ESA Patentverwertungsagentur
Sachsen-Anhalt GmbH

Technology Offer

Injectable oleogels as new biodegradable systems for parenteral controlled drug delivery

Problem to be solved

Parenteral controlled drug delivery is of crucial importance for the pharmacotherapy of many diseases (e.g. breast and prostate cancer, local inflammation). By means of controlled release systems it is possible to decrease the frequency of administration (from hours to months), to increase drug efficiency and to decrease side effects.
The limitations of currently used drug delivery systems (mainly PLA/PLGA microparticles and implants) include undesired release rates due to autocatalytic degradation of the polymers, formation of acidic microenvironments, complex and costly manufacturing steps and drug degradation prior release. Therefore, alternative drug delivery systems must be developed which avoid these drawbacks.

Novel solution

Direct **I**njectable **O**leo**G**els (DIOGs) and **I**n **S**itu **F**orming **O**leo**G**els (ISFOGs) were developed as new, biodegradable and lipid based formulations for parenteral controlled release applications. DIOGs are preformed oleogels, but still injectable due to their rheological properties. ISFOGs are low viscous solutions and transform easily into a lipid gel after injection.
The advantages of DIOGs and ISFOGs include:

- all excipients are suitable for parenteral drug delivery
- materials are fully biodegradable and well tolerated
- avoidance of complex manufacturing steps
- both lipophilic and hydrophilic drugs can be included
- release times from several days over weeks to months can be achieved
- low injection forces required
- long lasting bioactivity of incorporated drugs (e.g. peptides) shown *in vivo*
- fast translation into clinic possible both for human and veterinary medicine.

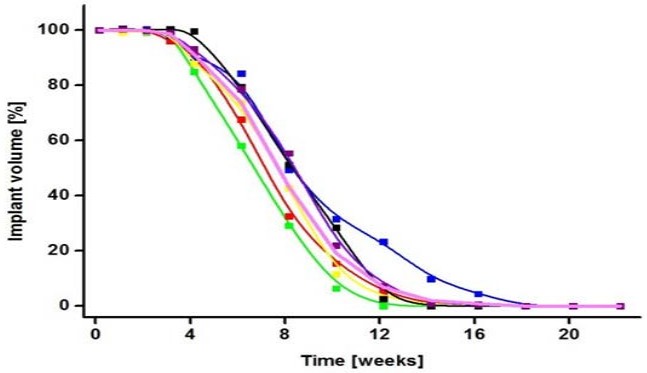

Fig. 1: Volume of a subcutaneous ISFOG lipid implant measured by 3D-Ultrasound Imaging. The in situ forming implants are fully biodegradable and no residues were detected after several weeks.

Applications

The novel formulations can be adapted for the parenteral controlled release of lipophilic and hydrophilic drugs. We are seeking partners who would be interested to license this technology or cooperation partners who would be interested to develop this kind of formulation for their actives.

Patent situation

In case of interest, we will be pleased to inform you about the current status.

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