



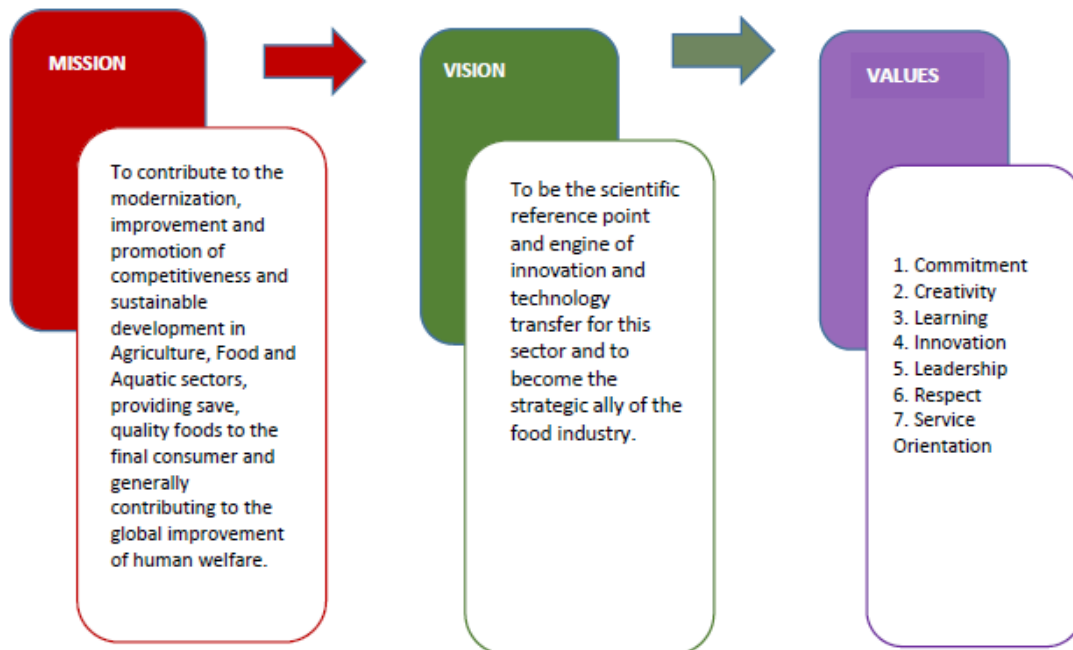
***POST-DOCTORAL RESEARCHER FOR THE ANIMAL BREEDING &
GENETICS PROGRAM***

***“We share our science
to feed the future”***

About IRTA

IRTA is a research institute owned by the Government of Catalonia adscribed to the Department of Agriculture. It is regulated by Law 04/2009, passed by the Catalan Parliament on 15 April 2009, and it is ruled by private regulations. IRTA is one of the CERCA centers of excellence of the Catalan Research System.

IRTA's purpose is to contribute to the modernization, competitiveness and sustainable development of agriculture, food and aquaculture sectors, the supply of healthy and quality foods for consumers and, generally, improving the welfare and prosperity of the society.



THE PROGRAM OF ANIMAL BREEDING AND GENETICS:

The objectives of this program are:

Contribute to the improvement of food safety by studying safe shelf life.

Improvement of detection techniques for food pathogens and microorganisms of technological interest as well as residues and chemical contaminants.

Study in depth the knowledge of microbial ecology in foodstuffs and in the study on biomarkers in animal tissues.

Study of the effect of new processing and conservation techniques on microorganisms physiology and neo-formation compounds in foodstuffs.

Improve the knowledge of predictive microbiology to design and validate new processes.

This program has two branches:

Cuniculture. Their objective is the creation, selection and improvement of specialized lines of meat rabbits for production, reproduction and adaptation uses.

Their lines of work are:

- Study the **genetic determination** of productive and reproductive aspects and possible selection strategies.
- Study the effect of **climate stress** on reproduction and survival. Determine environmental and genetic variation factors that affect tolerance levels.
- Develop and apply **statistical analysis models** to improve the genetics of prolific species.
- Optimize **genetic selection and diffusion programs of meat rabbits.**
- Improve the efficiency of the use of males and **artificial insemination** procedures and establish a rabbit embryo bank with guaranteed sanitary conditions.

Pig Genetics & Improvement. It performs research genetic statistics and structural and functional genomics in order to study aspects of economic and social interest and the genetic improvement of pigs.

Their lines of work are:

- **Genetic evaluation and characterization** of pig populations in order to implement and/or optimize selection and diffusion programs for genetic improvement.
- Study the genetic architecture of aspects of **productive interest and product quality** in pigs using structural and functional genomic approaches.
- **Develop statistical methods** that can be used for research on quantitative genetics and genomics as well as for the genetic improvement of animal populations.

- **Development and maintain databases of pig populations** to acquire information to be used as a reference. Carry out genetic, productive and productive genotype/system interactions studies in pig populations.
- Study and implement **sustainable and/or alternative pig production systems** (ecological production, native breeds ...)

ROLE PROFILE:

IRTA is currently seeking a researcher to participate in studies within the framework of the **H2020 GENE-SWitCH** European project regarding:

- The identification of **expression QTL (eQTLs)** in relevant metabolic porcine tissues using **high-throughput genomic sequence data**;
- Validation of **new predictive models** (Bayesian and machine learning models) using **functional genome annotations** (including eQTLs) to increase the accuracy of **genomic predictions**.

DUTIES AND RESPONSIBILITIES:

- Bioinformatic analysis of high-throughput genomic sequence data (WGS and RNA-seq) to perform eQTL analysis.
- Evaluation of different tools for eQTL analysis using high-throughput genomic sequence data.
- Evaluation of new models to predict genomic breeding values including functional genome annotations.
- Participation in the dissemination of the obtained results, elaborating manuscripts for being published in both SCI journals and participating in national and international conferences.
- Preparation of reports within the framework of the project as well as documents to promote the dissemination of the project activities in other stratum of the society.
- Supervision (director or co-director) of the students that might develop their Master's or Bachelor's Thesis within the framework of these researches.
- Participation in the preparation of new project or grant proposals that will allow bringing continuity to this research line.



REQUIRED EXPERIENCE AND QUALIFICATIONS:

Key characteristics

- PhD on Bioinformatics, Agriculture Engineering, Animal Production or equivalents.
- Extensive experience of large-scale analysis of high-throughput genomic sequence data.
- Knowledge of quantitative genetics and statistical analysis.
- Experience in the use of genetic-statistical software packages used in genomic association studies (GEMMA, fastGWA, EMMAX, REGENIE, BayesXII algorithm, etc.).
- Knowledge of Linux and programming in shell script.
- Knowledge of programming in R and other programming languages oriented to mathematical analysis.
- High level of English, both written and spoken.

Specific merits

- Skills in molecular genetics knowledge and expertise in animal genomics
- Knowledge with regard to the last advances in genomic selection

Skills

- Communication skills
- Ability for collaborative work
- Ability to participate in multidisciplinary projects
- Orientation to academic results

TERMS OF APPOINTMENT

This is a full-time position with the successful candidate being contracted on 1.5 years basis with the possibility of renewal and become part of IRTA's scientific permanent staff.

Salary: 30.303,66 € yearly gross salary (Spanish Decree Law 3/2010)

LOCATION: CALDES DE MONTBUI (Barcelona)



Caldes de Montbui is a spa town located in the Vallès Oriental, in the province of Barcelona. The town is located between the massifs of Sant Llorenç de Munt and Montseny at the foot of Mount Farrell (805 m) and the valley of the Riera Caldes which crosses the municipality from north to south.

Caldes is a zone of fractures and folds that have resulted in the upwelling hot springs, which gush more than 74°C, one of the highest in Europe.

Thanks to this natural resource, the town enjoys a privileged condition that has greatly influenced its urban development and its historical legacy, and traditional culture. Roman origins have left many traces that make up our heritage, such as the spa tradition, the Roman Baths and the arrangement of the old part of the town.

The spas offer the main attractions of Caldes de Montbui, but add others: the flora and fauna of the environment, sports facilities, centers dedicated to culture, moving sales, festivals and traditions.

Caldes de Montbui is located at 45 Km. of Barcelona.

BARCELONA



A city with character

Barcelona is an open, vibrant and creative city with a busy cultural, political, business and commercial life. It is a metropolis where every imaginable language can be heard, as well as a city that invites its residents and visitors alike to discover its Catalan culture and traditions.

The Catalan capital

Barcelona is the capital of Catalonia, a country whose nation boasts a long history, enjoying self-government as an autonomous region in the Spanish State. It is situated on the north-east coast of the Iberian Peninsula, facing the Mediterranean Sea and bordered by Andorra and France along its north. Catalonia also has its **own language**, Catalan, which grew out of Latin, as did Spanish, French, Italian and Portuguese. **Catalan is its official language**, together with Spanish, and is used regularly in every walk of life. In addition, most of the people working in international trade and the country's main tourist areas speak English and other languages as well. Barcelona has always attracted people from all over the world, making it even more **multilingual and special**. It is the people living there, with their different backgrounds and cultures, who make it so **cosmopolitan, diverse and intercultural**.

Plaça de Sant Jaume concentrates the **political life** of the city and the Catalan nation. In use since the Middle Ages, Barcelona City Hall and Palau de la Generalitat [Catalan regional government building] are both located in this square. The City Hall houses the **Saló de Cent**, literally Hall of One Hundred, which was founded in the Middle Ages by King James I, the Conqueror. Since the 14th century, most of Catalonia's 127 presidents have exercised their authority from the **Palau de la Generalitat de Catalunya**. The city is also the seat of the **Catalan**

Parliament, Catalonia's own legislative body, which has been housed in a building in **Parc de la Ciutadella** since 1980.

Economic powerhouse of a prosperous region

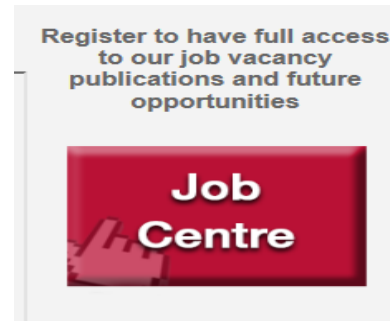
One of the biggest metropolitan areas in Europe has grown up around the capital, consolidating Barcelona as an **outstanding business, technological and industrial centre, as well as a major economic powerhouse**. In fact, the city has always stood out for its intensive business and commercial activities and proved its ability to modernise and adapt itself to the new times. It has become such a magnet for global talent that it is now a European centre for business creation, especially in **leading sectors** such as information and communication technologies, biotechnology, sustainability, design and aeronautics. The city also plays host to several of world's most important international trade fairs, such as the **Mobile World Congress** and the **Barcelona Meeting Point**. Innovation is another Barcelona's hallmarks: it is the number-one smart city in the Spanish State and the fourth in Europe. It is also one of the cities with the highest quality of life in the world and the life expectancy of its residents is among the highest in Europe.



KEY STEPS IN THE SELECTION PROCESS

If you wish to be considered for this position, please, go to the link <http://www.irta.cat/en/work-at-irta/> and register yourself. You should load your CV in

Adobe Acrobat pdf format and one recommendation letter minimum before **09/10/2020**. All information will be in the strictest confidence.



During the recruitment process, Human Resources Department will keep you informed on which step is your application.

CALENDAR

Deadline timing job ref. 36/20	
30 days	Publication and diffusion of the job advertisement on IRTA's website, EURAXESS Jobs, social networks and other specific recruitment places.
2 following working days	To send, for its study, the pre-selected CV which match eligibility criteria to the Selection Committee. To send an automated e-mail for those who have not been pre-selected and cannot continue the process.
10 following working days	Selection Committee: .Interview with preselected candidates. .To send an e-mail for those who have not been selected by the Selection Committee. .Committee Selection Agreement with the selected candidate, giving reasons for the rest to be excluded. . Notification by e-mail to the candidates who have been interviewed but not selected.
7 following working days	To send to HR all the needed official documentation in order to make the work contract and co-ordination for establishing the start of the employment.
7 following working days	Start of employment (approximately)