



Agència
de Gestió
d'Ajuts
Universitaris
i de Recerca



Generalitat de Catalunya
Departament d'Empresa i Coneixement
Secretaria d'Universitats i Recerca



Unió Europea
Fons Europeu
de Desenvolupament Regional

Title: SUMOblock: lead development in the discovery of novel Acute Myeloide Leukemia treatments

Reference: 2018 PROD 00171

PI: L. Maria Lois

Description: The project aims to improve the efficacy of iSUM peptides *in vitro* and in cell lines through a molecular evolution process and perform preliminary toxicology assays. This technical development will be accompanied by key activities for the creation of a spin-off biotech to develop the compounds further in the pre-clinical phase.

Funding: Agència de Gestió d'Ajuts Universitaris i de Recerca and the European Regional Development Fund (ERDF)

Total amount: 100.000 €

Duration: 2019 – 2020



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Title: Genomic, proteomic and genetic analyses of the Arabidopsis flower development gene regulatory network

Reference: BFU2014-58289-P

PI: José Luis Riechmann

Description: This projects combines genomic and proteomic technologies to advance towards the goal of a complete understanding of the genome-wide regulatory network for flower development in Arabidopsis, as well as to help understand the functional information encoded in the Arabidopsis genome, in particular focusing on the peptidome, and to assign functional roles to still uncharacterized genes.

Funding: Ministerio de Economía y Competitividad and the European Regional Development Fund (ERDF)

Total amount: 229.900 €

Duration: 2015 -2019

Title: Interorganellar communication in light-regulated plant development

Reference: BIO2015-68460-P

PI: Elena Monte

Description: The project aims to advance in understanding of plastid retrograde signaling by identifying the components impinging on the phytochrome-regulated pathway, as well as test the hypothesis that chromatin-level regulation is an essential mechanism in the nucleus/plastid regulatory interface.

Funding: Ministerio de Economía y Competitividad and the European Regional Development Fund (ERDF)

Total amount: 249.018 €

Duration: 2016 - 2019

Title: Evolution and Function of TEMPRANILLO in Plant Development and Adaptive Responses

Reference: BFU2015-64409-P

PI: Soraya Pelaz

Description: The main goal of the project is to uncover the mechanism of action of TEMs (TEMPRANILLO genes) and if their important pathways are evolutionarily conserved in all plant species and especially in a model crop, rice.

Funding: Ministerio de Economía y Competitividad and the European Regional Development Fund (ERDF)

Total amount: 201.586 €

Duration: 2016 - 2019

Title: Role of microRNAs in plant disease resistance



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Reference: BIO2015-67212-R

PI: Blanca San Segundo

Description: This project will research the role of miRNAs in disease resistance and the interplay between disease resistance and nutrient stress in plants through rice and Arabidopsis plants studies.

Funding: Ministerio de Economía y Competitividad and the European Regional Development Fund (ERDF)

Total amount: 326.700 €

Duration: 2016 - 2019

Title: Plants and yeasts as biofactories of novel antifungal proteins and peptides

Reference: BIO2015-68790-C2-2-R

PI: Maria Coca

Description: This coordinated project will address the urgent need for the development of novel antifungal agents with improved properties and mechanisms of action different from existing ones.

Funding: Ministerio de Economía y Competitividad and the European Regional Development Fund (ERDF)

Total amount: 169.400 €

Duration: 2016 - 2019

Title: Identification and characterization of genes involved in the shape and juiciness of peach and almond fruits

Reference: AGL2015-68329-R

PI: María José Aranzana

Description: The main objective of the project is to characterize the sequence of peach chromosome 6 and that of its alleles, understand its mode of action and validate its function using a flat peach accession and its round sport.

Funding: Ministerio de Economía y Competitividad and the European Regional Development Fund (ERDF)

Total amount: 163.350 €

Duration: 2016 - 2019

Title: Genetic dissection of two characters of agronomic interest in melon: resistance to Cucumber mosaic virus and climacteric fruit ripening

Reference: AGL2015-64625-C2-1-R

PI: Ana Montserrat Martín



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Description: The project intends to deeply study the resistance to Cucumber mosaic virus, fruit ripening and morphology and domestication and to expand the use of natural variability in melon and in the genus Cucumis

Funding: Ministerio de Economía y Competitividad and the European Regional Development Fund (ERDF)

Total amount: 217.800 €

Duration: 2016 - 2019

Title: Desarrollo e implantación en la empresa de técnicas biotecnológicas innovadoras para la mejora y mantenimiento de cultivos agrícolas estratégicos en Castilla y León

Reference: RTC-2016-5816-2

PI: David Caparrós

Description: El proyecto tiene dos objetivos principales: la obtención, producción y certificación de la planta o semilla libre de patógeno, principalmente enfocado a dos cultivos (lúpulo y alubia) y la recuperación y mejora de variedades de interés mediante el empleo de herramientas biotecnológicas.

Funding: Ministerio de Economía, Industria y Competitividad and the European Regional Development Fund (ERDF)

Total amount: 71.880 €

Duration: 2016 - 2019

Title: Mixed viral infections in crop plants: interaction dynamics within the host and effects on vector-mediated dissemination

Reference: AGL2016-75529-R

PI: Juan José López-Moya

Description: The general objective of the project focuses on the changes occurring along the time in plants supporting mixed viral infections, assessing how the presence of multiple viruses can affect the defensive responses of the host, including the associated consequences in vector-mediated dissemination of the participating viruses.

Funding: Ministerio de Economía, Industria y Competitividad and the European Regional Development Fund (ERDF)

Total amount: 260.150 €

Duration: 2016 - 2019

Title: Role of the circadian clock in the control of plant responses to environmental changes

Reference: BFU2016-77236-P

PI: Paloma Mas



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Description: The general aim of the project is to identify the mechanisms connecting the circadian clock with plant responses to changing environmental conditions, using *Arabidopsis thaliana* as experimental model.

Funding: Ministerio de Economía, Industria y Competitividad and the European Regional Development Fund (ERDF)

Total amount: 508.200 €

Duration: 2016 - 2019

Title: Control of crop bacterial diseases using *Ralstonia solanacearum* as a model species

Reference: AGL2016-78002-R

PI: Núria Sánchez-Coll, Marc Valls

Description: This project will: 1) identify new *R. solanacearum* genes essential for virulence, by performing an exhaustive transcriptomic analysis of the different stages of the bacterium's life cycle and developing new technologies to track bacteria and effector delivery in planta; 2) Systematically study the multilayered defense mechanisms developed by plants to counter infection by *R. solanacearum*.

Funding: Ministerio de Economía, Industria y Competitividad and the European Regional Development Fund (ERDF)

Total amount: 254.100 €

Duration: 2016 - 2019

Title: Genomic analysis of the genetic determination of milk yield, composition and body condition and viability in Murciano-Granadina goats

Reference: AGL2016-76108-R

PI: Marcel Amills

Description: In the current project, we aim to undertake the study of the genomic architecture of milk and body condition traits in Murciano-Granadina goats in order to take profit of such information in the context of genetic improvement activities.

Funding: Ministerio de Economía, Industria y Competitividad and the European Regional Development Fund (ERDF)

Total amount: 211.750 €

Duration: 2016 - 2019

Title: Exploiting genome wide sequence data for domestic species breeding

Reference: AGL2016-78709-R

PI: Sebastián Ramos, Miguel Pérez-Enciso

Description: This project will study the genetic architecture of complex traits at different time frames, from a few generations (genomic selection for commercially relevant traits) to thousands of generations (domestication), and its impact in practical breeding programs.



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Funding: Ministerio de Economía, Industria y Competitividad and the European Regional Development Fund (ERDF)

Total amount: 163.350 €

Duration: 2016 - 2019

Title: Transposable Elements as main players of crop plant genome evolution

Reference: AGL2016-78992-R

PI: Josep M^a Casacuberta, Carlos Vicient

Description: The objectives of this proposal are: to evaluate the role of Transposable Elements in the generation of variability selected during crop domestication and breeding, to study the accumulation of TEs leading to heterochromatin formation and how this may shape recombination frequency and to develop new tools based on TEs vectors.

Funding: Ministerio de Economía, Industria y Competitividad and the European Regional Development Fund (ERDF)

Total amount: 235.950 €

Duration: 2016 - 2020

Title: Molecular bases for Brassinosteroid signaling in the stem cell niche

Reference: BIO2016-78150-P

PI: Ana I. Caño

Description: This project aims to characterize the functionally relevant cell-specific components of the Brassinosteroid pathway in the stem cell niche.

Funding: Ministerio de Economía, Industria y Competitividad and the European Regional Development Fund (ERDF)

Total amount: 242.000 €

Duration: 2016 - 2019

Title: Role of SUMO in environmental cues integration to control plant development

Reference: BIO2017-89874-R

PI: L. Maria Lois

Description: The project aims to get new insights into fundamental aspects related to SUMO conjugation in vivo, the role of SUMO in plant defense responses to necrotrophic fungal pathogens and to uncover novel molecular targets essential for plant protection to environmental stresses.

Funding: Ministerio de Ciencia, Innovación y Universidades and the European Regional Development Fund (ERDF)

Total amount: 121.000 €

Duration: 2018 -2020



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Title: Functional genomics, systems biology, and microbiomics applied to the identification of genetic regulators of growth, fatness, and meat quality traits in pigs

Reference: AGL2017-82641-R

PI: Josep Maria Folch

Description: The main objective of the current proposal is to identify and validate QTLs and candidate genes polymorphisms for growth, fatness, and meat quality traits, integrating information from muscle transcriptome analysis, genotypes and phenotypic records.

Funding: Ministerio de Ciencia, Innovación y Universidades and the European Regional Development Fund (ERDF)

Total amount: 169.400 €

Duration: 2018 -2020

Title: Genomics applied to the development of DNA markers for boar reproduction traits

Reference: AGL2017-86946-R

PI: Alex Clop

Description: GenBoRe seeks to extend the research on genetic and molecular basis of semen quality traits to a larger population of Pietrain - boars and to include direct measures of boar fertility using genetic material and phenotypic records.

Funding: Ministerio de Ciencia, Innovación y Universidades and the European Regional Development Fund (ERDF)

Total amount: 145.200 €

Duration: 2018 -2020

Title: The role of glycosylated sterols in the tomato stress response. Molecular bases and agronomical applications

Reference: AGL2017-88842-R

PI: Albert Ferrer, Teresa Altabella

Description: The current project intends to elucidate the specific contribution of tomato sterol glycosyltransferases (SGT) isozymes in sterol glycosides (SG) biosynthesis, their role in the adaptive responses of plants to different biotic and abiotic stresses, and the mechanism by which SG and SGT exert these effects

Funding: Ministerio de Ciencia, Innovación y Universidades and the European Regional Development Fund (ERDF)

Total amount: 139.150 €

Duration: 2018 -2020

Title: New biotechnological tools to improve production and storage of vitamins A and E in plant cells

Reference: BIO2017-84041-P



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PI: Manuel Rodríguez-Concepción

Description: The project will provide improved knowledge regarding the metabolic regulation of plant metabolism and new insights as to the implementation of the generated knowledge to produce plant products with enhanced levels of health-promoting metabolites (carotenoids and tocopherols).

Funding: Ministerio de Ciencia, Innovación y Universidades and the European Regional Development Fund (ERDF)

Total amount: 314.600 €

Duration: 2018 -2020

Title: New frontiers in understanding responses to plant shade: from seedlings to seeds and from models to crops

Reference: BIO2017-85316-R

PI: Jaume Martínez

Description: This project aims to deepen into the genetic components and the molecular mechanisms that sustain how plants respond to avoid plant proximity, focusing on the hypocotyl growth response in the shade avoider *A. thaliana* and the shade tolerant *C. hirsute*.

Funding: Ministerio de Ciencia, Innovación y Universidades and the European Regional Development Fund (ERDF)

Total amount: 217.800 €

Duration: 2018 -2020

Title: Production of volatile organic compounds and antimicrobial compounds by means of biotechnological processes based on the use of endophytes and metabolic engineering

Reference: RTC-2017-6431-2

PI: Teresa Altabella

Description: The main objective is to develop new volatile organic compounds and antimicrobial compounds, through the investigation of new biotechnological processes based on endophytic microorganisms isolated from aromatic plants of the Mediterranean region and its subsequent production and escalation by the use of recombinant microorganisms that express the synthetic pathways.

Funding: Ministerio de Ciencia, Innovación y Universidades and the European Regional Development Fund (ERDF)

Total amount: 197.837,36 €

Duration: 2018 -2021

Title: Plant growth infrastructure at CRAG

Reference: EQC2018-003982-P

PI: José Luis Riechmann



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Description: This project aims to guarantee the growth of plants in optimal conditions; expand the plant growth area; allow experimental approaches that are not currently possible due to the technical limitations of the equipment; guarantee the production of plants in quasi-aseptic conditions; and reduce energy consumption, improving the sustainability of CRAG.

Funding: Ministerio de Ciencia, Innovación y Universidades and the European Regional Development Fund (ERDF)

Total amount: 265.725,74 €

Duration: 2018 -2020

Title: Paleogenomic insights into population genetic structure of European dogs during prehistory

Reference: PGC2018-096343-A-I00

PI: Laura R. Botigué

Description: The present project plans to unravel the complex demographic scenario of prehistoric European dogs by analysing the genome of twenty ancient dog samples from the Iberian Peninsula and Germany from a period spanning from the Neolithic to the Roman Empire

Funding: Ministerio de Ciencia, Innovación y Universidades and the European Regional Development Fund (ERDF)

Total amount: 114.950 €

Duration: 2019 - 2021

Title: Discovering novel nuclear functions of RNAs pathways

Reference: PGC2018-101075-A-I00

PI: Nicolas Bologna

Description: The proposed project will unravel novel, unexpected functions of nuclear RNA pathways in Arabidopsis by combining cell biology, ultra-pure subcellular fractionation procedures, RNA biochemistry, RNA-PAINT imaging, CRISPR/Cas9 methodology, structural biology, biomolecular modeling, bioinformatics and high-throughput sequencing.

Funding: Ministerio de Ciencia, Innovación y Universidades and the European Regional Development Fund (ERDF)

Total amount: 116.402 €

Duration: 2019 - 2021

Title: The involvement of microRNAs (miRNAs) in the regulation of plant immune responses under nutrient stress conditions

Reference: RTI2018-101275-B-I00

PI: Blanca San Segundo

Description: The general aim of this project is to decipher miRNA-mediated processes underlying disease resistance in plants, and to identify interconnected regulations between nutrient



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homeostasis and immune responses, focusing on phosphate and iron homeostasis during infection by fungal pathogens.

Funding: Ministerio de Ciencia, Innovación y Universidades and the European Regional Development Fund (ERDF)

Total amount: 223.850 €

Duration: 2019 - 2021

Title: Production, characterization and applications of fungal antifungal proteins in plants

Reference: RTI2018-101115-B-C22

PI: Maria Coca

Description: The main objective is to develop antifungal proteins (AFPs) from fungal origin as antifungals with novel properties and modes of action.

Funding: Ministerio de Ciencia, Innovación y Universidades and the European Regional Development Fund (ERDF)

Total amount: 145.200 €

Duration: 2019 - 2021

Title: Retrograde Signaling in Photoprotection

Reference: PGC2018-099987-B-I00

PI: Elena Monte

Description: The first goal is to gain further insight into the GUN1-mediated plastid biogenic retrograde signaling pathway in Arabidopsis by characterizing novel downstream signaling factors. The second goal is to use the green unicellular algae Chlamydomonas as a complementary model system to investigate the primary photoprotection pathways

Funding: Ministerio de Ciencia, Innovación y Universidades and the European Regional Development Fund (ERDF)

Total amount: 266.200 €

Duration: 2019 - 2021

Title: Unmasking the mechanism of RAV genes in FLOral Repression in Abiotic stress

Reference: PGC2018-095804-B-I00

PI: Soraya Pelaz

Description: This project will use the model Arabidopsis thaliana to study in depth the molecular mechanism of TEMPRANILLO genes action in normal and abiotic stress conditions. Because of its conserved function in rice and the likely involvement of TEM in drought escape, it will also explore the role of these genes in response to drought and salt stress in rice.

Funding: Ministerio de Ciencia, Innovación y Universidades and the European Regional Development Fund (ERDF)

Total amount: 205.700 €



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Duration: 2019 - 2021

Title: Natural variability and gene editing approaches to study fruit quality and disease resistance in melon

Reference: RTI2018-097665-B-C21

PI: Jordi Garcia Mas, Ana Montserrat Martín

Description: The general objective of this coordinated project is to elucidate the genetic basis of interesting agronomical traits in melon by exploiting the extant natural variation present in melon, combining available genetic and genomic resources previously obtained by the participating research teams.

Funding: Ministerio de Ciencia, Innovación y Universidades and the European Regional Development Fund (ERDF)

Total amount: 199.650 €

Duration: 2019 - 2021

Title: Molecular tools for fruit quality breeding in peach and other Prunus

Reference: RTI2018-100795-B-I00

PI: María José Aranzana

Description: In this project we want to deeply study the genes involved in fruit shape in peach, fruit color in peach and Japanese plum and maturity date in peach to better understand the genetic determination of such traits.

Funding: Ministerio de Ciencia, Innovación y Universidades and the European Regional Development Fund (ERDF)

Total amount: 145.200 €

Duration: 2019 - 2021

Title: From cellular to whole organ development and defense reprogramming upon pathogenesis

Reference: RTI2018-097262-B-I00

PI: Ignacio Rubio-Somoza

Description: CODE project aims to change the current vision of host reprogramming upon pathogen challenge by obtaining an unprecedented cellular resolution and temporal dynamic view of that process. It will exploit the unique possibilities from RNA silencing mechanism and its dysfunction upon infection to understand how cell-specific triggered reprogramming occurs and how is signaled to neighbor and distal cells, addressing also how those changes affect the interaction between host defense and development.

Funding: Ministerio de Ciencia, Innovación y Universidades and the European Regional Development Fund (ERDF)

Total amount: 151.250 €

Duration: 2019 - 2021