In vitro and in vivo delivery of functionalized nanoparticles via coiled-coil interactions
Yang, J.

Citation

Version: Not Applicable (or Unknown)
License: Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden
Downloaded from: https://hdl.handle.net/1887/44712

Note: To cite this publication please use the final published version (if applicable).
The handle http://hdl.handle.net/1887/44712 holds various files of this Leiden University dissertation

**Author:** Jian Yang  
**Title:** In vitro and in vivo delivery of functionalized nanoparticles via coiled-coil interactions  
**Issue Date:** 2016-12-01
Stellingen
Behorende bij het proefschrift

*In vitro* and *in vivo* delivery of functionalized nanoparticles
*vía* coiled-coil interactions

1. The size, surface characteristics and shape of a nanoparticle have key roles in its biodistribution *in vivo*.
   Chapter 1, this thesis.

2. In multicellular organisms, distinct endocytic pathways are tightly regulated to control all aspects of intercellular communication.
   Conner, S. D. *et al.* Nat. **2003**, 422, 37-44
   Chapter 2, this thesis.

3. Coiled-coil lipopeptides, CPK₄/CPE₄, lead to the membrane fusion between liposomes and cell membranes, resulting in direct cytosolic delivery of encapsulated drugs.
   Chapter 2 & 3, this thesis.

4. During the endocytic pathway, drug accumulation in early endosomes induces lysosomal activation, leading to rapid degradation of these drugs inside cells.
   Chapter 3, this thesis.

5. The combination of coiled coil mediated delivery and zebrafish xenografts of human cancer can be used for *in vivo* drug screening.
   Chapter 3, this thesis.

6. Fusogenic lipid bilayer supported MSNs could deliver cytochrome c by coiled-coil mediated membrane fusion while minimising uptake *via* endocytosis.
   Chapter 4, this thesis.

7. Most membrane fusion events follow a similar order: docking, hemifusion and full fusion.
   Chapter 5, this thesis.

8. The extent of full fusion in DNA hybridization-induced vesicle fusion is highly dependent on the anchoring strategy of the hybridizing nucleotides.
   Chapter 5, this thesis.

9. Happiness is an attitude, no matter life is tough or easy.

10. Family is more important than work.