The University of Queensland - IIT Delhi Academy of Research Joint PhD Project

PROJECT TITLE	**SYNTHESIS AND APPLICATIONS OF NON-VIRAL GENE VECTORS**
PROJECT CODE	**UQIDAR 00167**
PROJECT DESCRIPTION	The general aim of this project is to develop a new generation of non-viral vectors for the delivery of gene and biomolecules. Silica-based composite nanoparticles will be prepared with purpose-designed nanoparticle asymmetry, nanoscale surface roughness and compositions. Their cellular interactions and cellular delivery performance will be comprehensively studied to deliver new understanding of the relationship between unconventional nanostructural parameters and gene/biomolecular delivery efficacy. The potential applications of these particles will be tested in mRNA, DNA and protein delivery applications both in vitro and in vivo.
PROJECT OUTCOMES	(1) Joint PhD student completed at IIT and UQ; (2) High impact journal publications; (3) New knowledge and potential IP used in various applications such as vaccine formulation; (4) Establishment of novel non-viral gene delivery system with enhanced efficiency; (5) Student would have the opportunity to give conference presentation
ADVISORY TEAM	**Professor Chengzhong Yu** http://www.aibn.uq.edu.au/michael-yu c.yu@uq.edu.au Australian Institute for Bioengineering and Nanotechnology (AIBN) The University of Queensland **Professor Ashok Ganguli** http://web.iitd.ac.in/~ashok/ ashok@chemistry.iitd.ac.in Department of Chemistry Indian Institute of Technology Delhi
TYPE OF STUDENT	Applications are open to i students who meet eligibility criteria. note: i-students must have own scholarship to apply (CSIR, UCG-NET, etc)
DISCIPLINE BACKGROUND OF STUDENT	Ideally, this project requires students with a background in nanotechnology, biomedical gene delivery
IDEAL CANDIDATE	Essential capabilities: • Molecular biology skills Interest in nanotechnology Desirable capabilities: • Highly motivated students with independent working spirit Experience with nanotechnology or gene delivery Expected qualifications (courses, degrees, etc): • 1st class honours or Masters
APPLICATION PROCESS	Apply online by the due date: https://www.uqidar.org/students/how-to-apply/