# **SCHOOL OF SCIENCES**



Name: Vijai Singh

**Designation**: Associate Professor

**Department:** Biosciences

Contact no. +91 2764 278813\*208, +91 9919807926

Email: vijai.singh@indrashiluniversity.edu.in

### **EDUCATIONAL QUALIFICATIONS**

Ph.D. (Biotechnology), 2009, Dr APJ Abdul Kalam Technical University/NBFGR, Lucknow, India

M.Sc. (Biotechnology), 2002, VBS PurvanchalUniversity, Jaunpur, India

B.Sc.(Chemistry, Botany), 2000, VBS Purvanchal University, Jaunpur, India

# **WORK EXPERIENCE**

Associate Professor (04/2019 – ongoing), Department of Biosciences, Indrashil University, Rajpur, Mehsana, India

Assistant Professor (11/2016 – 04/2019), School of Biological Sciences and Biotechnology, Institute of Advanced Research, Gandhinagar, India

Postdoctoral Fellow (11/2014 – 08/2016), Institute of Systems and Synthetic Biology, Paris, France

Postdoctoral Fellow (04/2013 – 09/2014), Department of Chemical Sciences, Ulsan National Institute of Sciences and Technology, Ulsan, South Korea.

Assistant Professor (08/2013 – 03/2014), Department of Biotechnology, InvertisUniversty, Bareilly, India

Postdoctoral Fellow (03/2009 – 08/2011), Institute of Systems and Synthetic Biology, Paris, France

## **SUBJECTS TAUGHT**

- Ecology (BIO-2-1-2)
- Metabolic Diversity and Metabolic Engineering (BIO-MB-802)
- Genetic Engineering (BIO-M-503)
- Bioinformatics (BIO-M-504)

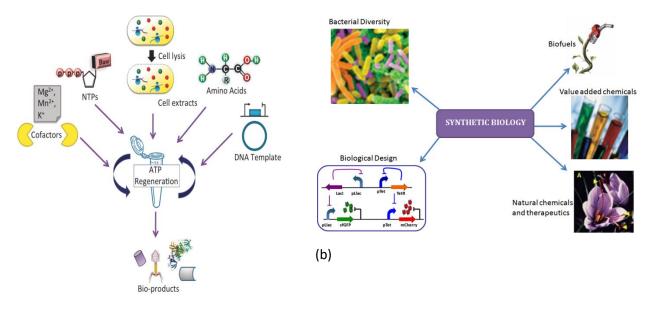
#### **RESEARCH AREA**

(a)

Synthetic Biology, Genome Engineering, Metabolic Engineering and Industrial Microbiology

Our research work focuses on expanding the synthetic biology toolbox, CRISPR-Cas9 platform for genome editing and novel biosynthetic pathways for chemicals, biofuels and biomaterials. We seek to apply these advances to address global challenges in drugs, energy supply and the environment. The recent advances in synthetic biology have led to the development of a number of synthetic parts, devices and systems for a wide range of applications in disease diagnostics, disease treatment, and production of biomaterials, biofuels and fine chemicals. Synthetic biology toolbox plays a key role for exchanging of parts for production, optimization and tuning of chemicals and biofuels. We have a limited number of well characterized genetic parts and a need arises to design and standardize a library of genetic parts such as promoters, ribosome binding sites, transcription factors, protein degradation tags, transcription terminators, and small RNAs-to name a few. Ideally, these parts should be easily exchangeable and used for designing of combinatorial and tuneable pathways.

We are developing a genome engineering platform (CRISPR-Cas9 and CRISPRi) for rapid editing of genome towards the development of a fast, robust and high chemicals, fuels and materials producing strains for industrial applications. We are also developing a cell-free expression system for production of toxic protein, incorporation of non-standard amino acids (NSAAs) and testing synthetic pathway or circuits towards use in disease diagnostic, therapeutic and vaccine developments. As shown in Fig. 1a, CFPS system is performed in a single tube which requires cellular lysate, energy sources, NTPs, amino acids, salts, cofactors, linear or plasmid DNA, and a water buffer to maintain the reaction. Such a system could be used to synthesis viruses, therapeutics, antibodies, chemicals, biofuels, and proteins. Currently, an urgent need arises to develop next generation synthetic circuits and technologies/ methodologies that can solve some of major issues of health, environment and energy. Our research will play a key role in scientific and technology progress at the interface of synthetic biology, bioengineering and healthcare. It will generate a new knowledge and new tools/ assays/ methods facilities towards the world-class research, education and training. Currently, an urgent need arises to develop next generation synthetic circuits and technologies/ methodologies that can solve some of major issues of health, environment and energy (Fig. 1b). Our research will play a key role in scientific and technology progress at the interface of synthetic biology, bioengineering and healthcare. It will generate a new knowledge and new tools/ assays/ methods facilities towards the world-class research, education and training.



**Fig. 1** (a) Schematic representation of a CFPS system and (b) synthetic biology for reprogramming of living organisms.

#### **PROJECTS**

**Title** Development of rapid, effective and ultrasensitive CRISPR based diagnostic tool for

detection of Klebsiella pneumoniae.

Amount Rs. 27,87,837/Role Principal Investigator

**Agency** Gujarat State Biotechnology Mission, Department of Science & Technology, Government

of Gujarat, India

**Duration** 3 years (2019-2022) Project No. 5LY45F

### **CORE GROUP**

Name: Mr Nisarg Gohil, PhD Scholar Date of joining: 07/2019 - ongoing

**Topic**: Metabolic engineering in *Escherichia coli* for production of violacein pigment.

Name: Ms Gargi Bhattacharjee, PhD Scholar

Date of Joining: 07/2019 – ongoing

**Topic**: Development of CRISPR based ultrasensitive tool for detection of *Klebsiella pneumoniae* 

## **HONOR/AWARD**

NET Qualified in 2004.

#### **MEMBERSHIP**

• Aquatic Biodiversity Conservation Society, Lucknow (Life member).

## **KEY PUBLICATIONS**

#### **JOURNALS**

- Khambhati K., Bhattacharjee B., Gohil N., Braddick D., Kulkarni V., **Singh V\*** (**2019**). Exploring the potential of cell-free protein synthesis for extending the abilities of biological systems. **Frontiers in Bioengineering and Biotechnology 7**:248 (**IF: 5.122**).
- Khambhati K., Bhattacharjee B., Singh V\* (2019). Current progress in CRISPR-based diagnostic platforms. Journal of Cellular Biochemistry 120(3):2721-2725. (IF: 3.448).
- Khambhati K., Gohil N., Bhattacharjee G., Panchasara H., **Singh V\*** (**2019**). An equation for biomimicking macromolecular crowding using *Escherichia coli* MG1655 strain. **Biophysical Chemistry 254**:106244 (**IF: 1.745**).
- Gohil N., Bhattacharjee G., Khambhati K., Braddick D., **Singh V\*** (**2019**). Engineering strategies in microorganisms for the enhanced production of squalene: Advances, challenges, and opportunities. **Frontiers in Bioengineering and Biotechnology 7**:50. (**IF: 5.122**).
- Fofie C.K., Katekhaye S., Borse S., Sharma V., Nivsarkar M., Nguelefack-Mbuyo EP., Kamanyi A., Singh V., Nguelefack T.B. (2019). Antidiabetic properties of aqueous and methanol extracts from the trunk bark of *Ceiba pentandra* in type 2 diabetic rat. Journal of Cellular Biochemistry DOI: 10.1002/jcb.28437 (accepted) (IF: 3.448).
- Patel S., Panchasara H., Braddick D., Gohil N., Singh V\* (2018). Synthetic small RNAs: Current status, challenges, and opportunities. Journal of Cellular Biochemistry 119:9619–9639. (IF: 3.448).

- **Singh V\***., Gohil N., Remirez-García R., Braddick D., Fofié C.K. (**2018**). Recent advances in CRISPR-Cas9 genome editing technology for biological and biomedical investigations. **Journal of Cellular Biochemistry**. **119**: 81-94. (**IF**: **3.448**, 15 citations).
- Verma JP, Jaiswal DK, Krishna R, Prakash S, Yadav J, Singh V (2018) Characterization and screening of *Thermophilic Bacillus* strains for developing plant growth promoting consortium from hot spring of Leh and Ladakh region of India. Frontiers in Microbiology 9:1293. (IF: 4.259).
- Gohil N., Ramírez-García R., Panchasara H., Patel S., Bhattacharjee G., Singh V\*(2018). Quorum sensing vs quorum quenching: A battle with no end in sight. Frontiers in Cellular & Infection Microbiology8: 106. (IF: 3.518).
- **Singh V\***., Gohil N., Remirez-García R (**2018**). New insight into the control of peptic ulcer by targeting the histamine H<sub>2</sub> receptor. **Journal of Cellular Biochemistry119**:2003-2011 (**IF: 3.448**).
- **Singh V\***., Braddick D., Dhar P.K. (**2017**). Exploring the potential of genome editing CRISPR-Cas9 technology. **Gene599**: 1-18. (**IF: 2.638**, 65 citations).
- Gohil N., Panchasara H., Patel S., Ramirez-Garcia R., **Singh V\***. (**2017**). Recent advances in yeast metabolic engineering. **Frontiers in Bioengineering & Biotechnology5**: 71. (**IF: 5.122**).
- Singh V\*. (2017). Systems and synthetic biology. Frontiers in Bioengineering & Biotechnology. 5: 50. (IF: 5.122).
- Singh V\*., Chaudhary D.K., Mani I., Dhar P.K. (2016). Recent advances and challenges of the use of cyanobacteria towards the production of biofuels. Renewable & Sustainable Energy Reviews 60: 1-10 (IF: 10.556) (22 citations).
- **Singh V\***.,Braddick D. (**2015**). Recent advances and versatility of MAGE towards industrial applications. **Systems Biology9**(Suppl 1): 1-9 (1 citation).
- Singh V\* (2014). Recent advances and opportunities in synthetic logic gates engineering in living cells. Systems & Synthetic biology8(4): 271-282 (13 citations).
- **Singh V\*** (**2014**). Recent advancements in synthetic biology: Current status and challenges. **Gene535**(1): 1-11. **(IF: 2.638**, 55 citations).
- **Singh V\***.,Manil., Chaudhary D.K. Dhar P.K. (**2014**). Metabolic engineering of biosynthetic pathway for production of renewable biofuels. **Applied Biochemistry & Biotechnology 172**(3): 1158-1171. (**IF: 2.14**, 12 citations).
- **Singh V\***., Chaudhary D.K., Mani I., Jain R., Mishra B.N. (**2013**). Development of diagnostic and vaccine markers through cloning, expression and regulation of putative virulence proteins encoding genes of *Aeromonas hydrophila*. **Journal of Microbiology 51**(3): 275–282 (**IF: 2.319**, 7 citations).
- Mishra R.K., Pandey B.K., Singh V\*., Mathew A.J., Pathak N., Zeeshan M. (2013).
   Molecular detection and genotyping of *Fusariumoxysporum* f. sp. *psidii* Isolated from different agro-ecological regions of India. Journal of Microbiology 51(4):405-12. (IF: 2.319, 11 citations).
- **Singh V\*.,** Manil., Chaudhary D.K. **(2013)**.ATP4A gene regulatory network for fine-tuning of proton pump and ion channels. **Systems & Synthetic Biology 7**:23–32.
- **Singh V\***., Mani I., Chaudhary D.K. (**2012**). *Analysis* of the multicopper oxidase *gene regulatory networkof Aeromonas hydrophila*. **Systems & Synthetic Biology 6**:51–59.(3 citation).
- **SinghV\***., Chaudhary D.K., Mani I. (**2012**). Gene network analysis of *Aeromonas hydrophila* for novel drug target discovery. **Systems & Synthetic Biology 6**:23–30. (3 citation).
- Carrera J., Rodrigo G., **Singh V.**, Kirov B., Jaramillo A. (**2011**). Empirical model and *in vivo* characterization of the bacterial response to synthetic gene expression show that ribosome allocation limits growth rate. **Biotechnology Journal 6**(7):773-783. PMID: 21681966 (**IF: 3.543**; 27 citations).

- **Singh V\***., Mani I., Chaudhary D.K., Somvanshi P. (**2011**). Molecular detection and cloning of thermostable hemolysin gene from *Aeromonas hydrophila*. **Molecular Biology 45(**4):551–560. PMID: 21954591 (**IF: 0.977**; 13 citations).
- **Singh V\***., Mani I., Chaudhary D.K. (**2011**). Gene cloning and homology modeling of the 3-oxoacyl-ACP synthase from *Aeromonashydrophila* for drug discovery. **Letters in Drug Design & Discovery8**(7):619–625. (**IF: 0.924**; 1 citation).
- **Singh V.**, Mani I., Chaudhary D.K., Somvanshi P. (**2011**). The β-Ketoacyl- ACP synthase from *Mycobacterium tuberculosis* as potential drugs target. **Current Medicinal Chemistry 18**(9):1318–24. PMID: 21370994 **(IF: 3.894**; 11 citations).
- Mani I<sup>†</sup>., Singh V<sup>†</sup>., Chaudhary D.K., Somvanshi P., Negi M.P.S. (2011). Codon optimization of the major antigen encoding genes of diverse strains of Influenza a virus. Interdisciplinary Sciences: Computational Life Sciences3(1):36–42.PMID: 21369886. (IF: 1.418; 13 citation).
- **Singh V\***., Chaudhary D.K., Mani I., Somvanshi P., Rathore G., Sood N. (**2010**). Genotyping of *Aeromonas hydrophila* by Box elements. **Microbiology**. **79**(3):370–373. (**IF: 0.855**, 7 citations). PMID: 20734813.
- **Singh V.**, Somvanshi P. **(2010)**. Toward the virtual screening of potential drugs in the homology modeled NAD<sup>+</sup> dependent DNA ligase from *Mycobacterium tuberculosis*. **Protein & Peptide Letters 17**(2):269–276. PMID: 20214650.(**IF: 1.168**; 8 citations).
- **Singh V\***., Somvanshi P., Rathore G., Kapoor D., Mishra B.N. (**2010**). Gene Cloning, expression and characterization of recombinant aerolysin from *Aeromonashydrophila*. **Applied Biochemistry & Biotechnology 160**(7):1985–91. PMID: 19763901 (**IF: 2.14**; 28 citations).
- **Singh V\***., Chaudhary D.K., Mani I., Somvanshi P., Rathore G., Sood N. (**2010**). Molecular identification and codon optimization analysis of major virulence encoding genes of *Aeromonas hydrophila*. **African Journal of Microbiology Research 4**(10):952–957. (**IF: 0.539**, 8 citations).
- Singh V\*., Somvanshi P., Rathore G., Kapoor D., Mishra B.N. (2009). Gene cloning, expression and homology modeling of hemolysin gene from *Aeromonashydrophila*. Protein Expression & Purification65(1):1–7. PMID: 19136063 (IF: 1.291; 46 citations).
- **Singh V.**, Somvanshi P. **(2009)**. Inhibition of oligomerization of aerolysin from *Aeromonas hydrophila*: homology modeling and docking approach for exploration of hemorrhagic septicemia. **Letters in Drug Design & Discovery 6(3)**:215–223. **(IF: 0.953**; 13 citations).
- **Singh V.**, Somvanshi P. **(2009)**. Targeting the peptide deformylase of *Mycobacterium tuberculosis* leads to drug discovery. **Letters in Drug Design & Discovery 6**(7):487–493. **(IF: 0.953**, 2 citations).
- **Singh V.**, Somvanshi P. **(2009)**. Structural modeling of the NS 3 helicase of Tick-borne encephalitis virus and their virtual screening of potent drugs using molecular docking. **Interdisciplinary Sciences: Computational Life Sciences 1(3):168–172**. PMID: 20640834 (**IF: 1.418**; 1 citation).
- **Singh V.**, Somvanshi P. (**2009**). Homology modeling of Adenosine A<sub>2A</sub> receptor and molecular docking for exploration of appropriate potent antagonists for treatment of Parkinson's disease. **Current Aging Science 2**(2):127–134. PMID: 20021407 (6 citations).
- **Singh V.**, Somvanshi P. (**2009**). Homology modeling of 3-oxoacyl-acyl carrier protein synthase II (KAS II) from *Mycobacterium tuberculosis* H37Rv and molecular docking for exploration of drugs. **Journal of Molecular Modeling 15**(5):453–460. PMID: 19083031 (**IF: 1.335**; 13 citations).
- **Singh V.**, Somvanshi P. (**2009**). Computational modeling analyses of RNA secondary structures and phylogenetic inference of evolutionary conserved 5S rRNA in the prokaryotes. **Journal of Molecular Graphics & Modeling 27**(7):770–776. PMID: 19217331 (**IF: 1.863**; 4 citations).
- Somvanshi P., **Singh V**., Seth P.K. (**2009**). High throughput prediction and analysis of small interfering RNA from the 5'UTR and capsid genes of Flavivirus through *in silico* strategies.

- Interdisciplinary Sciences: Computational Life Sciences 1(4):298–302. PMID: 20640808. (IF: 1.418; 2 citations).
- Somvanshi P., Singh V., Seth P.K. (2008). Prediction of epitopes in hemagglutinin and neuraminidase proteins of Influenza A virus H5N1 strain: A clue for diagnostic and vaccine development. Journal of Integrative Biology 12(1):61–69. PMID: 18266559. (IF: 2.610; 26 citations).
- **Singh V.**, Rathore G., Kapoor D., Mishra B.N., Lakra W.S. (**2008**). Detection of aerolysin gene in *Aeromonas hydrophila* isolated from fish and pond water. **Indian Journal of Microbiology 48**(4):453–458. (**IF: 1.533**, 31 citations).

## **BOOKS**

- **Singh V,** Singh AK, Bhargava P, Joshi M, Joshi CG (**2020**). Engineering of microbial biosynthetic pathways. **Springer Nature** (*accepted*).
- Pandey VC, **Singh V (2020).** Bioremediation of pollutants: From genetic engineering to genome engineering. ISBN: 9780128190265. **Elsevier** (*accepted*).
- Singh V (2020). Advances in synthetic biology. ISBN: 978-981-15-0081-7 Springer Nature.
- Singh V, Dhar PK (2020). Genome engineering via CRISPR-Cas9 system. ISBN: 9780128181409. Elsevier.
- Singh V (2014). Applied synthetic biology. ISBN: 1-62699-019-0. Studium Press LLC, USA.

### **BOOK CHAPTERS**

- **Singh V\*** (2020). "An introduction to genome editing CRISPR-Cas9 system" chapter in Genome engineering via CRISPR-Cas9 system. Eds Singh V., Dhar PK. **Elsevier** (*accepted*).
- **Singh V\*** (2020). "Recent advances, challenges and opportunities in synthetic genomes" chapter in Advances in synthetic biology. Ed Singh V. **Springer Nature** (*accepted*).
- Panchasara H., Patel S., **Singh V\*** (**2020**). "Exploring the potential of CRISPR-Cas9 for the removal of human and other animal viruses" chapter in Genome engineering via CRISPR-Cas9 system. Eds Singh V., Dhar PK. **Elsevier** (*accepted*).
- Bhattacharjee G., Khambhati K., Gohil N., **Singh V\*** (**2020**). "A programmable removal of pathogens using CRISPR-Cas9 system" chapter in Genome engineering via CRISPR-Cas9 system. Eds Singh V., Dhar PK **Elsevier** (*accepted*).
- Khambhati K., Gohil N., Bhattacharya G., **Singh V\*** (**200**). "Recent development and challenges to use of the CRISPR-Cas9 system in mammalians" chapter in Genome engineering via CRISPR-Cas9 system. Eds Singh V., Dhar PK **Elsevier** (*accepted*).
- SatishL., Shamili S., Muthubharathi BC., <sup>3</sup>, Ceasar SA., Kushmaro A., **Singh V**., Sitrit Y. (**2020**). "CRISPR-Cas9 system for fungi genome engineering towards industrial applications" chapter in Genome engineering via CRISPR-Cas9 system. Eds Singh V., Dhar PK. **Elsevier** (*accepted*).
- Bhattacharjee G., Mani I., GohilN., Khambhati K., Braddick D., Panchasara H., Singh V\* (2019).
   CRISPR technology for genome editing" chapter in Precision medicine for investigators, practitioners and providers eds Faintuch J., Faintuch S. Elsevier (accepted).
- Nisarg G., Panchasara H., Patel S., **Singh V\*** (**2019**). "Recent molecular techniques for the identification and genotyping of microorganisms" chapter in Microbial genomics in sustainable agroecosystems, eds Tripathi V., Kumar P., Tripathi P., Singh AK. **Springer** (*accepted*).

- Bhattacharjee G., Khambhati K., Singh V\* (2019). Next generation genome engineering using RNA-guided CRISPR-Cas9 technology" chapter in Microbial genomics in sustainable agroecosystems, eds Tripathi V., Kumar P., Tripathi P., Singh AK. Springer (accepted).
- Bhattacharjee G., Khambhati K., Gohil N., Panchasara H., Patel S., Singh V\* (2019). "Exploiting the
  potential of DNA fingerprinting in forensic science" chapter in Introduction of forensic
  nanotechnology as future armour, eds A. Pandya and R Shukla. Nova Science Publishers, Inc,
  USA (accepted).
- Patel B, Singh V, Patel DK (2019). "Structural bioinformatics" chapter in Essentials of bioinformatics. Eds Shaik, NA, Hakeem KR, Banaganapalli B, Elango R, Springer, ISBN 978-3-030-02634-9 (in press).
- Pandey VC., Singh V\* (2019). "Exploring the potential and opportunities of recent tools for removal of hazardous materials from environments" chapter in Phytomanagement of polluted sites, eds VC Pandey and K Bauddh, Elsevier ISBN: 9780128139127. pp. 501-516.
- Ramírez-García R., Gohil N., **Singh V**\* (**2019**). "Recent advances, challenges and opportunities in bioremediation of hazardous materials" chapter in Phytomanagement of polluted sites, eds VC Pandey and K Bauddh, **Elsevier ISBN:** 9780128139127. pp. 615-568.
- Panchasara, H., Patel, S., Gohil, N., Singh, V\* (2018). "Biosynthetic pathway for production of renewable biofuels" chapter in Biofuels. Ed. V. Mittal, Central West Publishing, Australia ISBN: 978-1-925823-12-7. pp. 63-86.
- **Singh V\***., Mani I., Chaudhary D.K. **(2015)**. "Advancement of emerging tools in synthetic biology for the designing and characterization of genetic circuits" chapter in Systems and Synthetic Biology, Eds Singh V and P.K. Dhar, **Springer** ISBN 10.1007/978-94-017-9514-2. pp. 327-339.
- **Singh V\***., Mani I. Chaudhary D.K. **(2015)**. "Metabolic engineering of microorganisms for biosynthesis of antibiotics" chapter in Systems and Synthetic Biology, Eds Singh V and P.K. Dhar, **Springer** ISBN 10.1007/978-94-017-9514-2. pp. 341-356.
- **Singh V\***. **(2014)**. "Small regulatory RNA: a new era of gene regulation and therapy" chapter in Gene and Protein Engineering, Studium Press LLC, USA. ISBN 1-62699-020-4. pp. 17–28.
- **Singh V\***. **(2014)**. "A synthetic gene network engineering for cellular oscillations" chapter in Applied Synthetic Biology, Studium Press LLC, USA. ISBN 1-62699-019-0. pp. 427–442.
- **Singh V\***., Mani I., Chaudhary D.K. (**2014**). "Biological computing by the cellular gene network engineering" chapter in Applied Synthetic Biology, Studium Press LLC, USA. ISBN 1-62699-019-0. pp. 443–464.
- **Singh V\***. **(2014)**. "Recent development in synthetic biology-Parts, devices and circuits" chapter in Applied Synthetic Biology, Studium Press LLC, USA. ISBN 1-62699-019-0. pp. 149–164.
- Chaudhary D.K., **Singh V**., Mani I. (**2014**). "Innate immunity: basic and applied perspective" chapter in Animal Biotechnology, Studium Press LLC, USA. ISBN 1-62699-016-6. pp. 57–78.
- Jain R., Gonzalez-Gil G., **Singh V**., Van Hullebusch E.D., Farges F., Lens P.N.L. (**2014**). "Biogenic selenium nanoparticles: production, characterization and challenges" chapter in Nanobiotechnology, Studium Press LLC, USA, pp. 361–390. (15 citations).
- Singh V\*., Chaudhary D.K., Mani I. (2014). "Role of Bioinformatics in Biotechnology" chapter in Bioinformatics and Computational Biology, Studium Press LLC, USA. ISBN 1-62699-020-4. pp. 1–12.

# **CONFERENCES** (Selected)

• Kushwaha M., Singh V., Jaramillo A (2017). Development of a genetically-encoded *in vivo* computing platform to play the game of Tic-Tac-Toe. SB7.0: The Seventh International Meeting on Synthetic Biology. 13–16 June, National University of Singapore, Singapore.

- Kirov B., **Singh V**., Rodrigo G., Jaramillo A. (**2011**). Coupled biological oscillators. SB5.0: The Fifth International Meeting on Synthetic Biology. June 15–17, Stanford University, Stanford, California USA.
- Jaramillo A., Rodrigo G., Kirov B., **Singh V**., Carrera J., Landrain T., Jain R. (**2011**). Computational design and characterisation of small gene networks with targeted behaviour in *E. coli*. SB5.0: The Fifth International Meeting on Synthetic Biology. June 15–17, Stanford University, Stanford, California USA.
- **Singh V**., Kirov B., Rodrigo G., Jaramillo A. (**2010**). Design and characterization of tunable synthetic gene oscillators. The 11th International conference on Synthetic Biology "Bottom-up, Top-down and Cell-free approaches, Intellectual Property issues". 15–16 December, Evry, France.
- Kirov B., **Singh V**., Rodrigo G., Jaramillo A. (**2010**). Coupled biological oscillators. The 11th International conference on Synthetic Biology "Bottom-up, Top-down and Cell-free approaches, Intellectual Property issues". 15–16 December, Evry, France.
- Somvanshi P., Singh V., Seth P.K. (2010). Insight obtained by studying the catalytic subunit of H+ K+ ATPase interaction with inhibitor by homology modeling and docking Proceeding of MIPTEC: 20-24 September, Basel, Switzerland.
- Somvanshi P., **Singh V**., Seth P.K. (**2009**). Structural modeling and targeting the peptide deformylase of *Aeromonas hydrophila* leading to novel drug discovery. Proceeding of Mip Tec: International Conference of Drug discovery: 13–15 October, Basel, Switzerland.
- Gohil N\*., Panchasara H., Singh V\* (2018). Engineering of a novel squalene biosynthetic pathway in *Escherichia coli* for therapeutic applications, International Symposium on Molecular Medicine, 14-16 December 2018, SGPGIMS, Lucknow.
- Bhattacharjee G\*., Khambhati K., Singh V\* (2018). Programmable removal of Klebsiella pneumoniae using CRISPR-Cas9 technology in International Symposium on Molecular Medicine, 14-16 December 2018, SGPGIMS, Lucknow.
- **Singh V\***., Kushwaha M., Jaramillo A (**2017**). Exploring the potential of RNA-guided CRISPR interference for targeted gene repression in *Escherichia coli*, IBEM 1.0 International Biological Engineering Meeting, 26-28 March 2017, JNU, New Delhi.

# WORKSHOP/TRAINING (Selected)

- Attended 2 days (June 12–13, 2010) International Genetically Engineered Machine (iGEM) spring workshop: Europe, University of Evry, France
- Five days (3–7 Feb 2007) National training on "Microbial community analysis through metagenomics" from National Bureau of Agriculturally Important Microorganisms, Mau Nath Bhanjan- 275101 (India).
- Attended 2 days (26–27 April 2005) National symposium on "Reassessment of fish genetic resources in India and need to evolve sustainable methodology for conservation" from National Bureau of Fish Genetic Resources, Lucknow.
- Attended 16 days (1–16 Aug 2003) training on "Laboratory techniques for microbiological examination of fish and fishery products" from Central Institute of Fisheries Technology (ICAR), Cochin-682029.

## PATENTS/ TECHNOLOGY TRANSFER

NA

## **OTHER INFORMATIONS**

- Member Frontiers in Microbiology (Impact factor: 4.259), Lausanne, Switzerland
- Member Frontiers in Bioengineering & Biotechnology (Impact factor: 5.122), Lausanne, Switzerland
  - Reviewer of peer reviewed journals:
    Biotechnology Journal, Journal of Biological Engineering, Renewable and Sustainable Energy Reviews, Fuel, PLOS One, Infection, Genetics and Evolution, Journal of Royal Society Interface, Systems and Synthetic Biology, Protein and Peptide Letters, Folia Microbiologica, Protein Expression & Purification, Biochemical Genetics, International Journal of Peptide Research and Therapeutics, Annals of Clinical Microbiology & Antimicrobials, Diseases of Aquatic Organisms, Aquaculture Research, Journal of Geochemical Exploration, Ecological Engineering, Vaccine, Microbial Pathogenesis, International Journal of Biological Macromolecules, Urban Forestry and Urban Greening, Applied Geochemistry, Molecular and Cellular Neuroscience, Chemical Biology & Drug Design.