PRIN 2022 PNRR n. P2022EKHKL "finanziato dall'Unione europea – Next Generation EU
Title: The virtual EV (v-EV): A digital twin of extracellular vesicles for health and food

Abstract:

v-EV develops the quantitative and methodological foundations for a digital twin of extracellular vesicles (EVs), enabling the first integrated simulation framework linking molecular composition to mesoscale properties and function. By combining multi-resolution simulations with advanced sampling techniques, the project aims to deliver a virtual EV platform that allows users to construct and simulate vesicles with tailored characteristics, overcoming current trial-and-error approaches. The interdisciplinary collaboration between Sapienza and UniGE integrates complementary engineering and physics methodologies to create a novel computational environment for EV design. v-EV will advance fundamental understanding of EV structure–function relationships and provide an enabling technology for computer-aided engineering of EV-based diagnostics, therapeutics, and nutrition, with lasting impact on academic research and EU industrial competitiveness.

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Durata del progetto:
Fino al 29/11/2025

Importo finanziato (DIMA)
119.867