

DR. SATISH SASIKUMAR



Designation: Assistant Professor in Biotechnology

Email ID: satish.sasikumar@dpu.edu.in

Qualification: M.Sc. (Zoology), Ph.D. (Zoology, Developmental Genetics)

Area of Specialization: Cell and Developmental Biology, Genetics

Research Interests: Understanding the molecular mechanisms underlying the pathogenesis of idiopathic pulmonary fibrosis

EDUCATIONAL QUALIFICATIONS:

- **Doctor of Philosophy (Ph. D.)** in Zoology from Banaras Hindu University, Varanasi, India (Jan.1998- Feb. 2006). **Thesis:** *Studies on role of Rab11 in Drosophila development.*
- **Master of Science (M. Sc.)** in Zoology from University of Calcutta, Kolkata, India (Sept. 1995 - Oct.1997). Specialization- Advanced Cytology and Genetics. 1st Class (69.6%).
- **Bachelor of Science (B. Sc.)** in Zoology (Honours) from University of Calcutta, Kolkata, India (Sept.1992 - Aug. 1995). Other subjects: Botany, Chemistry. IInd Class (59.0%).

ACADEMIC AND RESEARCH EXPERIENCE:

- **Assistant Professor (current job)**, Biotechnology, specialized areas- Developmental Biology and Genetics), Dr. D. Y. Patil Biotechnology and Bioinformatics Institute (DYPBBI), Dr. D. Y. Patil Vidyapeeth (DPU), Pune.
- **Recognized Research Guide in the Ph.D. Programme in Biotechnology** at Dr. D. Y. Patil Vidyapeeth, Pune from 22nd December 2020.
- **Visiting Teaching Faculty, invited by the Dr. D. Y. Patil Vidyapeeth (DPU) IVF and EndoscopyCentre, Pune** to teach in the M.Sc. Clinical Embryology course, September 2022.
- **Paper Setter and Examiner** for subjects: Human Genetics, Developmental Biology, Developmental Biology and Stem Cells, Molecular Diagnostics, Disease Biology and Clinical Research **since November 2016 to date** in Dr. D. Y. Patil Vidyapeeth (DPU), Pune.

- **Nominated Member**, Board of Studies in Biotechnology and Bioinformatics (March 2021 to February 2024) at DPU, Pune.
- **Chairman, Library Advisory Committee (December 2020- to date)** at DYPBBI, DPU, Pune.
- **Member, Examination and Evaluation Committee (September 2016- to date)** at DYPBBI, DPU, Pune.
- **Member, Alumni and Placement Committee, Student Feedback and Analysis Committee, National Board of Accreditation Committee (December 2020- to date)** at DYPBBI, DPU, Pune.
- **Member, International Student Cell/International Research Co-ordination Committee (ISC-IRCC) (March 2023- to date)**
- **Member, Student Grievance Redressal Committee (September 2023- to date)** at DYPBBI, DPU, Pune.
- **Member, Programme Assessment Committee for B. Tech Medical Biotechnology (September 2023 to date)** at DYPBBI, DPU, Pune.
- **Member, Anti-Ragging Squad (September 2016- to date)** at DYPBBI, DPU, Pune.
- **Class Coordinator/Teacher-in-charge (Year 2023-2024)** for B. Tech Medical Biotechnology (Fourth Year) at DYPBBI, DPU, Pune.
- **Co-drafted a revised syllabus in subjects viz:** Developmental Biology, Genetics, Molecular Diagnostics, Disease Biology and Personalized Medicine for programs namely, B. Tech in Biotechnology, B. Tech in Medical Biotechnology and M. Tech (Integrated) in Biotechnology during **September-October 2017** at DYPBBI, DPU, Pune.
- **Primary Coordinator for Scientific review writing training programme**, which was conducted during **June 2020- January 2021** at DYPBBI, DPU, Pune as a part of the co-curricular events held in the summer vacations.
- **Internal Guide/Mentor for Final Year Research Projects (years: 2017, 2018, 2019)** in B. Tech in Biotechnology, B. Tech in Medical Biotechnology and Master of Technology (M. Tech) (Integrated) program in Biotechnology, DYPBBI, DPU, Pune.
- **Co-organized Science Day with students of DYPBBI**, Pune and neighbouring schools in Tathawade, Pune for poster presentations/models on the theme "Science and Technology for a sustainable future" held at DYPBBI, DPU, Pune on 28th February 2018, 28th February 2019 and 28th February 2024.
- **Member of Organizing Committee and Participant** in International Conference on Advances in Biotechnology and Bioinformatics (ICABB 2024) to be held from 26th-29th November 2024 at DYPBBI, DPU, Pune.
- **Member of Organizing Committee and Participant** in a National Symposium held from 14-16th March 2019 at DYPBBI, DPU, Pune.
- **Member of Organizing Committee and Participant** in Industry-Academia Conclave held from 23-24th February 2018 at DYPBBI, DPU, Pune.
- **Member of Organizing Committee and Participant** in a National Symposium held from 16-17th March 2017 at DYPBBI, DPU, Pune.
- **Former Coordinator, Mentor-Mentee Committee (October 2022- May 2023)** at DYPBBI, DPU, Pune.
- **Former Class Coordinator/Teacher-in-charge** for B. Tech in Biotechnology, B. Tech in Medical Biotechnology, M.Sc. Biotechnology and M. Tech (Integrated) in Biotechnology-Advanced Semesters, (January 2017- May 2021) at DYPBBI, DPU, Pune.
- **Former Secretary, Curriculum Revision Committee (September 2016-July 2017)** at DYPBBI, DPU, Pune.
- **Former member of the following committees viz:** Research Development and Sustenance, Library Advisory, Student Support, Mentoring and Welfare, Biosafety and Healthy Practices, Internal Quality Assurance Cell (IQAC) (September 2016-July 2017) at DYPBBI, DPU, Pune.

AWARDS AND ACHIEVEMENTS:

- 1) Nominated and awarded a Linnaeus-Palme Scholarship as a part of the Swedish Teacher Exchange Programme to visit The School of Bioscience, University of Skovde, Sweden from 16th-30th January 2023.
- 2) Awarded a Guest Scientist Fellowship by Deutsches Krebsforschungszentrum (DKFZ), Heidelberg, Germany in the years 2001 and 2002 to work with Prof. B. M. Mechler, DKFZ, Germany and carry out a part of my Ph.D. work.
- 3) Awarded Junior Research Fellowship (JRF) by Council of Scientific and Industrial Research (CSIR), New Delhi, India in the year 1999 to pursue research in any National Laboratory in India upon qualifying National Eligibility Test, December 1998.
- 4) Qualified the jointly conducted test by the CSIR, New Delhi, India and UGC, New Delhi, India for Junior Research Fellowship (JRF) and Eligibility for Lectureship (NET), December, 1997 and declared eligible for Lectureship in any of the accredited University/Colleges in India.
- 5) Topped the Banaras Hindu University Research Entrance Test (BHU-RET) conducted in November 1997, and was awarded a Junior Research Fellowship by the University in the year 1998.

PUBLICATIONS:

A) Publication in indexed journals

- 1) Manas Sehgal, Sharayu M Jakhete, Amruta G Manekar, **Satish Sasikumar*** (2022) Specific Epigenetic Regulators Serve as Potential Therapeutic Targets in Idiopathic Pulmonary Fibrosis. **Heliyon (Cell Press)**, **8(8)**, e09773. Online ISSN-2405-8440, **Impact factor- 4.0** (*corresponding author). Citation- 11 (Reference-Google Scholar).
- 2) Ashima Bhan, **Satish Sasikumar**, Arvind Goja, Rajendra T K (2017) Bioethical concerns of CRISPR: a genome editing technology, *Global Bioethics Enquiry*, **5(2)**, 68-72. Online ISSN 2207-7723, Print ISSN 2207-7715. **Scientific Journal Impact Factor (SJIF, 2022) = 5.734**, Citation- 2 (Reference- Google Scholar). Indexed in Directory of Open Access Journals.
- 3) Saaket Varma, Poornima Mahavadi, **Satish Sasikumar**, Leah Cushing, Tessa Hyland, Ann E Rosser, Daniela Riccardi, Jining Lu, Tanya V. Kalin, Vladimir V. Kalinichenko, Andreas Guenther, Maria I. Ramirez, Annie Pardo, Moises Selman and David Warburton (2014) Grainyhead-like 2 (GRHL2) distribution reveals novel pathophysiological differences between human idiopathic pulmonary fibrosis and mouse models of pulmonary fibrosis, *American Journal of Physiology Lung Cellular and Molecular Physiology*, **306 (5)**, L405-L419. Online ISSN- 1522-1504, **Impact factor- 3.6**, Citation- 25 (Reference-Google Scholar).
- 4) **Satish Sasikumar***, Jagat K. Roy (2009) Developmental expression of Rab11, a small GTP binding protein in *Drosophila* epithelia, *Genesis*, **47(1)**, 32-39 (*joint corresponding author). Online ISSN- 1526-968X ISI-indexed journal (Thomson-Reuters), journal also indexed by Medline/PubMed, **ImpactFactor- 2.4**, Citation- 20 (Reference-Google Scholar).

B) Publications (in progress)

- 1) Swati Patidar, **Satish Sasikumar** (2024) Implementing new strategies to manage life-threatening interstitial lung diseases in India: implications for global health policies (**manuscript submitted to Discover Public Health on 29/08/2024, Under Review**).
- 2) Manas Sehgal, Aastha Baradiya, Gayatri Mahajan, **Satish Sasikumar** (2024) Idiopathic pulmonary fibrosis: Who sent the wrong signals to whom? (**manuscript in preparation**).
- 3) Ayesha Shahid Pathan, Dimple Davray, **Satish Sasikumar** (2024) Molecular insights into the interactions of histone modifying proteins with Grainyhead like-2 protein using an *in silico* approach (**work in progress**).
- 4) Ayesha Shahid Pathan, Dimple Davray, **Satish Sasikumar** (2024) *In silico* studies to understand the interactions of certain neuronal transcription co-regulators with Grainyhead like-2 transcription factor (**work in progress**).

BOOK CHAPTERS:

INVITED

- 1) **Satish Sasikumar***, Ashima Bhan and Rajendra TK (2018) Stem Cells for Nerve and Muscle Repair: Harnessing Developmental Dynamics in Therapeutics. In Pham P., El-Hashash A. (eds) Stem Cells for Cancer and Genetic Disease Treatment. Stem Cells in Clinical Applications. Springer, Cham, pp. 149–185 Print ISSN- 2365-4198, Online ISSN-2365-4201. Print ISBN: 978-3-319-98064-5, Online ISBN: 978-3-319-98065-2, Citation 1. Indexed in Web of Science (* joint corresponding author).

CONFERENCES (Abstracts/Oral/Poster):

A)INTERNATIONAL

- 1) Ayesha Shahid Pathan, Dimple Davray, **Satish Sasikumar** (2024) An *in silico* exploration of putative protein interactions with Grainyhead-like 2 transcription factor. Poster to be presented in “International Conference on Advances in Biotechnology and Bioinformatics (ICABB 2024)” to be held from 26th-29th November 2024 at DYPBBI, DPU, Pune.
- 2) **Satish Sasikumar** (2018) Epithelial Cell Activation and Idiopathic Pulmonary Fibrosis. Abstract Page No. 62, International Conference on Emerging Researches in Bioscience (ICERB-2018), Guru Ghasidas Vishwavidyalya, Bilaspur, Chhattisgarh, India (**Invited Talk**).
- 3) Saaket Varma, Poornima Mahavadi, **Satish Sasikumar**, Leah Cushing, Tessa Hyland, Ann E Rosser, Daniela Riccardi, Jining Lu, Tanya V. Kalin, Vladimir V. Kalinichenko, Andreas Guenther, Maria I. Ramirez, Annie Pardo, Moises Selman and David Warburton (2013) Grhl2 distribution reveals novel patho-physiological differences between human IPF and mouse models of pulmonary fibrosis, Pulmonary Fibrosis Foundation (PFF) Summit, San Deigo, California, USA.
- 4) Saaket Varma, Poornima Mahavadi, Leah Cushing, Tessa Hyland, **Satish Sasikumar**, Jining Lu, Andreas Guenther, Annie Pardo, Moises Selman and David Warburton (2013) Grainyhead-like 2 (GRHL2) in human idiopathic pulmonary fibrosis versus mouse models

of fibrosis, Poster #2020.Keystone Symposia on Lung Development, Cancer and Disease (B2), Taos, New Mexico, USA.

- 5) Amit Kumar, Priya Srivastava, **Satish Sasikumar** and Pradip Sinha (2010) "Collective cell migration during morphogenesis: role of atypical cadherins Dachsous (Ds) and Fat (Ft)", Poster P07, Cell Architects Symposium-Using Micropatterns for Quantitative Cell Analysis, EMBL Heidelberg, Germany.
- 6) Pradip Sinha, Priya Srivastava, **Satish Sasikumar** and Amit Kumar (2008) "Leading at the edge: Role of the Fat tumor suppressor in planar cell migration", Abstract No. 940A, 49th Annual *Drosophila* Research Conference, San Diego, California, USA.
- 7) Jagat K. Roy, **Satish Sasikumar**, Anand K. Tiwari and Debasmita Alone (2004) "Rab11 participates in epithelial morphogenesis and maintenance of ommatidial organization in *Drosophila*", EMBO International Workshop, Cell Interactions in Development and Disease, Centre for Cellular and Molecular Biology, Hyderabad, India.
- 8) Jagat K. Roy, Debasmita Upadhyaya and **Satish Sasikumar** (2001) "Role of *rab11* gene in *Drosophila* development and differentiation", Abstract No. 11-25, NCBS Symposium on Cell and Developmental Biology, National Centre for Biological Sciences, Bangalore, India.

B) NATIONAL

- 1) **Satish Sasikumar**, Bernard M. Mechler and Jagat K. Roy (2002) "Identification of protein interactors of Rab11 in *Drosophila*", Abstract No. P-24, XXVIth All India Cell Biology Conference and Symposium, Cancer Research Institute, ACTREC, Navi Mumbai, India.
- 2) **Satish Sasikumar** and Jagat K. Roy (2000) "Expression of rab11 in *Drosophila melanogaster*", Abstract No. P-1.1, XXIVth All India Cell Biology Conference, Jawaharlal Nehru University, New Delhi, India.

PARTICIPATION IN CONFERENCES AND SYMPOSIUM (without platform/poster presentation)

A) INTERNATIONAL

- 1) 1st Annual Stem Cell Symposium "The Stem Cell Niche in Development and Regeneration" held at Eli and Edythe Broad Center for Regenerative Medicine and Stem Cell Research at University of Southern California, Los Angeles on 8th June 2012.
- 2) 8th Annual Stem Cell Symposium on "Stem Cells and Cancer: Shared Paths, Different Destinations" held at Eli and Edythe Broad Center of Regenerative Medicine and Stem Cell Research, Jonsson Comprehensive Cancer Center at University of California Los Angeles, Los Angeles on 10th February 2012.

B) NATIONAL

- 1) National Symposium on "Recent Advances in Modern Biology and Biotechnology 2019" held at Dr. D. Y. Patil Biotechnology and Bioinformatics Institute, Dr. D. Y. Patil Vidyapeeth, Pune from 14th-16th March 2019.

- 2) Industry-Academia Conclave held at Dr. D. Y. Patil Biotechnology and Bioinformatics Institute, Dr. D. Y. Patil Vidyapeeth, Pune from 23-24th February 2018.
- 3) National Symposium on “Recent Advances in Modern Biology and Biotechnology 2017” held at Dr. D. Y. Patil Biotechnology and Bioinformatics Institute, Dr. D. Y. Patil Vidyapeeth, Pune from 16th-17th March 2017.

WORKSHOPS:

- 1) Completed a two-day hands-on workshop on 'Chick Embryo Model for Biomedical Research' held on 21-22 Feb 2023 at Dr. D. Y. Patil Homeopathic Medical College and Research Centre, Sant Tukaram Nagar, Pimpri, Pune.
- 2) Participated in a “Grant Writing and Funding Opportunities at India Alliance” workshop organized by DBT/Wellcome Trust India Alliance on 3rd February 2023 at DYPBBI, Tathawade, Pune.
- 3) Completed a Faculty Development Program (e-FDP) on Pedagogy and Teaching-Learning in the current scenario of COVID-19 Pandemic held on February 26 and 27, 2021 at DYPBBI, DPU, Pune
- 4) Completed a training programme on routine and advanced Molecular Diagnostic techniques from 6th-8th February 2017 (three full days) at Centre for Genetic Disorders, Banaras Hindu University (BHU), Varanasi, India.

BIOINFORMATICS AND BIOTECHNOLOGY SKILLS:

RESEARCH SKILLS

Molecular Biology:

- Yeast two-hybrid assay (high-throughput library screening), *in vitro* translation (using radioactive label), extraction and purification of GST tagged fusion proteins, GST pull down assay, purification of recombinant proteins from yeast and bacteria, protein isolation from whole animals/tissues.
- Southern/Northern/Western analysis, Autoradiography, Polymerase Chain Reaction (PCR), reverse transcriptase-PCR, ARMS-PCR and Multiplex-PCR
- Bacterial culture work, isolation of DNA, gene sub-cloning, high-throughput screening of *Drosophila* genomic/cDNA libraries.

Drosophila (Fruit Fly): Fly genetics, RNA: RNA *in situ* hybridization, whole mount immunostaining on tissues.

Mouse: Mice husbandry, timed pregnancy, euthanasia, surgery and tail biopsy for genotyping, tissue sectioning and immunohistochemistry, isolation and culture of amniotic fluid stem cells, immunocytochemistry.

Microscopy, Image analysis and processing: Light, Phase, Fluorescence and Multiphoton confocal microscopy, ImageJ and ZEN softwares, Adobe Photoshop.