

See discussions, stats, and author profiles for this publication at: <http://www.researchgate.net/publication/221798338>

# Preliminary characterization of N-trimethylchitosan as a nanocarrier for malarie vaccine

ARTICLE *in* JOURNAL OF CHEMINFORMATICS · DECEMBER 2011

Impact Factor: 4.55 · DOI: 10.1186/1758-2946-4-S1-P47 · Source: PubMed

---

CITATIONS

4

---

READS

15

## 3 AUTHORS, INCLUDING:



[Petra O Nnamani](#)

University of Nigeria

47 PUBLICATIONS 114 CITATIONS

SEE PROFILE



[Giacinto Scoles](#)

Princeton University

26 PUBLICATIONS 166 CITATIONS

SEE PROFILE

POSTER PRESENTATION

Open Access

# Preliminary characterization of N-trimethylchitosan as a nanocarrier for malarie vaccine

Petra O Nnamani<sup>1,2\*</sup>, Ngozi J Nwodo<sup>1</sup>, Scoles Giacinto<sup>2</sup>

From 7th German Conference on Chemoinformatics: 25 CIC-Workshop  
Goslar, Germany. 6-8 November 2011

Vaccination is considered to be most effective way of fighting infectious diseases like malaria etc [1]. N, N, N-trimethylchitosan (TMC) was synthesized from chitosan. Nanoparticles of the TMC were prepared in various media (milliQ water, Na<sub>2</sub>CO<sub>3</sub> (pH 10.92), Na<sub>2</sub>HPO<sub>4</sub> (pH 9.01) and alhydrogel<sup>®</sup> beads which were characterized as adjuvant for possible vaccine delivery. The nanoparticles were analyzed using microscopy (Phase contrast microscope and Confocal laser scanning microscope), and Malvern zetasizer Nano- ZS. Time-resolved particle size analysis was performed after one month storage of the TMC nanoparticles at 4 °C. The result of the study showed that PBS was the best medium that produced cationic, monodispersed and stable TMC nanoparticles of less than 65 nm forming a compatibly homogeneous system even upon storage. Microscopy of the polyelectrolyte doped nanoparticles showed a clear coating due to PSS at the periphery of the particles and a fluorescent core with some tiny central hollow cavities Confocal microscopy of the alhydrogel beads showed particle size of 1.6 μm. The fluorescent dye (PSSRhodamine) coated the entire particle surface suggesting a more or less adsorption process for the antigen delivery [2]. Hence, the hope of nanocarrier for malaria vaccine.

## Author details

<sup>1</sup>Drug Discovery and Drug Delivery Research Unit, Faculty of Pharmaceutical Sciences, University of Nigeria, Nsukka 410001, Enugu State, Nigeria.

<sup>2</sup>Nanotechnology Unit, ICS-UNIDO International Center for High Technology and New Materials, AREA Science Park, Padriciano 99, Trieste, Italy.

Published: 1 May 2012

## References

1. Kammona O, *et al.*: Nanocarrier Aided Nasal Vaccination: An Experimental and Computational Approach. *Ind Eng Chem Res* 2011, **50**:590-601.

<sup>1</sup>Drug Discovery and Drug Delivery Research Unit, Faculty of Pharmaceutical Sciences, University of Nigeria, Nsukka 410001, Enugu State, Nigeria  
Full list of author information is available at the end of the article

2. Ajay P, *et al.*: A review on novel lipid based nanocarriers. *Int J Pharm and Pharm Sci* 2010, **2**:30-35.

doi:10.1186/1758-2946-4-S1-P47

Cite this article as: Nnamani *et al.*: Preliminary characterization of N-trimethylchitosan as a nanocarrier for malarie vaccine. *Journal of Cheminformatics* 2012 **4**(Suppl 1):P47.

Publish with **ChemistryCentral** and every scientist can read your work free of charge

*“Open access provides opportunities to our colleagues in other parts of the globe, by allowing anyone to view the content free of charge.”*

W. Jeffery Hurst, The Hershey Company.

- available free of charge to the entire scientific community
- peer reviewed and published immediately upon acceptance
- cited in PubMed and archived on PubMed Central
- yours — you keep the copyright

Submit your manuscript here:  
<http://www.chemistrycentral.com/manuscript/>



**ChemistryCentral**