

# Intradermal delivery of nanoparticulate vaccines using coated and hollow microneedles

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### **Curriculum Vitae**

Guangsheng Du was born at June 14, 1988. After finishing his preschool education in Linyi, China, he started his bachelor study in 2006 at the Pharmacy Institute of Shandong University and obtained his bachelor degree in 2010. After that, he went to the Institute of Pharmaceutical Engineering of Tianjin University and performed his master study under the supervision of Prof. Zhenping Wei. The topic of his master research is "Transcutaneous delivery of water-insoluble drug using D-α-tacopheryl polyethylene glycol 1000 succinate based solid lipid nanoparticles". In the summer of 2013, he obtained his master degree. At the same time, he received his scholarship from the Chinese Scholarship Council (CSC) for PhD study abroad after obtaining the invitation from Prof Joke A. Bouwstra. In September 2013, he started his PhD project at Leiden University under the supervision of Prof. Joke A. Bouwstra and Prof. Wim Jiskoot. His PhD study was focused on intradermal delivery of nanoparticulate vaccines using coated and hollow microneedles, which resulted in this thesis.

### List of publications

- **G.S. Du\***, J. Tu\*, M.R. Nejadnik, J. Mönkäre, K. van der Maaden, P.H.H. Bomans, N.A.J.M. Sommerdijk, B. Slütter, W. Jiskoot, J.A. Bouwstra, A. Kros. Mesoporous silica nanoparticle-coated microneedle arrays for intradermal antigen delivery. Pharm. Res. 2017,34(8):1693-1706
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- G.S. Du\*, A.M. de Groot\*, J. Mönkäre, A.C.M. Platteel, F. Broere, J.A. Bouwstra, A.J.A.M. Sijts. Hollow microneedle-mediated intradermal delivery of model vaccine antigen-loaded PLGA nanoparticles elicits protective T cell-mediated immunity to an intracellular bacterium. J. Control. Release 2017,266:27-35
- <u>G.S. Du</u>, M. Leone, S. Romeijn, G. Kersten, W. Jiskoot, J.A. Bouwstra. Immunogenicity of diphtheria toxoid and poly(I:C) loaded cationic liposomes after hollow microneedle-mediated intradermal injection in mice. Int. J. Pharm. 2018,547:250-257.
- <u>G.S. Du</u>, L. Woythe, K. van der Maaden, M. Leone, S. Romeijn, G. Kersten, W. Jiskoot, J.A. Bouwstra, Coated and hollow microneedle-mediated intradermal immunization in mice with diphtheria toxoid loaded mesoporous silica nanoparticles. Pharm. Res. 2018,35:189.
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- J. Mönkäre, M. Pontier, E.E.M. van Kampen, <u>G.S. Du</u>, M. Leone, S. Romeijn, M.R. Nejadnik, C. O'Mahony, B. Slütter, W. Jiskoot, J.A. Bouwstra. Development of PLGA nanoparticle loaded dissolving microneedles and comparison with hollow microneedles in intradermal vaccine delivery. Eur. J. Pharm. Biopharm.2018,129:111-121.

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