

**Dr. Nayana Atul Patil (nee Shaiwale)**

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Asst. Professor, MIT School of Bioengineering Sciences and Research, MIT Art Design and Technology University, Rajbaug, Loni Kalbhor, Pune

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**Academic Qualification**

**2014 Dr. D S Kothari Postdoctrante Fellow**

Project Title: Molecular characterization of the effect of exposure to nanoparticles on mammalian cell line

Guide: Prof. W. N. Gade, Dept. of Biotechnology, Savitribai Phule Pune University, Pune.

**2010 Ph.D (Biotechnology)**

Thesis Title: DNA methyltransferase in *Deinococcus radiodurans*.

Guide: Prof. D. N. Deobagkar, Dept. of Zoology, University of Pune, Pune.

Co-Guide: Dr. S. K. Apte, Bhabha Atomic Research Centre, Mumbai.

**2005 M.Sc (Zoology): 7.6 GDP, 'O' Grade, Dept of Zoology, University of Pune.**

**2003 B.Sc (Zoology): 82.30 %, RYK College, Dept of Zoology, University of Pune. 2<sup>nd</sup> rank holder.**

**Career Profile as a Researcher**

**11 years** of research experience in Molecular biology, Proteomics and Microbiology.

July 2016 – till date: **Asst. Professor in MIT School of Bioengineering Science and Research.** The job primarily involves teaching subjects such as Microbiology, Cell biology, Molecular Biology, Genetic engineering and Biological techniques to B. Tech and M. Tech students.

August 2014- June 2016: **Asst. Professor in Department of Zoology**. The job primarily involves teaching compulsory credits such as Biochemistry, Molecular Biology and Biological techniques to post graduate students.

April 2012-Sep 2014: As a **D S Kothari Postdoctrante fellow** on project entitled “Molecular characterization of the effect of exposure to nanoparticles on mammalian cell line” in Department of Biotechnology, University of Pune, Pune.

Oct 2010 - Oct 2011: As a **Research Associate** (DAE-BRNS) project entitled “To study the effect of low dose gamma radiation on gene expression profiles in two strains of inbred mice, C577BL/6 and BALB/C and their F1 progeny.” in Dept of Zoology, University of Pune.

Oct 2007- Oct 2010: As a **Senior Research Fellow** (BARC-UoP) for doctoral studies on thesis entitled “DNA methylation in *Deinococcus radiodurans*.” in Dept of Zoology, University of Pune and BARC, Mumbai.

Oct 2005- Oct 2007: As a **Junior Research Fellow** (BARC-UoP) for doctoral studies on thesis entitled “DNA methylation in *Deinococcus radiodurans*.” in Dept of Zoology, University of Pune and BARC, Mumbai.

### **Technical skills:**

- Aseptic techniques of microbial culture handling.
- Animal tissue culture and human cell line handling.
- Green synthesis and characterization of nanoparticles.
- *In vitro* nanoparticles toxicity assay.
- Plasmid, Genomic DNA, RNA isolation from bacteria and cell line.
- PCR (Simple/Gradient), qRT PCR, primer designing and optimization.
- Molecular cloning of genes, screening, and recombinant DNA techniques.
- Expression and purification of recombinant protein.
- *In vitro* enzyme assay and biochemical characterization.

- Complete gene knockout mutation.
- DNA Bisulphite Modification and Sequencing.
- Agarose gel electrophoresis, SDS-PAGE, western blotting.
- 2D proteomics and MALDI ToF analysis.
- Immunization and raised polyclonal antibodies in rabbit.
- Bioinformatics tools and data analysis.

### **Publication:**

1. Deepti D Deobagkar, Chitra Panikar, Shriram N Rajpathak, **Nayana S Shaiwale**, Sanjay Mukherjee. (2012) An immunochemical method for detection and analysis of changes in methylome. *Methods*. 56 (2):260-7.
2. **Nayana S. Shaiwale**, D. D. Deobagkar, D. N. Deobagkar, S. K. Apte. (2015) DNA adenine hypo methylation leads to metabolic rewiring in *Deinococcus radiodurans*. *Journal of Proteomics, Elsevier* 126, Pp.131–139.
3. **Nayana Shaiwale**, R. R. Kulkarni, D N Deobagkar, DD Deobagkar. (2015) Synthesis and extracellular accumulation of silver nanoparticles by employing radiation-resistant *Deinococcus radiodurans*, their characterization, and determination of bioactivity. *International Journal of Nanomedicine* 2015:10.
4. **Nayana Patil**, W. N. Gade, D. D. Deobagkar. (2016) Epigenetic modulation upon exposure of lung fibroblasts to TiO<sub>2</sub> and ZnO nanoparticles: alterations in DNA methylation. *International Journal of Nanomedicine*. (accepted for publication)
5. Nayana Patil, B. Basu, D.D Deobagkar; S.K. Apte, D.N. Deobagkar. (2017) Putative DNA modification methylase DR\_C0020 of *Deinococcus radiodurans* is an atypical SAM dependent C-5 cytosine DNA methylase. *BBA General Subjects*.
6. Gaurav Khude, Shakera Inamdar, Nayana Patil. (2017) Synthesis of silver nanoparticle by *Deinococcus radiodurans* and its application as green nanophotocatalysts. *International Journal of Environmental Technology and Management*. 168772 (accepted manuscript).

### **References:**

1. **Dr. S. K. Apte**, DST J C Bose National Fellow, Associate Director, Bio-medical Group, Bhabha Atomic Research Centre, Mumbai.
2. **Dr. Bhakti Basu**, Scientist F, MBD, Bhabha Atomic Research Centre, Mumbai.
3. **Prof. W. N. Gade**, Hon. Vice Chancellor, University of Pune, Pune.
4. **Prof. D. D. Deobagkar**, Director, Centre for Bioinformatics, Professor, Department of Zoology, Department of Microbiology, University of Pune.

**Teaching experience:** Under Graduate and Post Graduate: 2 years, 4 months

- From Academic year 2016 till date to as a Asst. professor in MIT School of Bioengineering Science and Research, affiliated to the MIT Art Design and Technology University.
- From Academic year 2014 – 2016 to as a Asst. professor in Zoology at Modern College of Arts, Science and Commerce Ganeshkhind, affiliated to the Savitribai Phule Pune University.
- From June 2005 to September 2005 as a full-time Lecturer at H.P.T Arts and R.Y.K Science College, affiliated to Savitribai Phule Pune University.

**Personal Details**

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| Date of Birth   | 26 <sup>th</sup> November 1981                                 |
| Sex             | Female   |
| Marital Status  | Married  |
| Languages       | English, Hindi and Marathi                                     |
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