1. Director letter........................................3
2. General information...............................6
3. Research lines and sublines..............11
4. Research Groups.................................13
5. Scientific-Technical Services...........59
6. General Services ...............................61
Dear All,

With this letter it is my pleasure to share with the scientist community and society, the activities of the Institute that I am leading since September 2015. Institute of Agrochemistry and Food Technology (IATA) is a well-renowned food research institute of over 100 researchers that is making a worldwide mark in fundamental and applied research to deal with the societal challenges. IATA’s extraordinary researchers are connecting bold thought with decisive actions to excel food knowledge understanding edible biomaterials and developing innovative technologies and foodstuffs to address pressing society’s grand challenges. These themes are entwined into our 50-plus-year history and our reputation for providing knowledge and implementing solutions related to soil, agriculture, food processing and quality, foodstuffs and their connections to social well-being, health and environment. IATA's major asset has been and still is, its vision and foresight activities to move fast and make original and novel science. IATA pursues forefront research to generate scientific knowledge, developing and applying cutting-edge technologies and processes for obtaining both traditional and innovative high-quality, safe and healthy food products without forgetting consumer preferences, fostering inclusive and sustainable research and innovation to build effective cooperation between science and society.

During 2018, IATA undertook the last part of the Strategic Action Plan initiated in 2014 for increasing its competitiveness. That Plan included a new image in the website and also new logo, besides the reorganization of scientific groups and the research lines definition that comprise Innovation in Foods and Processes, Food Safety and Preservation, Food Biotechnology and Diet, and Microbiota and Health. The research lines have been very effective to promote the multidisciplinary approach to tackle market demands. In addition, in-house cooperation has been also encouraged to strength our capacities by the annual presentation of new and finished research projects. In February 2018 was appointed the External Scientific Committee of IATA, integrated by 10 national and international well-known researchers covering all the different disciplines within Food Science and Technology. Their first task has been to make the evaluation of the scientific activity of IATA.

IATA still are facing the weakness associated to the reduction of the scientific and technical taskforce. This year, we welcomed one tenured scientist that joined to the 45...
institute's researchers, and four technicians that notably increased the support to the research activity. Nevertheless, we have three retirements and other two colleagues moved to different institutions. Therefore, the recruitment and attraction of scientists and technician will be a priority for the coming years.

An extensive scientific activity has been carried out during 2018, with participation in international and national funding agencies. More than 80 project’s proposals have been submitted, which revealed the engagement and motivation of IATA researchers. IATA is hosting 15 international research projects and more than 30 projects granted in national competitive calls. The outstanding research activity of IATA has been awarded with the nomination of two excellent research groups by the Regional Government (Prometeo Projects). The quality of the IATA’s scientific staff is evidenced by their involvement in European and international committees, research projects and networks as well as their scientific production and the transfer of intellectual property to industrial enterprises. IATA close cooperation with stakeholder through the 30 hired research projects allowed effective transference, having direct impact on the industry economy and on the market. License agreements were signed for the utilization and commercialization of the discoveries made in research at IATA, and 11 patents have been submitted. A yeast that produces high concentrations of glycerol for wine production, several kits for rapid detection of anti-fungals, or microorganisms that improve human health for subjects with gluten intolerance are some of the recent products that have been developed in IATA and successfully launched to the market after commercializing the intellectual property.

The institute’s scientific staff has maintained a high success rate in obtaining competitive funding for the development of innovative projects and the results of this research activity has been disseminated in a large number of scientific manuscripts published in high-quality peer-reviewed journals. In fact, close to 200 peer-reviewed manuscripts have been published, more than 80% of those belonged to first quartile. This number also points out the IATA’s international leadership in Food Science and Technology. In fact, from 2014 more than 1,000 articles have been published with 10,000 citations and an outstanding h-factor of 34 within this discipline, and 82 considering whole existence. IATA still ranks 1st in Spain on the list of institutions that contributes to the top journals in Food Science. IATA engagement with science includes dissemination of international innovative research through its highly reputed SCI scientific journal Food Science and Technology International, currently edited by SAGE Publication. Scientists are strongly committed in promoting excellent science, because of that they were present in more than 25 editorial boards of the most prominent scientific journals in food science.

We have continued attracting talent from national and international universities, being engaged to prepare 45 PhD students (10 of them finished their thesis this year), with knowledge and training to participate and take responsibilities in the research and innovation processes, as a way to commit them to make social and economic changes happen. IATA also has given access to over 175 undergraduate and graduate students
to learning and training opportunities in food research. Our engagement with Society has prompted to submit a proposal to FECYT to increase the science communication. Over the years a series of special seminars took place in which relevant personalities from different research disciplines shared their knowledge and experiences. In addition, a workshop focused on sustainability was organized to promote innovation and transfer to industry. The annual ‘Expociencia’ event was also an opportunity to present our science to the general public, focusing especially on promoting the proximity of science to children and families. In this regard, training and technical education continue to be a priority for the IATA as they are principal pillars on which research is based.

Nevertheless, modernization of the IATA’s facilities will remain a challenge for the forthcoming years. The infrastructure project awarded this year will help to initiate this big renovation plan to adapt infrastructure and update facilities, mostly related to pilot plants and analytics.

We are very pleased that the Strategic Plan undertaken in the IATA during the last years has allowed to fulfill the requirements for participating in the Call “Center Severo Ochoa”, Excellence Seal from the Spanish State Research Agency.

Finally, it has to be said that all the achievements compiled in this report have been made possible by the effort, commitment, dedication and invaluable support of the researchers, technicians, and administrative and support staff, and of course my colleagues in the management tasks.

Thanks to everybody for contributing to the excellence of IATA.

I welcome the reader to browse through the contents of this report and learn about the rest of the Institute’s activities for excellence in food science and technology.
MANAGEMENT EXECUTIVE TEAM

**Director:** Cristina Molina Rosell – mail: direccion.iata@csic.es

**Scientific vice director:** José Manuel Guillamón Navarro – mail: vicedireccion@iata.csic.es

**Technical vice director:** María Dolores Rodrigo Aliaga – mail: vicedirecciontecnica@iata.csic.es

**Director’s secretary:** Estefanía Martí Honrado – mail: secredire@iata.csic.es

**Manager:** Luisa Ventura Montoliu – mail: gerencia.iata@csic.es
2. General information

Scientific production

Educational services provided

Funding

Origin of public funding

Staff

Dissemination
SCIENTIFIC PRODUCTION

- TOTAL: 210
- 1st Quartile: 157
- 1st Decile: 56

FUNDING

TOTAL: 4,800,920,87 €

- Total: 100
- Public Funding: 92
- Private Funding: 8

ORIGIN OF PUBLIC FUNDING

- Total: 100
- National: 71%
- International: 21%
- Other public funding: 8%
**TRAINING**

- Predoctoral: 39
- Postgraduate (Master): 31
- Post-doctoral: 6

Doctoral thesis defended: 10

**DISSEMINATION**

- Total: 78
- Conferences and information sessions: 28
- Guided visits to the center: 33
- Activities on open days: 10
- Collaboration with educational centres: 2
- Collaboration with Mass Media: 5
3. Research lines and sublines

A. Line: Innovation in Foods and Processes

Study the mechanisms responsible for the function of different food components by a multidisciplinary approach. Investigate the processes that add value and sustainability, and which determine or modulate the physico-chemical, biochemical, nutritional and sensorial behaviour of complex food matrices by placing special emphasis on products from plants (cereals and other grain based products) and animals (meat and meat based products).

A-1.- Subline: Structure and functionality of components in food matrices
A-2.- Subline: Mechanisms to develop aroma, flavour and functional ingredients
A-3.- Subline: Sustainability in food processes
A-4.- Subline: Sensorial and consumer perceptions

B. Line: Food Safety and Preservation

Food safety is an essential requirement in a healthy food supply system that needs to be dealt with in different ways. On the one hand, food preservation as a fundamental discipline of production processes that allows food safety and quality to be guaranteed in order to constantly supply food from farms to consumers. On the other hand, studies that rapidly, sensitively and accurately detect and quantify microorganisms, residues and chemical contaminants are necessary to lower or eliminate the risk of exposure to these agents.

B-1.- Subline: preservation and packaging technologies
B-2.- Subline: Biopolymeric materials and nanotechnology
B-3.- Subline: Microbiological risks
B-4.- Subline: Pollutants and chemical waste

C. Line: Diet, Microbiota and Health

Certain food confers the organism with benefits that go beyond their nutritional input by helping to improve general well-being or reducing risk
of disease. The digestive tract is colonised by numerous microorganisms (microbiota), which have co-evolved with human beings for millions of years, and have struck a balance that is vital to maintain health. This research line features a true revolution thanks to modern molecular techniques, allowing a clear connection of health with components of diet and intestinal microbiota. This allows innovations and dietetic solutions to develop that can help prevent diseases and chronic disorders.

C-1.- Subline: Probiotics and prebiotics  
C-2.- Subline: Microbiota and Microbiome  
C-3.- Subline: Nutrients and bioactive components

D. Line: Food Biotechnology

The Food Biotechnology line aims to understand the physiological and molecular bases of the action of organisms and molecules in food production. This knowledge is used to develop new processes that improve food quality, safety and shelf life. Research conducted in this line spans from the selection of molecules and organisms with enhanced properties for food production to the design of new foods with improved functional properties. This line includes researchers with extensive expertise in the study of microorganisms and molecules of interest for food production as well as the ripening and conservation of fruits.

D-1.- Subline: Yeasts  
D-2.- Subline: Lactic acid bacteria  
D-3.- Subline: Filamentous fungi  
D-4.- Subline: Protein engineering  
D-5.- Subline: Postharvest and fruit quality

E. Line: Open science, open access and the lifecycle of research data

Open science is based on the openness of the research life cycle from its conception till its implementation, communication and preservation of its outputs, including research data.
4. Research Groups
Department of Food Science

Biochemistry of Meat and Meat Products

Biochemistry Technology and Innovation of Meat and Meat Products

Cereals and Cereal Based Products Microbial Ecology

Nutrition and Health

Physical and Sensory Properties of Food and Consumer Science
Overview

Research area mainly concerns biochemistry of meat and meat-derived products, emphasizing the study of biochemical reactions involved in the transformation of muscle into edible foodstuffs.

Then, the group is developing innovative techniques to study meat enzymology combined with identification and quantification of proteins and peptides from different farm animals commonly used by food industry.

There is contemplated the use of different and complementary analytical strategies such as liquid chromatography, immunochemistry, gel electrophoresis, isoelectric focusing and enzyme reactions.

Furthermore, high-throughput analysis powered by mass spectrometry approaches are also moved forward dealing with proteomics, peptidomics and metabolomics.

Objectives

The main goal is to deepen into the knowledge of biochemical processes occurred in the postmortem muscle after farm animal slaughter, affecting its conversion into meat and final organoleptic, nutritive and functional properties. Then, outlines are the following:

1. Implementation of proteomic, interactomic and metabolomic approaches as a way to characterize skeletal proteins/peptides as well as, metabolites generated by chemical reactions in muscle. Moreover, discovering of reliable biomarkers enables the understanding and prediction of final quality of foodstuffs.

2. Assessment of the organoleptic, nutritional and biological/functional properties of compounds found in muscle by traditional and emerging techniques.

3. Implementation of cloning and expression techniques of muscle enzymes for quality evaluation of final products (obtained by meat ageing and dry-curing processes).

4. Externalization of reliable proteomic/peptidomic strategies to assess authenticity of traded meat and meat products. From this, control of fraud in food composition can be addressed by the determination of biomarkers from specific animal species and/or tissues.
Selected Publications


Projects and funding

1. “Identification of stress biomarkers in different autochthonous bovine breeds (IBERVAC) associated to meat quality: Influence of postmortem triggering of apoptosis as related to the tenderization process”


Other remarkable achievements

1. AWARDS: Fellowship awarded by UEECA (Unión de Entidades Españolas de Ciencia Animal) to Claudia Fuente-García to attend the 69th EAAP Congress, held at Dubrovnik (Croatia) during 27-30 August 2018 to present the work entitled: “Searching for protein biomarkers related to pre-slaughter stress using liquid isoelectric focusing”.

2. INVITED CONFERENCES: Invitation of Dr. MA Sentandreu to give a plenary lecture at Séminaire International des Sciences Alimentaires 2018 with the title: “La Protéomique comme approche pour identifier les espèces de viande présentes dans les aliments ». Constantine (Algeria), 15-16 October 2018.

3. MANAGEMENT POSITIONS: Dr. Miquel A. Sentandreu is the current Head of the Department of Food Science at IATA-CSIC.
Overview

The group has an extensive experience in the chemical, biochemical and instrumental analysis, especially on the study of the biochemical mechanisms involved in the processing of meat and meat products with a view to improving their sensory quality, safety and nutritional value.

Worldwide pioneer in the purification and characterization of muscle enzymes and enzymes of lactic acid bacteria and yeasts as well as on proteolysis, and the generation, identification and characterization of bioactive peptides and its implication for health.

Also the large experience on lipolysis and flavour of meat and meat products, especially in the study and identification of aroma compounds.

The group has got numerous projects of the European Union, National Plan and contracts with companies.

Objectives

1. Study of the mechanisms (chemical, enzymatic and microbiological) for the generation and perception of colour, aroma and flavour in meat products.

2. Characterization of aroma compounds by olfactometry analysis.

3. Proteomic characterization of proteins and peptides as markers of quality and bioactivity.


5. Metabolomic study of meat and meat products to establish the profile of compounds with functional activity, especially bioactive peptides, and development of enzymatic mechanisms to enhance their presence in these products and by-products.

6. Development of high quality meat products with reduced salt and/or fat or improved lipid profile.
Selected Publications


Projects and funding

1. “Taste of dry-cured ham: Generation of di and tripeptides during the process, its contribution to taste and possible effects of their oxidation” AGL2017-89831-R, January 2018 - December 2020. IP1: Dr. Fidel Toldrá and IP2: Dr. Leticia Mora. Funding: 127.000,50€

2. “Study for the valorisation of the action of dry-cured ham consumption with high content in bioactive peptides on artery pressure, and glucose and cholesterol metabolism in humans” RTC2017-6500-1, July 2018 -December 2020. IP: Dr. Fidel Toldrá. Funding: 80.279,40€


Other remarkable achievements

2. Flores, M. Invited Lecture 64th ICoMST. 12-17 August 2018, Melbourne, Victoria, Australia.
5. Toldrá F. Invited lecture. CIISA Congress. 16-17 November 2018, Lisboa, Portugal.
6. A visiting foreign postdoctoral scientist, 3 foreign PhD, 2 PhD students and 6 students for Master thesis and Career Project, and 10 students on training.
Overview

Design, development and biochemical, physico-chemical and nutritional assessment of value-added cereal-based goods.

Research is tackled by means of a basic approach for chemically understanding the functionality of cereal constituents in complex matrices.

The fundamental information is focused/oriented to the achievement of end cereal products easily transferred and exploited by the related industry.

This integrated global approach is devoted either to generate basic knowledge or to transfer obtained results efficiently to the industry.

Objectives

1. To study the interactions between ingredients, additives and processing aids in dough matrixes and their effect along the process stages on the quality of baked goods.

2. To determine functional and molecular parameters for predicting the quality and the keepability of final products.

3. To develop new strategies (novel formulations, bake off technology, non-thermal technology) aimed at producing added-value cereal based products.

4. To improve nutrient bioavailability in cereal baked goods.

Starchy hydrogels obtained from diverse enzymatic treatments
Selected Publications


Projects and funding

1. LINCE. Innovation, quality and development of cereals based foods. (Prometeo 2017/189). Coordinator: Cristina Molina-Rosell

2. NUTRICELFOOD. Development of healthy gluten free baked foods. Understanding the role of starch and proteins as main structural and nutritional players.(AGL2014-52928-C2-1-R). IP. Cristina M. Rosell


5. TIFFANY’S: Healthy concepts for breakfast product with new identity.
Funding: Retos Colaboración RTC-2017-6017-2, 01/10/2018-31/12/2020. IP: Amparo Tárrega
Overview

The group investigates the role of the microbiota in the human nutritional and health status and the risk of developing disorders, affecting the immune and neuroendocrine systems.

This information is used for the development of predictive and diagnostic tools and for the design of microbiome-based products and interventions with preventive purposes.

The group has expertise in next generation sequencing and bioinformatics for microbiome profiling and functional pathway reconstruction.

It also has expertise in cultivation of intestinal bacteria and identification of bioactive components in experimental models of metabolic and mental disorders and in humans to evaluate their efficacy and identify their molecular targets.

Objectives

1. To provide a comprehensive understanding of environmental and host-microbiome interactions that determine the progress from health to disease through integration of multi-omics, lifestyle and clinical data.

2. Select a next generation of probiotics and products thereof from the indigenous human microbiota and evaluation of their efficacy and mode of action.

3. Design of dietary strategies to optimize the individual’s microbiome functions to promote healthy living and prevent the development of diet and age-related disorders, progressing towards personalized nutrition.

4. Develop predictive and diagnostic tools based on the individual's microbiome data.
Selected Publications


Other remarkable achievements

Members of international advisory bodies:

1. The Panel on Additives and Products or Substances used in Animal Feed (FEEDAP) of EFSA and of the Working Group of Microbiology.
2. Working Group of the Novel Foods of the Panel of Nutrition, Dietetic Products and Allergy (NDA) EFSA.
3. Member of the Ethic Committee of CSIC

Projects and funding


2. Towards coordinated microbiome R&I activities in the food system to support EU and international bioeconomy goals-MicrobiomeSupport. EU Horizon 2020 Program (Grant n°81811)

3. Controlling micRobiomes CircuLations for bEtter food Systems- Acronym: CIRCLES. EU Horizon 2020 Program (Grant n°818290)

4. Microbiota mediating Vagal communication in Obesity- miVaO MSCA-IF EU- H2020 (Grant nº 797297).

5. Identification of intervention strategies based on the intestinal microbiome to reduce the risk of developing obesity, depression and their comorbidities. MCIU. AGL2017-88801-P.

6. Ingredients and foods to reduce the consumption of sugars in the population. SWEETFOOD. Project CDTI-MCIU-CIEN

7. Deciphering the roles of the intestinal microbiome in metabolic, behavioural and mental disorders at critical stages of life. MCIU. AGL2014-52101-P
Overview

Our group studies the physical and sensory properties of foods to find out how they are related to quality, perceptions and acceptability to consumers.

We try to develop new formulations through an understanding of the contribution that each ingredient/component makes to the food's rheological, thermal and mechanical properties and the relations between these and its structure.

We investigate the technological functionality of ingredients, the changes that take place during different types of processing, and storage, and their relation to sensory properties.

We study the means to create, modify and improve the physical properties of formulated foods to adapt them to different needs.

We analyse the changes in food structure during in vitro digestion to develop new foods with lower fat bioaccessibility.

We research the sensorial quality of foods and mechanisms of perception of sensorial attributes and their relations to choice and acceptability.

Objectives

1. Investigating the rheological properties of foods under high and low deformation in order to discover the structure of the food and its potential repercussions on its quality.

2. Researching thermal transitions in food components and their effects on the development of the food's structure and final food quality.

3. Studying the textural characteristics of foods and their relation to food structure.

4. Assessing and developing new sensory methods with trained and untrained panels of consumers.

5. Developing targeted formulations through the knowledge of the technological functionality of foods and the interactions between ingredients. Studying the technological functionality of new ingredients, how they change when subjected to different processes and storage and their relation to sensory quality.

6. Performing in vitro digestion processes and relating to structural changes with lipid digestibility.
Selected Publications


Projects and funding


Department of Food Biotechnology

Bioactive Proteins and Peptides

Biological Activity of Food Compounds

Development of Inducing Resistance of Plants Against Pathogens

Fermentation Biotechnology: Industrial Yeasts

Fungal Biotechnology

Lactic Bacteria and Probiotics

Molecular engineering of enzymes

Non-conventional Yeasts

Postharvest physiology and Pathology of Fruits

Postharvest Physiology and Fruit Quality

Systems biology in yeast of biotechnological interest
Bioactive Proteins and Peptides

Overview

Over the last years there has been a massive increase in the identification of short bioactive peptides and proteins with a wide variety of biologically useful activities, which reflects the huge chemical diversity of these molecules.

Examples of these bioactive peptides include those with antibiotic, antioxidant, antihypertensive, anticancer, or immunomodulatory activities. In this context the main objective of the research team is the identification, rational design and production of small peptides and proteins with medical, food and agricultural applications, as well as the detailed study of their mechanism of action.

To achieve this goal, we apply microbiological, biochemical, biotechnological, and molecular genetic techniques together with cell biology and functional genomic approaches.

Objectives

1. Identification, design and characterization of small peptides with antimicrobial properties as alternatives to control microorganisms in food preservation or postharvest/crop protection.

2. Identification, rational design and characterization of health-promoting peptides able to reduce the risk of chronic complications or age-related diseases.

3. Identification and biotechnological production of fungal antifungal proteins (AFPs). Characterization of their biological function.


6. Study the mechanism of action of peptides and proteins through cell biology, molecular genetics and omics approaches.

7. Development of Synthetic Biology tools for the biotechnological exploitation of filamentous fungi.
Selected Publications


Projects and funding

1. BIO2015-68790-C2-1-R. Nuevas proteínas antifúngicas de hongos: producción en hongos filamentosos y caracterización de su mecanismo de acción.


Other remarkable achievements


2. Patente: Manzanares, P., Garrigues, S., Marcos, J. F., Coca, M. Métodos para el control biológico de infecciones producidas por fitopatógenos en plantas y cultivos. OEPM P201830609.

Overview

The main mission of the group is to identify vegetable sources rich in polyphenols and to improve the understanding of functional properties of food ingredients.

Many studies address the possible functional effects of polyphenol extracts from various sources, but there is little information about what compound or compound combination is the most relevant, which of them may have adverse effects or which molecular mechanisms are involved.

Our research focuses on setting up and using in vivo methodologies based on simple organisms in which responses to oxidative stress and/or longevity have strong similarities with those in human.

Objectives

1. To identify vegetable sources rich in polyphenols as potentially health-promoting ingredients and their inclusion in food matrices.

2. To develop and implement fast methodologies for screening extracts and compounds, based on the use of the yeast *Saccharomyces cerevisiae* and the nematode *Caenorhabditis elegans* as models for oxidative stress response and/or longevity.

3. To inquire about which genes or metabolic pathways are affected in model organisms as a result of exposure to studied ingredients, using high-throughput “omic” technologies and mutant strains and to identify new therapeutic targets. Thus, the gathered information may help substantiate certain health claims and lay down the scientific basis for follow-up preclinical and clinical trials.
Selected Publications


Other remarkable achievements


Projects and funding

1. AGL2016-75687-C2-1-R (MINECO). Desarrollo de nuevos ingredientes de quinoa y chía para la formulación de alimentos. Estudio nutricional y evaluación de propiedades saludables.

2. CIBENA (CDTI) (Programa CIEN). Mejora de la cadena de valor en la producción de superalimentos.

3. PROMETEU/2017/189 (Generalitat Valenciana). Innovación, calidad y desarrollo de alimentos derivados de cereales (Leading INnovation in CEreals, LINCE).
Development of inducing resistance of plants against pathogens

Overview

We have been working on plant responses to pathogens to identify specific biomarkers for biotic stresses.

We have also developed treatments based on natural compounds as an alternative to the massive use of synthetic fungicides and pesticidals. Hexanoic acid acts by means of a priming mechanism with a wide-spectrum of action. It protected tomato and Arabidopsis plants against Botrytis cinerea and Pseudomonas syringae.

In addition, it prevented the systemic movement of the MNSV virus in melon plants. The transcriptomic, proteomic and metabolomic analysis showed that it promotes stronger and faster responses to stress by modulating the oxidative environment, and interacting with signalling pathways.

Currently, we are characterizing redox-sensitive genes involved in the priming effect and their epigenetic modifications.

The histone modifications involved in priming that affect the transcription of defence-related genes are also discussed.

Objectives

1. Characterization of plant responses to pathogens for biotechnological applications.

2. Identification of biomolecules profiles that could provide general and specific markers for several biotic stresses.

3. Development of treatments based on natural compounds acting by a priming mechanism.

4. Characterization of redox-sensitive genes as potential targets of natural inducers and the associated epigenetic marks.

5. Incorporation of natural inducers in integrated pest management (IPM) strategies.

Microscopic analysis of infected plants
Selected Publications


4. López-Cruz J, Óscar Crespo-Salvador, Carmen González-Bosh (2018) Infection with Botrytis cinerea that lacks NADPH oxidase provides new insights into the impact of the redox environment on plant responses against this necrotroph. Free Radical Biology and Medicine 120:S104

Projects and funding


2. OTR2017-17903INVES. Contrato para la realización de un estudio para la Empresa Servalesa SA. (2017-2018) Valoración del efecto inductor de 3 compuestos suministrados por la empresa

Other remarkable achievements


Overview

Lipid composition of the plasma membrane is key for a number of essential cellular processes that depend on its functionality, as well as, for the response and adaptation to ambient perturbations.

Hence, the knowledge of lipid regulatory pathways and effectors is of great interest from basic to applied point of views.

Indeed, the possibility to regulate the lipid content and composition would allow to obtaining yeast strains with increased stress tolerance and new products and ingredients based in yeast biomass or its fractions according to the challenges of the food industry.

Given the parallelism between lipid metabolism in yeasts and higher eukaryotes, the identification of molecules capable of inhibiting key regulators of lipid homeostasis could allow a pharmacological action to alleviate pathologies associated with lipid disorders.

Objectives

1. Increase our knowledge about the cold signalling mechanisms that control the lipid homeostasis.

2. Apply adaptive evolution strategies for stress resistance improvement of industrial strains and/or the production of metabolites governing organoleptic characteristics of foods.

3. Isolate and characterize non-Saccharomyces yeasts with potential application in fermentation processes at low temperature.
Selected Publications


Projects and funding

1. BIO 2015-71059: Mecanismos de regulación del metabolismo lipídico y su relación con la respuesta a estrés en S. cerevisiae (IATA-UV)

2. CSIC i-LINK1109: In search of new targets for neurodegenerative disease therapy: the yeast lipid metabolism approach (IATA-IQAC_ KU Leuven)
Overview

Building on our extensive background in filamentous fungal gene regulation in the model saprophyte Aspergillus nidulans our research is directed towards the identification and characterisation of novel activators and repressors involved in the utilisation of pectin and pectin-related sugars as well as the components of their corresponding regulons.

This is being tackled within the framework of a coordinated project in which we are undertaking a genome-wide high-throughput analysis (RNAseq) of pectin-acting/responsive activities in *A. nidulans*.

The findings will be used to identify orthologues in the phytopathogenic fungi *F. oxysporum* and *B. cinerea* that could offer potential targets for new antifungal compounds of agricultural interest.

Objectives

1. Identify, clone and functionally characterise the genes encoding the transcriptional activators (RhaR and PecR) that mediate induction by rhamnose and pectin, as well as those encoding transporters and enzymes involved in the uptake and catabolism of pectic sugars.

2. Establish the transcription profiles of genes encoding CAZy family enzymes involved in pectin deconstruction.

3. Characterise the regulatory phenomena involved in the CreA-independent carbon catabolite repression of rhamnosidases and pectin-acting genes.

4. Optimise pectin-acting enzyme production by manipulation of the genes studied in the previous objectives.
Selected Publications


Projects and funding

1. Funcion señalizadora y utilizacion de pectina y sus monosacaridos constituyentes en hongos filamentosos saprofiticos. CICYT AGL2015-66131-C2-2-R
Overview

Our main interest is the study of physiology, genetics and ecology of lactic acid bacteria in the gastrointestinal and food environments, with the aim of establishing and optimizing their role in human health, industrial processes and food quality.

Objectives


2. Study of the mechanisms involved in probiotic activity and in the host-microbiota interaction through molecular techniques, such as differential expression in tissues and bacteria (nutrigenomics).

3. Defining the role of the microbiota in infant health and development: role of breast milk.

4. Study of the role of two-component signal transduction systems in the metabolism and physiology of Lactobacillus casei.

5. Selection and characterization of bacterial strains to alleviate toxic and pathogenic processes in humans and animals.

6. To study microbial-host interactions, microbiome and its role in human health and diseases and the influence of diet (lactation) and other factors.
Selected Publications


Projects and funding

1. Probióticos y componentes alimentarios para reducir la biodisponibilidad oral de arsénico y mercurio. Ministerio de Economía y Competitividad, AGL2015-68920-R

2. Modulación de la microbiota gastrointestinal de niños lactantes por oligosacáridos de la leche humana en un modelo animal humanizado. AGL2017-84165-C2-1-R

3. The Power of Maternal Microbes on Infant Health (MAMI) European Research Council (ERC)-ERC Starting Grant Ref. ERC-2014-StG – 639226

4. Explotación de los mecanismos de comunicación bidireccional microbiota / huésped en el intestino para el desarrollo de nuevas estrategias dietéticas con probiótico AGL2015_70487-P

5. METAMORPHOSIS- enhanced insect protein for aquaculture. EIT Food, Project ID 18157.

Objectives

Our objectives are framed in the area of green chemistry. They involve the production enzymes with novel and enhanced properties and the production of catalytic and bioactive materials based on enzymes and enzyme components.

Some specific goals of our research are the enzymatic synthesis of oligosaccharides with prebiotic or other functional properties; new technologies for the production of lactose-free milk products; new materials for food packaging and preservation and the use of the brine shrimp Artemia as a vector for delivery of bioactive compounds in aquaculture.

Overview

Our research deals with structural and functional studies of biotechnologically relevant enzymes.

We are interested in protein structure features that determine important physicochemical properties such as resistance to extreme conditions of temperature or pH, or functional properties like enzyme specificity or promiscuity.

Many of the enzymes that we have studied are glycoside hydrolases involved in the hydrolysis of industrially important sugars like lactose, sucrose or cellobiose.

We have engineered some of these enzymes to produce variants able to act efficiently as glycoside transferases able to synthesize oligosaccharides such as kestose, panose or isomaltose.

Staff researchers
Julio Polaina Molina

Other members of the group
Julia Marín Navarro
David Talens Perales
Benito Alarcón Hernandis
Paloma Sánchez Torres
Selected Publications


Projects and funding


Overview

Our research focuses on biotechnological and genetic characterization of food-relevant non-Saccharomyces yeasts.

Yeast ecology and evolution along food production processes is a strong theme of research in our group as well as the study of genes and enzymes involved in aroma production for selection of yeasts as starter cultures.

Objectives

1. Study of the yeast microbiota, mainly non-Saccharomyces species, in fermented foods by means of microbiological and molecular methods.

2. Yeast ecology and distribution along the fermentative process applying culture based and next generation sequencing (NGS) methods.

3. Aroma generation profile of non-Saccharomyces yeasts and its relevance in food production. Genes involved in aroma generation: metatranscriptomics.

4. Physiological characterization of non-Saccharomyces yeasts. Tolerance and adaptation to physicochemical changes along the fermentative process.

5. Design of starter cultures of non-Saccharomyces yeasts. Determination of virulence factors and antagonistic activities.
Selected Publications


Projects and funding

1. Empleo de levaduras como estrategia de producción de aromas naturales para productos cárnicos madurados con menores niveles de nitrificantes. 2016-2018. PN2015 - PROY I+D+I

2. Evaluación de la actividad antimicrobiana de nuevos conservantes naturales con el fin de determinar su eficacia. 2017. CONTRATO DE APOYO TECNOLÓGICO 20175458. MANUFACTURAS CEYLAN, S.L.
Postharvest physiology, pathology and biotechnology

Staff researchers

Lorenzo Zacarías García
María Teresa Lafuente Rodríguez
Luis González Candelas
María Jesús Rodrigo Esteve

Other members of the group

Inmaculada Carbonell
Cecilia Lutz
Ana-Rosa Ballester
Dario Scuderi
Francisco Romero
Paula Pérez Moltó
Marcelo Paes de Barros
Celia García
Florencia Rey
Jaime Zacarías
M. Carmen Gurrea

Overview

The group dedicates its activity to study the quality of the fruit and its maintenance during postharvest storage. We use different multidisciplinary approaches and strategies to understand the physiological and molecular mechanisms related to fruit quality, physiological and pathological disorders. We also address the development of storage technologies to prevent or reduce postharvest losses caused by physiological and pathological disorders, and to reduce mycotoxin levels in fruits.

Our research is mainly focused, but not exclusively, on citrus fruits. Our group may be recognized by two main characteristics, which provided our potential and competitiveness:

a) Ability to address complementary aspects on both physiology and quality as well as pathological problems
b) Multidisciplinarity in the experimental approaches to the objectives, allowing us to use different methods and strategies, from the most traditional physiological and biochemical methods to the application of molecular genetics, genomics, transcriptomics, metabolomics, with the aim of understanding the mechanisms involved in the different processes.

Objectives

1. Understand and characterize physiological, biochemical and molecular responses of the fruit against postharvest abiotic stresses that provoke disorders as well as the development of methods to counteract the appearance of these disorders.

2. Characterization of metabolic pathways of key components involved in organoleptic and nutritional fruit quality, such as regulation and metabolism of carotenoids, volatile compounds, metabolism of vitamin C, phenylpropanoids, among others.

3. Study the interactions between apple and citrus fruits and their major fungal pathogens from the genus *Penicillium*.

4. Development and characterization of the mechanism of action of new alternative treatments to control postharvest fungal pathogens. We focus on treatments that either induce resistance in the fruit (i.e. irradiation with light at different wavelengths) or that affect fungal viability or pathogenicity.

5. Reduction of mycotoxin levels in food. Our approach is to functionally characterize the biosynthetic pathways leading to the production of the major mycotoxins and to develop new control systems to reduce mycotoxin contamination on fruits.
Selected Publications


Projects and funding

1. Infección de frutos cítricos por Penicillium digitatum: del estudio de los mecanismos de patogenicidad y defensa al desarrollo de nuevos sistemas de control. AGL2014-55802-R.

2. Nuevas aproximaciones al estudio de la síntesis y acumulación de carotenoides, y su papel en la calidad y conservación de los frutos cítricos. AGL2015-70218-R

3. Mecanismos de patogenicidad y de resistencia a la infección en la interacción fruto cítrico-Penicillium digitatum. AGL2017-88120-R

4. Elucidating the molecular basis of fruit resistance to desiccation: The cuticle as a key factor. H2020-MSCA-2015-656127

Other remarkable achievements

1. European network to advance carotenoid research and applications in agro-food and health. EUROCAROTEN. COST Action. CA15136

2. L. Zacarías and M. J. Rodrigo are members of the Spanish Carotenoid Network (BIO2017-90877-REDT).

3. L. González and A.R. Ballester are members of the Spanish Mycotoxins Network.


5. L. Zacarías is distinguished Visiting Professor. Dep. Horticulture, University Stellenbosch, South Africa.
Systems biology in yeast of biotechnological interest

Overview

Industrial yeasts responsible for biotechnological processes are highly specialized organisms that have evolved under restrictive conditions in different environments manipulated by man.

Our group is interested in understanding the mechanisms involved in adaptation that have shaped the yeast genome conferring properties of biotechnological interest.

Different Omic as well as evolutionary analysis are used to understand the mechanisms of adaptation of yeasts of industrial interest to environmental and nutritional changes (temperature, availability of nitrogen and iron, etc.).

This research is applicable to the selection and breeding of new strains of yeasts of interest in industrial fermentations (wine, beer, cider, etc.) and to the development of dietary supplements (iron-enriched yeast) by different techniques such as adaptive evolution, hybridization, or the development of GMOs.

Objectives

1. Regulatory and metabolic studies of gene expression in wine yeasts.
2. Interspecific hybridization in generating yeasts better adapted to fermentation.
3. Study of the interaction of parental genomes present in the hybrids.
4. Interactions between yeast species during industrial fermentations.
5. The study of genetic basis (QTLs) responsible for the phenotypic traits of yeasts of industrial interest.
6. The characterization of the mechanisms of response to iron deficiency by utilizing the yeast S. cerevisiae as a model eukaryotic organism.
7. Molecular systematics and evolution of yeasts of biotechnological interest.
8. The study of food yeasts as potential emerging pathogens.
**Selected Publications**


**Projects and funding**


3. Tailoring thermotolerant yeasts for more sustainable, eco-efficient and competitive industrial fermentations (ERA-IB-15-105). IP: José M. Guillamón


5. Novel insights, tools and measures to mitigate emerging risks by yeasts in the food chain. XVIII Concurso Nacional de proyectos en el área de “Seguridad alimentaria y biotecnología” de la Fundación Areces. IP: Amparo Querol
Department of Preservation & Food Safety Technologies

Food Analytical Immunotechnology (FAIG)

Microbiological Food Safety: Detection Of Pathogens, Preservation Processes And Risk Assessment

Packaging

Trace elements

New Materials and Nanotechnology for Food Applications

Open science, open access and the lifecycle of research data
Food Analytical Immunotechnology

Overview

The Food Analytical Immunotechnology group is comprised by two senior researchers from CSIC who work in coordination with two professors from the Organic Chemistry Department of the University of Valencia.

The team is also made up by two laboratory technicians as well as Spanish and international PhD scholars.

Moreover, we regularly host graduate and master students for experimental training.

We are located at an important academic and technological environment constituted by the University’s Scientific Park which houses large facilities and exclusive services for R&D, including services for proteome analysis and experimental animal production.

Our laboratories are fully equipped, and a cell culture unit is available for hybridoma generation and monoclonal antibody production.

Objectives

The objective of our scientific activity is the development of rapid and economic analytical systems for food safety and quality purposes. We study the development of user-friendly bioanalytical methods for the determination of chemical residues and contaminants (pesticides, hormones, additives, antibiotics, mycotoxins, phycotoxins, etc.) in food samples. Synthetic functionalized derivatives and bioconjugates of small organic molecules (haptenes) are prepared, and high-affinity polyclonal and monoclonal antibodies specific of the target compound are generated in our lab. Moreover, alternative immunochemical methods, such as microplate-based immunoassays, affinity columns, immunochromatographic strips, or bioactive nanoparticles, are evaluated and validated.
Selected Publications


Projects and funding


Other remarkable achievements

1. Commercialization of the Easy Kit system by Citrosol SA for the analysis of pyrimethanil, o-phenylphenol and imazalil at food processing plants.


Microbiological food safety: detection of pathogens, preservation processes and risk assessment

Overview

The group has extensive experience in food preservation processes (thermal and non-thermal) and development of new foods as well as in the detection, identification and rapid quantification of food pathogens (viruses and bacteria) based on PCR and next generation sequencing (NGS), all focused on the achievement of food safety through application of microbiological risk assessment.

Objectives

1. Evaluation and validation of food preservation technologies (thermal treatment, pulsed electric fields, high hydrostatic pressure, active packaging, ultrasounds, natural antimicrobials etc.) effectiveness for the elimination of pathogens (viruses and bacteria).

2. Use of in vivo models to assess the effect of preservation process on microorganisms (sublethal damage, resistance generation or virulence changes).

3. Development and validation of molecular based methods (real-time PCR and next generation sequencing) for the identification and quantitative detection of pathogens (bacteria and enteric viruses) of interest in food and water, as well as viable / infectious forms.

Selected Publications


4. M.C. Pina-Pérez, A. Rivas, A. Martínez, D. Rodrigo. Effect of thermal treatment, microwave, and pulsed electric field processing on the antimicrobial potential of Açaí (Euterpe oleracea), Stevia (Stevia rebaudiana Bertoni), and Ginseng (Panax quinquefolius L.) extracts. Food Control. 90, 98-104. (2018).


Projects and funding

1. Towards the target indicators of the Viral Pathogen Diversity in water by Metagenome Analysis, VIRI-DIANA. AGL2017-82909. 2018-2020


3. Validación de nuevas herramientas y procesos para el análisis y la mejora de la seguridad alimentaria microbiológica: aplicación a nuevas matrices alimentarias (AGL2017-86840-C2-2-R).2018-2020


Other remarkable achievements


2. CHAIR of Food Safety Group of Spanish Food for Life Platform.

3. Award: best oral presentation XII Reunión del Grupo de Microbiología del Medio Acuático.

4. Award: best poster at the XXI Congreso Nacional de Microbiología de los Alimentos.
Overview

Our group works in the development of materials, biomaterials, nanotechnologies, processes and circular bioeconomy strategies for the design of novel high barrier, active, bioactive and intelligent packaging and for the protection of added value food ingredients or bioactives by means of micro, submicro and nanoencapsulation. The group works as an Associated Unit (UA) in Polymers Technology with the group of Material Science of the University Jaume I of Castellón.

Objectives

1. Development and characterization of biopolymers and bioblends with enhanced performance leveraging on circular bioeconomy strategies of application interest in food packaging and coatings.

2. Development of multifunctional active nanotechnologies such as nanometals, nanoclays, nanocarbons and nanocelluloses with passive gas and vapour barrier, antimicrobial, oxygen scavenging, antioxidant, superamphiphobic, temperature buffering and sensorial properties to be applied as fillers and coatings in active packaging strategies.

3. Development and characterization of micro and nanoencapsulation of bioactive ingredients for the design of both reinforced foods and bioactive packaging strategies.

4. Development of application to the food area of electrohydrodynamic (electrospinning and electrospraying) and aerodynamic high throughput processes.
Selected Publications


Projects and funding

1. Development And Characterization Of A Biobased High Barrier Multilayer Concept With Active And Bioactive Properties For Food Packaging”; MINECO, AGL2015-63855-C2-1-R; 2016-2018

Staff researchers
Pilar Hernández Muñoz
Amparo López Rubio
Rafael Gavara Clemente

Other members of the group
Isaac Benito
Cynthia Fontes Candia
Maria José Fabra Rovira
Agustín Garrido Fernández
Raquel Heras Mozos
Gracia Lopez Carballo
Marta Martínez Sanz
Laura Settier Ramirez
Laura Higuera

Overview
Development of new materials, mixtures, structures and coatings for packaging applications that improve food stability and reduce environmental impact.

Characterization of the functional properties of packaging materials with especial attention to food/package interaction issues (permeation, sorption, scalping, migration, release).

Study, development and design of new packaging technologies including Modified atmosphere packaging (MAP) and active and intelligent packaging.

Objectives
1. Development and improvement of packaging materials including blends, composites and biomaterials.

2. Characterization of the properties of materials for packaging design.

3. Study and development of new packaging technologies. MAP and Active and intelligent packaging.

4. Study and development of edible coatings and microencapsulation of food systems or food components to improve stability and bioavailability.

Biodegradable films of extracts based on agars obtained from red algae using simplified extraction protocols and using alternative techniques such as ultrasound.
Selected Publications


Projects and funding

1. Development and Characterization of a Bio-based High Barrier Multilayer Concept with Active and Bioactive Properties for Food Packaging (MULTIBIOPACK) MINECO, AGL2015-63855-C2-1

2. Envases para alimentos basados en materiales antimicrobianos avanzados: polímeros dinámicos, autohigienizantes y “vivos”. CICYT, AGL2015-64595-R

3. Etiquetas Inteligentes con nanoparticulas para la detección del deterioro de los alimentos envasados “SAFETAG”. MINECO RTC-2016-5197-2

4. “BIOCARB-4-FOOD: Extraction and characterization of BIOactives and CARBohydrates from seaweeds and seagrasses FOR FOOD-related applications”. Horizon 2020 Eranet SUSFOOD2.

Other remarkable achievements


2. Patente: A. López-Rubio, M. Martinez-Sanz, C. Fontes, & M.J. Fabra. Procedimiento para la obtención de oleogeladas a partir de polisacáridos sulfatados No: P201830776

Overview

The Trace Elements group has a former background related to the development of analytical methodology to determine toxic trace elements and its species in food products. These methodologies have been applied to evaluate the food safety with emphasis in metal/metalloid speciation and human exposure. Some of the developed methods are international standards.

The aim of the group has been extended in the last decade in order to evaluate the risk associated with the intake of these elements considering aspects such as bioaccessibility, bioavailability and intestinal toxicity.

As a part of the collaboration with the industrial sector, the group has also investigated the risk linked to the exposure to metals in the workplace using innovative methods of speciation.

Objectives

The research of our group in the last years has been focused in the evaluation of the influence of the gastrointestinal passage on the risk associated to the presence of arsenic and mercury in food. These have been our main objectives:

1. Identification of the factors that influence the rate of absorption and the transformations of arsenic and mercury at gastrointestinal level.

2. Evaluation of the bioavailability of arsenic and mercury in food and drinking water using in vitro and in vivo approaches.

3. Evaluation of the intestinal toxicity of arsenic and mercury using cellular models and experimental animals.

4. The search of dietary strategies capable of reducing the bioavailability and toxicity of arsenic and mercury.
Selected Publications


2. G.M. Chiocchetti, D. Vélez, V. Devesa, Effect of subchronic exposure to inorganic arsenic on the structure and function of the intestinal epithelium, Toxicology Letters, Volume 286, 2018, Pages 80-88


5. Silvia Marín, Olga Pardo, Alfredo Sánchez, Yovana Sanchis, Dinoraz Vélez, Vicenta Devesa, Guillermina Font, Vicent Yusà, Assessment of metal levels in foodstuffs from the Region of Valencia (Spain), Toxicology Reports, Volume 5, 2018, Pages 654-670

Projects and funding


2. "Probiotics and dietary compounds to reduce the oral bioavailability of arsenic and mercury": Project funded by the Spanish Ministry of Economy and Competitiveness 2016-2018.
Overview

Open Science is the practice of science in such a way that others can collaborate and contribute, where research data, lab notes and other research processes are freely available, under terms that enable reuse, redistribution and reproduction of the research and its underlying data and methods.

The Open science is based on opening the research process from conception (ideas) to its execution, communication and preservation of its results, including data. It is a new paradigm shift in the way of sharing and communicating science, in which transparency, responsibility, and ethics open up more to the scientific community.

This open conception allows a more efficient reuse of the contents and research data, recovering part of the investment made in funding research.

Objectives

1. Analyze the situation of open access in Spain through scientific journals, institutional repositories and open access policies.

2. Establish a map of Spanish scientific journals and their editorial policies regarding copyright.

3. Establish evaluation indicators for open access institutional repositories.

4. Analyze national and international policies regarding open science.

5. Analyze editorial policies regarding research data, its management and preservation.
Selected Publications


Projects and funding

1. Fostering the practical implementation of Open Science in Horizon 2020 and beyond (FOSTER plus). 741839 - 2017-2019

2. El acceso abierto a la ciencia en España: Evaluación de su impacto en el sistema de comunicación científica. CSO2014-52830-P. 2016-2018

Other remarkable achievements


Tipo de producción: Informe científico-técnico
Tipo de soporte: Documento o Informe científico-técnico
5. Scientific-Technical Services

1. **Analytical**. Analytical service developed to provide basic tools for the identification of different types of metabolites and their quantification for any researcher in the institute that needs this information for their research. Head Technician: María Dolores Abolafio Martínez – mail: abolafio@iata.csic.es

2. **Cellular Cultures**. Scientific-technical support service for eukaryotic cell culture for IATA research groups and external users. Head Technician: José Vicente Gimeno Alcañiz – mail: jgimeno@iata.csic.es

3. **Sensory analysis**. Service that collaborates and helps in conducting high quality sensory assessments and assessments to researchers or companies. Head Technician: María Inmaculada Carbonell Talón – mail: micarbonell@iata.csic.es

4. **Genomics, Proteomics and Phenomics Service**. It offers scientific-technical support to IATA research groups as well as to other research centres or companies that wish to use global genome study and gene expression techniques. It includes the techniques of DNA microarrays and real-time quantitative PCR. We also offer related services, such as extraction of nucleic acids from different types of samples, quantification and quality control of the samples. On the other hand, this service also allows the analysis of proteins from complex mixtures with high reproducibility and high resolution. Head Technician: Benito Alarcón Hernandis – mail: balarcon@iata.csic.es

5. **Microscopy**. The Microscopy Service allows the different research groups of the IATA, as well as the research centers and companies that request it, the microscopic observation and the digital microfotography of different types of samples using different techniques of optical microscopy. Head Technician: José María Coll Marqués – mail: btcoll@iata.csic.es
6. Pilot Plant. It offers the possibility of small industrial scales of the agri-food industry, thanks to its equipment and supplies, becoming a technological support to the scientific research that is carried out at the institute and also offering service for any industry of the agro-food and biotechnology sector interested.

Head Technician: José Javier López Díaz and Antonio Ruiz López – mail: jjlopez@iata.csic.es, aruiz@iata.csic.es
6. General Services

Manager: Luisa Ventura Montoliu - mail: gerencia.iata@csic.es
Secretary of Direction: Estefanía Martí Honrado - mail: secredire@iata.csic.es

ADMINISTRATION

Paymaster: Mariano Rodríguez Moya
mail: habilitadorpagador@iata.csic.es

Management Reception Students and Stays: Pilar Redondo Cañada
mail: personal@local.iata.csic.es

Human resources: Teresa Calzada de la Iglesia
mail: tcalzada@iata.csic.es

Travel Management: Francisco Javier Reina López
mail: fjreina@iata.csic.es

Billing management: Juana González Díaz
email-facturas@iata.csic.es

Project Management: Sonia Rodriguez Vargas
mail: soniarv@iata.csic.es

Contracted Investigation Management: Oscar Salgado López
mail: oscar.salgado@iata.csic.es

Management Unit of Knowledge Transfer: Mª Jesús Añón Marín, Francisco Cuenca Alonso
mail: mjanon@iata.csic.es

Multiple Management and Patrimony: Tomas García Ulloa, María Luz Ibáñez Cabello, Vicente López Pérez
mail: tgarcia@iata.csic.es
mail: patrimonio@iata.csic.es
mail: batas@local.iata.csic.es
PROCUREMENT: Daniel Alberto Gómez, José Antonio Perpiñá Vidal mail: entradalmacen@local.iata.csic.es

IT: Fernando López Santoveña, Ana Barroso De San Felipe, Antonio Navarro Tomás mail: informatica@local.iata.csic.es

MAINTENANCE: Nacho Galdeano Richart mail: mantenimiento@local.iata.csic.es

SCIENTIFIC DOCUMENTATION AND LIBRARY: Ana Veyrat Ferrer mail: biblio@iata.csic.es

DISSEMINATION: Ángela Molina Ruiz mail: divulgacion@iata.csic.es
Annexes
List of research projects started in 2018
DPT. FOOD BIOTECNOLOGY:

Modulación de la microbiota gastrointestinal de niños lactantes por oligosacáridos de la leche humana en un modelo animal humanizado.
Yebrayebra, Mª Jesús
AGL2017-84165-C2-1-R

Mecanismos de patogenicidad y de resistencia a la infección en la interacción fruto cítrico-Penicillium digitatum.
González Candelas, Luis
AGL2017-88120-R

Regulación transcripcional y postranscripcional de procesos metabólicos dependientes de la disponibilidad de hierro y cobre en levaduras y plantas.
Puig Todolí, Sergi
BIO2017-87828-C2-1-P

Biología sintética aplicada al desarrollo de nuevas plataformas fúngicas como factorías celulares para la producción de biomoléculas de interés agroalimentario.
Manzanares Mir, Paloma
PROMETEO/2018/066

Estudio transcriptómico para determinar los mecanismos moleculares de paradas de fermentación alcohólica.
Sanz Herranz, M. Yolanda
AGL2017-88801-P

DPT. FOOD SCIENCE

Identificación de estrategias de intervención basadas en el microbioma intestinal para reducir el riesgo de desarrollar obesidad, depresión y sus comorbilidades.
Sanz Herranz, M. Yolanda
AGL2017-88801-P

Sabor del jamón curado: generación de di y tripeptídidos durante el proceso, su contribución al sabor y posibles efectos de su oxidación.
Toldrá Vilardell, Fidel
AGL2017-89381-R

Towards coordinated microbiome R&I activities in the food system to support (EU and) international bioeconomy goals
Sanz Herranz, Yolanda
H2020-SFS-2018/ 818116

Controlling microbiomes Circulations for better food Systems
Sanz Herranz, Yolanda
H2020-SFS-2018 / 818290

Creación de nuevos conceptos saludables para productos de desayuno de nueva identidad. TIFFANYS
Tárrega Guillem, Amparo
RTC-2017-6017-2

Estudio para valorar la acción del consumo de jamón curado con alto contenido de peptidos bioactivos sobre la presión arterial, y el metabolismo glucídico y colesterolémico en humanos
Toldrá Vilardell, Fidel
RTC-2017-6500-1

DPT. PRESERVATION & FOOD SAFETY TECHNOLOGIES

Aproximación metagenómica para la búsqueda de indicadores de contaminación de virus entéricos en aguas.
Sánchez Moragas, Gloria
AGL2017-82909-R

Validación de nuevas herramientas y procesos para el análisis y la mejora de la seguridad alimentaria microbiológica: aplicación a nuevas matrices alimentarias.
Rodrigo Aliaga, Mª Dolores
AGL2017-86840-C2-2-R

Desarrollo de un test inmunocromatográfico para el análisis rápido de ocratoxina en vino.
Abad Fuentes, Antonio
AICO/2018/111

Valoración de biomasa procedente de residuos de Posidonia oceánica para el desarrollo de envases bioactivos.
Martínez Sanz, Marta
GV/2018//149

Metagenomics to identify viral indicators in the produce chain.
Sánchez Moragas, Gloria
CPS_2018

Foods for diabetes and cognition
Lagarón Cabello, José María
H2020-MSCA-RISE-2017 / 778388

FOODIO - Food Solutions Master Class
Laguna Cruañes, Laura
EIT18030
List of scientific publications in 2018
Hapten Design and Antibody Generation for Immunoanalysis of Spirotetratam and Spirotetratam-enol
Cevallos-Cedeno, R.E.; Aguiló, C.; Abad-Somovilla, A.; Abad-Fuentes, A.; Mercader, J.V.
ACS Omega September 2018; 3 (9): 11950-11957
https://doi.org/10.1021/acsomega.8b01784

Oral microbiota maturation during the first 7 years of life in relation to allergy development
Dzdic, Majda; Abrahamsson, Thomas; Artacho, Alejandro; Collado, Maria Carmen; Mira, Alex; Jennnalm, Maria
Allergy October 2018; 73 (10): 2000-2011
https://doi.org/10.1111/all.13449

Recommendations for characterization and reporting of dietary fibers in nutrition research
Poutane, Kaisa S.; Fiszman, Susana; Marsaux, Cyril F.M.; Pentikäinen, Saara P.; Steiner, Robert E.; Mela, David I.
https://doi.org/10.1093/ajcn/nqy095

Combined heterologies for monoclonal antibody-based immunoanalysis of fluxaproxad
Ceballos-Alcantarilla, Eric; Lopez-Puertollano, Daniel; Agullo, Consuelo; Abad-Fuentes, Antonio; Abad-Somovilla, Antonio; Mercader, Josep V.
Analyist December 2018; 143 (23): 5718-5727
https://doi.org/10.1039/c8an01771a

Rationally designed hapten for highly sensitive monoclonal antibody-based immunoanalysis of fenhexamid
Esteve-Turulliras, Francesc A.; Agullo, Consuelo; Mercader, Josep, V; Abad-Somovilla, A.; Abad-Fuentes, A.
Analyist Sept 2018;143 (17):4057-4066
https://doi.org/10.1039/c8an00827b

Automated and simultaneous determination of priority substances and polychlorinated biphenyls in wastewater using headspace solid phase microextraction and high resolution mass spectrometry
Dominguez, Irene; Javier Arrebola, Francisco; Gavara, Rafael; Martinez Vidal, Jose Luis; Garrido French, Antonio
Analytica Chimica Acta March 2018; 1002: 39-49
https://doi.org/10.1016/j.aca.2017.11.056

Multiojective optimization of liquid chromatography-triple-quadrupole mass spectrometry analysis of underivatized human urinary amino acids through chemometrics
Peris-Olaz, M.D.; Sentandreu, M.A;; Sentandreu, E.
Analytical and Bioanalytical Chemistry July 2018; 410 (18): 4275-4284
https://doi.org/10.1007/s00216-018-1083-x

Development of immunosorbenents for the analysis of forchlorfenuron in fruit juices by ion mobility spectrometry
Orellana-Silla, A.; Armenta, S.; de la Guardia, M.; Mercader, J.V.; Esteve-Turulliras, F.A.
Analytical and Bioanalytical Chemistry September 2018; 410 (23): 5961-5967
https://doi.org/10.1007/s00216-018-1213-5

Properties and aromatic profile of dry-fermented sausages produced from Kräkipolje pigs reared under organic and conventional rearing regime
Škrlep, M.; Čandek-Potokar, M.; Tomažin, U.; Batorek Lukač, N.; Flores, Mónica
Animal June 2018; 12 (6):1316-1323
https://doi.org/10.1007/s13571-017-0027-13

Diversity and dynamics of lactic acid bacteria in Atole agrio, a traditional maize-based fermented beverage from South-Eastern Mexico, analysed by high throughput sequencing and culturing
Pérez-Cataluña, A.; Eliaquivel, P.; Carrasco, P.; Espinosa, J.; Reyes, D.; Wacher, C.; Aznar, Rosa
Antonie van Leeuwenhoek March 2018; 111 (3):385-399
http://dx.doi.org/10.1007/s10492-017-9690-1

Bioactivity of Fucoidan as an Antimicrobial Agent in a New Functional Beverage
Poveda-Castillo, Gabriela Del Carmen ; Rodrigo, Dolores; Martínez, Antonio ; Pina-Pérez, Maria Consuelo
Beverages 2018; 4(3): 64
https://doi.org/10.3390/beverages4030064

Regulation of yeast fatty acat desaturase in response to iron deficiency
Romero, Antonia M.; Jordá, Tania; Rozés, Nicolas; Martinez-Pastor, M. Teresa; Puig, Sergi
Biochimica et Biophysica Acta - Molecular and Cell Biology of Lipids June 2018; 1863 (6): 657-668
https://doi.org/10.1016/j.bbalip.2018.01.039

Long-term feeding with high protein based diets in gilthead seabream (Sparus aurata, L.) leads to changes in the inflammatory and immune related gene expression at intestinal level
Estruch, Guillem; Carmen Collado, Maria; Monge-Ortiz, Raquel; Tomas-Vidal, Ana; Jover-Cerda, Miguel; Penaranda, David S.; Perez Martinez, Gaspar; Martinez-Llorens, Silvia
BMC Veterinary Research October 2018; 14: 302
https://doi.org/10.1186/s12917-018-1626-6

Rheological and structural properties of complex arabinoxylans from Plantago ovata seed mucilage under non-gelled conditions
Yu, L.; Yakubov, G.E.; Martinez-Sanz, M.; Gilbert, E.P.; Stokes, J.R.
Carbohydrate Polymers 2018; 193: 179-188.
https://doi.org/10.1016/j.carbpol.2018.03.096

Structural and physicochemical characterization of thermoplastic corn starch films containing microalgae
Fabra, M.J.; Martinez-Sanz, M.; Gómez-Mascaraque, L.G.; Gavara, R.; López-Rubio, A.
Carbohydrate Polymers April 2018; 186: 184-191
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Caracterización de glicosidasas y permeasas fúngicas implicadas en el transporte y metabolismo de azúcares. Mary Fernanda Casa Villega, Universidad de Valencia. Fecha de lectura: 25-06-2018
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Genome diversity in Torulaspora microellipsoides and its contribution to the evolution of the Saccharomyces genus. Adriana Mena Romero, Universidad de Valencia. Fecha de lectura: 24-09-2018
Director: Eladio Barrio Esparducer

Determinación de marcas epigenéticas en genes implicados en la respuesta temprana a Botrytis cinerea de Arabidopsis thaliana y Solanum lycopersicum. Óscar Crespo Salvador, Universidad de Valencia. Fecha de lectura: 05-10-2018
Directora: Carmen González Bosch

Biotechnological production and utilization of new antifungal proteins from filamentous fungi. Sandra Garrigues Cubells, Universidad Politécnica de Valencia. Fecha de lectura: 19-10-2018
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Caracterización enológica y molecular de híbridos naturales y artificiales entre las especies de Saccharomyces y Saccharomyces kudriavzevii. María Guadalupe Ortiz Tovar, Universidad de Valencia. Fecha de lectura: 31-10-2018
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Identificación y caracterización de nuevos procesos implicados en la respuesta a deficiencia de hierro en saccharomyces cerevisiae. Antonia Mª Romero Cuadrado, Universidad de Valencia. Fecha de lectura: 11-11-2018
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Identificación de componentes de la microbiota intestinal potencialmente beneficiosos frente a la obesidad. Eva Mª Gómez del Pulgar Villanueva, Universidad Politécnica de Valencia. Fecha de lectura: 16-11-2018
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Structuring gluten-free systems: effect of formulation and physical modification of ingredients. Marina Villanueva Barrero, Universidad de Valladolid. Fecha de lectura: 22-11-2018
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Reducción de la biodisponibilidad de arsénico inorgánico con componentes alimentarios. Alessandra Francesca Cimbalo, Universidad de Valencia. Fecha de lectura: Julio 2018
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Estudio del metabolismo de carotenoides en frutos de nuevos híbridos de cítricos. Celia García Gimeno, Universidad de Valencia. Fecha de lectura: Septiembre 2018
Directores: Mª Jesús Rodrigo Esteve y Lorenzo Zacarías García

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Evaluación del efecto in vitro de oligosacáridos de la leche humana en la microbiota fecal de lactantes. Elizabeth Cristina Ordoñez Paz, Universidad de Valencia. Fecha de lectura: Julio 2018
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Regulación por fosforilación de cth2 y su papel en la modulación de la respiración frente a la deficiencia de hierro en Saccharomyces cerevisiae. Enrique Timor López, Universidad de Valencia. Fecha de lectura: Julio 2018
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Aplicación de distintos carbones activos como aditivos en panificación. Juan José Zafra Díaz, Universidad de Valencia. Fecha de lectura: Julio 2018
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Director: Sergi Puig Todolí

Desarrollo de recubrimientos antivirales a base de carragenatos y extracto de té verde para mejorar la seguridad de arándanos. Nicolás Gil Sepulcre, Universidad Politécnica de Valencia. Fecha de lectura: Septiembre 2018
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Desarrollo de recubrimientos antivirales a alginato-ácido oleico y extracto de té verde. Patricia Lizeth Flores Meraz, Universidad Autónoma de Coahuila. Fecha de lectura: Julio 2018
Director: Mª José Fabra