

RESEARCH HORIZONS

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Ahmedabad
University

In Conversation with Dr Shanaya Patel

Dr Shanaya Patel is a cancer biologist working at the School of Arts and Sciences. She is the recipient of a SERB National Postdoctoral Fellowship and an Early Career Fellowship from the DBT/Wellcome Trust India Alliance. We spoke to her about her research programme and her career journey. Excerpts from the conversation.

Please could you describe the focus of your ongoing research?

Cancer is a disease characterised by uncontrolled growth and spread of a group of cells in body. It can arise in any part of the human body, such as blood, lungs and other tissues. My research is focussed on a group of cancers referred to as oral cancers.

Cancer is caused by underlying genetic changes in cells. Early detection of these changes can have a big impact on treatment and management of the disease. In the recent years, liquid biopsies have been gaining attention as a non-invasive alternative for accessing material with which to detect cancers. In the case of oral cancer, we are able to work with blood and saliva as accessible biofluids to try and detect circulating cancerous material. This method is easier for patients and can also be an effective tool for monitoring changes in the body over a period of time.

While many other cancers can be identified by specific molecular “biomarkers”, there is presently no clear biomarker for oral cancer. As an example, the Prostate Specific Antigen (PSA) is commonly used to detect cancerous changes in the prostate. We need similar tools for accurate detection of oral cancer. My work is focussed on working with liquid biopsy material to identify new markers for oral cancer.

What motivated you to pursue this research problem?

Prior to joining Ahmedabad University for my post-doctoral research, I was based at the Gujarat Cancer and Research Institute. During that period and over the course of my graduate research, I witnessed long queues of patients waiting for their turn to see the doctors. This had a big impact on me and has made me the person I am. I now firmly believe that our work in research laboratories should ultimately go back to people to benefit them.

The first stage of an oral cancer is an ulcer. In any population, there are many individuals with white oral ulcers. Some of these ulcers might go on to become cancerous. With our work, we would like to make it easier for individuals to walk into a clinic to get themselves tested. If the testing can be done through non-invasive methods like saliva collection, it might encourage early detection and hence better results. We would very much like to develop this idea.

Please could you share some highlights from your career journey?

In January 2020, I got an opportunity to travel to Miami, Florida to participate at the Advances in Liquid Biopsies Conference organised by American Association of Cancer Research. I had been working on salivary exosomes. Exosomes are small sacs containing proteins, lipids and genetic material. We were able to identify a set of unique miRNAs and mRNAs in exosomes from the saliva of oral cancer patients. This was an exciting lead and I was very fortunate to be able to present my work at the conference.

The Conference was attended by researchers and clinicians with expertise on many different aspects of liquid biopsies. This was a niche audience, who were very familiar with the kind of work we were trying to do at Ahmedabad University. Discussions at the conference helped to raise my level of thinking and ambition, pushing me towards directions which I would otherwise not have considered. These kinds of experiences help us change direction and challenge stereotypes we may have been previously stuck to.



You are a recipient of the SERB N-PDF award and have also been selected for an India Alliance Early Career Fellowship. Please could you share some details of your future research plans?

While at the Conference, I was able to connect with Dr Marianna Brait, a cancer biologist at the Sidney Kimmel Comprehensive Cancer Center at Johns Hopkins University, USA. Cancer cells shed small fragments of their DNA into blood and saliva. Our groups were both interested in the possibility that these fragments of DNA could be used to detect oral cancers. Hence, we decided to join hands for this project. I am very happy that a part of my future work, supported by the India Alliance, will be carried out at Dr Brait's group in the USA. Dr Brait will be helping us with the development of cfDNA technology in oral cancer diagnosis and this approach for early diagnosis of cancers will be explored for the first time in India. I am hoping to learn a lot through the collaboration and my visit to JHU. This collaboration would not have developed, had I not attended the conference.

For the Early Career Fellowship project, Dr Kaustubh Patel, HCG Comprehensive Cancer Hospital, Ahmedabad, India will be our clinical collaborator and Professor Balachandran Ravindran, a member of the advisory board for Biological and Life Sciences at Ahmedabad University will be the Mentor. Professor Vivek Tanavde is the fellowship Supervisor for this project. While this is a challenging project, we are all looking forward to this journey as a team.

What advice would you like to give to your peers who might be considering applying for grant funding?

When I started applying for funding support, I encountered several challenges and myths. I chose to persevere and have been fortunate to have received both mentoring and funding. Based on my experience, I would like to share the following perspective.

- **International view:** I am what might be described as a "homegrown" scientist. I have been in Gujarat all through my career to date. However, I believe that international exposure is tremendously important for one's career development. It is crucial to see how science is being carried out in other parts of the world and what the latest developments are. Being based in India, we can choose to do this by attending international conferences, by keeping ourselves informed about enabling funding opportunities and through the right collaborations.
- **Perseverance:** I have applied for several fellowships. Unfortunately, some of my proposals were unsuccessful. While these were difficult experiences, they taught me about grant-writing and how proposals are reviewed at funding agencies. I persevered, with encouragement from my mentors and was fortunate to have funding successes. Receiving the SERB N-PDF was a turning point in my career!

- **A winning team:** Applying to the India Alliance Early Career Fellowship scheme was a long and demanding process. At each stage, I had the best possible advice from my mentors at Ahmedabad University and Dr Brait at JHU. Many drafts of the proposal were written and critiqued before the final version was agreed upon. I also went through two rounds of mock interviews in preparation for the fellowship interview. Finally, all of this extensive preparation yielded results when I received the news that my application had been selected for award!
- **Societal connect:** While India has a lot of ideas, the patent ratios are rather low. New inventions and solutions should come forth and the benefits of research should reach society. Funding agencies are also placing increasing emphasis on research that can generate solutions. We should be mindful of this while developing our proposals.

Where do you see yourself in 10 years time?

I very much enjoy my research and would definitely like to continue in research, particularly with liquid biopsies and for oral cancer patients. However, I would additionally like my interests and abilities to translate to something useful for the patients. We anticipate clear leads from our work and in due course, I would hope to spin this off.

More about the SERB N-PDF at <https://serbonline.in/SERB/npdf>

More about the DBT/Wellcome Trust India Alliance Early Career Fellowship at <https://www.indiaalliance.org/fellowshiptype/basic-biomedical-research-fellowships>

Patel S., Patel A., Mathur D. & Tanavde V. (2020) **Identification of salivary exosomes derived miRNAs as potential early diagnostic markers in oral cancer patients: A liquid biopsy approach.** AACR Special Conference on Advances in Liquid Biopsies, Miami, Florida, USA., January 13-16, 2020



In the Spotlight: Lifetime Achievement Award for Excellence in Research for Professor Ramadhar Singh

Professor Ramadhar Singh has been recognised with the first Lifetime Achievement Award for Excellence in Research by IIM Indore.

Professor Singh, University Distinguished Professor, is a world renowned Social Psychologist. Professor Singh has had an illustrious academic career teaching at Patna University, IIT Kanpur, IIM Ahmedabad, National University of Singapore, IIM Bangalore and now at Ahmedabad University.

Professor Singh is a Fellow of the American Psychological Association, Association for Psychological Science, British Psychological Society, National Academy of Psychology (India), Singapore Psychological Society, and Society of Personality and Social Psychology. The Association for Psychological Science, Washington DC lists him among the Faces and Minds of Psychological Science, a list of leading researchers in Psychology. Singh is currently a Consulting Editor of the Journal of Theoretical Social Psychology and an Associate Editor of the IIMB Management Review.

Professor Singh wrote a paper on 'Inferring Missing Information' in 1991 but was recognized in 2010 and later awarded for the pathbreaking work in 2013. According to the APS, "Professor Ramadhar Singh's work identifying asymmetrical inferences has helped social and cross-cultural psychologists understand and investigate how people judge morality and achievement of others even without the needed information."

We congratulate Professor Singh for this new recognition.



New collaborations with the Indian Space Research Organisation



Ahmedabad
University



Ahmedabad University has signed a memorandum of understanding (MOU) with the Space Applications Centre (SAC) of the Indian Space Research Organisation (ISRO) to deepen academic and research interaction.

The partnership is built around research to advance the development and application of technology, the building of deep technical capabilities, and organizing of collaborative conferences and workshops. These activities will include development of programmes for building of capabilities in certain selected areas for SAC, engagement in the doctoral programmes and bringing skills of scientists in the classrooms at Ahmedabad. Ahmedabad University will also work on identified academic and research problems of SAC or assigned projects either independently or jointly.

SAC is involved in design and development of space-borne instruments for ISRO missions and development and operationalisation of applications of space technology for national development. The applications cover communication, broadcasting, navigation, disaster monitoring, meteorology, oceanography, environment monitoring and natural resources survey.

Announcing the MoU, Professor Pankaj Chandra, Vice Chancellor of Ahmedabad University, said that "SAC will find his institution to be a very engaged and hungry partner when it comes to working on research problems of the society and to bringing them into the classroom." Speaking on the occasion, Dr Nilesh Desai, Director of SAC, appreciated the fact that Ahmedabad University is encouraging project-based learning. Professor Sanjay Chaudhury, Interim Dean of the School of Engineering and Applied Science, said that, in the past, Ahmedabad University has benefited from very active support of SAC for conferences, workshops, research proposals as well as interactions among faculty and scientists. He further added that this MoU would enable faculty members and students to address focused research challenges in impactful areas.

More information about ISRO academia links at : <https://www.isro.gov.in/capacity-building/academia>

More information about the ISRO RESPOND program at : <https://www.isro.gov.in/capacity-building/respond-projects>

Awarded grants and Prizes

External grants (For the period April 2021- June 2021)

Reena Trivedi, Nirma University and Keyur Joshi, Ahmedabad University
"Development of a vision-based multi-degree of freedom feeding serial manipulator for the patients suffering from neurological disorders and infectious disease (COVID-19)"

Gujarat Council on Science & Technology
 1.2 lakh INR



Ahmedabad University Seed grants:

Dharmesh Varade
"Study on Self-assembly of Novel Sulfate-free Surfactants for Personal Care Formulations"

2.0 lakh INR, 1 year



Kaushik Jana
"Regional Covid Infection Explorer and Forecaster in the Indian Context"

2.0 lakh INR, 1 year



Dr Akhand Rai has been awarded the third prize under the individual category in the Dare to Dream 2.0 Contest organized by DRDO for his entry on "Data Driven Health Monitoring and Early Warning Diagnostic Tools for Aero Gas Turbine Engines".

Dr Akhand Rai offered condition monitoring solutions to eradicate the catastrophic failures in aeroengines occurring due to faults in rolling element bearings. There exist two major challenges in condition monitoring of aeroengines. The first challenge is that the engine faults need to be detected as early as possible so that a timely warning could be signaled to the operator. The second challenge is to estimate the remaining useful life (RUL) left even after the occurrence of defects in engines. Dr Akhand Rai proposed condition monitoring techniques to tackle these problems with an aim to prevent unanticipated aeroengine failures. These techniques primarily utilize vibration data to extract fault features and train machine learning models for detecting faults and predicting remaining useful life of the aeroengines.



About the Contest: DRDO launched its innovation contest 'Dare to Dream 2.0' on the 5th death anniversary of former President and noted scientist Dr APJ Abdul Kalam on 15 Aug 2020. Dr Kalam, also known as missile man, had the vision of self-reliance. The scheme is being launched for emerging technologies to promote the individuals & startups for innovation in defence and aerospace technologies in the country after the call of 'Atmanirbhar Bharat' given by Prime Minister Shri Narendra Modi. The 'Dare to Dream 2.0' is an open challenge to promote the innovators and startups of the country. The winners are decided after due evaluation by an expert committee.

More about the contest at: https://drdo.res.in/kalamdb/portal/kalam_new.html

Research Seminars

(For the period April 2021 - June 2021)


Amrut Mody School of Management

- Atul Kumar, IIM Ahmedabad. *Limits of Effects of Attachment Security (vs. Insecurity) in Close Relationships on Individual Choice Decisions for Joint Consumption*. May 20, 2021.
- Punyashlok Dwibedy, IIM Ahmedabad. *The Innovation triad: An Exploration of Complementarities-in-performance between technological and non-technological innovations in developing countries*. May 25, 2021.
- Rohan Ray, Singapore Management University, Singapore. *Conditional Cash Transfer, Loss Framing, and SMS Nudges: Evidence from a Randomized Field Experiment in Bangladesh*. March 6, 2021.
- Gaurav Bhattacharya, Jawaharlal Nehru University. *Trade Wars and Trade Talks Revisited: An extension of the Grossman and Helpman Model (1995)*. June 10, 2021.
- Mayank Aggarwal, IIM Ahmedabad. *Research and Market Structure: Evidence from a Pathogenic Outbreak*. June 7, 2021.

School of Engineering and Applied Science

- Sudip Das, Ecole Centrale Marseille, France. *Dynamics of drops, capsules, and vesicles in electric field and fluid flow*. April 22, 2021.
- Adarsh Ganesan, US National Institute of Standards and Technology. *Phononic Frequency Combs*. May 10, 2021.
- Shuja Ahmed, IIT Ropar. *Micro-friction Stir Welding Requisites, Behaviour and Future Challenges*. May 12, 2021.
- Vijaybabu T. R, Southern University of Science and Technology. *Impression of porous bodies and magnetic field on hydro-thermal traits and entropy generation*. May 13, 2021.
- Jayendra Bhalodiya, University of Warwick, UK. *Cardiac Image Computing for Myocardial Infarction patients*. June 2, 2021.

School of Arts and Sciences

- Suman Bhattacharya, University of Florida, USA. *Geometric Ergodicity of Gibbs samplers for the Horseshoe and its regularized variants*. April 23, 2021.
 - Sudarshan Kottai, IIT Hyderabad. *When Community cares becomes community mental Health: The Disappearance of local voices in community mental health programmes in Kerala*. May 6, 2021.
 - Neha Nagpal, Harvard Medical School, USA. *Targeting of human telomerase via non-coding RNA Pathways*. May 10, 2021.
 - Srimanta Bhattacharya, Indian Statistical Institute, Kolkata. *On some problems in Cryptology*. May 17, 2021.
 - Bhuvan Pathak, University of Arkansas, Fayetteville, USA. *Genome Editing and Crop Improvement: Agriculture Precision*. May 24, 2021.
 - Raghwinder Singh Grewal, IIT Madras. *Optical magnetometry with alkali atoms*. May 28, 2021.
 - Soumitra Samanta, Indian Statistical Institute. *Data-driven decision for motion and molecules*. June 17, 2021.
 - Vishwesh Guttal, Indian Institute of Science. *Physics and Ecology of Collective Animals*. June 30, 2021.
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Publications

(For the period April 2021 - June 2021)

Articles in Refereed Journals

Shukla A. (2021). Pullback of Klengen Eisenstein series and certain critical L-values identities. *Ramanujan Journal* , 55(2), 471-495. <https://doi.org/10.1007/s11139-019-00246-w>.

Sharma S., Meghwanshi K., Patel S., Choudhary C., Mehta P., Shukla N., Do D., Rajpurohit S., Suravajhala P. & Shukla J. (2021). Sharma S, Meghwanshi K, Patel S, Choudhary C, Mehta P, Shukla N, Do D, Rajpurohit S, Suravajhala P, Shukla J. 2021. Long non-coding RNAs in insects. *Animals*. . *Animals*, 11(11), <https://www.mdpi.com/2076-2615/11/4/1118>.

Betancourt N., Rajpurohit S., Durmaz E., Fabian D., Kapun M., Flatt T. & Schmidt P. (2021). Allelic polymorphism at foxo contributes to local adaptation in *Drosophila melanogaster*. *Molecular Ecology*, <https://doi.org/10.1111/mec.15939>(<https://doi.org/10.1111/mec.15939>), <https://doi.org/10.1111/mec.15939>.

Changela A., Zaveri M. & Verma D. (2021). Mixed-radix, virtually scaling-free CORDIC algorithm based rotator for DSP applications. *Integration, the VLSI journal*, 78(May), 70-83. <https://doi.org/10.1016/j.vlsi.2021.01.005>.

Gogoi M., Pandey S., BS A., Nair V., Thakur R., Chaubey J., Tiwari A., M R M., Kompalli S., Vaishya A., SS P., Hedge P. & Babu S. (2021). Long-term changes in aerosol radiative properties over Ny-Ålesund: Results from Indian scientific expeditions to the Arctic. *Polar Science*, 00-00.

Thomas S. & Jadeja A. (2021). Psychological antecedents of consumer trust in CRM campaigns and donation intentions: The moderating role of creativity. *Journal of Retailing and Consumer Services (ABDC - A)*, 61(<https://doi.org/10.1016/j.jretconser.2021.102589>), <https://doi.org/10.1016/j.jretconser.2021.102589>.

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Galiyawala H. & Raval M. (2021). Person Retrieval in Surveillance Using Textual Query: A Review. *Multimedia Tools and Applications*, 1 - 41. <https://doi.org/10.1007/s11042-021-10983-0>.

Kansara K., Sathish ., Vinu A., Kumar A. & Karakoti. A. (2021). Assessment of the impact of abiotic factors on the stability of engineered nanomaterials in fish embryo media. *Emergent Materials* , 22(1), 1-15. <https://doi.org/10.1007/s42247-021-00224-3>.

Sharma E., Tewari R. & Singh A. (2021). India-specific Corporate Social Responsibility Consumer Perception Scale (CSR-CPS). *Indian Journal Of Corporate Governance*, 0-00.

Patel D. (2021). Performance Analysis of NOMA in Vehicular Communications over i.n.i.d Nakagami?m Fading Channels. *IEEE Transactions on Wireless Communications*, 1-16. 10.1109/TWC.2021.3073050..

Patel D. (2021). Physical Layer Security in Cognitive Vehicular Networks. *IEEE Transactions on Communications*, 69(4), 2557-2569. 10.1109/TCOMM.2020.3038904..

Sutapa Mukherji S. (2021). Small RNA-driven feed-forward loop: fine-tuning of protein synthesis through sRNA-mediated crosstalk. *European Physical Journal E (A merger journal of various European Physical Societies, Publisher: EDP Sciences, the Società Italiana di Fisica and Springer.)*, 44(Citation: *Eur. Phys. J. E* 44, 55 (2021). <https://doi.org/10.1140/epje/s10189-021-00013-0>), Article number: 55. <https://doi.org/10.1140/epje/s10189-021-00013-0>.

Publications

(For the period April 2021 - June 2021)

Articles in Refereed Journals

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Chapters in Monographs and Books

Nasra S., Chaudhari R. & Kumar A. (2021). Role of nanomedicine for cancer immunotherapy. In A. Malik, S. Afaq & M. Tarique. *Nanomedicine for Cancer Diagnosis and Therapy*. (1-30). Springer Singapore: Springer.

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Forthcoming Grants Office workshop

Understanding IP Law, Requirement and Strategies for Filing

Abstract: Intellectual Property is a creation of the mind. Research gives rise to new inventions, creativity, methods and tools. These new inventions and business ideas can be protected through various legal regimes of intellectual property rights, such as patents, design, trademark, copyrights and trade secrets. The workshop will facilitate an understanding of the necessary measures needed to be taken for protecting inventions from a researcher's point of view and of Indian Intellectual Property Rights laws and their comparison with international treaties. The presentation will cover how to understand patent documents, strategies for filing, patent search and different filing procedures. Relevant case studies in the context of emerging technologies will be used to illustrate these concepts.



Friday July 2021
23 4.00 PM - 5:30 PM

📍 JOIN ZOOM MEETING
Meeting ID: 975 9895 8402
Passcode: 103696

Dr Lipika Sahoo

Founder & CEO
Lifeintellect Consultancy Pvt. Ltd.

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Funding compendium

COVID RELATED

Agency: Institute of Electrical and Electronics Engineers (IEEE)

Scheme: IEEE HAC/SIGHT Projects Call for Proposals Focused on COVID-19 Response

About the IEEE HAC: The IEEE Humanitarian Activities Committee (HAC) provides a suite of resources that inspire and enable IEEE volunteers around the world to carry out and support impactful humanitarian technology and sustainable development activities at the local level.

Scheme remit: to support IEEE member grassroots humanitarian technology and sustainable development projects that utilize technology to address local challenging realities of the COVID-19 situation and any pressing need affecting the targeted communities.

Priority areas:

- Food Security
- Infection Control Devices
- Information and Communications Technology (ICT)
- Medical Devices
- Personal Protective Equipment (PPE)
- Sustainable Power Sources
- Water, Sanitation, and Hygiene
- Other issues of pressing community need

Budget provisions: US\$1,000 up to US\$5,000 per project

Duration: 6–12 months

Deadline: 16 August 2021

Weblink: <https://hac.ieee.org/funding-opportunities/covid-19-projects/>

Application process: Online via IEEE HAC/SIGHT Online Funding Opportunities Portal

RESEARCH GRANTS, FELLOWSHIPS AND PRIZES

Agency: DBT/ Wellcome Trust India Alliance

Scheme: Intermediate Fellowship in Basic Biomedical research

Research areas supported: Biomedical research

Scheme remit: To provide support for postdoctoral researchers who have been successful in building a track record of pursuing cutting-edge research and wish to establish their own independent research programme in India.

Applicant eligibility: Open to basic science/veterinary researchers with 4–15 years post-Phd experience, 80% time-commitment to project

Budget provisions: Rs 3.6 crore INR budget cap, including personal support, equipment, consumables, up to 2 postdocs, up to 12 months overseas stay, travel to meetings, contingency, institutional overheads

Duration: 5 years

Deadline: Preliminary application deadline- 6th August 2021

Weblink: <https://www.indiaalliance.org/news/sif-call-for-application>

Application process: Preliminary Application forms will be available via the India Alliance online application system. Shortlisted applicants will be invited to submit a full application for the subsequent steps of review and interview.

Agency: DBT/ Wellcome Trust India Alliance

Scheme: Senior Fellowship in Basic Biomedical research

Research areas supported: Biomedical research

Scheme remit: To provide support for researchers who have demonstrated their ability to lead an independent research project and group, to expand their research programme in India.

Applicant eligibility: 4–15 years post-Phd experience, 70% time-commitment to project

Budget provisions: Rs 4.5 crore INR budget cap, including personal support, equipment, consumables, up to 4 postdocs, travel to meetings, contingency, institutional overheads

Duration: 5 years

Deadline: Preliminary application deadline- 6th August 2021

Weblink: <https://www.indiaalliance.org/news/sif-call-for-application>

Application process: Preliminary Application forms will be available via the India Alliance online application system. Shortlisted applicants will be invited to submit a full application for the subsequent steps of review and interview.

Funding compendium

Agency: Climate and Clean Air Coalition

About the Agency: The Climate and Clean Air Coalition is a voluntary partnership of governments, intergovernmental organizations, businesses, scientific institutions and civil society organizations committed to protecting the climate and improving air quality through actions to reduce short-lived climate pollutants.

Scheme: 2021 Call For Proposals – CCAC Action Programme to Address The 1.5°C Challenge

Scheme remit: To support projects that enable national or regional actions to reduce short-lived climate pollutant (SLCP) emissions. Priority may be given to proposals that can demonstrate how the project will contribute to a green, inclusive recovery and mitigate the risks of Covid-19 to project delivery.

Priority areas: Funding should be used in particular to support the goals of the Coalition as laid out in the new 2030 Strategy, following four mutually reinforcing areas of work:

- Mobilize high-level political leadership with a national or regional focus
- Target integrated climate and clean air policy
- Drive transformative action in the main SLCP source sectors
- Provide strong scientific and analytical support for action

Budget provisions: Budget cap of \$US 100,000

Duration: 24 months

Team Structure: Applications must be submitted by a partnership of at least two entities actively involved in the implementation of the project. Written endorsement of at least one national government eligible for official development assistance (ODA) is required.

Deadline: 31st August 2021

Weblink: <https://www.ccacoalition.org/en/content/calls-proposals>

Application process: Via form on website

Additional details about successful projects: Via website

Agency: Ignite Life Science Foundation

Scheme: Ignite Fast Grant Awards

Scheme remit: To support new ideas (even if they are unconventional and high-risk) and use the outcomes of the research to triage for a subsequent more substantial round of funding.

Focus areas: 1. Pandemic response 2. Antimicrobial Resistance 3. Nutrition 4. Neurodegeneration

Budget provisions: Up to Rs 50 lakhs

Duration: Up to 18 months

Deadline: 6th August 2021

Weblink: <https://indiabioscience.org/media/articles/PDF-Open-Call-Announcement.pdf>

Application process: Proposal to be emailed to the Foundation

Agency: Science and Engineering Research Board (SERB)

Scheme: SERB - POWER (Promoting Opportunities For Women in Exploratory Research) Research grants

Scheme remit: To provide a structured effort toward enhanced diversity in research to ensure equal access and weighted opportunities for Indian women scientists engaged in research and development activities.

Budget provisions: Equipment, Manpower, Consumables, Travel, Contingency and overheads.

POWER Grants aim to empower women researchers by providing funding under following two categories:

1. Level I: The scale of funding upto 60 Lakhs for three years.
2. Level II: The scale of funding upto 30 Lakhs for three years.

Applicant eligibility: Applicants from Private Academic Institutions should apply under Level II category. Woman scientists cannot hold POWER Fellowship and POWER Grant at the same time.

Deadline: 30th September 2021

Weblink: <https://www.serbonline.in/SERB/serbPowerInstructions?HomePage-New>

Application process:

The SERB-Core Research Grant (CRG) Platform will be used to identify and support women scientists under the POWER Research Grant component. Accordingly proposals will be received through two streams:

1. Stream 1: Direct Applications for POWER Grant (Online).
2. Stream 2: Applications sourced from CRG Scheme (All PACs).

Funding compendium

Agency: Science and Engineering Research Board (SERB)

Scheme: National Science Chair

Scheme remit: To recognise active eminent senior resident Indian superannuated scientists for their outstanding contributions, in the area of Science, Technology, Engineering, Mathematics (STEM) and Medicine

Mode of implementation:

Mode 1: Scientific excellence- To extend continuance of support for excellence in R&D activities of eminent senior superannuated scientists who are passionate in research as evidenced by the S&T output.

Mode 2: Science leadership-To recognize outstanding contributions made by any of the resident Indian superannuated Scientist towards excellence at the national and the global level.

Budget provisions: The Indian Project Lead (IPL) (i.e. lead company) must be a commercial (for profit) company under the Indian Companies Act 1956/2013, which operates in and is headquartered in India.

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Rs 1.5 lakhs Fellowship per month, research grant of Rs 25 lakhs and Rs 5 lakhs per annum for Modes 1 and 2, Rs 1 lakh overheads per annum

Duration: 3 years with the possibility of further extension by 2 years

Deadline: 31st October 2021

Weblink: <https://www.serbonline.in/SERB/nationalScienceChair?HomePage=New>

Application process: via the SERB online portal, as a two-stage online nomination from the Head of the institution or Presidents of the Science Academies

Agency: Sree Padmavathi Venkateswara Foundation (SreePVF)

About the Foundation: The SreePVF Foundation has a vision for betterment of humanity and recognizing that in addition to the government, Private Foundations and Trusts should also support research and technology through grants, SreePVF has constituted Sree Ramakrishna Paramahansa Research Grants in 2019, arguably the first of its kind in India.

Scheme: Sree Ramakrishna Paramahansa Research Grant 2021

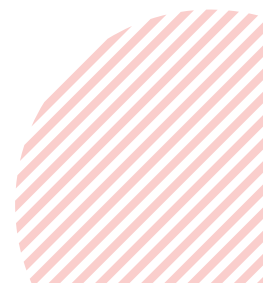
Scheme remit: To support cutting-edge "Bench to Bedside" translational projects with value to humans. Any project designed to address a focused disease related topic with cutting-edge techniques and analysis will be eligible to apply. The 2021 additionally supports agricultural sciences in 2021, specifically for novel and sustainable solutions that benefit small and marginal farmers.

Budget provisions: Up to Rs 3 crores over project period

Duration: 3 years

Deadline: 15th September 2021

Weblink: <http://sreepadmavathivenkateswarafoundation.org/>



Funding compendium

FUNDING FOR INTERNATIONAL EXCHANGE AND COLLABORATIONS

Agency: DBT and DST, in partnership with the Belgian Federal Science Policy Office

Scheme: Indo-Belgian Research and Technology Cooperation

Scheme remit: This Networking call co-funded by both countries aims at supporting exchanges that leverage long term research cooperation between multiple Belgian and Indian Research institutions, based on existing infrastructure, with significant impact on a priority research area.

Priority areas:

DBT: · Marine Biotechnology · Life science focused on micro-organisms

DST: Space, including astronomy, solar physics and remote sensing · Marine sciences · Geology · Cybersecurity

Team structure: One PI/Coordinator each from India and Belgium. · Additional Co-PIs/Partners (up to 5) on each side are also allowed.

What is supported: The networking activities may include the organisation of a joint seminar or workshop, experts' visits, joint laboratory or joint field exchanges.

Budget provisions: Rs. 35 Lakhs (upper limit) to Indian partner.

Duration: 2-3 years

Deadline: 22nd September 2021

Weblink: <https://dbtindia.gov.in/sites/default/files/Indo-Belgian%20Joint%20Networking%20Call%202021.pdf>

Application process: On the Indian side, via e-PMS portal of the DST or by email to DBT and on the Belgian side by email.

Agency: DBT, in collaboration with Academy of Finland

Scheme: Indo-Finnish Joint call- Mobility scheme

Scheme remit: To promote internationalisation of research environments between India and Finland and bring about international interaction of researchers thereby complementing their research activities

Team structure: The project must have both a Finnish and an Indian PI.

What is supported: Funding can be applied for mobility to and from India.

Budget provisions: The Academy of Finland and DBT will cover the travel expenses and costs of living of the participating researchers of their own country in accordance with their own funding terms and conditions.

Duration: 2 years

Deadline: 23 September 2021

Weblink: https://dbtindia.gov.in/sites/default/files/Indo-Finnish%20Joint%20Call%20on%20Researcher%20Mobility_Final.pdf

Application process: via DBT EproMIS for the Indian side

Agency: Department of Science and Technology (DST), in collaboration with the Australian Department of Industry, Science, Energy and Resources (DISER)

Scheme: Australia- India Strategic Research Fund (AISRF)-Round 14

Team structure: Principal Investigators from India and Australia

Research areas supported: · Quantum technologies · Earth observation remote sensing · Groundwater resources management · Downstream processing, recycling and tailings reclamation of critical minerals

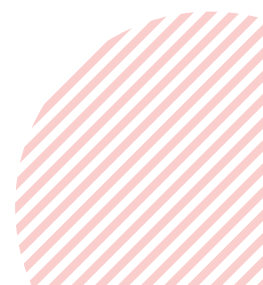
Budget provisions: For Indian side-travel and subsistence costs, manpower costs as per DST norms, equipment, consumables up to Rs 2 lakhs per year, contingency and overheads

Duration: Up to 3 years

Deadline: 30th August 2021

Weblink: <https://dst.gov.in/sites/default/files/AISRF%20Round%202014%20Call%20format%20for%20Website-converted.pdf>

Application process: Online submissions via www.onlinedst.gov.in for India and identical submission on Australian side



Funding compendium

Agency: United States India Educational Foundation (USIEF)

Scheme: 2022- 2023 Fulbright Fellowships

Scheme Remit: Support for Indian citizens with opportunities for personal, academic and professional growth and exchanges promoting mutual understanding between the people of the United States and India.

Applicant eligibility: Indian nationals

Weblink: <https://www.usief.org.in/Fellowships/Fellowships-for-Indian-Citizens.aspx> (details of all Fulbright fellowships can be accessed here)

Application process: Via online form on website

Fulbright-Nehru Postdoctoral Research Fellowships

Applicant eligibility: Indian faculty and researchers who are in the early stages of their research careers in India

Focus areas: Agricultural Sciences; Anthropology; Bioengineering; Chemistry; Computer Science (including, but not limited to, cyber security, digital economy, quantum computing, artificial intelligence, machine learning and big data analytics); Economics; Education Policy and Planning; Energy Studies; Geography (including GIS and Geology); History; Language and Literature; Materials Science (with emphasis on environmental applications); Mathematical Sciences; Neuroscience; Performing Arts; Physics; Political Science (including, but not limited to, International Security and Strategic Studies); Public Health; Public Policy; Sociology; Urban and Regional Planning (with emphasis on smart cities and waste management); Visual Arts; and Women's and Gender Studies.

Budget provisions: J-1 visa support, monthly stipend, round trip economy airfare, tuition and fees, living expenses, accident and sickness coverage, settling in allowance, professional allowance and dependent funding

Duration: 8-24 months

Deadline: 15th September 2021

Additional information: Program begins in May/June 2022

FUNDING FOR ACADEMIA-INDUSTRY COLLABORATIONS

Agency: DBT and BIRAC in collaboration with Department of Industry, Innovation and Science (DIIS), Govt. of Australia

Scheme: Indo-Australian Biotechnology Fund, Round 14

Priority areas: COVID-19 long-term health impacts · Infection prevention and control · Digital health and telemedicine · Biomaterials (including bioplastics)

Budget provisions: Applicants from research institutes, academia or not-for-profit research organizations will be funded by DBT subject to fulfilment of their eligibility conditions and verifiable documents. Companies or start-ups will be funded by BIRAC (on a matching grant for costs above Rs 50 lakhs). Australian partners will be funded by DIIS.

Team Structure: The grant must be jointly applied for by Indian and Australian partners

Deadline: 31st August 2021

Weblink: <https://dbtindia.gov.in/sites/default/files/Indo-Australia%20Call%20n%20IP%20Annexure.pdf>

Application process: via DBT eProMIS on the Indian side

Agency: Department of Science and Technology (DST)

Scheme: Advanced Hydrogen and Fuel Cell program (AHFC)

Scheme remit: Focuses on R &D, D of hydrogen and fuel cell technologies across multiple sectors enabling innovation, a strong domestic economy, and a clean, equitable energy future.

Scheme focus: Indigenous development of new and existing material in large quantities, catalysts, membrane, components for fuel cells, electrolysers, hydrogen storage materials, materials for type IV cylinders and prototypes for implementation of various applications of hydrogen and fuel cell in the country (further details on website).

Commercialization: Projects leading to develop a device/prototype with Technology Readiness Levels (TRL) and having potential for commercialization will be preferred for financial support. Basic R&D proposal leading to only research publications will not be supported under this call.

Budget provisions: Rs 10 crores

Duration: 2-3 years

Deadline: 30th July 2021

Weblink: https://dst.gov.in/sites/default/files/Final%20HFC%20Call-2021_0.pdf

Application process: Via Online portal



Funding compendium

Agency: Global Innovation and Technology Alliance (GITA)

Scheme: India-Israel Joint Call

Scheme remit: To promote facilitate and support joint Industrial R&D projects between companies from India and Israel, which would lead to successful commercialization and benefit for both countries.

Thematic focus: *Agriculture *Energy *Healthcare *Information & Communication Technologies (ICT) *Water

Team structure: The Indian Project Lead (IPL) (i.e. lead company) must be a commercial (for profit) company under the Indian Companies Act 1956/2013, which operates in and is headquartered in India.

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The Indian Project Lead must be a commercial company under the Indian Companies Act 1956/2013, which operates in and is headquartered in India. Other Industry Partners or Academic/R&D Institutions can be brought in as co-investigators. The Israeli Project Lead applicants must be a for-profit Israeli R&D Company.

Budget provisions: Labour, equipment, project management, materials and consumables, sub-contracts, travel and subsistence, joint commercialization, institutional overheads

Deadline: 15th August 2021

Weblink: <https://gita.org.in/OnlineRfp/ProgramInfo.aspx?GITA=kZdo4yRVS4gRExygXAIGyr/hqnuBVm8URYuihQuuUKs=>

Application process: Application package available on website

Agency: Merck

Scheme: 2021 Research Grants

Thematic focus:

- Drug Discovery
- Real time testing and sensors
- Nanoparticle for nucleic acid delivery
- Digital Innovation
- Bioelectronics
- Sustainability
- Media recycling for cultured meat
- Organoids

Team structure: Successful proposals will require collaborative teams including Merck researchers.

Budget provisions: Grants of 40,000 € - 450,000 € per year for up to 3 years are available for research in areas of interest.

Deadline: 31st August 2021 for first stage applications

Weblink: <https://www.merckgroup.com/en/research/open-innovation/2021-research-grants.html>

Application process: There is a two-stage application process. Applications for the first round are due on 31st August 2021. A "deep-dive workshop" will be held in November/December 2021 for strong applications and feedback will be provided by the Merck team. First-stage applications will need to be revised based on feedback and resubmitted to Merck. Finalists will be chosen from this set of revised applications.

Agency: Microsoft

Scheme: AI for Earth grants

Scheme remit: To support projects that use AI to change the way people and organizations monitor, model, and manage Earth's natural systems.

Focus areas: Climate, Agriculture, Biodiversity, Water

Budget provisions: Microsoft Azure compute credit grants provide awardees with Azure credits worth \$5,000, \$10,000, or \$15,000, depending on the project scope, to start using Azure AI tools and cloud computing with existing labeled datasets. By being a member of the AI for Earth grantee community, awardees also have access to additional resources - technical advice and support, online Azure training materials, and invitations to the AI for Earth Summit for networking and education opportunities.

Deadline: Next deadlines July 5, 2021, 11:59 PM Pacific Time and October 4, 2021, 11:59 PM Pacific Time

Weblink: <https://www.microsoft.com/en-us/ai/ai-for-earth-grants#primaryR3>

Application process: Via the online application form



Funding compendium

Agency: Microsoft**Scheme: AI for Accessibility grants**

Scheme remit: To support projects that use AI-based innovations in education to empower people with disabilities.

Focus areas: Education, Employment, Community and Home

Budget provisions: In addition to Azure compute credits worth \$10,000, \$15,000, or \$20,000 (depending on project scope and needs), these grants cover costs related to collecting or labeling data, developing models, or other engineering-related work. Applications are evaluated on their scientific merit, innovative use of AI technology, and potential for scalability.

Deadline: Proposals accepted on a rolling basis and reviewed at specific times.

Weblink: <https://www.microsoft.com/en-us/ai/ai-for-accessibility-grants>

Application process: Via the online application form

Agency: Science and Engineering Research Board (SERB)**Scheme: Technology Translation Award SERB-TETRA**

Scheme remit: To support technology translation in an academic setting; SERB-TETRA will challenge scientists executing SERB grants, such as CRG, to establish an effective, functional and synergistic working collaboration with an industry partner to elevate their breakthrough results and technologies to TRL level 5 and beyond. It is implicit that PIs would have obtained necessary patents and IPR.

Applicant eligibility: Principal Investigators/Inventors (PIs) of ongoing SERB Projects and all extramural projects completed in the last three years, where PI holds or has applied a patent, with an acknowledgement to SERB support.

Budget provisions: An unstructured budget up to 15 lakhs per year, without international travel, including institutional overheads. TETRA Support will help entities having successful ideas to kickstart new venture processes. With a seed capital, flexible working spaces and interaction between mentor and startup entrepreneurs, the SERB-TETRA will expand the scope by providing numerous networking opportunities, followed by presenting the finished prototype to an audience of large investors, established MSMEs and private companies, and public sector enterprises.

Duration: 2 years

Deadline: 30th September 2021

Weblink: <https://www.serbonline.in/SERB/Tetra>

Application process: Online, via the SERB portal

OTHER RESOURCES**ACADEMIA-INDUSTRY TRAINING INDIA via Swissnex**

About the program: The online AIT program aims to support scientists in transforming their applied research into market application and discovering their entrepreneurial potential. By connecting scientists from top institutions in Switzerland and India, the program promotes an international network and enables access to one of the most promising markets and intellectual capitals in applied research.

Key dates: Starts on November 15th and ends on December 9th, 2021

Application deadline: 1st September 2021

Website: <https://www.venturelab.swiss/AIT>

Funding compendium

NETWORKING RESOURCES



Coronavirus Global R&I Collaboration Portal

About the portal: This is a collaborative tool supporting research and innovation projects conducted by organizations and researchers across the globe who are involved in Coronavirus related research and focusing primarily on the socio-economic aspects of the pandemic.

It can be used to:

- **Collaborate** on research projects related to the socioeconomic aspects of the pandemic.
- **Create** networking and matchmaking opportunities.
- **Connect** with other researchers and increase the impact of their activities.
- **Coordinate** the sharing of information.
- **Complement** synergies with other online platforms on the Coronavirus pandemic.

The portal is designed to easily find partnerships and explore collaborative opportunities for research; help in mapping relevant projects and exchange information and can additionally be used to bring visibility and publicity to research at Indian institutions.

More about the portal at: <https://coronavirus-global-collaboration.ec.europa.eu/>

Image credits: Savita Ayyar, Ahmedabad University Communications Office, Shanaya Patel, Lipika Sahoo

All requests for research funding from internal and external sources should be sent to the University Research Board for approval, via the Grants Portal.

Details of intramural funding available via Ahmedabad University are available in the University Research Board Policy Document. This includes Start-up grants, Seed grants, University Challenge grants, Teaching Material Development/Innovation grants and Conference Travel support.

Previous editions of the Research Horizons Newsletter and Funding compendium are archived on AURIS. These editions include details of schemes with rolling calls and additional schemes with past, ongoing or anticipated deadlines. For suggestions on the Funding compendium, please contact the Dean of Graduate School and Research at urb@ahduni.edu.in.