Tecnologie Convergenti per i Sistemi Biomolecolari (TeCSBi) Converging Technologies for Biomolecular Systems (TeCSBi)	
Progetto di ricerca **Research project**	*"Study of the potential health benefits provided by selected nutraceutical preparations"* **PROG. 3**
Tipo/Type	Borsa cofinanziata PNRR ex D.M. 630/2024 Scholarship co-funded PNRR ex D.M. 630/2024
Borse/Scholarships	1
Abstract	The interest towards nutraceutical products is growing more and more. In order to provide safe and effective products, it is needed to study each ingredient and understand its mechanism of action. In this context, the aim of this Ph.D. project is to study the effects of different nutraceutical ingredients (such as probiotics, prebiotics, botanical extracts and/or butyric acid) using different experimental approach and different cellular models (Caco-2, HT-29, THP1, etc…) in order to investigate about the possible antioxidant, antimicrobial, and anti-inflammatory properties, as well as the effect on human gut homeostasis or other potential biological activities of the compounds under investigation. In order to simulate in vitro the human gastrointestinal transit, the INFOGEST protocol might be used in few experiments. Examples of gut health factors that will be studied include microbiological aspects such as microbiota population shifts and pathogen inhibition. Also, as part of the study, other gut health aspects will be included, namely gut permeability, inflammation, and the production of microbial metabolites i.e. short chain fatty acids and trimethylamine. For probiotics (or other microbial species known to be safe and beneficial for humans or animals), colonization studies will be planned and stool samples will be recovered in order to assess the presence in the body. The data gathered could be of help in determining whether these products are safe not only for the final user but also for the gut microbiota. The positive health benefits may be found and may result in the finding of novel uses for these products depending on the effects found, whether they are in positive microbiome shifts and/or on the improvement of gut health markers like inflammation, permeability and oxidative stress. The main aim will be to find new application for preventing the progression of disorders or re-balance altered pathological biomarkers.
Tutor	Prof. Simone D. Guglielmetti (UNIMIB) Dr. Rosario Russo (GIELLEPI S.p.A.)
Mesi previsti in azienda **Expected months at the company**	**GIELLEPI S.P.A.** 6
Mesi previsti all'estero **Expected months abroad**	6
Specific IPR rules: Intellectual property clauses agreed with the Company apply to this scholarship	