Se4All Newsletter No. 6

This newsletter is distributed semi-annually, so subscribe to our mailing list at the bottom of our website or follow us on social media to get immediate access as soon as it comes out.

April 2025 | Focus: Se4All Secondments

MESSAGE FROM OUR COORDINATOR

Thank you for reading the 6th edition of the Se4All newsletter. This issue includes the update and news about the project related areas in science, Biotechnology and agricultural engineering.

Ass.Prof Maria - Jesus Sanchez Martin

Building Bridges Across Borders: Se4All Secondments in Action

Global journeys advancing selenium-enriched innovation
Welcome to the sixth edition of the Se4All Newsletter! This issue celebrates the remarkable secondment experiences of our researchers as they push the boundaries of selenium biofortification and sustainable dairy production. From Ireland's organic cheese farms to Spain's synchrotron labs and Italy's bioeconomy hubs, these stories showcase the power of international collaboration. Let's dive into the highlights!

Co-funded by the Horizon 2020 Framework Programme of the European Union - Marie Skłodowska-Curie actions GA N° 101007630

María Belén Pirola: Bridging Bioeconomy and Dairy Innovation

An Argentine biotech expert explores sustainability in Spain and Italy

From October 26 to November 25, 2024, Dr. **María Belén Pirola** from INTI Lácteos Rafaela (Argentina) undertook a dynamic secondment across Italy and Spain, collaborating with ALBA Synchrotron, UAB, and REDINN to advance Se4All's goals in dairy technology and bioeconomy. Her mission focused on optimizing Se-enriched dairy production, fostering cross-border partnerships, and exploring sustainable agro-industrial solutions.

Key Highlights:

1. Ecomondo Conference (Rimini, Italy):
   - Attended sessions on EU funding for green projects, circular economy innovations, and agro-industrial byproduct valorization.
   - Gained insights into regulatory frameworks and bioenergy trends, aligning with Se4All's sustainability objectives.
2. Field Research & Institutional Visits:
   - Italy: Explored Emilia-Romagna's dairy hub, including the University of Bologna's Food Science Campus, Centrale del Latte di Cesena, and Parmigiano Reggiano consortium farms. Discussions emphasized Se-biofortification protocols and technology transfer to industry.
   - Spain: Conducted Se speciation analyses at ALBA Synchrotron (led by Dr. Laura Simonelli) and coordinated with UAB's Food Technology team (CIRPTA) to finalize WP3 deliverables on milk techno-functionality.
3. New Collaborations & Project Development:
   - Engaged with UAB's Bioeconomy Group (Cristina Palet) and Eurecat to draft proposals for EU-funded projects on dairy chain sustainability.
   - Connected with biosensor researchers (María Isabel Pividori) to explore quality-control innovations for Se-enriched milk.

María Belén Pirola -INTI

> This secondment was a catalyst for bridging science and industry. The partnerships forged—from synchrotron labs to dairy cooperatives—will accelerate our work in creating functional, sustainable dairy products.

INTI

UAB Universitat Autònoma de Barcelona

ALBA REDINN Rete Europea dell'Innovazione

October–November 2024

Luciana Maria Costabel: Elevating Milk Quality with Tech

From INTA to UAB, a dairy expert fine-tunes Se-enriched products

Dr. **Luciana Maria Costabel**, an experienced researcher from Argentina's INTA, completed a highly productive secondment at the Autonomous University of Barcelona (UAB) from September 10 to October 9, 2024. Her work significantly contributed to Work Package 3 (WP3) of the Se4All project, focusing on the techno-functionality of selenium-enriched dairy products..

Key Activities & Achievements

1. 3rd Se4All International Workshop (September 19, 2024)
   - Delivered a keynote presentation titled "Functional Dairy Foods: Recent Developments in the 'Calidad de Leche y Agroindustria' Group", showcasing INTA's innovations in cheese and dairy product development.
   - Engaged with UAB's food technology team to align methodologies for analyzing Se-enriched milk, yogurt, and cheese samples.
2. Technical Visits & Training
   - CERTA-UAB Food Technology Plant: Gained hands-on experience with advanced dairy processing techniques.
   - ALBA Synchrotron: Explored cutting-edge analytical tools for selenium speciation in dairy matrices.
   - UAB Chemical Analysis Lab: Refined protocols for quality assessment of project samples.
3. Collaborative Milestones
   - Contributed to Deliverable 3.1 (techno-functionality report) by analyzing Se retention in dairy products.
   - Initiated plans for joint publications with UAB researchers, including Dr. Antonio Trujillo and Dr. Victoria Ferragut.

Networking & Future Steps

- Strengthened ties with UAB's Veterinary Faculty and ALBA Synchrotron for ongoing data analysis.
- Proposed follow-up activities:
  - Co-authoring scientific papers on Se bioavailability in dairy.
  - Expanding collaborations through INTA-UAB student exchanges.

INTA

UAB
Universitat Autònoma de Barcelona

September–October 2024

Quote from Dr. Costabel:

> This secondment was a unique opportunity to merge European and Latin American expertise in dairy science. The access to UAB's facilities and the synergy with their team will accelerate our shared goals in functional food development.

Joselina Graciela Karlen: Crafting Dairy with Precision

Joselina Graciela Karlen - INTI

INTI

UAB
Universitat Autònoma de Barcelona

October–November 2024

From INTI to UAB, a food engineer studies Se-milk techno-functionality

Joselina's work on membrane technology and cheese yield included:

- Milk Destabilization Studies: Evaluated Se-enriched milk for cheese production potential.
- Industry Visits: Engaged with MARDEL Dairy and AINIA to discuss scalable applications.
- Training: Gained proficiency in UAB's Optigraph equipment for coagulation analysis.

Collaboration Highlight: Plans to co-author papers with UAB's Antonio Trujillo on dairy techno-functionality.

Carlo Marini: Decoding Se Speciation with Synchrotron Power

From ALBA to Rome, a physicist refines biofortification analysis

Carlo Marini - ALBA

Dr. **Carlo Marini**, a group leader at ALBA Synchrotron, completed a productive secondment at the University of Rome "La Sapienza." His work focused on applying advanced synchrotron techniques to study selenium (Se) speciation in biofortified plants, aligning with Se4All's objectives to unravel the mechanisms behind Se functionality in biological systems.

Key Achievements:

- Innovative Data Analysis: Dr. Marini employed Multivariate Curve Resolution (MCR) to analyze Se K-edge X-ray absorption spectra (XAS) from alfalfa, broccoli, and lettuce. This approach revealed previously unidentified Se organic phases, highlighting the need for advanced statistical methods in speciation studies.
- Tool Development: He integrated MCR routines into the Fast Data Analyzer (FDA), a Python-based tool for real-time XAS data processing, enhancing its capabilities for the broader user community.
- Collaborative Outcomes: The findings are set to be published, and new collaborations were initiated, including a follow-up secondment by Mariarosaria Tuccillo to further test MCR implementation.

> **The secondment provided a unique opportunity to combine synchrotron expertise with plant science, paving the way for automated, high-precision speciation analysis. The results will significantly benefit the Se4All network and beyond.**

ALBA

SAPIENZA UNIVERSITÀ DI ROMA

December 2022 –January 2023

Bernat Perez Playà: From Lab to Farm in Ireland

Bernat Perez -UAB

UAB Universitat Autònoma de Barcelona

Beal

May–July 2024

UAB's PhD student masters Se-enriched dairy at Beal Organic Cheese

Early-stage researcher **Bernat Perez** immersed himself in artisanal cheese production at Ireland's Beal Organic Cheese, focusing on:

- Practical Skills: Learned cheddar and yogurt production techniques while assisting in quality control protocols.
- Industry Engagement: Visited Kerry Group to discuss scalable dairy innovations.
- WP4 Progress: Contributed to biofortified food design, bridging academic research and industry applications.

Takeaway: "Hands-on experience at Beal deepened my understanding of sustainable dairy practices and fortified product development."

Erica Schmidt's Secondment

Advancing Dairy Sustainability and Bioeconomy

From October 26 to November 25, 2024, Erica Schmidt from INTI (National Institute of Industrial Technology, Argentina) undertook a productive secondment at the Autonomous University of Barcelona (UAB), with additional activities in Italy. As a Managerial Staff (MNG) member, Erica focused on enhancing dairy sustainability, valorizing by-products, and fostering international collaborations aligned with Se4All's objectives.

Key Highlights:

1. Ecomondo Conference (Rimini, Italy):
   - Participated in sessions on EU funding for green projects and circular economy innovations, gaining insights into sustainable practices for the dairy industry.
   - Attended workshops on bioenergy, waste valorization, and regulatory frameworks, directly applicable to Se4All's sustainability goals.
2. Field Research & Institutional Visits:
   - Italy: Explored Emilia-Romagna's dairy sector, including the University of Bologna's Food Science Campus, Centrale del Latte di Cesena, and Parmigiano Reggiano consortium farms. Discussions emphasized Se-biofortification protocols and technology transfer to industry.
   - Spain: Conducted Se speciation analyses at ALBA Synchrotron (with Dr. Laura Simonelli) and coordinated with UAB's Food Technology team (CIRPTA) to finalize WP3 deliverables on milk techno-functionality.
3. New Collaborations & Project Development:
   - Engaged with UAB's Bioeconomy Group (Cristina Palet) and Eurecat to draft proposals for EU-funded projects on dairy chain sustainability.
   - Connected with biosensor researchers (María Isabel Pividori) to explore quality-control innovations for Se-enriched milk.

Erica Schmidt -INTI

> This secondment was a transformative experience, bridging Argentine expertise with European advancements in dairy sustainability. The partnerships forged will accelerate our work in creating functional, eco-friendly dairy products.

INTI

UAB
Universitat Autònoma de Barcelona

October –November 2024

Elisabet Ramos (INTI to UAB, October–November 2024)

An Argentine chemist compares fluid and powdered milk in Spain

Elisabet's research on Se-enriched powdered milk yielded promising results:

- Techno-Functionality Tests: Compared acid/enzymatic coagulation profiles of powdered vs. fluid milk, supporting WP3 objectives.
- AINIA Conference: Attended "Food of the Future," exploring sustainable ingredient innovations.
- Synergies: Linked with IRTA and ALBA to standardize analytical protocols.

Next Steps: Data analysis for a joint publication on milk powder functionality.

INTI

UAB Universitat Autònoma de Barcelona

October –November 2024

Carlos Mariano Stratico: Unlocking Selenium Secrets in Dairy

From Argentina to Spain, an analytical chemist sharpens Se measurement techniques

Carlos Mariano Stratico, an Experienced Researcher from Argentina's INTI, embarked on a two-month secondment from March 25 to June 24, 2024, hosted by Universitat Autònoma de Barcelona (UAB) and UNIR. His mission? To master selenium speciation using Inductively Coupled Plasma Mass Spectrometry (ICP-MS) for Work Package 3 (Milk Techno-functionality). Carlos hit the ground running, training in advanced chemical speciation and chemometric tools like ANOVA. A standout moment was a study visit to UAB's Faculty of Veterinary Medicine, exploring cheese production alongside experts like María Jesús Sánchez Martín and Kate Carmody of Beal Organic Cheese. He also co-led the "Market Research Training for Se4All Technologies" workshop, sparking ideas for consumer-focused Se-enriched dairy. "These stays link us with global colleagues, driving progress for society," Carlos reflected. His work is set to enhance dairy quality analysis back at INTI.

INTI

UAB Universitat Autònoma de Barcelona

March –June 2024

Looking Ahead

These secondments fuel Se4All's mission with hands-on expertise and global networks. From dairy craftsmanship to cutting-edge analysis, our researchers are paving the way for a selenium-enriched future.

Se4All

Co-funded by the Horizon 2020 Framework Programme of the European Union - Marie Skłodowska-Curie actions GA N° 101007630

Connect With Us

Questions or collaboration ideas? Contact the Se4All communication Team at : [https://www.se4allproject.eu]. Follow us on LinkedIn and explore multimedia via researcher links.

PROJECT PARTNERS

These organizations have partnered with us to advance our common goal: increasing the availability of Selenium-rich dairy products for common consumption. We thank them for their support and are proud of the relationships we've built thus far. They have been instrumental in the progress of this project.

UNL · Beal · Sapienza Università di Roma · UAB Universitat Autònoma de Barcelona · REDINN · INTA · INTI · ALBA