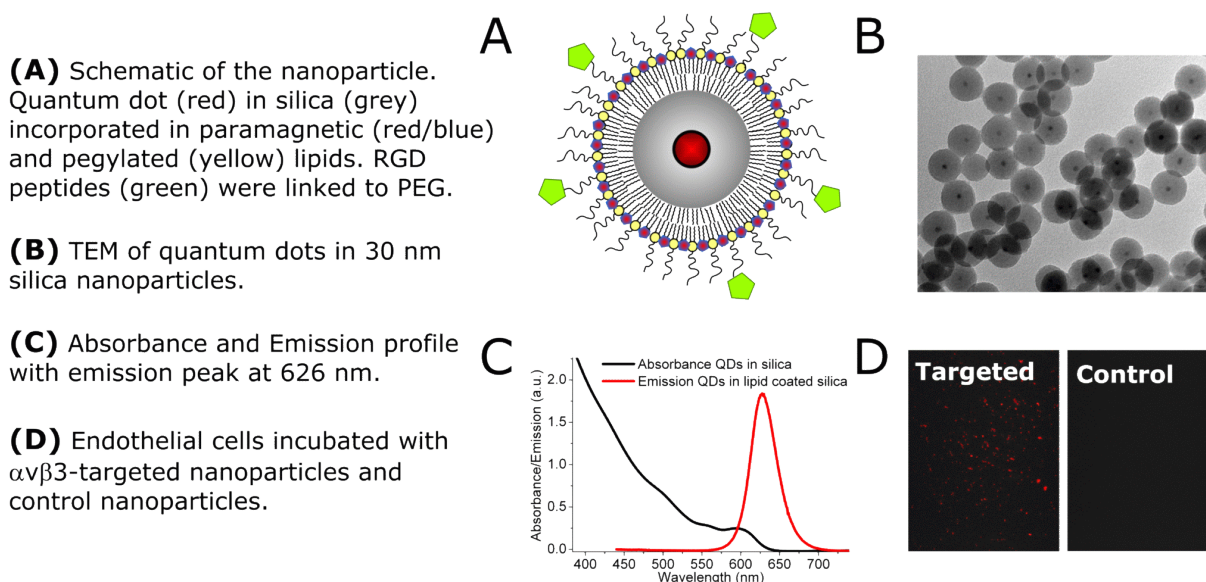


# Lipid-coated silica nanoparticles for biomedical applications

## COLL 33

Rolf Koole, r.koole@uu.nl<sup>1</sup>, Matti van Schooneveld, mattimx@yahoo.com<sup>1</sup>, David P Cormode, davidcormode@gmail.com<sup>2</sup>, Zahi A. Fayad, zahi.fayad@mssm.edu<sup>2</sup>, Andries Meijerink, a.meijerink@phys.uu.nl<sup>3</sup>, and **Willem J. M. Mulder**, willem.mulder@mssm.edu<sup>2</sup>. (1) Condensed Matter and Interfaces, Utrecht University, Padualaan 8, Utrecht, 3508TA, (2) Department of Radiology, Mount Sinai School of Medicine, One Gustave L. Levy Place, Box 1234, New York, NY 10029, (3) Debye Institute, University of Utrecht, Princetonplein 1, PO Box 80 000, 3508 TA Utrecht, NA, Netherlands

Silica particles as a nanoparticulate carrier material for contrast agents have received considerable attention the past few years, since the material holds great promise for biomedical applications. A key feature for successful application of this material in vivo is biocompatibility, which may be significantly improved by appropriate surface modification. In this study we report a novel strategy to coat silica particles with a dense monolayer of paramagnetic and PEGylated lipids. The silica nanoparticles carry a quantum dot in their centre and are made target-specific by the conjugation of multiple  $\alpha v\beta 3$ -specific RGD-peptides. We demonstrate their specific uptake by endothelial cells in vitro using fluorescence microscopy, quantitative fluorescence imaging and magnetic resonance imaging. The lipid coated silica particles introduced here represent a new platform for nanoparticulate multimodality contrast agents.



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