Cationic Carbosilane Dendrimers for Bioapplications.

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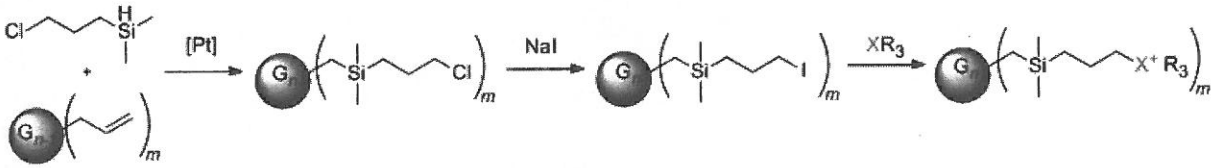
Carbosilane dendrimers represent three-dimensional branched molecules with defined structure and accurate molar weight. With their unique properties, carbosilane dendrimers are under intensive investigation for many biomedicinal applications, mainly for drug targeting and gene therapies. Carbosilane dendrimers with cationic groups at their periphery are able to interact with biomolecules and cellular structures. Scientific research in the area of gene therapies depends on the development of specific, non-toxic and secure vectors for therapeutic delivery of nucleic acids. For that purpose, mainly carbosilane dendrimers with ammonium groups were investigated[1]. Carbosilane dendrimers bearing other cationic groups attracted little attention so far.

Short entry will be focused on the presentation of synthesis and chemical properties of cationic carbosilane dendrimers (1.-3. generation) with nitrogen- and phosphorus- onium groups at periphery. In addition, biochemical properties including cytotoxicity and the ability to interact with biomolecules (DNA, RNA) and cell structures studied in cooperation with biology department of the University of J. E. Purkyně in Ústí nad Labem will be briefly presented[2].



X = N, P
n = 1 *m* = 4
n = 2 *m* = 8
n = 3 *m* = 16

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1 Arnáiz, E.; Doucede, L. I.; García-Gallego, S.; Urbiola, K.; Gómez, R.; Tros de Ilarduya, C.; de la Mata, F. J. Mol. Pharmaceutics **2011**, 9, 433−447.
2 Article under preparation.