



REPUBLIKA SLOVENIJA  
MINISTRSTVO ZA IZOBRAŽEVANJE,  
ZNANOST IN ŠPORT



EVROPSKA UNIJA  
EVROPSKI SKLAD ZA  
REGIONALNI RAZVOJ

Call for tender: »*Promoting research and development projects (TRL 3-6)*»

**Project: Extraction and enrichment of whey proteins and the use of the residuals for the design of new functional foods and dietary supplements**

**Acronym: LAKTIKA**

**Priority area S41:** Network for the transition to a circular economy

Project value: 2.452.144 €

(Co) financing: European Regional Development Fund (ERDF): 1.777.712 €

Project duration: 1. 7. 2018- 31. 12. 2021

**Consortium partners by region:**

Western region:

- ARHEL d.o.o. (Project coordinator)
- UNIVERSITY OF LJUBLJANA, FACULTY OF BIOTECHNICALS
- UNIVERSITY OF LJUBLJANA, FACULTY OF PHARMACY: Project coordinator at UL FFA is Prof. Dr. Albin Kristl (Department of Biopharmacy & Pharmacokinetics and the Department of Pharmaceutical Technology are participating in the project)

Eastern region:

- UNIVERSITY OF MARIBOR, FACULTY OF CHEMISTRY AND CHEMICAL TECHNOLOGY

The project addresses innovative approaches for further processing of whey, which *Action Program of the Network for the transition to the circular economy* of the *Slovenian Strategy for Smart Specialisation* highlights as an important unexploited alternative resource in the food industry. Worldwide, more than 200 million tons of whey is produced annually, and in Slovenia, the production is estimated at 150,000 tons/year. It is estimated that only 50% of whey is further utilised, and much of it still represents the environmental burden (2.5m<sup>3</sup> of whey represents a COD load equal to 1000PE). On the other hand, we are facing an exceptional increase in demand for specific whey proteins, probiotics and their metabolites, which exhibit important physiological effects in the body. An important driver of demand is the search for new antimicrobials, the lack of enriched starter milk mixtures (in the countries like China) and specific dietary supplements whose demand grows by growing living standard and life expectancy. With an 8% annual world growth in the whey protein market and only 2% worldwide annual growth in whey production, investment in the development of new technologies in this field seems an extremely promising investment. The aim of the research is to (1) lay the foundations for the introduction of breakthrough technological solutions for the production of individual whey proteins, (2) widen and strengthen their biological activity, persistence and release, (3) optimize the production of probiotics and their metabolites in whey fractions with reduced protein content, 4) define the final options for the use of the whey components according to "zero-waste" principle and (5) formulation of new functional foods and dietary supplements with whey ingredients.

We will achieve the set goals by linking the complementary knowledge of the company and research organisations within the industrial and experimental part of the research. The sustainability of the project will be ensured by linking and integrating potential end-users of technology into project activities.