# AVAILABLE TECHNOLOGY

University of South Australia | UniSA Ventures Pty Ltd

# Drug delivery composition comprising polymer-lipid hybrid (PLH) microparticles

A novel hybrid drug delivery formulation that can be used in a wide range of therapeutic applications

## Benefits

- Controlled drug encapsulation, release and delivery
- Expanded pharmaceutical applications
- Increased solubility of drugs
- Drug carrier for a wide range of hydrophobic drugs

## Background

Lipid systems have been widely used in drug delivery applications, however issues arise due to instability, insufficient drug loading and burst release of encapsulated drug molecules. Alternatively, established polymeric nanoparticles can control drug release and sustain circulation whilst providing higher stability in biological fluids, however, the biocompatibility is not as high as lipid systems.

We have developed novel PLGA-lipid hybrid (PLH) microparticles that combine the stabilising and controlled delivery characteristics of PLGA nanoparticles with the solubilizing effect of lipid droplets. This novel drug delivery formulation can be used in a wide range of therapeutic applications, including combination therapy with tuneable dispersion and controlled drug release.

## Technology

The PLH microparticles increase the solubility of poorly water soluble drugs by dissolving the drug in the hydrophobic PLGA nanoparticles and lipid droplets. This drug delivery technology has the potential to:

- mimic the pharmaceutical food affect, thereby removing the need to take medication with a meal and increasing the therapeutic value of a range of drugs
- for a mono-therapy, deliver the drug through 2 different mechanisms and hence increase uptake, change the absorption dynamics and improve pharmacokinetics
- for a combination therapy, deliver 2 separate drugs in a single formulation.

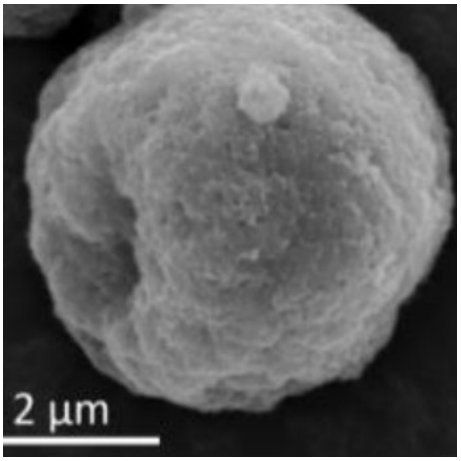
The PLH microparticles have the potential to be used by the pharmaceutical industry as a drug carrier for the delivery of a wide range of hydrophobic drugs. Routes for administration include: oral, implantable, inhalation.

## Potential Markets

- Pharmaceutical companies
- Drug delivery companies

## IP Status

International (PCT) Patent Application No. PCT/AU2016/000080. US15/1556913 granted. Patent granted in Australia. Patent pending in China.




***Polymer-lipid hybrid (PLH)***

## Partnering Opportunities

UniSA Ventures is seeking commercial partners for drug delivery and formulation co-development and licensing opportunities.

## Contact Us

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