Stellingen behorend bij het proefschrift

# Liposomal nanomedicine with short chain sphingolipids modulate tumor cell membrane permeability and improve chemotherapy

1. Liposomes have moved a long way from being just another exotic object of biophysical research. (Vladimir Torchilin, Scientist)

2. Nanoparticle-based drug delivery technologies are rising as powerful chemotherapeutic modalities in cancer therapy. (this thesis)

3. Liposomal drug delivery in vivo is complex due to the presence of various tumor physiological barriers and multiple cell types within a tumor. (this thesis)

4. Insufficient transport of chemotherapeutic agents across the cell membrane of tumor cells represents a final important limitation for the success of clinical cancer chemotherapy. (this thesis)

5. The drug uptake enhancing effect of short chain sphingolipids appeared to preferentially target tumor cells. (this thesis)

6. Short chain sphingolipids-enriched liposomal chemotherapy represents a novel attractive drug delivery approach, which combines the benefits of reduced toxicity and improved tumor accumulation of drugs through nanoliposomal encapsulation with enhanced intracellular drug delivery by short chain sphingolipid-mediated tumor cell membrane permeabilization. This lipid-drug combined chemotherapy shows a high potential against several solid tumors. (this thesis)

7. Biologically active sphingolipids have key roles in the regulation of several fundamental biological processes that are pertinent to cancer pathogenesis. (Besim Ogretmen and Ysuf Hannun, Scientist)

8. Methods are good as long as they are not proven wrong, and all of them should be permanently questioned. (Felix Goñi, Scientist)

9. The question has been there for long time, the answers haven't. (Marc Kirschner, Biologist)

10. All cancers caused by cigarette smoking and heavy use of alcohol could be prevented completely. (American Cancer Society)

11. The very best that can happen is to have energetic opponents. The more extreme they become, the more powerful the reaction they will have to face. (Jostein Gaarder, Philosopher)

**Rotterdam, 10 September 2014** **Lília RC Pedrosa**