

## Preliminary evaluation of the immunoenhancement of Newcastle Disease (ND) vaccine formulated as a cationic liposome

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This study evaluates the enhancement of immune response of birds to ND vaccine encapsulated in 1,2-dioleoyl-3-trimethylammoniumpropane (DOTAP) -based liposomes. The vesicles of the liposomal ND vaccine were physically characterized for shape, particle size and zeta potential.

Sixty experimental birds were divided into unvaccinated group, liposomal ND vaccine group and live La Sota<sup>®</sup> vaccine group. Both liposomal ND vaccine and the live La Sota<sup>®</sup> vaccine groups were vaccinated orally at three weeks and six weeks of age. The mean antibody titres, total and differential white blood cell count, and blood chemistry respectively were assessed. Ten birds from each group were challenged by orally administering 0.2 ml of the virulent Herts 33 strain at 9 weeks of age. From the results, vesicles of the liposomal ND vaccine were spherical and tightly packed. Mean size distribution was below 100 nm. The mean zeta potential was 24 mV. The unvaccinated group yielded no antibodies to ND virus. The log<sub>2</sub> of mean antibody titre of the birds induced by liposomal ND vaccine after secondary immunization was 9.60 + 0.95 while that of the live La Sota<sup>®</sup> vaccine was 6.00 + 0.63. Nine of the ten challenged birds in the unvaccinated group died while none died from the liposomal ND vaccine group or the marketed La Sota<sup>®</sup> vaccine group. It could therefore, be inferred that encapsulating ND vaccine in DOTAP-based liposome significantly caused higher immunity in the experimental chickens than the marketed La Sota<sup>®</sup> vaccine.

### Biography

The author is a teaching staff of the University of Nigeria, Nsukka. She obtained her Ph.D in 2011 and is applying for post doctoral position. She has been teaching for four years and is still an early investigator in the field of viral vaccines. She has attended two conferences in the Baltimore and Chicago in 2008 and 2009 respectively on vaccines development. In 2010, she was sponsored by the Royal Society, London to attend a discussion meeting on New Vaccines for global Health. These conferences have broadened her vision and scope in the field. She has also been exposed to international scientists from all over the world and cross-fertilized ideas that would help her in her near and future targets. Her work has been accepted and published in local and international journals on adjuvanticity of liposomes and niosomes in vaccine delivery.

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