



# newsletter

## BIOTRACER Dissemination Conference and 3rd General Meeting 23—26 June 2009, Berlin, Germany



### In the works

Plans are coming together for the BIOTRACER Dissemination Conference and 3rd General Meeting, to

be held in Berlin, Germany.

The four-day event includes BIOTRACER participant-only meetings on 23 and 26 June and a Dissemination Conference on 24 and 25 June. The Dissemination Conference is an opportunity to share project results with stakeholders through six workshops.

### Workshops scheduled to be held are:

- Food safety workshop: Learning from data
- How can food microbiologists model their data?
- Molecular methods for Salmonella
- A technical workshop on molecular biology methods used, or possible to use, in biotraceability
- How do we reduce Campylobacter in the poultry chain?
- Molecular detection and biotraceability of *Bacillus anthracis* and *Clostridium botulinum*

In connection with the Dissemination Conference, a PhD module, 'Biotraceability in the food and feed chain', will be held. PhD students can register for the module, worth 4 ECTS credits, through the [www.biotracer.org](http://www.biotracer.org) website.

### Opportunities for sharing knowledge

Like previous General Meetings, a Poster Session will be offered to give researchers an opportunity to share the latest information on their work. Who will receive this year's prize for Best Poster?

A new feature will be a publication prize. Details about how to enter this competition will be released in the Meeting/Conference flyer.

The participant-only meetings will review results from the previous year as well as look to the future work planned. There will be plenty of opportunities for side-meetings, for Tasks or sub-Tasks.

In addition, a Stakeholder Event is scheduled to allow one-on-one discussions regarding how the research can transfer to real-world applications.

### Information is on the way

Details about registering will be sent to BIOTRACER participants in the coming weeks.

## BIOTRACER Project

BIOTRACER Project Office  
Markhøj Bygade 19  
Building H  
DK-2860 Søborg  
DENMARK



Seminaris CampusHotel Berlin,  
Science and Conference Centre  
Takustraße 39  
14195 Berlin, Germany

The new Seminaris CampusHotel Berlin will be the site for the BIOTRACER 3rd General Meeting and Dissemination Conference.

Information regarding registration and schedule will be sent out soon to BIOTRACER participants.

## Meat Chain Discusses Issues in Copenhagen



Hanne Ingmer, University of Copenhagen (UCPH) Partner #3, submits the following report on the Meat Chain.

hi@life.ku.dk

### Taking stock of the Meat Chain

Research Area 3 held a meeting in Copenhagen on November 11-12, 2008. The agenda for the meeting was to update the meat research team on progress in the project and plan future activities. Particularly, we were eager to discuss how we can optimize the output from the meat chain sampling that has been performed and planned within the research area.

In WP10, *Campylobacter* in the poultry chain, the sampling has already been performed and more than 400 positive *C. jejuni* samples are expected to be collected. The sampling was performed by Mindaugas Malakauskas from the Lithuanian Veterinary Academy (LVA); and by following individual flocks, it has covered the whole chain from flock through slaughter to the final product.

In WP11, *Salmonella* in the pork chain, the sampling plan is ready and will begin shortly. The pork chain sampling will take place at four points in the slaughter process, and a total of 450 samples will be collected and distributed over a three-week period.

For both chains, we have global addressing if particular strain types are associated

with particular steps in the slaughter process.

For the poultry chain, we ask if the slaughter process, per se, selects for specific types of *C. jejuni*, and if this is the case, we predict that several *C. jejuni* types enter the chain, whereas only one type, with a particular ability to survive in the chain, ends up in the product.

For the pork chain, the main issue is if there is a persisting flora of *Salmonella* that is colonizing the equipment and from there can contaminate the products.

In order for the sampling to successfully address these questions, we need a substantial number of positive samples, and we need the type going into the chain to be different from those coming out on the products.

### Surviving slaughter

For bacterial pathogens to cause disease as contaminants of meat products, they have to survive during the slaughter process. In UCPH, Danish researchers are studying specific *C. jejuni* gene products involved in supporting survival during the stress conditions that the bacteria encounter in the poultry chain, whereas for *Salmonella*, the Institute of Food Research (IFR) in the UK is examining which genes are specifically expressed when bacteria are associated with surfaces such as those represented by food products. These studies will improve our understanding of the biology of bacterial pathogens in the meat chains, and they may later be used to target particular gene products in order to reduce survival or decrease attachment in the slaughter process.

After slaughter, marination is one way of increasing the value of meat products. With

the aim of understanding and subsequently model what happens to pathogens during marination, the University of Helsinki (DFEH) has examined the survival of *C. jejuni* under various environmental conditions resembling those characterizing the marinade. These data will allow us to model the reduction in contaminating *C. jejuni* that occurs during marination and will substantiate that marination is a valuable way of decreasing *C. jejuni* in meat products.

### New typing methods

In order to improve our ability to discriminate between isolates, we have been developing and implementing new typing methods. For *Salmonella*, a microarray has been developed by the Federal Institute for Risk Assessment (BfR) to distinguish between *Salmonella* strains and the method will be used to differentiate the strains obtained from samplings. For *C. jejuni*, the group at the London School of Hygiene and Tropical Medicine (LSHTM) recently published whole genome hybridization (genomotyping) as a typing tool to effectively distinguish between *C. jejuni* isolates. *C. jejuni* is inherently difficult to type because of rapid genome rearrangements, but with the genomotyping, meaningful groupings or 'clades' can in fact divide the strains. However, as genomotyping is expensive and time-consuming, the State Serums Institute (SSI) and LSHTM will attempt to develop a protocol by which selected genes characteristic of individual clades are detected by multiplex PCR. Hereby, we will be able to assign clade-type based on a PCR reaction. These tools are extremely important when we want to predict where a contaminant has entered the

food chain.

### Using data

In RA3, we are in the middle of a number of activities that will generate data available for modelling, whether that be tracing or tracking models. However, at the meeting, we decided that only some of the data will be used for modelling. For the post-process treatment, we will use the quantitative data obtained on *C. jejuni* in poultry products during marination to improve risk assessments that previously have been performed on *C. jejuni* associated with chicken. In contrast, biotraceability related modelling will be performed using the data obtained for *Salmonella*. But again, we are relying on data not just for providing the number of organisms present at different stages in the slaughter process, but also which specific types are present. These data should be available by spring 2009 for the modellers to use.

hi@life.ku.dk



*Campylobacter* bacteria are the number-one cause of food-related gastrointestinal illness in the United States. This scanning electron microscope image shows the characteristic spiral, or corkscrew, shape of *C. jejuni* cells and related structures. Photo by De Wood.

## Dairy Chain Yields Results



Panos Skandamis, Agricultural University of Athens (AUA) Partner #14, submits the following report on the Dairy Chain.

### Data is key

The research performed within RA4 (Dairy) has resulted in the collection of a broad spectra of information and data for dairy chains in central and northern Europe from farm to retail and beyond.

We have characterised the safety level of each step involved in the production of pasteurized milk and soft, semi-hard and hard cheeses. This information includes characteristics of processing conditions within the dairy chain, encompassing the

variability of EU member states in dairy production, as well as the prevalence of pathogens (*L. monocytogenes* and *S. aureus*) persisting in the environment of farms (soil, feed, collection tanks, etc.), dairy plants ( food contact surfaces) and in milk, whey, and cheeses. The scientific information has been submitted to international databases, such as PulseNet and ComBase, in order to expand the awareness in the scientific community on the safety of the dairy chain in Europe.

### Stress test

Another important achievement in RA4 is the evaluation of the behaviour of the isolated pathogens with regards to their ability to withstand the applied stresses of food processing and persist in the environment of the industries by colonizing industrial equipment surfaces. This is ongoing work, involving the molecular and genotypic characterization of the strains.

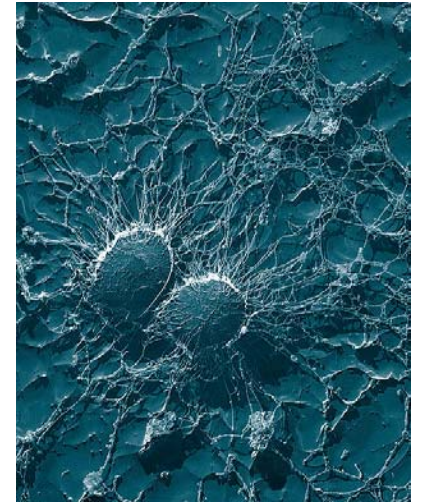
### Biotraceability achieved

All of the above forms the basis of the ultimate

achievement so far in RA 4, the establishment of biotraceability schemes for pathogens in the dairy chain. Specifically, we have integrated the information on molecular, prevalence and phenotypic data of *L. monocytogenes* and *S. aureus* in cheese and milk, respectively, into a domain model by using advanced statistical and predictive modelling tools. Thus, in the case of an unintended contamination event of milk or cheese at a certain step of the dairy chain, such a domain model is capable of identifying the point-of-entry and the contribution of each previous step (trace) to this event. Moreover, by doing so, our approach is capable of predicting (tracking) the fate of the pathogen in the next steps of the dairy chain.

The developed biotraceability scheme is built in an updatable way, so that producers and scientists may increase its robustness by producing and integrating new data into a user-friendly software.

*pskan@aua.gr*



Bacterial cells of "*Staphylococcus aureus*", which is one of the causal agents of mastitis in dairy cows. Its large capsule protects the organism from attack by the cow's immunological defenses. Magnified 50,000X  
Photo by: Erbe, Pooley

## Highlighted Publication

BIOTRACER would like to highlight a publication in each newsletter. This issue's highlight is

### 'Field Validation of Predictive Models for the Growth of Lactic Acid Bacteria in Acidic Cheese-Based Greek Appetizers'

by Manios, Stavros G.; Skiadaresis, Argyris G.; Karavasilis, Kostas; Drosinos, Eleftherios H.; Skandamis, Panagiotis N.

Journal of Food Protection, Vol. 72, Issue 1, pp. 101-110, 2009.

BIOTRACER-related publications are listed on the website [www.biotracer.org/publications](http://www.biotracer.org/publications)



## Feed Meeting in Ghent, Belgium

Participants involved in the Feed chain met in Ghent, Belgium, on 24 February 2009. Besides reviewing recent work and achievements, the group also discussed the upcoming INCO Feed

Workshop in June. Participating partners: Nutrition Sciences N.V. (NS), Free University Berlin (FUB), National Veterinary Institute (SVA), Microchem Lab Services, National Institute

of Public Health and Environment (RIVM), Svenska Foder (SF), Technical University of Munich (TUM) and Technical University of Denmark (DTU).



Participants in the Feed meeting took a tour of the Vitamex facilities, including the towering silos.

## Acknowledge BIOTRACER

Participants are reminded to acknowledge BIOTRACER in your submitted research papers. You may use the following acknowledgment:

The work was supported by the European Union-funded Integrated Project BIOTRACER (contract 036272) under the 6th RTD Framework.



## Update on Reporting to the EC

The Management Team held a Reporting Week meeting in Copenhagen the week of January 26th. During this week, the team worked on the Periodic Activity Report and discussed other project activities (publications, sampling plans, and future work).

The Project Office submitted the Periodic Activity Report for 2008 and the Draft Detailed Implementation Plan for Months 25—42 to the EC on 12 February. A copy of the versions sent to the EC is available on the e-management tool (Documents/General Project Documents/2nd EC Review/).

*Marie Louise Wittrup Boeck (mlwb@food.dtu.dk)*

## Travel Funds Are for BIOTRACER Meetings ONLY

Just a reminder to all participants, BIOTRACER travel funds are for BIOTRACER meetings, such as General meetings, RA meetings, WP meetings and Task meetings. BIOTRACER funds cannot be used to pay for travel to or fees associated with scientific conferences, workshops or training sessions that are not BIOTRACER.

If you have any questions, contact the Project Office.

*jeesk@food.dtu.dk*

## Mark Your Calendars!

- 2nd EC Review Meeting, 24–25 March 2009, Amsterdam, The Netherlands
- INCO Feed Workshop, 19–22 June 2009, Berlin, Germany
- Dissemination Conference/3rd General Meeting, 23–26 June 2009, Berlin, Germany
- BIOTRACER Ph.D. course, 24–25 June 2009, Berlin, Germany

*jeesk@food.dtu.dk*

### Management Team

- |   |  |  |  |
|---|--|--|--|
| > Coordinator<br>Jeffrey Hoorfar, DTU<br>jhoo@food.dtu.dk                 | > ITD Leader<br>Kieran Jordan, TEAGASC<br>Kieran.Jordan@teagasc.ie   | > Project Administrator<br>Solveig Bouquin, DTU<br>slbo@food.dtu.dk        | > Reporting Secretary<br>Kristina Kropil, VUW<br>kristina.kropil@vu-wien.ac.at |
| > Deputy Coordinator<br>Martin Wagner, VUW<br>martin.wagner@vu-wien.ac.at | > Int'l Collaboration Leader<br>Panos Skandamis, AUA<br>pskan@aua.gr | > Communications Officer<br>Jeffrey 'skib' Skiby, DTU<br>jeesk@food.dtu.dk | > Project Secretary<br>Marie Louise Wittrup Boeck, DTU<br>mlwb@food.dtu.dk     |

