

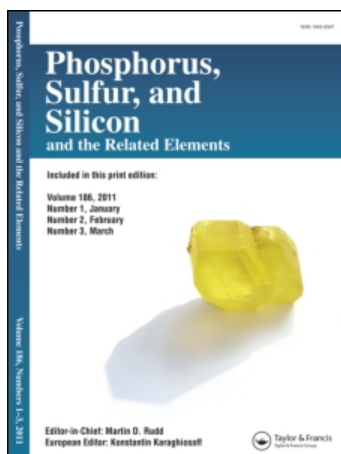
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New Phosphoramidate Dicationic Vectors for Gene Therapy

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New Phosphoramidate Dicationic Vectors for Gene Therapy

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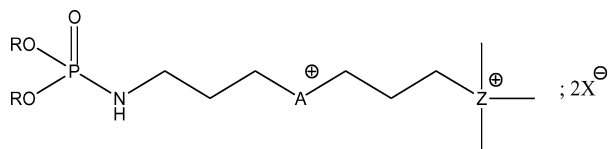
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Keywords Cationic lipid; DNA carriers; phosphoramidate

It's widely believed that gene therapy will become an efficient way for the treatment of diseases such as acquired (cancers) or genetic diseases (cystic fibrosis) and for vaccination. The essential requirements for gene delivery are the transport of nucleic acid constructs through the cell membrane and ultimately the nucleus.

Different strategies have been used for the delivery of genetic material classified as viral or synthetic delivery systems. The chemical structure of the synthetic vectors can be classified into two categories: cationic polymers (PEI, ...) and cationic lipids. In our group, cationic lipids possessing structure inspired from phospholipids present into membranes have been synthesized and tested for *in vivo* and *in vitro* essays.^{1–3} To increase the condensation of DNA and to decrease the toxicity during the transfection, we raised the number of cationic charges on our phosphoramidates as depicted on the following scheme.

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With $Z : \overset{\oplus}{N}, \overset{\oplus}{P}, \overset{\oplus}{As}$

$R : C_{14}H_{29}, C_{18}H_{35}$

$X : Br^{\ominus} \text{ ou } I^{\ominus}$

$A = N(CH_3)_2 \text{ ou } \text{pyridine}$

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