

Search for a Spanish Partner for a Bilateral R&D Project

Organization	
Date of Request:	3 rd of September 2026.
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SECTION 1: Entity launching the partner search

(Please give brief / to the point explanations. For more explanation on any point below, you may add a short paragraph as an annexure, with this document.)

Sector	Advanced trends to improve plant and livestock productivity This project proposes the development of an eco-friendly biotechnological process for the valorization of protein-rich wastes such as poultry wastes (feathers), gelatin residues, and other agro-industrial byproducts. Through microbial enzymatic hydrolysis, these wastes will be converted into amino acids and bioactive peptides with dual applications in animal feed supplementation and crop productivity enhancement. The research objectives are to (i) isolate and optimize microbial strains capable of efficient keratin and protein hydrolysis, (ii) characterize the resulting amino acid and peptide hydrolysates for nutritional and
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	bioactive properties, (iii) validate their performance in livestock, aquaculture, and crop trials, and (iv) establish pilot-scale processes that meet EU feed and fertilizer safety standards. The methodology integrates laboratory-scale microbial biotechnology at the National Research Centre (Egypt), pilot-scale bioprocess engineering and regulatory compliance at Spanish technology centres, and industrial validation through feed and fertilizer trials by Egyptian and Spanish companies. Advanced analytical techniques (HPLC, LC-MS, proteomics) will be employed to ensure scientific rigor, while industrial partners will provide scaling and commercialization pathways. Expected outcomes include novel microbial enzyme systems, validated amino acid and peptide hydrolysates with proven bioactivity, and a scalable process for sustainable waste valorization. The economic potential lies in reducing dependence on imported feed additives and fertilizers, creating new bio-based products for livestock and crop productivity, and opening commercialization opportunities in Egypt, Spain, and broader EU/MENA markets. The project directly supports circular economy principles, food security, and sustainable agriculture.
Entity mission or core functions	Conduct advanced scientific research that supports Egypt's national development goals, particularly in biotechnology, health, agriculture, and industrial innovation. ☐ Fundamental and applied research in biotechnology, microbiology, and chemistry. ☐ Development of eco-friendly technologies for agriculture, food, and health. ☐ Collaboration with industry to transfer research outputs into practical applications.
Date of establishment	3 rd of September 2026

Ownership (if public and traded, add stock exchange and ticker symbol)	International Elephant Company for Industry. Engineer Wagdy El Nagar Manufacturer & exporter of bovine ossein, technical gelatin glue, feed binders, hydrolyzed animal protein and technical bone products.
Total number of employees	500
Number of employees in R&D	
Key products sold or services provided	The company operates a 21,000 m² industrial facility and specializes in animal protein processing, hydrolysis, technical gelatin, bone derivatives, and products for agricultural and industrial applications. International Elephant is currently focused on developing hydrolyzed animal protein and amino-acid-rich products for agricultural applications. Through this project, the company aims to cooperate with the National Research Centre and a Spanish technology partner to develop and optimize enzymatic protein hydrolysis, characterize the resulting amino acid profile, and scale up the developed process for industrial production. The company will contribute its raw materials, industrial facilities, production capabilities, and extensive operational experience to support the development, scale-up, and industrial validation of the project.
Entity core technical competences	Industrial hydrolysis of animal protein by-products (hooves, horns, feathers).

	• Production of feed-grade gelatin binders and hydrolyzed protein biostimulants. • Manufacturing of bone meal and organic fertilizers. • Quality assurance with ISO and HACCP certifications, ensuring traceability and compliance.
Key R&D programs and activities	• Development of hydrolyzed protein formulations for aquaculture and livestock feed. • Pilot trials of protein binders in pellet stability and feed conversion efficiency. • Exploration of hydrolyzed protein applications in crop productivity as biostimulants. • Continuous improvement of processing technologies to enhance amino acid profiles.
Examples of accomplishments	• Development of hydrolyzed protein formulations for aquaculture and livestock feed. • Pilot trials of protein binders in pellet stability and feed conversion efficiency. • Exploration of hydrolyzed protein applications in crop productivity as biostimulants. • Continuous improvement of processing technologies to enhance amino acid profiles.
Company strategic orientation	• Focused on waste valorization by converting animal by-products into high-value feed and fertilizer inputs. • Expansion of international market presence, leveraging export networks. • Commitment to sustainability and circular economy, aligning with global demand for eco-friendly feed solutions. • Strategic role as an industrial partner in R&D consortia, providing large-scale validation and commercialization pathways.

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SECTION 2: Spanish Company Profile

(Please provide a brief summary of the prospective partner company or organization. This summary may address some or all of the points below)

Profile of ideal technology partner	De Heus Nutrición Animal España Head Office Address: Plaza de Mina 1, 4º derecha, 15004 A Coruña, Spain Phone (Central): +34 910 015 941 / +34 664 475 574 Email (General): info.es@deheus.com Website: www.deheus.es Nutreco Iberia • Headquarters Address: Ronda de Poniente 9, 28760 Tres Cantos, Madrid, Spain • Phone (HQ): 918075400 • Email (General): nanta@nutreco.com • Website: www.nanta.es
Core technological competencies and expertise	☐ Large-scale feed and aquaculture nutrition production. ☐ Expertise in amino acid supplementation and protein additives. ☐ Livestock and aquaculture validation trials. ☐ Global commercialization and distribution networks.
Other essential qualifications (e.g.: ownership, track records etc.)	• Mid to large Spanish company or SME in animal nutrition, biotechnology, or agricultural productivity. • Access to feed production facilities, fermentation units, or bioprocess labs. • Provide industrial validation of Egyptian lab scale results. • Lead commercialization pathways for amino acids and peptides. • Ensure market adoption through distribution networks in Spain and Europe
If you have a list of companies with whom you are in contact or interested in contacting, please provide contact details	Grupo Tévalis – Fertinagro Biotech (Teruel) ☐ Location: Teruel, Aragón, Spain ☐ Parent Group: Grupo Tévalis (under Inversalia Patrimonio holding)

	☐ Website: www.fertinagrobiotech.com ☐ Phone (HQ): +34 978 618 100 De Heus Nutrición Animal España Head Office Address: Plaza de Mina 1, 4º derecha, 15004 A Coruña, Spain Phone (Central): +34 910 015 941 / +34 664 475 574 Email (General): info.es@deheus.com Website: www.deheus.es
If you are interested in collaboration: please specify details and other important information you want to share with a potential company	Title: Eco-friendly Bioremediation of Protein Wastes into Amino Acids and Peptides for Animal Feed and Crop Productivity. Protein-rich wastes (e.g., feathers, gelatin, agro-industrial residues) represent a major environmental challenge in Egypt and Spain. Microbial hydrolysis offers a sustainable pathway to convert these wastes into amino acids and bioactive peptides, which can be applied in animal nutrition and crop productivity. • Develop microbial enzyme systems for efficient protein hydrolysis. • Produce amino acid and peptide hydrolysates for feed and fertilizer applications. • Validate products in livestock, aquaculture, and crop trials. • Ensure regulatory compliance and industrial scalability in Egypt and Spain.
Interested areas of collaboration	<u>Advanced trends to improve pland and livestock productivity</u> Proteins, components essential to all organisms, are integrated in cellular structures and perform specific

functions as in the case of hormones, antibodies, and enzymes. Amino acids and peptides are essential components in many industries, including biotechnology, agriculture, and medicine. Due to its effectiveness and scalability, microbial synthesis of amino acids and peptides has become a potential strategy.

High-protein feed is expensive, and some raw materials are dependent on imports. Organic waste, primarily from food scraps and agricultural residues, can be considered feed ingredients to reduce costs. Through fermentation, the nutritional value of these feeds can be enhanced, promoting the growth of livestock, plants and fish, and reducing overall costs. Enzymatic hydrolysis and microbial fermentation are commonly used bioprocessing methods, particularly suitable for unconventional feed sources. These methods not only enhance the nutritional value of the feed but also reduce the content of anti-nutritional factors, improving feed digestibility. Enzymatic hydrolysis is often combined with microbial fermentation to produce more efficient novel biofeeds.

Bioactive peptides are biomolecules derived from proteins. They contain anywhere from 2 to 20 amino acids and have different bioactivities. For example, they have antihypertensive activity, antioxidant activity, antimicrobial activity, etc. However, bioactive peptides are encrypted and inactive in the parental protein, so it

	is necessary to release them to show their bioactivity. For this, there are different methods, where biotechnological methods are highly favorable, highlighting enzymatic hydrolysis and microbial fermentation. Novel green technologies such as ultrasound, microwave, hydrostatic pressure, pulsed electric field and subcritical water are being applied for improving the extraction yield and increasing the enzymatic hydrolysis in the production of bioactive peptides.
Specific R&D contribution you are seeking/offering	• Microbial R&D: Isolation and optimization of enzyme-producing strains. • Lab-scale hydrolysis: Development of protocols for converting protein wastes (feathers, gelatin...etc) into amino acids and peptides. • Scientific validation: Characterization of hydrolysates (HPLC, LC-MS, amino acid profiling). • Knowledge transfer: Sharing biotechnology expertise with industrial partners.

Signature

Name: Dr Azza Abdel-Fattah

Date: 16 – 9 - 2026