

Nano2Brain: Dual Nanostructured Lipid Carrier as a Multifunctional Platform for Brain Tumor Therapy

KEYWORDS: Nanostructured Lipid Carriers; Tumor Targeting; BBB Cross Ability; Repurposed Drugs.

The proposed invention provides a nanotechnological based platform, particularly a nanostructured lipid carrier (NLC) with a particle size lower than 200 nm, encapsulating a combination of agents aiming at brain tumor therapy. This is achieved through, but not limited to coupling tumor-specific ligands on the surface of the nanosystem to preferentially and/or specifically target cell populations such as tumor cells. Thus, the platform is able, but not limited, to preferentially deliver therapeutic and/or diagnostic agents, alone or in combination, through the blood-brain-barrier (BBB) to the brain, at the intracellular level, by receptor-mediated endocytosis. This system mediates efficient intracellular release of the encapsulated agents, increasing the concentration of the payload at the target site and reducing agent-associated adverse side-effects. Consequently, the strategy adopted by the invention promotes an improvement of the safety and efficiency for glioblastoma therapy and/or diagnostic.



ADVANTAGES	APPLICATIONS
<ul style="list-style-type: none"> • BBB crossing ability. • Tumor targeting: triple targeting approach. • High versatility. • Repurposed drugs. • Cost-effective production. 	<p>It may be subjected to modifications regarding its composition, encapsulated agents or the attached ligands, depending on its purpose: treatment and/or diagnosis, but not limited, of glioblastoma and other cancer types or other diseases, as well as other fields of application, including Cosmetic, Food Industry and Environmental Engineering.</p>

VIDEO (QR Code or YouTube):



STAGE OF DEVELOPMENT: TRL 3

IPR LEGAL STATUS: Patent Pending n.º [PCT/IB2020/061452](#) filed on 03/12/2020.

OWNERSHIP: The rights to the technology are held by the University of Coimbra.

COLLABORATION SOUGHT: Licensing for further developments or R&D partnership.

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