





TRAINING

Training of future generations of scientists and technologists is a major priority for the CNB. Throughout 2015 and 2016, 61 students obtained the PhD degree under the supervision of CNB researchers. Undergraduate and master's students from Spanish and international universities also received practical training at the CNB labs. Moreover, CNB researchers actively participate in some of the best university and master's degree programmes in Spain.

In summer 2015 and 2016, the CNB offered its 3rd and 4th edition of the CNB Course on Introduction to Research, which is meant to give undergraduate students the chance get first-hand experience in biotechnology research.

To provide PhD students with the best quality training, the centre has a Training Advisory Committee. The committee, with the support of the Communication and Outreach Office, assists the CNB Director's team in the design, implementation and follow-up of training programmes. Members of the Training Advisory Committee are Drs Yolanda Carrasco, Vicente Rubio, Miguel Vicente, Juan José Sanz, Mark van Raaij and Javier Tamames.

In 2015 and 2016, the committee promoted annual events such as the Predoctoral Scientific Workshop, Welcome Event for new PhD students, and courses on soft skills for young researchers.

2015 Training Activities

COURSES

3rd CNB course on introduction to research

PARTICIPANTS
Students in the final years of any university degree in science. The course is designed for qualified, highly motivated students who would like to contact the scientists at the CNB.

OBJECTIVE
To provide an overview of the various research techniques and expertise available at the CNB in the areas of:




- Macromolecular Structures
- Cell and Molecular Biology
- Microbial Biotechnology
- Plant Molecular Genetics
- Immunology and Oncology
- Systems Biology

DATES
The four-week course will be held on 6 - 31 July 2015.

DESCRIPTION
Students will have the unique opportunity to gain first-hand experience in Biotechnology research. During four weeks, they will participate in scientific activities of two research departments of their choice (2 weeks each), attend seminars on hot topics in today's life sciences, meet and talk with scientists, and have a lot of opportunities to see and learn about the center's cutting-edge research facilities.

REGISTRATION
Applications must be received before 29 May 2015. Selected students will be registered free of charge.

CONTACT INFORMATION
www.cnb.csic.es
91 585 4842

Communication Skills Training

The target audience of this workshop is PhD students and early-stage post-doctoral fellows at the CNB

Friday 23 October
CNB Conference Room

PhD Training

15.00h Lucas Sánchez
An overview of scientific dissemination and public engagement

15.45h Julia García
The scientist and the press: tools and tips for working with reporters

16.15 Coffee

16.30 Miguel Vicente
How to communicate your scientific results: writing a manuscript

17.15 Catherine Mark
Putting your science on paper: tactical logistics

CNB
Centro Nacional de Biotecnología
915 854 842
www.cnb.csic.es





Workshop predoctoral students 19th June 2015

Do you know what we work on at CNB to advance knowledge?

14.30h-15.00h Department of Macromolecular Structure
José-Avies Correas Muñoz: 3D electron and X-ray Microscopy
César López Pastrana: Single Molecule Techniques to study DNA-protein interactions

15.00h-15.30h Department of Cellular and Molecular Biology
Carlos Castaño: Role of SARS-CoV2 virpion E₂ and E₃ in virus replication and virulence in complementation between E₂ and E₃ proteins in sugarcane
Claudia Vassallo: Functional study of the cellular protein Sigma-1 Receptor: implications for hepatitis C virus infection

15.30h-16.00h Department of Microbial Biotechnology
Felipe Lina: Tricostan and antimicrobial resistance in bacteria
Fabiola Gomez: Diphtheria dermolyticin compromises DNA replication at specific genomic loci and causes genome instability

16.00h-16.30h Coffee Break



16.30h-17.00h Department of Plant Molecular Genetics
Eduardo González Grandío: Genetic control of shoot branching in Arabidopsis thaliana
Eliasa Nieto Sánchez: Regulation of abiotic stress signal by E3 ubiquitin ligases in Arabidopsis

17.00h-17.30h Department of Immunology and Oncology
Jorge Domínguez Andrés: Phenotypic characterization of the kidney leukocytic populations in a model of Crohn's disease infection
Jesús Ojeda Castro: Non-coding RNA and the immune system

17.30h-18.00h Systems Biology Program
Marta Cobos Barden: Ecology of marine microorganisms: biodiversity, genomics and metagenomics
Ángelika Hestak Gil: An immune system for Pseudomonas putida

18.00h-20.00h Scientific Discussion

Afterwards discussion and get to know your colleagues better
https://www.blogs.cnb.csic.es/2015/06/19/what-type-of-predoctoral-student-do-you-belong-to/?page=2

2016 Training Activities

COURSES

4th CNB course on introduction to research

DESCRIPTION
Students will have the unique opportunity to gain first-hand experience in Biotechnology research. During four weeks, they will participate in scientific activities of two research departments of their choice (2 weeks each), attend seminars on hot topics in today's life sciences, meet and talk with scientists, and have a lot of opportunities to see and learn about the center's cutting-edge research facilities.

OBJECTIVE
To provide an overview of the various research techniques and expertise available at the CNB in the areas of:




- Macromolecular Structures
- Cell and Molecular Biology
- Microbial Biotechnology
- Plant Molecular Genetics
- Immunology and Oncology
- Systems Biology

DATES
The four-week course will be held on 4 - 29 July 2016.

PARTICIPANTS
Students in the final years of any university degree or master degree in science. The course is designed for qualified, highly motivated students, willing to fulfil a career in science research and are interested in contacting the scientists at the CNB.

REGISTRATION
Applications must be submitted through CNB website before 15 May 2015. Selected students will be registered free of charge.

CONTACT INFORMATION
www.cnb.csic.es
91 585 4842

TRAINING

Welcome event for new PhD Students

May 3, 2016
CNB-CSIC Conference Room

10.00 Welcome
Julia García

10.15 Training
Yolanda C

10.30 Safety and
Fernando

10.45 Coffee

CNB
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Career Orientation Workshop: Opportunities beyond Academia

October 6, 2016
CNB-CSIC Conference Room

Session I:
15.00 Beyond academia, personal experiences.
Chair: Ana Sanz

Luis Martín Rivera (ECYT)
Alicia Pérez (Agencia Española del Medicamento)
Serafina Charb (LRI)
Roberto Clemente (Gnanomix)

15.40 Round table: Getting ready to the outside world

16.00 Coffee

Session II:
16.20 New open doors for PhD
Chair: Peter Klatt

Linda Mordant (Pharmanex)

WORKSHOP

II WORKSHOP by CNB PhD students

June 27, 2016
CNB-CSIC Conference Room

SESSION I Chair: Mark Van Raaij

14.30 DEPARTMENT OF CELLULAR AND MOLECULAR BIOLOGY
Hidradrenal Reservoir System: Convergence molecular basis of pathology and protection Francisco Javier Gutiérrez Álvarez
pH treatment causes a massive apoptosis in beta-infected cells Liliana L. Cobas Casas

15.00 DEPARTMENT OF MICROBIAL BIOTECHNOLOGY
Gene expression of ppa, an essential gene for Escherichia coli cell division
Laura Costo Burdell
Pathogenic Resistance (Pmr) Pumps: just for resistance? Manuel Alcalde

15.30 DEPARTMENT OF PLANT MOLECULAR GENETICS
What triggers potato formation? A journey through the tubatubation pathway Edward Cruz Oro
Translating plant defense: Yewmy Izquierdo Nuliez

16.00 Coffee break

SESSION II Chair: Javier Tamames


16.30 DEPARTMENT OF IMMUNOLOGY AND ONCOLOGY
New anticancer therapies based on the use of superparamagnetic iron oxide nanoparticles: Sara de Bernardo
p12 as a negative regulator of T cell activation Rahman Shabri



17.00 SYSTEMS BIOLOGY PROGRAMME
Optimizing Pseudomonas fluorescens: Marlene Tas
Preserving cellular cooperation Clara Moreno Fenoll

17.30 DEPARTMENT OF MACROMOLECULAR STRUCTURE
Fluore forest analysis by X-ray crystallography Mateo Seoane
Single-Molecule techniques to study DNA-protein interactions Alejandro Martín

18.00 Scientific Discussion

CNB
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PhD fellowships

6 INTERNATIONAL PHD FELLOWSHIPS "LA CAIXA - SEVERO OCHOA"

LA CAIXA FOUNDATION

Marcos Gragera Cabezudo
Alberto Marín González
Jesús Osuna Pérez
Marta Pérez Illana
Carlos Tarancón Pascual
Rubén Torres Sánchez

7 FPU FELLOWSHIPS

MINISTRY OF EDUCATION, CULTURE AND SPORT

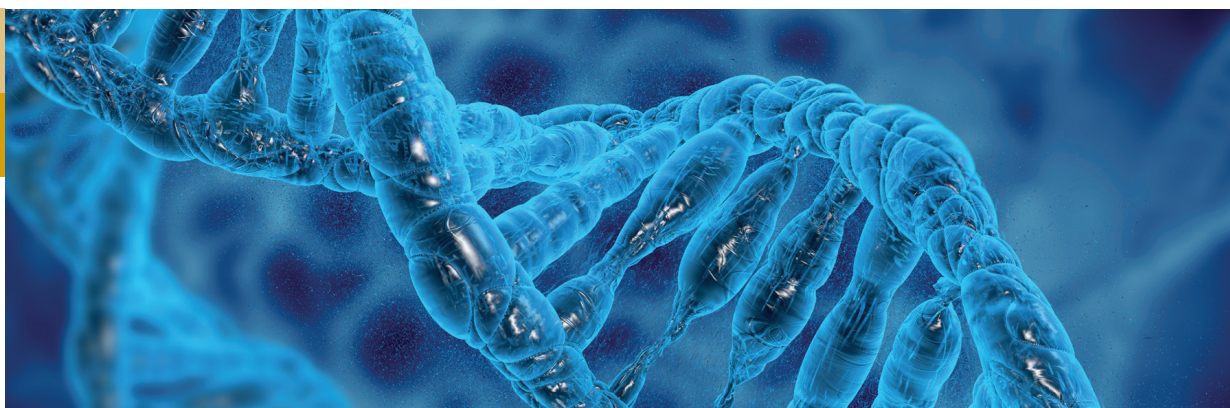
Kateryna Lemishko
Fernando Martín Fernández
Manuel Olazábal Morán
Yadileiny Portilla Tundidor
Rubén Sánchez García
Fernando Sanz García
Elena Velázquez Muñoz

36 FPI FELLOWSHIPS

MINISTRY OF ECONOMY AND COMPETITIVENESS
& MINISTRY OF ECONOMY, INDUSTRY AND
COMPETITIVENESS

Iván Camilo Acosta García
María Carolina Allende Ballesterero
Javier Arranz Nicolás
Noelia Arteaga Ramos
Alejandro Asensio Calavia
Paula Blanco Torres
María Teresa Bueno Carrasco
Javier Cantón Bailón
Diego Carlero Carnero
Victoria Castro Illana
Marta Cobo Simón
Sara de Bernardo Hernández Coronado
Noelia Sofía de León Reyes
Sergio Díaz Díaz
Alberto Díaz Romero
Alejandra Escos López
Daniel Fuentes Martínez
Marta García León

Laura Hernández Villarubia
Marta Hervás García
Javier López-Ibañez Infante
Alejandro Martín González
Pablo Martínez Gómez
Sara Violeta Merino Cortés
Carmen Mora Gallardo
Alejandro Navarro Galiano
María Peñuelas Hortelano
Patricia Pérez Ramírez
María del Mar Pérez Ruíz
Eva Pico Sánchez
Elena Sánchez Martín Fontecha
Javier Santos Arenal
Mateo Seoane Blanco
Pilar Somovilla Crespo
Jesús Vallejo Díaz
José Luis Vilas Prieto



Doctoral thesis

In 2015 and 2016, 61 students obtained the PhD degree under the supervision of CNB researchers.

2015

DAYANIRA ALSINA BEUCHAMP

Alternative p38 mitogen activated protein kinases p38 γ and p38 δ in *Candida albicans* infection and colitis-associated colon cancer

(Ana Cuenda)

ANA LUCIA ÁLVAREZ CABRERA

Structural analysis of macromolecular nanomachines by 3D electron microscopy: managing flexibility and heterogeneity in some defined cases

(José María Carazo and Carlos Óscar Sorzano-Sánchez)

GINÉS ÁVILA PÉREZ

Estudio de los complejos replicativos del torovirus equino BEV

(Dolores Rodríguez)

MARTINA BÉCARES

Diseño de vectores basados en genomas de coronavirus: estabilidad y modulación de la respuesta inmune innata

(Luis Enjuanes and Sonia Zúñiga)

JUAN PABLO CHÁVEZ GONZÁLEZ

Caracterización del remodelador de cromatina CHD6: control de la proliferación celular y mecanismos de reclutamiento a sus genes diana

(Amelia Nieto)

MAURO DI PILATO

Poxvirus vaccine strategies to improve T cell responses: neutrophil immunomodulation & promoter modification

(Mariano Esteban)

MERIEM ECHBARTHI

Intracellular trafficking of TIM-1 towards cell-cell contacts in the context of lymphocyte activation

(José María Casasnovas)

GEMMA FERNÁNDEZ BARBERO

Represión de la respuesta a jasmonatos: el complejo JAZ/NINJA/TOPLESS

(Roberto Solano)

CAROLINA GÁNDARA

Role of DisA and c-di-AMP in the DNA damage response of exponentially growing *Bacillus subtilis* cells

(Juan Carlos Alonso)

BENJAMIN GOLLNICK

Optical and magnetic tweezers for applications in single-molecule biophysics and nanotechnology

(Fernando Moreno-Herrero)

CLAUDIA IBACACHE QUIROGA

Trayectorias evolutivas de las mutaciones que confieren resistencia a gentamicina en *Escherichia coli*

(Jesús Blázquez)

ELISA INIESTO SÁNCHEZ

Regulación de la señalización del ácido abscísico mediada por DDA1, un nuevo adaptador de sustrato de E3 ubiquitina ligasas

(Vicente Rubio)

JOSÉ MANUEL JIMÉNEZ GUARDEÑO

Relevancia del motivo de unión a PDZ de la proteína E del coronavirus causante del síndrome respiratorio agudo y grave en patogénesis

(Luis Enjuanes and José L. Nieto)

JUAN CARLOS DE KARAM FRANCISCO

Determinantes estructurales que regulan la función de la isoforma beta de la fosfatidilinositol 4-fosfato 5-quinasa

(Santos Mañes and Rosa Ana Lacalle)

RUGGERO LA ROSA

The role of the Crc/Hfq/CrcZ-CrcY global regulatory system on the regulation of metabolic and cellular processes in *Pseudomonas putida*

(Fernando Rojo)

FELIPE LIRA

Methods to predict antibiotic resistance: from genes to metagenomes

(José Luis Martínez)



DAMIÁN LOBATO MÁRQUEZ

Contribución de los sistemas toxina-antitoxina de *Salmonella enterica* en la adaptación a la vida intracelular

(Francisco García del Portillo and Ramón Díaz-Orejas)

SILVIA MÁRQUEZ JURADO

Identificación y caracterización de un dominio de RNA similar al elemento GAIT en el extremo 3' del genoma del TGEV que modula la respuesta inmune innata

(Luis Enjuanes and Fernando Almazán)

LIDIA MINGORANCE PÉREZ

Identificación de nuevos fármacos y dianas celulares para el tratamiento de la infección por el virus de la hepatitis C: caracterización de hidroxicina y benztropina como inhibidores de la entrada viral y del factor celular LPIN1 como factor limitante para la iniciación de la replicación del RNA viral

(Pablo Gastaminza)

MARÍA MINGUITO DE LA ESCALERA

Dinámica y especialización funcional de las células dendríticas y macrófagos pulmonares durante reacciones alérgicas

(Carlos Ardavín)

VLADIMIR MULENS-ARIAS

Bioactividad intrínseca de nanopartículas magnéticas recubiertas con poli-etilénimina sobre células tumorales pancreáticas y del sistema fagocítico mononuclear

(Domingo F. Barber)

GABRIELA NÉRIDA CONDEZO CASTRO

Characterization of human adenovirus assembly: structural studies in the cell and in purified incomplete viral particles

(Carmen San Martín)

GLISELLE NIEVES MOLINA

Estudio de la interacción de torovirus con el hospedador: caracterización de proteínas virales implicadas en modular la respuesta inmune frente al virus

(Dolores Rodríguez)

ÁLVARO ORTEGA ESTEBAN

Biophysical determinants for adenovirus uncoating & infectivity

(Carmen San Martín and Pedro J. de Pablo)

CRISTINA ORTIZ CABELLO

Molecular interaction of the cell division protein ZapC, a regulator of the *Escherichia coli* FtsZ-ring assembly

(Miguel Vicente)

FABIO PASIN

The Potyviridae P1 protease modulates viral replication and host defense responses

(Carmen Simón-Mateo and Juan Antonio García)

GORJANA RACKOV

p21 regulates common activation pathways in macrophages and T cells and acts as a suppressor of inflammatory and autoimmune syndromes

(Dimitrios Balomenos)

RAVISHANKAR RAMANATHAN

Stochastic and statistical analyses for investigating protein folding kinetics

(Víctor Muñoz)

JOSÉ ÁNGEL REGLA NAVA

Diseño de una vacuna para prevenir la infección por el coronavirus causante del síndrome respiratorio agudo y grave

(Luis Enjuanes and Marta López de Diego)

GADEA RICO PÉREZ

Metabolismo del peptidoglicano de *Salmonella* en el interior de células eucariotas

(Francisco García del Portillo and María Graciela Pucciarelli)

JERÓNIMO RODRÍGUEZ

Sobre el papel del sistema SOS, la recombinación y el intercambio horizontal de genes en la evolución bacteriana

(Jesús Blázquez)

MARIJA SAVIC

A genetic, molecular and ecological study of the natural variation for trichome patterning in *Arabidopsis thaliana*

(Carlos Alonso-Blanco)

JÖRG SCHÖNFELDER

Underlying complexity in the mechanical unfolding of fast folding proteins as explored by atomic force microscopy

(Víctor Muñoz)

**MARIANGELA TABONE**

The toxin-antitoxin ϵ - ζ system: Role of ζ toxin in regulating ATP, GTP, (p)ppGpp and uridine diphosphate N-acetylglucosamine pool to cope with stress

(Juan Carlos Alonso)

MARÍA VELA CUENCA

Generación y caracterización de anticuerpos frente al receptor de quimioquinas CCR9 humano - evaluación de su potencial para inmunoterapia antitumoral

(Leonor Kremer)

KATHRIN WEBER

A novel role for p21 in regulation of late activation events in effector/memory T cells and its effect on autoimmunity

(Dimitrios Balomenos)

2016**VAHID ABRISHAMI**

New computational methods toward atomic resolution in single particle cryo-electron microscopy

(José María Carazo and Carlos Óscar Sorzano-Sánchez)

MIRIAM AGÚNDEZ LLACA

Study of the DNA sensor IFI16 in cancer and herpes simplex virus type-1 infection

(Hugh T. Reyburn)

ADÁN ALPÍZAR MORÚA

Bases moleculares de la presentación de ligandos fosforilados por moléculas HLA-B

(Miguel Marcilla Goldaracena)

DJORDJE BAJIC

Dynamics of gene expression in the genotype-phenotype map

(Juan Poyatos)

GRACIELA CASCIO CAÑAS

Activación por quimioquinas de Janus quinasas y su papel en la migración y activación de linfocitos T por células presentadoras de antígeno

(Mario Mellado)

MASSIEL ESTHER CEPEDA MOLERO

Generation of enteropathogenic *E. coli* strains lacking the repertoire of effectors translocated by the type III protein secretion system and their characterization in the infection of cultured cell lines and human intestinal biopsies

(Luis Ángel Fernández-Herrero)

JOSÉ JAVIER CONESA MUÑOZ

Nanotomografía de rayos X en el borde de absorción (NEASXT) para la detección y cuantificación de nanopartículas metálicas intracelulares

(José L. Carrascosa)

MARÍA OTILIA DELGADILLO LÓPEZ

Diseción genética del transporte de proteínas a vacuolas

(Enrique Rojo and Michael Sauer)

JON OCHOA DE ERIBE CASAS

Interactions of P1b, the silencing suppressor protein from cucumber vein yellowing virus, with plant factors that contribute to its biological functions

(Carmen Simón-Mateos and Bernardo Rodamilans)

EVA MARÍA GARCÍA CUESTA

Efecto del bacilo de Calmette-Guérin (BCG) sobre las células Natural Killer y sus implicaciones en el tratamiento del cáncer de vejiga

(Mar Valés)

FÁBIA GOMES

Molecular causes and mechanisms of genomic instability in G1-deregulated cell cycles

(Arturo Calzada)

EDUARDO GONZÁLEZ GRANDÍO

Genetic pathways controlling shoot branching upstream and downstream of BRANCHED1 in *Arabidopsis thaliana*

(Pilar Cubas)

**CARMEN GONZÁLEZ TEJEDO**

Integración de aproximaciones proteómicas y transcriptómicas para el estudio de células madre de glioblastoma humano

(Severine Gharbi and Ángel Ayuso Sacido)

PILAR LASIERRA RESA

WOX9 control by the DELLAs mediates salt tolerance and root hair differentiation in Arabidopsis

(Salomé Prat)

THANH H. NGUYEN

Structure and applications of adenovirus fibres

(Mark van Raaij and Hai Nam Truong)

ALEJANDRA PAZO FERNÁNDEZ

Funciones de hCLE en asociación con DDX1, HSPC117 y FAM98B en la modulación de la traducción de proteínas, el reconocimiento de estructuras cap y su implicación en procesos neuronales

(Amelia Nieto and Alicia Pérez-González)

CARLOS PÉREZ MATA

La proteína multifuncional VP3 del virus de la bursitis infecciosa desde su función como proteína de andamiaje durante el ensamblaje de la cápsida hasta la formación de complejos ribonucleoproteicos

(José R. Castón)

ESTEL RAMOS MARQUÈS

Modulation of NF-kappaB regulatory function in Salmonella-infected fibroblast

(Francisco García del Portillo)

PALOMA RODRÍGUEZ RODRÍGUEZ

Nueva estrategia basada en la utilización de aptámeros como antivirales contra el virus de la gripe y estudio de los mecanismos de control de la expresión génica viral

(Amelia Nieto)

MÓNICA ROJAS TRIANA

The KISS ME DEATHLY family of E3 ubiquitin ligases are involved in nutritional crosstalks, regulating phenylpropanoids biosynthesis in *Arabidopsis thaliana*

(Javier Paz-Ares and Vicente Rubio)

JOHANNES PAULUS SCHNEIDER

Functional Diversification of Membrane Microdomains in *Bacillus subtilis*

(Daniel López)

MARIA DEL PILAR SERVET DEL RÍO

Aplicación del sistema de recombinación específica de secuencia β -six al estudio de la regulación de la expresión génica en células eucarióticas y modelos animales

(Antonio Bernad and Juan C. Alonso)

MARIA TERESA TRIGUEROS PINA

Análisis metodológico de la plasticidad fenotípica en base a niveles de confluencia en la línea celular establecida CC-62 de Tumor-Tyris de hepatocolangiocarcinoma

(Francisco José Iborra Rodríguez and Antonio Martínez Lorente)

JASMINA VASILJEVIC

Characterization of pathogenicity factors of a lethal influenza A(H1N1)09 pandemic viral isolate

(Ana Falcón and Amelia Nieto)