to Mushrooms Twitter](#)  
[More to Mushrooms Facebook](#)

## UNITED STATES

[Mushroom Info Website](#)  
[The Mushroom Channel blog](#)  
[Mushroom Channel Twitter](#)  
[Mushroom Channel Facebook](#)  
[Fresh Mushrooms Pinterest](#)

# Resources

Be sure to visit the Mushrooms and Health website [www.mushroomsandhealth.com](http://www.mushroomsandhealth.com). Send what's happening in your country to communicate the benefits of mushrooms to consumers, shoppers, households, doctors, health professionals and the media to [info@mushroomsandhealth.com](mailto:info@mushroomsandhealth.com).

Note: The *Bulletin* provides links to other sites for your convenience and information. These sites contain information created, published, maintained or otherwise posted by organizations independent of the Initiative which does not endorse, approve, certify or control these sites and does not guarantee the accuracy of the information contained on them.

## Initiative Project Team

- Greg Seymour, President, ISMS; General Manager AMGA, Australia; Project Manager, Mushrooms and Health Global Initiative
- Bart Minor, President, Mushroom Council, United States
- Mary Jo Feeney, Mushrooms and Health Global Initiative Operations Manager, *Bulletin* Editor, United States
- Glenn Cardwell, Accredited Practising Dietitian, Nutrition Impact P/L, Australia
- Chris Rowley, Communications Consultant, Australia
- Juan Valverde, Food Science Programme Manager, Monaghan Mushrooms Group, Ireland
- Heidi Gengler, Vice President, Edelman Public Relations, United States

## Strategic Communications Group

Members of the Strategic Communications Group strengthen the Initiative's communication capability and develop a local public relations presence in each country whose industry is contributing financially to the project. Members of this group help facilitate stories about mushrooms and health appearing in their local media, monitor mushroom nutrition and health research, liaison with scientists, media and other influencers, and provide feedback to the Initiative. They include:

- Michal Slawski – United Kingdom
- Franz Schmaus – Germany
- Ignace Deroo – Belgium
- Jose Antonio Jimenez Hernandez – Spain
- Kent Stenvang – Denmark
- Elizabeth O'Neil – Canada