

IMPROVED BIOTRACEABILITY OF UNINTENDED MICRO-ORGANISMS AND THEIR SUBSTANCES IN FOOD AND FEED CHAINS

(AN INTEGRATED PROJECT WITHIN THE EUROPEAN UNION 6TH FRAMEWORK
PROGRAMME UNDER THE EUROPEAN RESEARCH AREA OF FOOD QUALITY AND SAFETY)



- 46 PROJECT PARTNERS
- 24 COUNTRIES PARTICIPATING
- FOUR-YEAR PROJECT DURATION (1 JANUARY 2007—31 DECEMBER 2010)
- EUROPEAN COMMISSION FUNDING OF €11 MILLION, WITH A TOTAL BUDGET OF €15 MILLION

WWW.BIOTRACER.ORG

COORDINATOR

Jeffrey Hoorfar
National Food Institute— Technical University of Denmark
jho@food.dtu.dk

SCIENTIFIC MANAGER AND DEPUTY COORDINATOR

Martin Wagner
Institute for Milk Hygiene and Milk Technology—University of Veterinary
Medicine Vienna
martin.wagner@vu-wien.ac.at

INDUSTRY, TRAINING AND DISSEMINATION LEADER

Kieran Jordan
TEAGASC—Irish Agriculture and Food Development Authority
Kieran.jordan@teagasc.ie

INTERNATIONAL COLLABORATION LEADER

Panos Skandamis
Agricultural University of Athens
pskan@aau.gr

PROJECT ADMINISTRATOR

Solveig Lind Bouquin
National Food Institute— Technical University of Denmark
slb@food.dtu.dk

TRAINING OFFICER

Birgitte Bearden
National Food Institute— Technical University of Denmark
binbe@food.dtu.dk

COMMUNICATION OFFICER

Jeffrey Skiby
National Food Institute— Technical University of Denmark
jeesk@food.dtu.dk

BACKGROUND

Producers of food and animal feed will soon be legally responsible for the safety of their products, as required to protect the health of consumers, but there is no standard format for how to trace or track bio-contaminants. People are also becoming increasingly worried about the possibility of deliberate contamination of food, so-called bioterrorism.

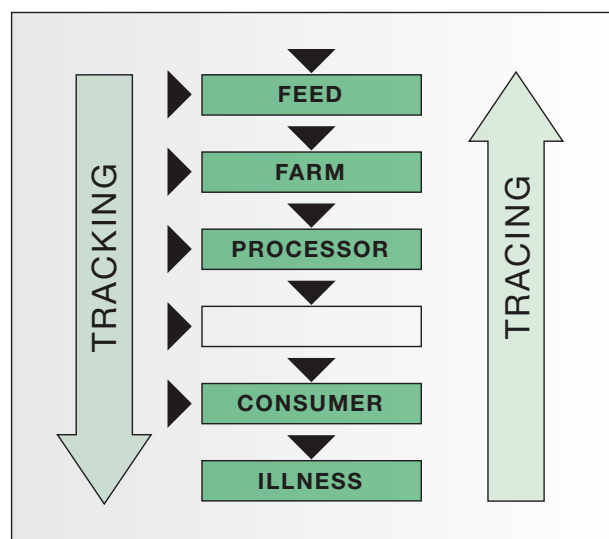
In the complex environment of the food chain, tracking microbial pathogens is hampered by lack of fast simple methods. Prediction of how these pathogens would spread in a given situation is vital to control threats to public health.

OBJECTIVE

The objective of BIOTRACER is to create tools and models for the improvement of tracing accidental and deliberate microbial contamination of feed and food, including bottled water.

SPECIFIC OBJECTIVES

- Address the most relevant intentional and inadvertent contamination scenarios in their natural food chain environment.
- Develop and demonstrate new modelling systems to assess the lifecycle of microbial contamination over time.
- Link physiology of growth and proliferation of pathogens along the whole food chain through the development of new modeling techniques.
- Exploit biomarkers to trace pathogenic microbes in the food and feed chain.
- Develop software tools and recommendations for reliable decision-making and targeted response measures.
- Integrate experts from the feed sector together with experts from the food sector.



A description of traceability that includes the tracking and tracing of pathogens in the food and feed chains.

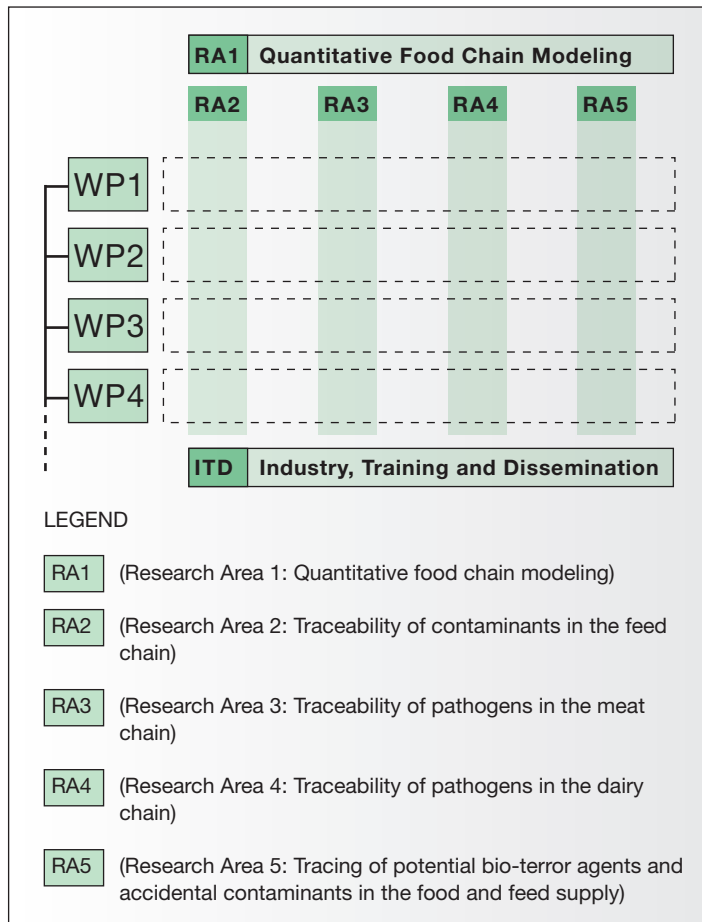
EXPECTED RESULTS

- Enhance well-controlled food chains and cost/yield ratio in food control and safety.
- Reduce economic, health and social risks in the production of food and feed.
- Contribute to the implementation of the European Food Safety and Quality strategy.
- Provide recommendations and tools for a more reliable decision process, as well as policy process.
- Optimise the rapid alert system and targeted response systems.
- Initialise/facilitate the cooperation of all relevant stakeholders in the food production chain on an international basis.
- Aim at general European development, by providing information on several integrated food chain models.
- Integrate the results from BIOTRACER into the development of the Food Law enforcement practitioners.
- Create a Virtual Traceability Institute to secure a sustainable structure for research and technological development and the exploitation of results.

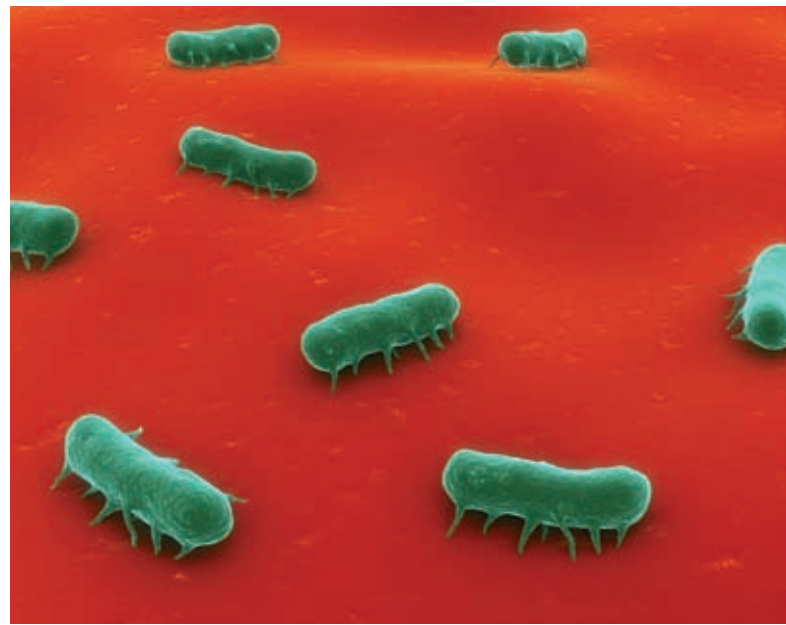
STRUCTURE OF THE INTEGRATED PROJECT

BIOTRACER has brought together experts from microbiology, software and database development, risk assessment, legislation and standards, as well as food retailers, to develop novel frontier technologies and exploit them to track and trace micro-organisms in selected food and feed chains, and will model the behaviour of the pathogens in these environments.

BIOTRACER is organised into five Research Areas and an Industry, Training and Dissemination (ITD) Area, which includes demonstration and training activities.



The integration of activities across the selected food and feed chains.



A 3D rendering of Salmonella bacteria.

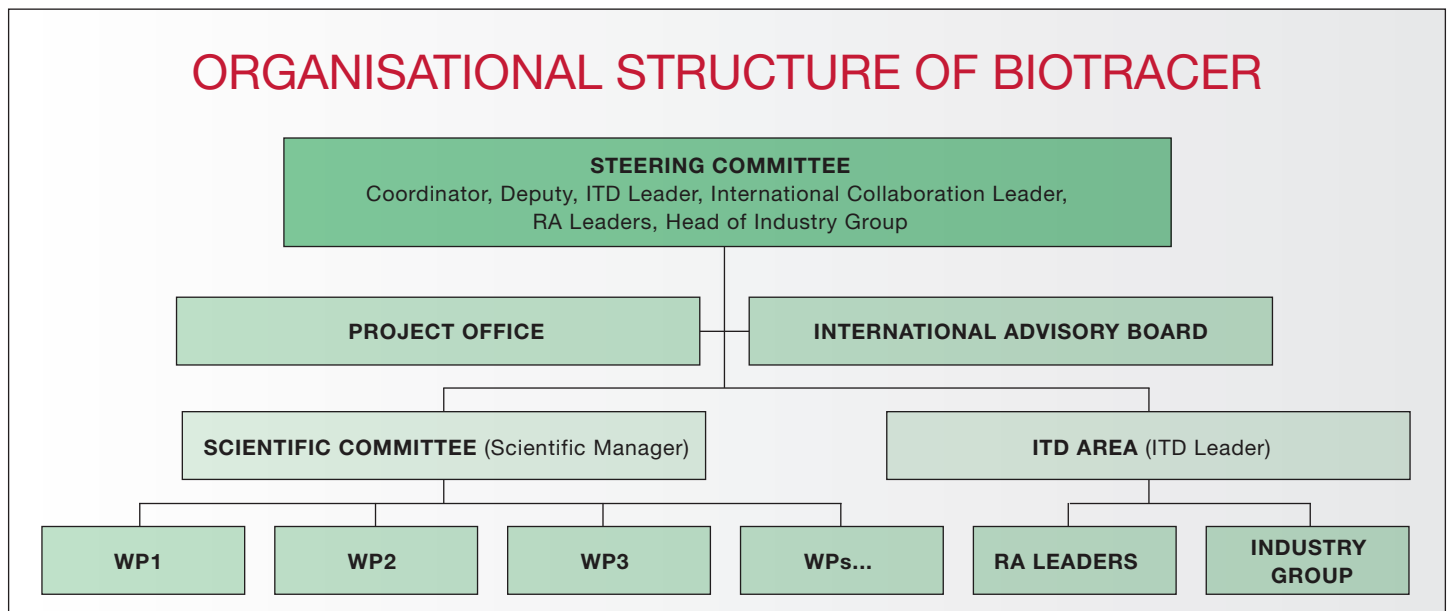
The five Research Areas are divided into four vertical and one horizontal activity. The four vertical Research Areas (RA2—RA5) are related to a specific food or feed chain, whereas the horizontal Research Area (RA1) is represented in all selected food and feed chains.

The four vertical Research Areas each have two projects of specified research. For Research Area 2, traceability of contaminants in the feed chain, mycotoxins and *Salmonella spp* were chosen as the tracing models. In Research Area 3, traceability of pathogens in the meat chain, the two pathogens selected in the two meat chains were *Salmonella spp* in pigs and *Campylobacter jejuni* in chickens. Research Area 4, traceability of pathogens in the dairy chain, the two pathogens selected were *L. monocytogenes* and *S. aureus*. In Research Area 5, tracing of potential bio-terror agents and accidental contaminants in the food and feed supply, the organisms are for the deliberate contamination of spore-forming *Bacillus anthracis* and *Clostridium botulinum* in feed and food products, and the accidental contamination of noroviruses in bottled water.

The work is further divided into 20 Work Packages, each with a dedicated leader. The tasks within each Work Package integrate the different Research Areas.

The Industry, Training and Dissemination Area is organised as a horizontal activity, including demonstration, training, dissemination and exploitation tasks.

ORGANISATIONAL STRUCTURE OF BIOTRACER





PARTNERS

AUSTRIA

Institute for Milk Hygiene and Milk Technology—University of Veterinary Medicine Vienna
Martin Wagner (Scientific Manager and Deputy Coordinator)

BELGIUM

Nutrition Sciences N.V.
Geert Bruggeman

BRAZIL*

Agricultural Research Corporation
Edna Oliveira

CZECH REPUBLIC

Institute of Chemical Technology
Prague
Katerina Demnerova

DENMARK

National Food Institute—Technical University of Denmark
Jeffrey Hoorfar (Coordinator)

Faculty of Life Sciences—University of Copenhagen
Hanne Ingmer

ilochip A/S
Julia Skov

HUGIN Expert Ltd.
Anders L. Madsen

Danish Meat Research Institute
Hardy Christensen

Statens Serum Institut
Eva Møller Nielsen

FINLAND

University of Helsinki
Marja-Liisa Hänninen

FRANCE

France Agency for Food Safety
Patrick Fach

Centre National Interprofessionnel de l'Economie Laitière
Moez Sanaa

GERMANY

Free University of Berlin
Jürgen Zentek

University of Regensburg
Michael Schäferling

Technical University of Munich
Monika Ehling-Schulz

Federal Institute for Risk Assessment
Burkhard Malorny

GREECE

Agricultural University of Athens
Panos Skandamis (International Collaboration Leader)

INDONESIA*

Gadjah Mada University
Mipa Nuryono

IRELAND

Glantrio Ltd.
John Hanrahan

TEAGASC (Irish Agriculture and Food Development Authority)
Kieran Jordan (Industry, Training and Dissemination Leader)

ITALY

Italian National Institute of Health
Dario De Medici

COOP Italia
Martino Barbanera

LITHUANIA

Lithuanian Veterinary Academy
Mindaugas Malakauskas

Joint Stock Company Agaras
Daina Butėnė

NETHERLANDS

Agrotechnology and Food Innovations B.V.
Willie Van den Broek

Check-Points Ltd.
Pieter Vos

RIKILT Institute of Food Safety
Henk Aarts

National Institute of Public Health and Environment
Arie Havelaar

VION Fresh Meat West
Lourens Heres

NORWAY

Norwegian Food Research Institute
Knut Rudi

ROMANIA

University Dunarea de Jos Galati
Anca Nicolau

RUSSIAN FEDERATION*

A.N. Bakh Institute of Biochemistry
Vladimir Olegovich Popov

SLOVAKIA

Food Research Institute/Vyskumny ustav potravinarsky
Tomas Kuchta

SLOVENIA

University of Ljubljana
Peter Raspor

SOUTH AFRICA*

Partner to be determined

SPAIN

Valencian Institute for Agricultural Research
José Penades

SWEDEN

Lund University
Peter Rådström

Prevas Ltd.
Andreas Blomgren

National Veterinary Institute
Per Häggblom

Svenska Foder
Lars Hermansson

SWITZERLAND

University of Bern
Peter Kuhnert

SmartGene Services Ltd.
Stefan Emler

NESTEC, Nestlé Research Centre
John Marrug

UNITED KINGDOM

University of Manchester
Roy Goodacre

London School of Hygiene and Tropical Medicine
Brendan Wren

Institute of Food Research
Gary Barker

*) International Aspects International Cooperation (INCO) partners have high levels of food and feed trade with Europe.

BIOTRACER with the full title 'Improved biotraceability of unintended micro-organisms and their substances in food and feed chains' is an Integrated Project within the European Union 6th Framework Programme (FP6) under the European Research Area of Food Quality and Safety.
EC scientific officer: Judit Krommer
EC legal officer: Francisco Garcia



SIXTH FRAMEWORK PROGRAMME