

## Dr. KIRAN R. GORE

### Address for Correspondence:-

**Dr. Kiran R. Gore**  
**DST-INSPIRE Faculty**  
**Department of Chemistry,**  
**University of Mumbai,**  
**Vidyanagari, Santacruz (E)**  
**Mumbai-400 098, India**



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## ACADEMIC RECORD

### Post-Doctoral Researcher

(Oct 2013-Jan 2015)

In **Bio-Organic Chemistry**, Max-Planck  
Institute for Biophysical Chemistry,  
Göttingen, Germany  
Supervisor: **Prof. Dr. Claudia Hoebartner**

### Ph.D.

(Jan 2008-Sep 2013)

In **Bio-Organic Chemistry**, Department of  
Chemistry, Indian Institute of Technology  
Bombay (IIT Bombay), Mumbai  
*Title: "Design, Synthesis, Biophysical, and  
Biological Studies of Chemically Modified  
Small Interfering RNAs and Damaged  
DNAs."*  
Supervisor: **Prof. Dr. Pradeepkumar, P. I.**

### M. Sc.

(July 2005 -June 2007)

In **Organic Chemistry**, University of Pune,  
Pune

### B.Sc.

(July 2002 -June 2005)

In **Chemistry**, University of Pune, Pune

## AWARDS / HONORS

1. DST-INSPIRE Faculty Award from Government of India to pursue the research in RNA Interference field (Aug-2015).
2. Max-Planck Postdoctoral Fellowship from Max Planck Institute for Biophysical Chemistry (MPIBPC) Goettingen, Germany (Oct 2013-Jan 2015).
3. Junior Research Fellowship (JRF) and Senior Research Fellowship (SRF) awarded by University Grant Commission (UGC), New Delhi, India, (Jan 2008-Sep 2013).
4. Qualified State Eligibility Test (SET) for Lectureship and National Eligibility Test (NET) for Junior Research Fellowship (2007).
5. Dr. M. V. Vaidya Award for securing 1<sup>st</sup> rank in B.Sc. (Jun-2005).
6. Avatar Meherbaba P.P.C. trust merit scholarship from in 1998 to 2007.

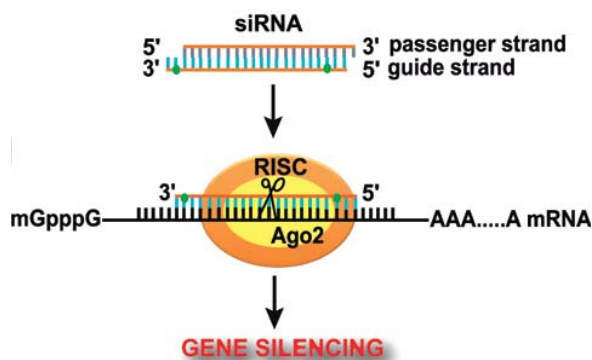
## PROFESSIONAL EXPERIENCE

1. Work experience at Ranbaxy Research Lab (New Drug Discovery and Research Department) as Trainee Chemist. (Jun 2007-Dec 2007)
2. Teaching Assistantship at Indian Institute of Technology Bombay, Tutor for undergraduate courses CH-103 (Organic Chemistry), CH-117L (General Chemistry Laboratory) (Jan 2009-Jun 2010).
3. Work Experience as Group Principal Scientist with Innovassynth Technologies, Khopoli, Maharashtra (Mar-2015 to Oct-2015)

## AREA OF RESEARCH INTEREST

### **1. Synthesis and Biochemical Studies of Chemically Modified Small Interfering RNAs.**

RNA interference (RNAi) is naturally occurring gene silencing mechanism which is mediated by RNA. Small interfering RNA (siRNA) is 21-22 nucleotides double stranded RNA with 2 nucleotide 3'-overhangs. siRNA has great potential in therapeutic applications. RNA interference is more efficient gene silencing mechanism compared to other gene regulatory mechanisms such as antisense and Ribozymes. siRNAs can regulate the gene expression more efficiently than antisense and ribozyme based therapeutic agents at a lower drug concentration.



There are also some challenges associated with siRNA applications like nuclease susceptibility, unwanted binding to off target due to partial complementarity, activation of unwanted immune responses, and *in vivo* delivery. The rational use of chemical modifications in sugar, nucleobase, and backbone of siRNAs can address most of these challenges.

Our interest is to study the effect of chemical modifications on thermal, serum stability as well as gene silencing efficiency of siRNAs. This might help to understand more about the RNAi interference mechanism and also may get new direction in siRNA therapeutics. The efficient chemically modified siRNAs helps to solve the different challenges associated with siRNA based therapeutics.

## RESEARCH PROJECTS

1. **DST-INSPIRE Faculty Award**, Government of India (Since Aug-2015)

Project Title: **Synthesis and *in vivo* Applications of Modified Small Interfering RNAs**

Funding Agency                      DST-INSPIRE, Government of India

Amount                                      35.00 Lakhs (Excluding Salary)

Period                                        Oct 2015-Sep 2020

## RESEARCH PUBLICATIONS

1. Synthesis, Gene Silencing, and Molecular Modelling Studies of 4'-C-Aminomethyl-2'-O-Methyl Modified Small Interfering RNAs, **Gore, K. R.**; Nawale, G. N.; Harikrishna, S.; Chittoor, V; Pandey, S.; Höbartner, C; Patankar, S; Pradeepkumar, P. I. *Journal of Organic Chemistry* **2012**, volume 77, page no. 3233–3245.

- Incorporation of 4'-C-Aminomethyl-2'-O-Methylthymidine into DNA by Thermophilic DNA Polymerases, Nawale, G. N.; **Gore, K. R.**; Höbartner, C.; Pradeepkumar, P. I. *Chemical Communications* **2012**, volume 48, page no. 9619–9621.
- Influence of 2'-Fluoro versus 2'-O-Methyl Substituent on the Sugar Puckering of 4'-C-Aminomethyluridine, **Gore K. R.**; Harikrishna, S.; Pradeepkumar, P. I. *Journal of Organic Chemistry* **2013**, volume 78, page no. 9956–9962.
- Design, Synthesis, Biophysical and Primer Extension Studies of Novel Acyclic Butyl Nucleic Acid (BuNA), Kumar, V.; **Gore, K. R.**; Pradeepkumar, P. I.; Kesavan, V. *Organic and Biomolecular Chemistry* **2013**, volume 11, page no. 5853–5865.
- Unique Structural Features in DNA Polymerase IV Enable Efficient Bypass of the N2 Adduct Induced by the Nitrofurazone Antibiotic, Kottur, J.; Sharma, A.; **Gore, K. R.**; Narayan. N.; Samanta, B.; Pradeepkumar, P. I.; Nair, D. T. *Structure*, **2015**, 23, 56-67.
- The N<sup>2</sup>-Furfural Deoxyguanosine (fdG) Adduct Does Not Alters The Structure of B-DNA, Ghodke, P. P.; **Gore, K. R.**; Harikrishna, S.; Samanta, B.; Kottur, J.; Nair, D. T.; Pradeepkumar, P. I. *Journal of Organic Chemistry* **2015**, Just Accepted, DOI: 10.1021/acs.joc.5b02341 (**Joint First Author**).

### PATENT FILED TO INDIAN PATENT OFFICE

- Synthesis of N<sup>2</sup>-Furfuryl Deoxyguanosine Phosphoramidite and Modified Oligonucleotides, Gore K. R.; Nair, D. T.; Pradeepkumar, P. I. Indian Patent Application No.: 0454/MUM/2013; February 18, **2013**.

### PRESENTATIONS IN CONFERENCES

- Poster presentation at 6<sup>th</sup> J-NOST Conference, Department of Chemistry, University of Hyderabad, Hyderabad India (Jan 28- 31, **2011**).
- Poster presentation at In-House Symposium-2010, Department of Chemistry, IIT-Bombay, India (Feb. 27, **2010**).
- Poster presentation at 3<sup>rd</sup> Indo-German Symposium on “Frontiers of Chemistry”, Department of Chemistry, IIT-Bombay, India (Sep. 27-28, **2011**).

4. Poster presentation at “New Horizons in Chemistry”, Department of Chemistry, IIT Bombay, India (Oct. 3-4, **2011**).
5. Oral presentation at In-House Symposium-**2013**, Department of Chemistry, IIT-Bombay, India.
6. Poster presentation at International Meeting on Chemical Biology, IISER Pune (May 26 to 28, **2013**)

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