Press release

NAP4DIVE Announces the Launch of Its New Website

April 2025 – NAP4DIVE project, funded by the European Union with the Grant Agreement *101155875*, is excited to announce the launch of its newly designed website, https://nap4dive.eu/ The new site features a streamlined, modern design, improved functionality, and easy access to essential information to help visitors understand NAP4DIVE project.

"We are thrilled to debut our new project website to all stakeholders on the blood-brain barrier research, non-animal models research as well as in the field of artificial intelligence in life sciences who are looking to understand the breadth of the project," said Mariana Pacheco Blanco, project and dissemination manager of NAP4DIVE, working at AMIRES

Visitors are encouraged to explore the new website and contact the responsible people in case of any questions or follow up. They are as well redirected to the LinkedIn page of the project to have immediate updates on the project developments.

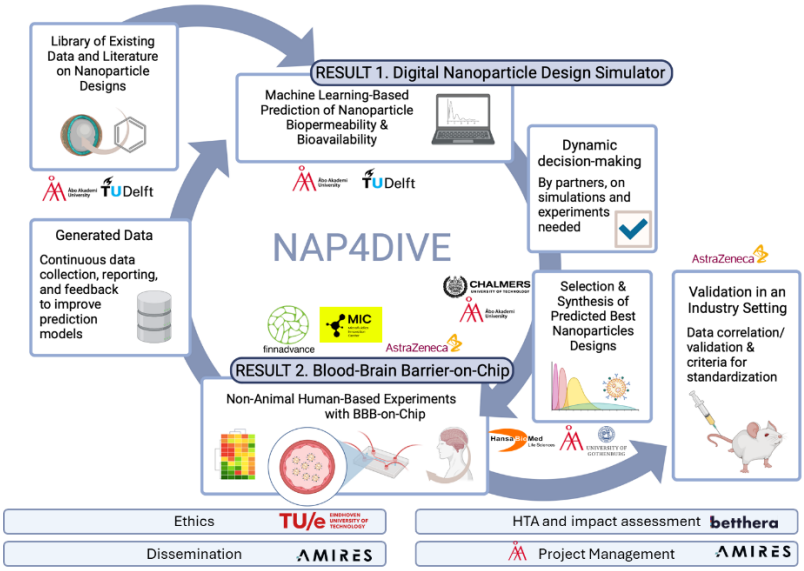
About the project

Project Coordinator, Prof. Cecilia Sahlgren reveals the inspiring journey behind the project's concept, shedding light on its foundational principles:

"The spark for this project came from a deep desire to bridge two urgent needs in modern science: developing more relevant and predictive research methods and finding smarter ways to deliver drugs to the brain to treat neurological diseases. Drawing inspiration from recent advances in technology, we wished to develop non-animal models by combining the biological realism of organ-on-chip systems with the predictive power of computational simulation tools to study nanoparticle-based drug delivery to the brain".

The needs that Prof. Sahlgren mentions are based on how the blood-brain barrier (BBB) is a major obstacle in treating diseases of the central nervous system (CNS) such as Parkinson's, Alzheimer's, schizophrenia and brain cancer. These diseases affect 180 million Europeans with less than 5% of current candidate drugs effectively reaching the brain. Therefore, NAP4DIVE strives to revolutionize the traditionally expensive and inefficient drug development for these diseases by establishing advanced non-animal alternatives for testing and predicting nanoparticle (NP)-based drug delivery across the human BBB. This approach aligns with EU and global initiatives to reduce animal testing and advance human-based biomedical research models.

Eleven partners teamed up in a consortium to develop two complementary non-animal tools: a high-throughput BBB-on-Chip and an *in silico* model based on machine learning ("NP Design Simulator"). These technologies will contribute to reducing animal use in central nervous system research by 95% and saving 30% of costs.



NAP4DIVE concept is based on two main aspects: digital nanoparticle design simulator and the blood-brain barrier on chip.

Additional information

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NAP4DIVE consortium

About NAP4DIVE

The blood-brain barrier (BBB) is a major obstacle in treating diseases of the central nervous system (CNS) such as Parkinson's, Alzheimer's, schizophrenia and brain cancer, affecting 180 million Europeans with less than 5% of current candidate drugs effectively reaching the brain. NAP4DIVE strives to revolutionize the traditionally expensive and inefficient drug development for these diseases by establishing advanced non-animal alternatives for testing and predicting nanoparticle (NP)-based drug delivery across the human BBB. This approach aligns with EU and global initiatives to reduce animal testing and advance human-based biomedical research models. NAP4DIVE will develop two complementary non-animal tools: a high-throughput BBB-on-Chip and an *in silico* model based on machine learning ("NP Design Simulator"). A digital repository of optimized nanoparticle designs ("NP Design Library") will be created to gather publicly available and newly obtained NP characterisation data, specialised for BBB delivery. The design simulator screens thousands of NP designs to recommend the most promising ones, which will be tested in vitro on the microfluidic BBB-on-Chip with real-time measurement of barrier integrity. The accuracy and physiological relevance of both tools will be validated by the pharmaceutical partner through comparison with clinical and preclinical data. A comprehensive HTA will demonstrate market readiness and cost-effectiveness of the tools, an ethical assessment will analyse harm reduction and engagement with regulators and policy makers will promote non-animal alternatives in preclinical testing on a larger scale.

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The project website is found here https://nap4dive.eu/

Project duration: 1 January 2025 – 31 December 2028.

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