

Lakshminarayanan, A.; Ravi, V. K.; Tatineni, R.; Rajesh, Y. B. R. D.; Maingi, V.; Vasu, K. S.; Madhusudhan, N.; Maiti, P. K.; Sood, A. K.; Das, S.; Jayaraman, N. 2013, “Efficient dendrimer-DNA complexation and gene delivery vector properties of nitrogen-core poly(propyl ether imine) dendrimer in mammalian cells”, *Bioconjugate Chem.*, *24*, 1612 – 1623.

In collaboration with Prof. Saumitra Das, MCB; Prof. A. K. Sood and Prof. P. K. Maiti, Physics Department, IISc

In the area of non-viral vector based gene delivery agents, dendritic macromolecules are an important class of such agents, developed in recent years. Quite a few dendrimers have been studied till now, among these poly(amido amine) dendrimers take a lead. In our continuing work in the area of poly(propyl ether imine) (PETIM) dendrimers, we identify that a PETIM dendrimer, with a three-directional core, and thus larger number of branch-points and cationic sites, offer a solution to reduce the amount of dendrimer used for complexation with DNA. A bi-directional core PETIM dendrimer was shown previously to mediate gene delivery, although only in the presence a large amount of the dendrimer (dendrimer-to-DNA ~200-330:1 weight ratio). The present manuscript addresses this concern using a PETIM dendrimer having a three-directional core. In addition to a series of gene delivery studies, the manuscript also presents systematic biophysical, computational and microscopic studies.