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BIOCOCOMER - Biomolecular Condensates and Coacervates: From Medicine to Agriculture

BIOCOCOMER will pursue three general objectives (Research&Innovation, Training, and International Collaboration) that will be achieved through the development of new skills and products and exchange of multidisciplinary and complementary knowledge and competences within the international Partners from Italy, Australia, Portugal, Spain, Cuba, Switzerland, Germany and South Korea.
BIOCOCOMER is focused on the design and engineering of innovative biomolecular condensates/coacervates using peptides, proteins, polysaccharide and nucleic acids, as innovative tools for gene delivery in mammalian cells and plants. Through a combination of computer-based theoretical design and experimental and characterization approaches BIOCOCOMER is expected to generate a library of well-defined condensates and coacervates by programmed co-assembly and phase separation of mixtures of biomacromolecules, i.e polysaccharide-protein, polysaccharide-polyphenols, peptide-peptide, nucleic acid-protein. The condensates and coacervates will be engineered to readily recruit RNA and DNA molecules during phase separation in aqueous solution and to be stimuli responsive to enable transfection of mammalian cells and plants.
BIOCOCOMER will ultimately result in significant scientific breakthroughs towards innovative universal transfection tools with widespread biomedical and biotechnological applications. We intend to explore the potential of the developed platforms with the long-term aim of boosting the translational pathway of research in medicine and agriculture.

Coordinator: Università degli Studi di Roma Tor Vergata

Beneficiary: Università degli Studi di Padova

UNIPD Supervisor: Margherita Morpurgo

Department: Department of Pharmaceutical and Pharmacological Sciences

Total Contribution: € 230.000,00

Project Duration in months: 48

Find out more: https://cordis.europa.eu/projects/en