



Injectable depot formulations based on polymers

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 Injectable Polymer Solutions (DIPOs) are liquid polymers which provide a controlled release over days to months after administration. Their polarity and degradation rate is adjustable. They are much less acidic compared to PLA/PLGA polymers.

The advantages of DIPOs include:

- DIPOs 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
- polymer polarity can be tuned
- only low injection forces required
- controlled release shown *in vivo*
- applicable for active substances in human and veterinary medicine.

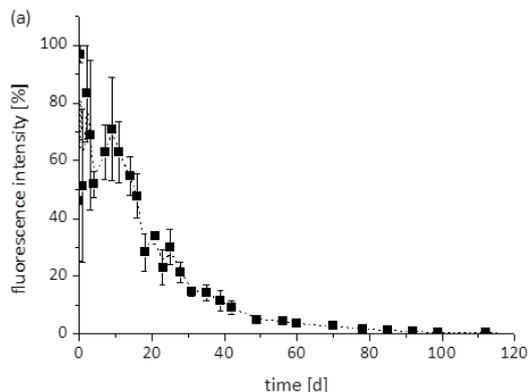
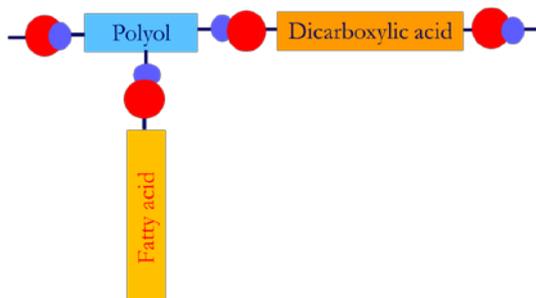


Fig. 1: General structure of DIPOs (left) and *in vivo* kinetics of a fluorescent drug model (right).

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.