INSA MEDAL FOR YOUNG SCIENTIST AWARDEES- 2018

1. **Dr Hafsa Ahmad** (b 26.05.1986), PhD, CSIR- National Botanical Research Institute, Lucknow

   The novel formulations developed by Dr. Hafsa Ahmad using Withanolides have shown significantly improved potency in the experimental model of ischaemic stroke. Considering the limitations of the current medications for stroke, it has substantial translational value.

2. **Dr Sushmee Badhulika** (b 13.05.1985), PhD, Department of Electrical Engineering, Indian Institute of Technology Hyderabad, Hyderabad

   For the development of layered materials and electronic devices for biomedical applications.

3. **Dr Mousomi Bhakta** (b 09.05.1983), PhD, Department of Mathematics, Indian Institute of Science Education and Research, Pune

   Bhakta established results on Hardy equations with critical and super critical non-linearities, and obtained significant regularity results on bounded and unbounded domains.

4. **Dr Mainak Das Gupta** (b 20.05.1984), PhD, Department of Comparative Development and Genetics, Max Planck Institute for Plant Breeding Research, Germany

   Dr Mainak Das Gupta unravelled the role of microRNA and their target genes in leaf pattern development

5. **Dr Mehak Gupta** (b 20.09.1988), PhD, Oilseeds Section, Department of Plant Breeding and Genetics, Punjab Agricultural University, Ludhiana

   For her outstanding contribution in developing synthetic Brassicas and their evaluation.

6. **Dr Neha Gupta** (b 27.01.1986), PhD, Protein Conformation and Enzymology Laboratory, Department of Biosciences, Faculty of Natural Sciences, Jamia Millia Islamia, New Delhi

   Dr. Neha Gupta demonstrated a novel mechanism of hypoxia-induced venous thrombosis that acts via NLRP3 inflammasome. This has implications for high altitude medicine.

7. **Dr Dhananjay Huilgol** (b 08.09.1983), PhD, Cold Spring Harbor Laboratory, New York, USA

   Dr. Dhananjay Huilgol, for his important work in studying neuronal migration during mammalian development, leading to the characterization of two novel migratory streams that form the posterior accessory olfactory bulb and the nucleus of the lateral olfactory tract, providing evolutionary insights into the development of the olfactory system.

8. **Dr Biman Jana** (b 14.01.1983), PhD, Department of Physical Chemistry, Indian Association for the Cultivation of Science, Jadavpur

   For theoretical understanding of molecular locomotion in motor proteins and mechanistic aspects of anti-freeze protein activity.

9. **Dr Somnath Jha** (b 11.07.1983), PhD, Department of Mathematics and Statistics, Indian Institute of Technology Kanpur, Kanpur

   Jha established a basic twisting lemma in non-commutative Iwasawa theory, and obtained duality results for Selmer groups of ordinary Hida families of modular forms.

10. **Dr Charanpreet Kaur** (b 06.07.1985), PhD, Stress Physiology and Molecular Biology Laboratory, Jawaharlal Nehru University, New Delhi

    Dr Charanpreet Kaur has significantly contributed in understanding biochemical, molecular and functional properties of glyoxylase I and II enzymes, and demonstrated that methyl glyoxal acts as a stress–inducible signal molecule in plants.

11. **Dr Ujjwal Koley** (b 21.05.1983), PhD, Centre for Applicable Mathematics, Tata Institute of Fundamental Research, Bengaluru

    Koley obtained higher order numerical schemes for KdV equations with an L^2 initial data, gave a new theoretical framework for stochastic PDE's, and proved explicit continuous dependence estimates on entropy solutions in the presence of noise.

12. **Dr M Muthamilarasan** (b 02.12.1986), PhD, ICAR-National Research Centre on Plant Biotechnology, New Delhi

    For his outstanding contributions in developing genomic resources in foxtail millet.

13. **Dr Ratnesh Chandra Mishra** (b 11.05.1984), PhD, Laboratory of Functional Plant Biology, Ghent University, Belgium

    Dr Ratnesh Chandra Mishra has experimentally validated rice Hsp101 gene using *Arabidopsis* Hsp101 null mutant and found that the expression provides complementation and thermotolerance.

14. **Dr Mukesh** (b 24.09.1984), PhD, Centre for DNA Taxonomy, Molecular Systematics Division, Zoological Survey of India, Kolkata

    Dr. Mukesh for his important contributions to our understanding of *hangul* (Kashmir deer) population status, ecology and conservation issues. Using a broad spectrum of field and molecular approaches, Dr. Mukesh has helped set the appropriate critically endangered species status for *hangul* and has established a case for in situ and ex situ management and conservation.

15. **Dr Budhaditya Mukherjee** (b 26.08.1984), PhD, Department of Microbiology and Molecular Medicine, University of Geneva, Switzerland

    For understanding the mechanism of immune modulation of host cells during *Leishmania* infection and establishing the molecular basis of the resistance to the anti-Leishmania drug antimony.

16. **Dr Aseem Sudhir Paranjape** (b 26.01.1983), PhD, Inter-University Centre for Astronomy and Astrophysics, Pune

    For his demonstration that the dark energy problem in cosmology cannot be eliminated by averaging over fluctuations and for his development of new techniques to study the growth of large-scale structures in the Universe.

17. **Dr R Vinu** (b 08.10.1984), PhD, Department of Chemical Engineering, Indian Institute of Technology Madras, Chennai

    For contributions to the development of low power microwave assisted pyrolysis of a wide range of municipal solid waste mixture of e-wastes, micro- and macro-algae, and coal biomass blends to produce valuable oils and blendstocks.

18. **Dr Ketan Rajawat** (b 14.02.1984), PhD, Department of Electrical Engineering, Indian Institute of Technology Kanpur, Kanpur

    For contributions in the area of optimization in signal processing and communications, on topics related to asynchronous algorithms, distributed, online, and stochastic optimization.

19. **Dr Satya Brata Routh** (b 11.08.1985), PhD, Structural Biology Laboratory, CSIR-Centre for Cellular and Molecular Biology, Hyderabad

    His work has revealed structural and mechanistic features of the chiral specificity of D-aminoacyl-tRNA deacylase, which operates based on L-chiral reject mechanism but not on D-selection. His studies thus have brought to the fore the glycine misediting phenomenon in the cellular scenario.

20. **Dr S Vijayan** (b 11.01.1983), PhD, Planetary Science Division, Physical Research Laboratory, Ahmedabad

    Finding of Recent Fluvial Activities on Mars at location unknown before.

21. **Dr Sumit Sen Santara** (b 16.02.1985), PhD, Boston Children's Hospital, Harvard Medical School, Boston, USA

    Dr. Sumit Sen Santara has reported for the first time a globin coupled heme containing adenylate cyclase in a unicellular eukaryotic organism, Leishmania. Since this enzyme plays an essential role in the parasite survival, it could be an important drug target.

22. **Dr Sakya Singha Sen** (b 02.03.1983), PhD, Inorganic Chemistry and Catalysis Division, CSIR-National Chemical Laboratory, Pune

    For stabilization of low valent main group compounds and their utilization as catalyst for cyanosilisation of carbonyl compounds.

23. **Dr Mahak Sharma** (b 23.04.1983), PhD, Department of Biological Sciences, Indian Institute of Science Education and Research, Mohali

    Dr. Sharma's group has done outstanding work to show the role of small GTP-binding proteins in lysosome positioning and cargo trafficking. Importantly, she has shown a smart strategy evolved by Salmonella to exploit the lysosomal fusion machinery to promote its intracellular growth and survival in the host.

24. **Dr Prerna Sharma** (b 20.09.1985), PhD, Department of Physics, Indian Institute of Science, Bengaluru

    For her innovative experimental approach to solving technologically important problems in soft matter physics using colloidal particles as model systems. Her contribution to the quantitative understanding of adhesion in terms of rheological properties of the stress-coupling medium deserves special mention.

25. **Dr Mayank Shrivastava** (b 14.09.1984), PhD, Department of Electronic Systems Engineering, Indian Institute of Science, Bengaluru

    For contributions to the development, enablement, and integration of nano-scale CMOS and power MOSFET devices in System-on-Chip and power ASIC applications.

26. **Dr Sanjay Singh** (b 15.09.1983), PhD, School of Materials Science and Technology, Indian Institute of Technology, Varanasi

    For the contributions to the fundamental understanding of magnetic shape memory materials.

27. **Dr Kumar Somyajit** (b 24.05.1986), PhD, The Novo Nordisk Foundation, Center for Protein Research, University of Copenhagen, Copenhagen

    He unraveled important novel roles of RAD51 paralogs in mammalian replication fork stability control biology. These findings have significant implications in cancer genome instability.

28. **Dr Shallu Thakur** (b 03.02.1985), PhD, Division of Plant Biotechnology, Indian Institute of Pulse Research, Kanpur

    For her outstanding contributions in allele mining for blast resistance in rice.

29. **Dr Vishvanath Tiwari** (b 15.09.1983), PhD, Department of Biochemistry, SLS Central University of Rajasthan, Ajmer

    For using proteomic and bioinformatics approaches to develop insights and strategies to control antibiotic-resistant strains of *Acetobacter baumannii*.

30. **Dr Chandra MR Volla** (b 10.07.1983), PhD, Department of Chemistry, Indian Institute of Technology Bombay, Mumbai

    For development of cost-effective catalyst using cobalt for C-H functionalization reactions.