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## **Mechanistic studies on transcutaneous vaccine delivery : microneedles, nanoparticles and adjuvants**

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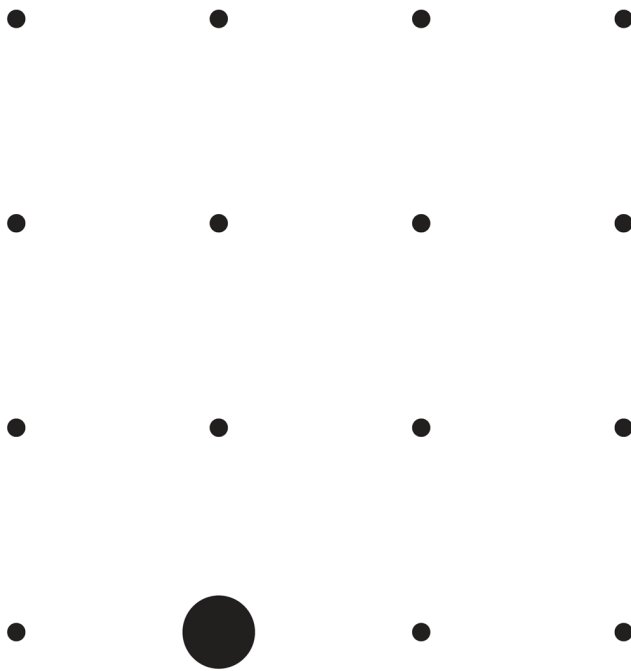
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# List of publications





Verheul RJ, Slütter B, **Bal SM**, Bouwstra JA, Jiskoot W, Hennink WE: Covalently stabilized trimethyl chitosan-hyaluronic acid nanoparticles for nasal and intradermal vaccination (submitted)

**Bal SM\***, Slütter B\*, Ding Z, Jiskoot W, Bouwstra JA: Adjuvant effect of cationic liposomes and CpG depends on administration route (submitted)

**Bal SM\***, Slütter B\*, Verheul RJ, Bouwstra JA, Jiskoot W: Adjuvanted, antigen loaded N-trimethyl chitosan nanoparticles for nasal and intradermal vaccination: adjuvant- and site-dependent immunogenicity in mice (submitted)

**Bal SM**, Slütter B, Jiskoot W, Bouwstra JA: Small is beautiful: N-trimethyl chitosan-ovalbumin conjugates for microneedle-based transcutaneous immunisation (submitted)

**Bal SM**, Hortensius S, Ding Z, Jiskoot W, Bouwstra JA: Co-encapsulation of antigen and Toll-like receptor in cationic liposomes affects the quality of the immune response in mice after intradermal vaccination (Vaccine 2010, In press)

Slütter B, **Bal SM**, Que I, Kaijzel E, Löwik C, Bouwstra JA, Jiskoot W: Antigen-adjuvant nanoconjugates for nasal vaccination: an improvement over the use of nanoparticles? (Mol Pharm 7(6): 2207-2215 2010)

**Bal SM\***, Ding Z\*, van Riet E, Jiskoot W, Bouwstra JA: Advances in transcutaneous vaccine delivery: Do all ways lead to Rome? (J Control Release 148(3): 266-282 2010)

Slütter B, **Bal SM\***, Keijzer C\*, Mallants R, Hagens N, Que I, Kaijzel E, van Eden W, Augustijns P, Löwik C, Bouwstra J, Broere F, Jiskoot W: Nasal vaccination with N-trimethyl chitosan and PLGA based nanoparticles: Nanoparticle characteristics determine quality and strength of the antibody response in mice against the encapsulated antigen (Vaccine 28(38): 6282-6291 2010)

**Bal SM**, Kruithof AC, Zwier R, Dietz E, Bouwstra JA, Lademann J, Meinke MC: Influence of microneedle shape on the transport of a fluorescent dye into human skin *in vivo* (J Control Release 147(2): 218-224 2010)

**Bal SM**, Ding Z, Kersten GF, Jiskoot W, Bouwstra JA: Microneedle-based transcutaneous immunisation in mice with N-trimethyl chitosan adjuvanted diphtheria toxoid formulations (Pharm Res 17(9): 1837-1847 2010)

Ding Z, **Bal SM**, Romeijn S, Kersten GF, Jiskoot W, Bouwstra JA: Transcutaneous immunization studies in mice using diphtheria-toxoid loaded vesicle formulations and a microneedle array (Pharm Res 28 (1): 145-58 2010)

**Bal SM**, Kruithof AC, Liebl H, Tomerius M, Bouwstra JA, Lademann J, Meinke M: In vivo visualization of microneedle conduits in human skin using laser scanning microscopy (Laser Phys Lett 7(3): 242-246 2010)

**Bal SM**, Slütter B, van Riet E, Kruithof AC, Ding Z, Kersten GF, Jiskoot W, Bouwstra JA: Efficient induction of immune responses through intradermal vaccination with N-trimethyl chitosan containing antigen formulations (J Control Release 142(3): 374-383 2010)

Bivas-Benita M, Lin MY, **Bal SM**, van Meijgaarden KE, Franken KL, Friggen AH, Junginger HE, Borchard G, Kleijn MR, Ottenhof THM: Pulmonary delivery of DNA encoding Mycobacterium tuberculosis latency antigen Rv1733c associated to PLGA-PEI nanoparticles enhances T cell responses in a DNA prime/protein boost vaccination regimen in mice (Vaccine 27(3): 4010-4017 2009)

**Bal SM**, Caussin J, Pavel S, Bouwstra JA: In vivo assessment of microneedle arrays in human skin (Eur J Pharm Sci 35(3): 193-202 2009)

Verbaan FJ, **Bal SM**, van den Berg DJ, Dijksman JA, van Hecke M, Verpoorten H, van den Berg A, Lüttge R, Bouwstra JA: Improved piercing of microneedle arrays in dermatomed human skin by an impact insertion method (J Control Release 128(1): 80-88 2008)

Verbaan FJ, **Bal SM**, van den Berg DJ, Groenink HWW, Verpoorten H, Lüttge R, Bouwstra JA: Assembled microneedle arrays enhance the transport of compounds varying over a large range of molecular weight across human dermatomed skin (J Control Release 117(2): 238-245 2007)

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