

Accepted Manuscript

Title: *N*-[4-(*N,N,N*-trimethylammonium)benzyl]chitosan chloride: Synthesis, interaction with DNA and evaluation of transfection efficiency

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PII: S0144-8617(17)31379-6
DOI: <https://doi.org/10.1016/j.carbpol.2017.11.093>
Reference: CARP 13044

To appear in:

Received date: 30-7-2017
Revised date: 22-11-2017
Accepted date: 26-11-2017

Please cite this article as: Raik, Sergei V., Poshina, Daria N., Lyalina, Tatiana A., Polyakov, Dmitry S., Vasilyev, Vadim B., Kritchenkov, Andreii S., & Skorik, Yury A., *N*-[4-(*N,N,N*-trimethylammonium)benzyl]chitosan chloride: Synthesis, interaction with DNA and evaluation of transfection efficiency. *Carbohydrate Polymers* <https://doi.org/10.1016/j.carbpol.2017.11.093>

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N-[4-(N,N,N-trimethylammonium)benzyl]chitosan chloride: synthesis, interaction with DNA and evaluation of transfection efficiency

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Highlights

- TMAB-CS was synthesized in a wide range of the degree of substitution
- Novel cationic derivatives did not show specific cytotoxicity up to 300 µg/mL
- TMAB-CS formed stable polyplexes with DNA of 200-300 nm and ζ -potential of 20–30 mV
- Low-substituted TMAB-CS showed more pronounced transfection efficiency

Abstract

A novel cationic chitosan derivative, N-[4-(N,N,N-trimethylammonium)benzyl]chitosan chloride (TMAB-CS), with different degrees of substitution (DS) was synthesized by a chemoselective interaction of 4-formyl-N,N,N-trimethylanilinium iodide with chitosan amino groups using a

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