YELISETTY VENKATA SUSEELA

Address: Biometals and Biological Chemistry, Institute of Chemistry UMR 7177, University of Strasbourg, France.

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Current position as postdoctoral researcher (January **2024**- present)

under Dr. Andrey S. Klymchenko (CNRS research director), Nanochemistry and Bioimaging, Institute of Pharmacy UMR 7021, University of Strasbourg, France

Postdoctoral researcher (November **2021**-December **2023**)

under Prof. Peter Faller, Biometals and Biological Chemistry, Institute of Chemistry UMR 7177, University of Strasbourg, France

Education

- **Research Associate** under Prof. T. Govindaraju, in Bioorganic Chemistry (October **2021**)
- **Doctor of Philosophy (PhD)** in Bioorganic Chemistry (November **2019**)
    - PhD thesis title: **Development of small molecular probes for canonical and non-canonical DNA conformations**
    - Research Supervisor*:* Prof. T. Govindaraju
    - Institute: Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR)
- **Master of Science (MS)** in Chemical Sciences (**2014**)
    - MS thesis title: **Regioselective bromination of naphthalenetetracarboxylic dianhydride and synthesizing its derivatives for DNA binding studies**.
    - Institute: Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR)
    - CGPA: 6.92/8
- **Bachelor of Science Honors (BSc Hons)** in Chemistry (**2011**)
    - Institute: Sri Sathya Sai Institute of Higher Learning, Anantapur, Andhra Pradesh
    - CGPA: 4.68/5.
- **Higher Secondary Board of Examination** in Science (**2008**)
    - Aggregate: 967/1000 - 96.7%
- **Secondary Board of Examination** (**2006**)
    - Aggregate: 545/600 - 90.8%

Research statement

My research expertise involved exploration of fluorescent-based chemical tools to target and study nucleic acid structures (canonical duplex and non-canonical G-quadruplex) with implications in therapeutics and diagnostics.

Publications

- **Y. V. Suseela**, P. Sengupta, T. Roychowdhary, S. Panda, S. Talukdar, S. Chattopadhyay, S. Chatterjee and T. Govindaraju, Targeting Oncogene Promoters and Ribosomal RNA Biogenesis by G-Quadruplex Binding Ligands Translate to Anticancer Activity (Cover article), *ACS Bio & Med Chem Au*, 2 (2), 125-139 (2022).
- **Y. V. Suseela**, P. Satha, and T. Govindaraju, Mitochondria-Specific Recognition of G-Quadruplexes by a Flavylium-Based Turn-On Near-Infrared Rotor Probe (Cover article), *Analysis & Sensing*, 1 (4), 180-187 (2021).
- **Y. V. Suseela**, P. Satha, N. A. Murugan and T. Govindaraju, Recognition of G-quadruplex topology through hybrid binding with implications in cancer theranostics, *Theranostics*, 23, 10394-10414 (2020) (News Highlights)
- **Y. V. Suseela**, N. Narayanaswamy, S. Pratihar and T. Govindaraju, Far-red fluorescence probes for canonical and non-canonical nucleic acid structures: current progress and future implications, *Chem. Soc. Rev.,* 47, 1098-1131 (2018).
- S. Pratihar, **Y. V. Suseela** and T. Govindaraju, Threading Intercalator-Induced Nanocondensates and Role of Endogenous Metal Ions in Decondensation for DNA Delivery, *ACS Appl. Bio Mater., 3*, 6979-6991 (2020)
- K. Pandurangan, B. Roy, K. Rajasekhar, **Y. V. Suseela**, P. Nagendra, A. Chaturvedi et.al., Molecular architectonics of cyclic dipeptide amphiphiles and their application in drug delivery, *ACS Appl. Bio Mater.,* 3, 5, 3413–3422 (2020).
- N. Narayanaswamy, R. R. Nair, **Y. V. Suseela**, D. K. Saini and T. Govindaraju, Molecular beacon-based DNA switch for reversible pH sensing in vesicles and live cells, *Chem. Commun.,* 52, 8741 - 8744 (2016).
- **Y. V. Suseela**, S. Das, S. K. Pati and T. Govindaraju, Imidazolyl-naphthalenediimide-based threading intercalators of DNA, *ChemBioChem*, 17, 2162 - 2171 (2016).
- **Y. V. Suseela**, M. Sasikumar, T. Govindaraju, An effective and regioselective bromination of 1,4,5,8-naphthalenetetracarboxylic dianhydride using tribromoisocyanuric acid, *Tetrahedron Lett.*, 54, 6314 - 6318 (2013).
- M. Sasikumar, **Y. V. Suseela** and T. Govindaraju, Dibromohydantoin: a convenient brominating reagent for 1,4,5,8 – naphthalene-tetracarboxylic dianhydride (Cover article), *Asian J. Org. Chem*, 2, 779 - 785 (2013).

Manuscripts under peer-review

- P. Sengupta, **Y. V. Suseela**, N. Banerjee, A. Dutta, T. Roychowdhary, K. Jana, G. Mukherjee, S. Chattopadhyay, T. Govindaraju and S. Chatterjee, G-quadruplex structural dynamics at MAPK12 promoter dictates transcriptional switch to determine stemness in

breast cancer. (Cellular and Molecular life sciences, under revision)

- **Y. V. Suseela,** S. Mondal, D. Jacquemin, T. Govindaraju and P. Faller, Fluorescent amyloid beta peptide for real-time probing of reactive oxygen species generated by bound Cu (manuscript under preparation)
- S. Mondal, **Y. V. Suseela**, B. Vileno, P. Faller and T. Govindaraju, Monitoring and Sequestration of Redox Copper to Ameliorate Metal-dependent Aß Toxicity using Fluorescent Peptides (to be submitted)

Patents

- T. Govindaraju, **Y. V. Suseela**, and S. Pardhasaradhi, Phenanthroline, Carbazole and Flavylium based cyanines and compositions and methods of making and using the same (PCT and Indian Patent filed)
- T. Govindaraju and **Y. V. Suseela**, A process for bromination of arylene dianhydrides and a method of synthesis of diimides thereof, International Patent Appl. No. PCT/IB2014/061657, WO 2014/188385A2, Indian Patent Appl. No. 2258/CHE/2013.

Research skills

- **Chemistry**:
    - Synthesis of organic small molecules (chromophores) and peptides.
    - Hands-on experience in the use of modern laboratory techniques and analytical methods such as UV-Vis-NIR and fluorescence spectrophotometer, Circular dichroism, TCSPC (life-time studies), EPR, NMR, IR, LC-MS, HRMS, HPLC technique for purification, Isothermal titration calorimetry (ITC), and Thermophoresis.
- **Biochemistry**:
    - Culture and maintenance of various mammalian cell lines like HeLa, MCF7, A549, MDAMB231 and human fibroblast cells.
    - Growing *in vitro* tumor spheroids of various cell lines.
    - *Molecular biology techniques*: Semi-quantitative and quantitative RT-PCR, RNA isolation, *in vitro* transfection of plasmids and performing immunohistochemistry (IHC) on fixed mammalian cell and tissue samples.
    - *Imaging related techniques:* Immunofluorescence using fluorescence and confocal microscopy. Efficiently handled Lieca and Olympus manufactured confocal instruments. Basic experience in handling Atomic force microscopy (AFM).
- **Molecular modelling**:
    - Experience in molecular docking using AutoDockVina and analysis by Discovery studio and VMD tools.
    - Graphics software (CorelDraw) specialized in scientific schematics.
    - Data processing software (OriginPro 8.5, Graphpad Prism 5 and Image J)

Academic achievements

- Got nominated to give a pre-recorded talk at RSC-Chemical biology Bioorganic Group Postgraduate Symposium on July 2, 2021, organized by Prof. Akane Kawamura & Prof. Nicholas Mitchell.
- Got nominated to give a talk in G4-webinar series 2020-21 on May 27, 2021, conducted by Prof. Sara Richter and Prof. Katrine Paeschke.
- ***Best poster award*** by the JNCASR in Annual Faculty Meeting and In-House Symposium, JNCASR, Bengaluru, November-2020
- ***MedChemComm*** *(Royal Society of Chemistry)* ***poster prize award*** in Symposium in Chemical Biology and Drug Discovery, Bose Institute, Kolkata, October-2017.
- ***Best poster award*** by the JNCASR in Annual Faculty Meeting and In-House Symposium, JNCASR, Bengaluru, November-2017
- ***Second Best Oral presentation award*** in International Conference on Emerging Trends in Nanoworld (ICETN) held at Vels University, February-2017.
- Received an **international *travel grant*** from DST, Govt. of India, to attend an international symposium on biology of non-canonical nucleic acids held at Padova, Italy, in September- 2018.
- Awarded ***Central Merit Scholarship*** including tuition fees in graduation and post-graduation for outstanding academic performance during Higher Secondary Board of Examination (AP State Board).

Conference presentations/participation

- *Talk* at 16th International Symposia on Applied Bioinorganic Chemistry (ISABC) held at Ioannina, Greece from June 11-14, 2023.
- *Talk* at GDR ChemBio held at Illkirch, Strasbourg from June 8-9, 2023.
- *Poster* at 3rd PSL chemical biology symposium held at Institute Curie, Paris from January 12-13, 2023.
- *Talk* at 1st International Conference on Metal-Binding Peptides (MBP) held at Nancy from July 5-8, 2022.
- *Poster* at 8th International Meeting on Quadruplex Nucleic Acids, Marienbad, Czech Republic, from 27 June – 1 July 2022.
- *Talk* at Annual Faculty Meeting and In-House Symposium held at JNCASR, Bengaluru, November 2020.
- *Poster* at Royal Society of Chemistry Roadshows 2019 held at JNCASR, Bangalore, 04 November 2019.
- International Symposium BIONIC 2018 held at Padova, Italy, September 2018.
- Symposium in Chemical Biology and Drug Discovery, Bose Institute, Kolkata, 2017
- 19th CRSI National Symposium in Chemistry (CRSI NSC-19) and CRSI-GDCh Angewandte Symposium, North Bengal University, Darjeeling, July 2016.
- Chemical Frontiers-2015, South Goa, August-2015

Teaching experience

- Graduate teaching assistant for the course ***Chemical and Synthetic Biology*** (August – December 2017).
- Mentor for 11th and 12th class students along with demonstrating science experiments during Student Mentoring Program, May-2017 and 2018 conducted by CNR Rao Education foundation.
- Contributed to science outreach through participation in Student Buddy Program at JNCASR, India (September 2017)

Work Style

- Able to gain new knowledge and adapt to new environments quickly.
- Strong independent work style and excellent teamwork skills
- Well-organized and passionate

Reference

1. Prof. Peter Faller (Postdoctoral Advisor)
Professor
Équipe Biométaux et Chimie Biologique
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4, rue Blaise Pascal
67070 STRASBOURG Cedex
E-mail: pfaller@unistra.fr

2. Prof. T. Govindaraju (PhD supervisor)
Professor
Bioorganic Chemistry Laboratory
New Chemistry Unit
Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR)
Jakkur, Bengaluru 560064, India
Email: tgraju@jncasr.ac.in

3. Dr. N. Arul Murugan
Associate Professor
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The above information is true to the best of my knowledge.

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