Vaccination and targeted therapy using liposomes : opportunities for treatment of atherosclerosis and cancer

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Propositions

1. Liposomal rigidity is an often over-looked parameter which is important for antigen-specific immune responses.

This thesis

2. DSPG-containing liposomes are valuable antigen delivery vehicles to induce immune tolerance.

This thesis

3. Lyp-1-conjugated liposomes are retained in atherosclerotic plaques and can be useful delivery vehicles.

This thesis

4. DPTAP-containing liposomes adjuvanted with cyclic-di-GMP can induce strong anti-tumor responses.

This thesis

5. Significant future work remains in investigating how particle elasticity impacts more detailed drug delivery processes.

A.C. Anselmo and S. Mitragotri, Adv Drug Deliv Rev, (108) 2017

6. The protein corona of a nanoparticle gives it a biological identity that is distinct from its synthetic identity. Understanding the protein corona will enable the development of safer and more effective nanomedicines.

C.D. Walkey and W.C.W. Chan, Chem Soc Rev, (41) 2012

7. Manipulating the adaptive immune system by immunomodulatory strategies or vaccination in atherosclerosis is an attractive concept. However, limitations in the predictive power of animal models and a lack of a full understanding of the role of autoantibodies, B, and T cells present formidable hurdles to clinical translation.

D. Wolf and K. Ley, Circ Res, (2) 2019

8. The complement-independent functions of C1q on immune and non-immune cells serve to highlight a critical role in maintaining homeostasis. C1q's interaction with novel receptors linked to immune tolerance and prevention of autoimmunity are fascinating areas for further investigation.

M. Son, B. Diamond and F. Santiago-Schwarz, Imm Res, (63), 2015

9. Whatever will bewilder me.

Tool, Lateralus, 2002

10. We are a way for the cosmos to know itself.

Carl Sagan, Cosmos, 1980

11. The only way we can get by in this world is through the help we receive from others. No one can do it alone.

Amy Poehler, Yes Please, 2014

12. One of the advantages of being disorganized is that one is always having surprising discoveries.

A.A. Milne, Winnie the Pooh, 1926