*Neisseria lactamica* antigens complexed with a novel cationic adjuvant

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Colonization of the nasopharynx by non-pathogenic *Neisseria* species, including *N. lactamica*, has been suggested to lead to the acquisition of natural immunity against *Neisseria meningitidis* in young children¹. The aim of this study was to identify a model complex of antigens and adjuvant for immunological preparation against *N. meningitidis* B, based on cross-reactivity with *N. lactamica* outer membrane vesicles (OMVs) antigens and the dioctadecyldimethylamonium bromide bilayer fragments (DDA-BF) adjuvant². Complexes of 25 µg of OMVs in 0.1 mM of DDA-BF were colloidal stable, exhibiting a mean diameter and charge optimal for antigen presentation. Immunogenicity tests for these complexes were performed in mice. A single dose of OMV/DDA-BF was sufficient to induce a delayed type hypersensitivity (DTH) response, while the same result was achieved only after two doses of OMV/alum. In addition, to achieve total IgG1 levels that are similar to a single immunization with OMV/DDA-BF, it was necessary to give the mice a second dose of OMV/alum (Fig 1). Moreover, the antibodies induced from a single immunization with OMV/DDA-BF had an intermediate avidity, but antibodies with a similar avidity were only induced by OMV/alum after two immunizations. We evaluated the production of IgG1, IgG2a and IgG2b in immunized mice, 45 days after the first dose of the antigen (Fig 2). The absorbance for each class of antibodies was subtracted from the mean absorbance of the non-immunized group. The use of this novel cationic adjuvant for the first time with a *N. Lactamica* OMV preparation revealed good potential for future vaccine design.