

Allegato B - DESCRIZIONE DELLA PROPOSTA PROGETTUALE

1) GENERAL INFORMATION

Project acronym:	NAIVE
Project title (extended name):	Non-animal derived nanovesicles from circular bioeconomy with symbiotic effects on malnutrition-related CVD - From farm to health
Spoke:	6
Duration (months):	15
Total project budget (€):	559.058
Total grant requested (€):	457.010
Project Coordinator:	<p><i>Name, Surname:</i> Barbara Zavan <i>Zavan Affiliation:</i> University of Ferrara <i>e-mail address:</i> barbara.zavan@unife.it <i>Phone Number:</i> 3498632206</p>
Abstract (max 1500 characters including spaces):	
<p>Malnutrition, a global health concern, has far-reaching implications for cardiovascular health. This pioneering project tackles this issue by designing innovative symbiotic (pre- and pro-biotics) products from nanovesicles (NVs) derived from non-animal kingdoms (apple/yeast/bacteria). Beyond its scientific significance, the project prioritizes environmental sustainability by utilizing vesicles from plant sources and embracing eco-friendly practices. The groundbreaking aspect lies in employing plant-derived vesicles as a novel foundation for prebiotics, fostering harmony among gut bacteria and facilitating unique flora combinations. <i>In vitro</i> examinations will assess improvements in cardiovascular cell systems, while <i>in vivo</i> experiments, conducted in a mouse model, will explore the complex dynamics with the gut microbiota. The project seeks a nuanced understanding of its potential, anticipating enhancements in cardiovascular health. The orchestration of symbiotics not only tackles cardiovascular complications linked to malnutrition but also signals a new era in nutritional interventions. By exploring plant-derived nanovesicles, especially from apples, the initiative deepens our insight into dietary interventions within the gut-cardiovascular interplay. Positioned as a leader in innovation with a commitment to sustainability, the project emerges as a transformative force, pledging to synchronize malnutrition-related cardiovascular challenges into a resonant symphony of health.</p>	
Keywords (Free Keywords that mainly characterize the project):	
circular bioeconomy, nanovesicles, plant-derived, yeast-derived, bacteria-derived, symbiotic, pre-biotic, pro-biotic, in vitro, in vivo, CVD, formulation, RNAomics, microbiota, microbiome	

DNSH Principle:
<p>The project aligns with the Principle of "Do No Significant Harm" through several key considerations.</p> <p><i>Extraction Methods:</i> The project prioritizes the extraction of nanovesicles from plant sources, such as apples, minimizing harm to living organisms. This approach is non-invasive and respects the ecological balance of these sources.</p> <p><i>Environmental Sustainability:</i> By committing to utilizing waste and upcycled materials, the project</p>

adheres to eco-conscious practices. This mitigates potential harm to the environment by reducing the demand for new resources and minimizing the project's ecological footprint.

In Vivo Studies: In conducting *in vivo* studies within a small animal model, the project carefully selects a controlled and ethically managed setting. This ensures that the research is conducted with a focus on minimizing harm to the subjects involved while providing valuable insights into the project's objectives.

In Vitro Experiments: The use of *in vitro* experiments involving cardiovascular cell systems demonstrates a commitment to ethical research practices. These controlled laboratory settings allow the project to study the potential impacts on cardiovascular health without causing harm to living organisms.

Commitment to Comprehensive Understanding: The project aims for a nuanced understanding of its potential effects, emphasizing a thorough examination of the interplay between NVs and gut microbiota. This cautious and comprehensive approach ensures that the project does not inadvertently cause harm by overlooking potential negative consequences.

Ethical Use of Resources: The initiative's focus on using plant-derived vesicles, particularly from apples, reflects a conscientious choice to utilize resources in a manner that minimizes harm. This choice is based on the understanding of the potential benefits of these sources and their compatibility with the project's goals.

In summary, the project's compliance with the Principle of "Do No Significant Harm" is evident through its thoughtful extraction methods, commitment to environmental sustainability, ethical study designs, and dedication to understanding the potential impacts comprehensively. These measures collectively demonstrate a responsible and ethical approach to scientific exploration and innovation.

Concerning the art. 17 of Regulation EU 2020/853, the present project does not significantly harm climate change mitigation and adaptation; sustainable use and protection of water; pollution and protection and restoration of biodiversity and ecosystems and bio circular economy for waste prevention and recycling, with significant reduction of the inefficiency in the direct use of raw materials and more stages of the life cycle of products such as fruits and yeast and bacteria from biotechnology production.