UNIVERSITÉ DE GENÈVE

Collaboration Opportunity

UNIVERSITY OF GENEVA

422-A229RF
Poly(lactide)-based micelles for hydrophobic drug delivery

Invention
Due to their safe and biodegradable properties, amphiphilic PEG-poly(lactide) block copolymers have been studied as drug carriers. Such block copolymers self-assemble in aqueous medium to form micelles with a core of hydrophobic PLA and a shell of hydrophilic PEG chains. Hydrophobic drugs can be encapsulated in the core of the micelles and are protected by the PEG shell, which increases their half-life in the blood compartment. But drug loadings have generally been found too low for medical applications.
Prof. Robert Gurny at the University of Geneva has developed amphiphilic PEG-poly(alkyl-substituted lactide) block copolymers which self-assemble into micelles. The core of these micelles has an increased hydrophobicity, allowing improved drug loadings that are suitable for medical applications.

Applications
Long-circulating biodegradable carriers for intra-venous or possible oral administration of hydrophobic compounds. Therapeutic areas include: oncology, immuno-modulators, antibiotics, antivirals, anti-Parkinson drugs.

Advantages
- Poylmeric micelles with very hydrophobic core allowing high drug loadings
- Low CMC, can be used as drug carriers in extremely diluted conditions
- Prolonged half-life in the blood compartment
- Biodegradable
- Predictable molecular weight and narrow polydispersity
- Copolymer composition and molecular weight can be modulated

Status
PCT patent application, nationalized in US, CA, EP and JP, priority date 22 April 2008 and 14 December 2008
In Q2 2008, we have established an alliance with a major drug-delivery company, under which our partner will be available to manufacture the polymers, and develop and clinically test formulations based on this technology platform.

Type of partnership sought
Prof. Gurny is available to collaborate with pharmaceutical companies to explore feasibility of developing formulations of specific compounds based on this technology platform

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