



Universiteit
Leiden
The Netherlands

Through the magnifying glass: The effects of size and shape on the uptake, biodistribution and (eco)toxicity of nanoparticles

Pomeran, M. van

Citation

Pomeran, M. van. (2019, April 17). *Through the magnifying glass: The effects of size and shape on the uptake, biodistribution and (eco)toxicity of nanoparticles*. Retrieved from <https://hdl.handle.net/1887/71375>

Version: Not Applicable (or Unknown)

License: [Leiden University Non-exclusive license](#)

Downloaded from: <https://hdl.handle.net/1887/71375>

Note: To cite this publication please use the final published version (if applicable).

Cover Page



Universiteit Leiden



The following handle holds various files of this Leiden University dissertation:

<http://hdl.handle.net/1887/71375>

Author: Pomeran, M. van

Title: Through the magnifying glass: The effects of size and shape on the uptake, biodistribution and (eco)toxicity of nanoparticles

Issue Date: 2019-04-17

Through the magnifying glass

**The effects of size and shape on the uptake,
biodistribution and (eco)toxicity of nanoparticles.**

Marinda van Pomerén

©2019 Marinda van Pomerén

Through the magnifying glass: The effects of size and shape on the uptake, biodistribution and (eco)toxicity of nanoparticles.

Ph.D. thesis Leiden University, The Netherlands

ISBN: 978-94-6380-253-6

All rights reserved. No part of this thesis may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, without the prior written permission of the copyright holder

Cover design: Marinda van Pomerén, original image by Lynn Ketchum, courtesy of Oregon State University

Photos: Marinda van Pomerén

Printed by: Proefschriftmaken.nl || www.proefschriftmaken.nl

Through the magnifying glass

**The effects of size and shape on the uptake,
biodistribution and (eco)toxicity of nanoparticles.**

Proefschrift

ter verkrijging van

de graad van Doctor aan de Universiteit Leiden,

op gezag van de Rector Magnificus prof. mr. C.J.J.M. Stolker,

volgens besluit van het College van Promoties

te verdedigen op woensdag 17 april 2019

klokke 15.00 uur

door

Marinda van Pomerén

Geboren te Amstelveen, Nederland

In 1989

Promotiecommissie:

Promotors: Prof. Dr. W.J.G.M. Peijnenburg

Prof. Dr. ir. M.G. Vijver

Overige leden: Prof. Dr. A. Tukker (Universiteit Leiden)

Prof. Dr. P.M. van Bodegom (Universiteit Leiden)

Prof. Dr. H.P. Spaink (Universiteit Leiden)

Dr. J. Legradi (Vrije Universiteit Amsterdam)

Dr. W.H. de Jong (RIVM)

Contents

Chapter 1	9
General Introduction	
Chapter 2	31
Exploring uptake and biodistribution of polystyrene (nano)particles in zebrafish embryos at different developmental stages	
Chapter 3	51
The biodistribution and immuno-responses of differently shaped non-modified gold particles in zebrafish embryos	
Chapter 4	75
A novel experimental and modelling strategy for nanoparticle toxicity testing enabling the use of small quantities	
Chapter 5	101
The impacts of interactions between TiO ₂ nanoparticles and differently dissolving nanoparticles on mixture toxicity	
Chapter 6	135
Discussion	
Summary	147
Samenvatting	151
Curriculum Vitae	153
Publication list	154
Acknowledgements	155

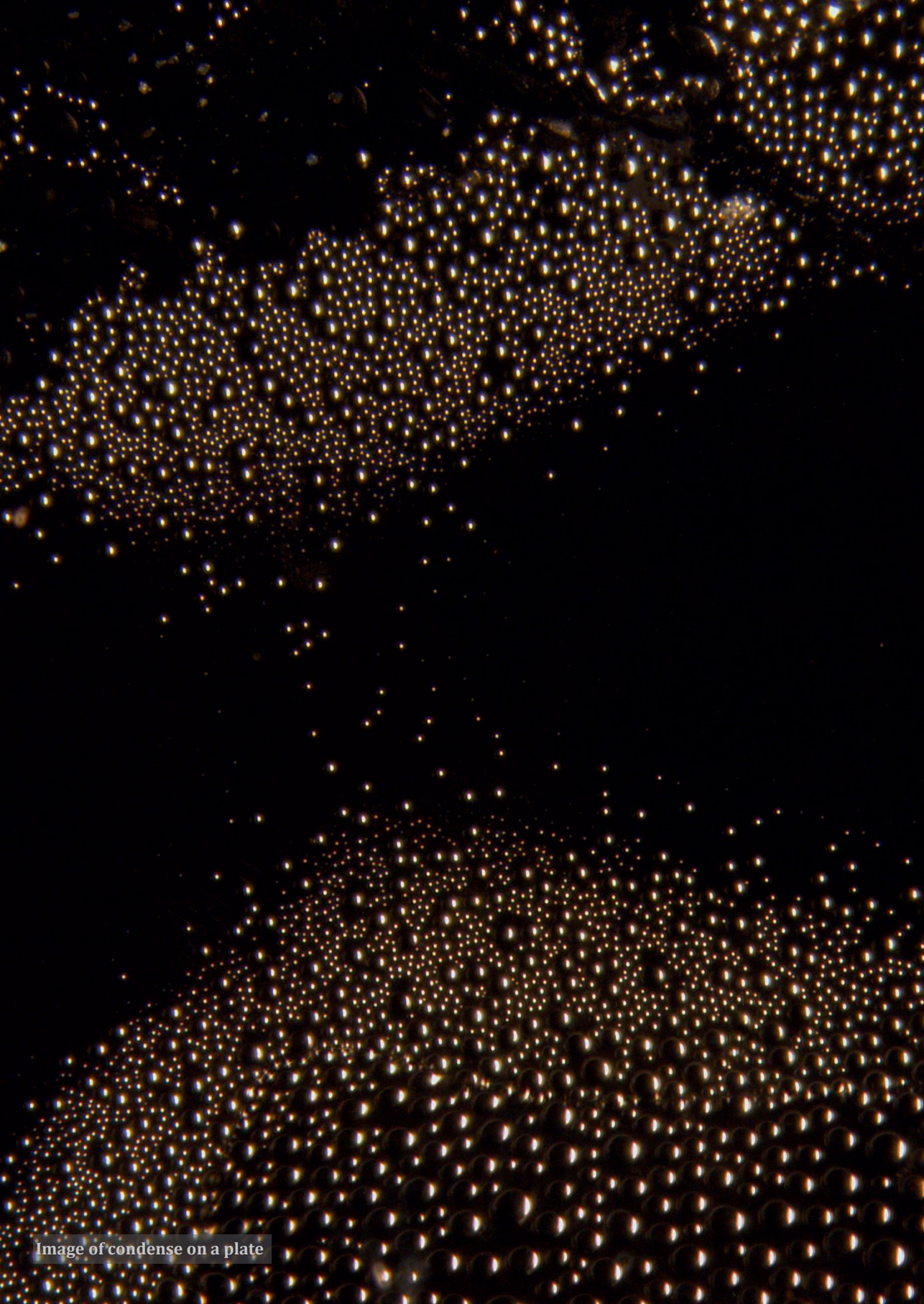


Image of condense on a plate