



*The University for Innovation*

**Annual Research Report**

**2019-2020**

## Index

Sr. No.	Item
1)	<b>Foreword</b>
2)	<b>The University for Innovation at a Glance</b>
3)	<b>Academic Departments</b>
4)	<b>Research Overview</b>
5)	<b>Research at Institute of Advanced Research, Gandhinagar</b>
	<ul style="list-style-type: none"> <li>• Key Research Areas at IAR</li> </ul>
	<ul style="list-style-type: none"> <li>• New Project Proposal Submitted</li> </ul>
6)	<b>Thriving Research Environment</b>
	<ul style="list-style-type: none"> <li>• Ongoing Research Grant</li> </ul>
	<ul style="list-style-type: none"> <li>• Funded Project Completed</li> </ul>
	<ul style="list-style-type: none"> <li>• Infrastructure Grant</li> </ul>
	<ul style="list-style-type: none"> <li>• Ph.D. students</li> </ul>
	<ul style="list-style-type: none"> <li>• List of students submitted their theses</li> </ul>
	<ul style="list-style-type: none"> <li>• List of students received Doctor of Philosophy (Ph.D.) degree in 2019</li> </ul>
	<ul style="list-style-type: none"> <li>• Publications</li> </ul>
	<ul style="list-style-type: none"> <li>• Patent Filed</li> </ul>
	<ul style="list-style-type: none"> <li>• List of students received SODH fellowship from Govt of Gujarat</li> </ul>
	<ul style="list-style-type: none"> <li>• Newly recognized Ph.D. Supervisors</li> </ul>
	<ul style="list-style-type: none"> <li>• Seminar/Webinar/Workshop Organized</li> </ul>
	<ul style="list-style-type: none"> <li>• Collaborations</li> </ul>
	<ul style="list-style-type: none"> <li>• Awards</li> </ul>
	<ul style="list-style-type: none"> <li>• Memorandum of Understanding</li> </ul>
	<ul style="list-style-type: none"> <li>• GSIRF (Gujarat State Institutional Rating Framework) of IAR</li> </ul>
7)	<b>Research Committees at IAR, Gandhinagar</b>
	<ul style="list-style-type: none"> <li>• Research Advisory Committee (RAC)</li> </ul>
	<ul style="list-style-type: none"> <li>• University Research Committee (URC)</li> </ul>

## Foreword

2019/20 academic year has seen a rapid growth in the research capacity at the Institute of Advanced Research. Building on a decade of excellence in Biological Sciences and Biotechnology, we have expanded the areas of research into energy storage, industrial applications of plasma, environmental technology, sensors for diagnostics, ionic liquids for synthesis, nano-science and technology, entrepreneurship and MSMEs as we committed ourselves to conducting research for innovation. Within Biological Sciences and Biotechnology, new areas such as vaccines, environmental biotechnology and peptides against amyloid  $\beta$ , Covid-19 inhibitors amongst other areas.

We have been fortunate to attract high accomplished research faculty from top IITs and universities in India and abroad with qualifications and experience from world class institutions. These research active faculty join the already existing research leaders at the University.

Research without application does not help us address the global challenges, whether they are to do with life-long health, climate change or resource depletion. Our ambition is to make a tangible contribution, exploiting interfaces at the discipline boundaries, to promote innovation.

Although we are a young and small institution, the benefits of our research in selected areas continues to be recognized across the research community. Research excellence at the Institute of Advanced Research is built around its thought-leaders in their respective fields, who provide the intellectual leadership. While part of the academic was disrupted because of the Covid-19 pandemic, research activities were maintained as the Government regulations allowed.

We invested significantly in enhancing the infrastructure. New state of the art facilities were created in plasma research and selected areas of engineering. Two new research laboratories are under construction as part of the new academic bloc, while biology and chemistry facilities were expanded.

We continue to attract funding from DST, DT, SERB, GUJCOST and GSBTM in addition to research and development funding from private organizations such as Tata. Dissemination of the research is reflected by number of research papers in top journals, seminars, webinars and workshops. Our research has also begun to yield patents

I am pleased to commend this report to you reflecting the research excellence at a small but rapidly growing research university.

Professor Rao Bhamidimarri  
President



## Institute of Advanced Research *The University for Innovation*

### **The University at a Glance**

Institute of Advanced Research (IAR) is an innovative modern university, which offers professionally focused undergraduate, postgraduate and research degree programs. IAR was established in 2006 with the support of the then President of India Dr A P J Abdul Kalam, who inaugurated the Institute, and the Prime Minister, Shri Narendra Modi, who was the then the Chief Minister of Gujarat. The University is financially supported by the Puri Foundation for Education in India, established by Professor Nathu Ram Puri, who is a leading industrialist in the UK with manufacturing and other businesses world-wide. IAR, which was established initially as a research institute, was awarded the University status under the Gujarat Private Universities Amendment Act, 2011. The University commenced offering educational programs in 2014 and currently has around 500 students in several undergraduate, masters and research degree programs.

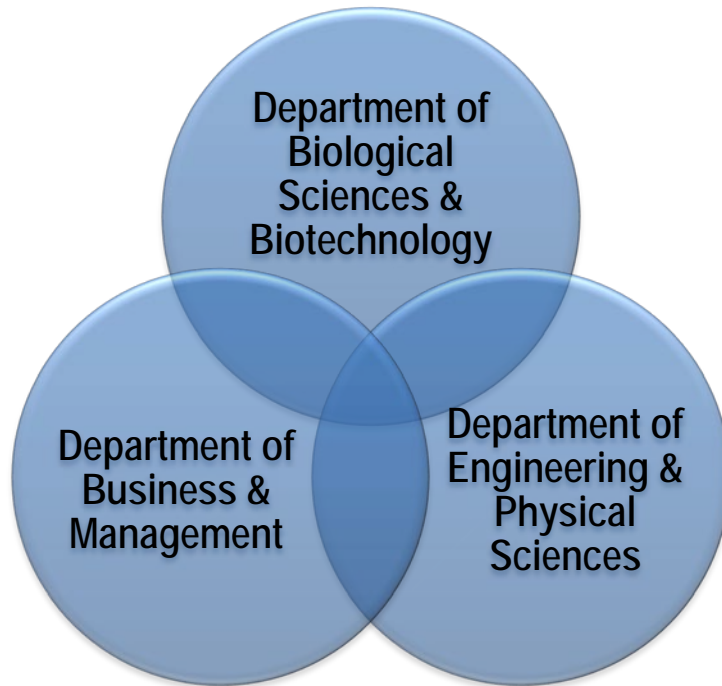
The University is a not-for-profit institution and its sole purpose is to promote world-leading education, research and innovation for young people in Gujarat and nationally. The campus is situated in a picturesque location on the banks of Sabarmati river in Gandhinagar, Gujarat. We have embarked on an ambitious campus expansion to ensure that our students receive the best learn experience alongside a high quality research environment.

The Institute is well respected for its high quality of research nationally and internationally, with the research being published in top international journals. Our commitment is to make an impact on our economy, society and the environment. To this end, our research is also being translated into patents.

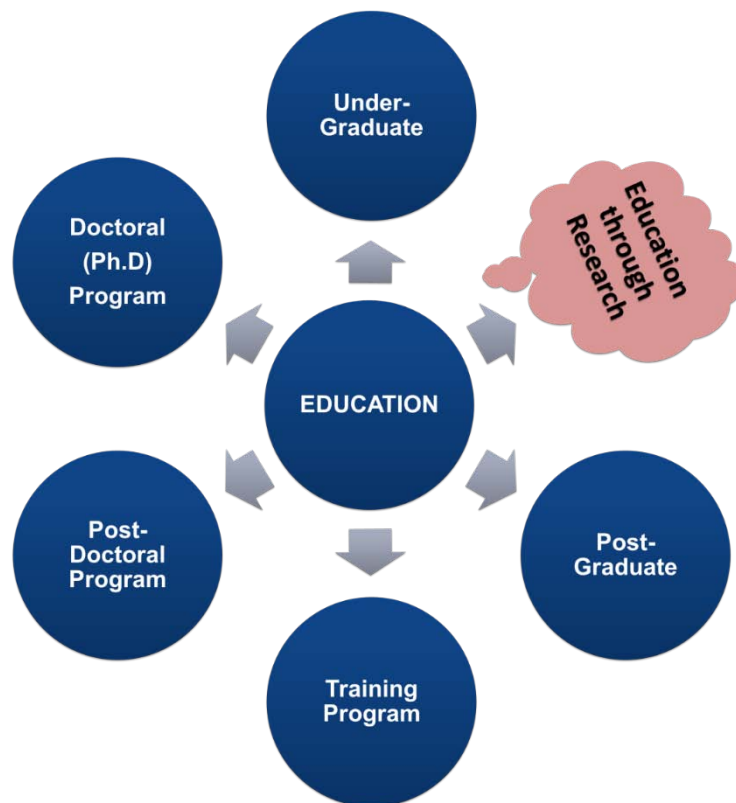
Research and innovation continue to be the University's *forte*. While research in Biotechnology continues to be recognised internationally, our research several other areas is emerging rapidly. We built a strong research and development team in Plasma. In addition, research in environmental technology, Impact of our research is reflected by the developmental research sponsored by blue chip companies such as Tata Group. Our research is beginning to lead to patents, which in due time will have impact on industrial innovation.

The University aspires to be the leading university in the private higher education sector nationally with strong international presence with a focus is quality rather than scale.

## Academic Departments



## Education Informed by Research



## Research Overview

IAR, strives to develop into a university of excellence in Research and Innovation keeping in mind the current and future requirements to match high standard in basic sciences, engineering, technology and humanities. The University encourages its faculty and other academic staff to undertake research projects to strengthen its research profile.

### Key Research Areas at IAR

#### 1) Plasma and its Applications

Industrial applications of plasma including levitation of dust particles, rotating electrode process for the production of micron-size spherical particles of a range of materials including metals, de-binding and sintering process, Plasma smelting and reduction of ferrous ores fines, and microwave plasma.

**Research Lead:** Prof. Ganesh Prasad



#### 2) Understanding the molecular details of Neurodegenerative Diseases

Neuro-inflammatory and neurodegenerative disorders. Pathophysiological processes and possible intervention strategies are being led from a range of perspectives.

**Research Lead:** Dr Anand K. Tiwari and Dr Reena Rajput

#### 3) Unlocking the Secrets of Cancer

Cellular signaling pathways of apoptosis, inflammation and their cross-talk and



their implications on cancer. A group is trying to explore the mechanisms of signal integration between inflammasome and other immune pathways.

**Research Lead:** Dr Reena Rajput and Dr Neeru Singh

#### 4) **Sensor Development**

Design and development of nano-sensors to sense the risk of cardiovascular disorders and plant pathogens.

**Research Lead:** Dr. Alok Pandya

#### 5) **Computational Biology**

Distributed Information Sub-Center by the Department of Biotechnology, Government of India, for research work in emerging areas of computational biology. Structural biology and recombinant therapeutic proteins, Application of machine learning and AI for protein structural analyses.

**Research Lead:** Dr Dhaval Patel

#### 6) **Mathematical Modelling**

Coincident detection and parameter estimation of gravitational waves emitted from binaries of compact objects such as neutron stars and black holes. Modelling and simulation are used to investigate a range of biological, environmental and engineering problems.

**Research Lead:** Dr Gurudatt Gaur

#### 7) **Plant Biotechnology**

The group is exploring the role of chloroplasts and plastid generated reactive oxygen species in abiotic stress-induced programmed cell death. Chemical de-priming and quantitative genetics for disease resistance and yield improvement in crops.

**Resource Lead:** Dr. Budhi Sagar Tiwari





**8) Novel Synthesis:** Development of Novel peptide synthesis methodologies, peptide based ionic liquids, peptidomimetics, synthesis of squalamine such as antimicrobial agents.

**Research Lead:** Dr Satyendra Mishra and Dr Roli Mishra

**9) Cryptography and Cyber Security:** Intrusion detection, wireless sensor networks and IoT.

**Research Lead:** Dr Sunil Gauham

**10) AI and ML:** Application of AI for litter detection, image analysis and ML for Covid-19 diagnosis.

**Research Lead:** Dr Sachin Sharma

**11) Energy and Environmental Technologies:** Thermal energy storage, energy from waste plastics, carbon dioxide sequestration. Development of novel technologies for industrial effluents, landfill leachate characterization and treatment, Wastewater treatment process modelling and analysis.

**Research Lead:** Dr Abhay Dinker





**12) Nanomaterials:** Nanostructured materials and nanocomposites. Nanofibers and applications. Light emitting materials.

**Research Lead:** Dr Niranjan Patra

**13) Enterprise Development:** Economics of education, growth and development, role of innovation in MSME and SME development. Science and entrepreneurship.

**Research Lead:** Dr Sharad Kumar

**14) Developmental Economics:** Operational aspects of MSMEs and their impact on financial viability, role of industry associations on the development of MSMEs.

**Research Lead:** Dr Radha Tiwari

### New Project Proposals Submitted

Sr. No.	Grant Title	PI /CO-PI	Proposed Budget (In Lakh)	Funding Agency	Department
1)	Study and analysis of MDC1 as biomarker in triple-negative breast cancer cells and as potential molecular target in combination therapy with PARP inhibitors	Dr. Neeru Singh	33.62	SERB, New Delhi	DBSB
2)	Structural and dynamic underpinnings of multi-protein assemblies – implications for disrupting inflammasomes by natural products	Dr. Reena Rajput (Co-PI); Dr. Manish Dutt (PI)	9.0	SERB, CRG Scheme, New Delhi	DBSB
3)	Repositioning Doxycycline as Anti-Cancer Therapy and Exploring its Synergy with extracellular ATP manipulation in Breast Cancer: Pre-Clinical and Early Clinical Exploration.	Reena Agrawal-Rajput (PI); Co-PI: Dr. Nivsarkar, Dr. Dave, Dr. Desai	52.35	GSBTM, Gujarat	DBSB
4)	Characterization of cellular Nitro-Oxidative	Dr. Budhi	41.61	GUJCOST,	DBSB

	environment under Salinity Stress that hampers Productivity and promotes Programmed Cell Death in Pea ( <i>Pisum sativum</i> )	Sagar Tiwari		Gujarat	
5)	Study of the Role of mitochondria generated Reactive Oxygen Species on neuronal function in Alzheimer's diseases and amelioration of AD pathologies using Vitamin E and Coenzyme Q10	Dr. Anand K. Tiwari	41.81	GUJCOST, Gujarat	DBSB
6)	Using Point-of-Care Ultrasound Images and AI for Faster, Safer and Accurate Diagnosis of COVID-19	Dr. Sachin Sharma	9.5	NRDC	DEPS
6)	Development and testing of thermoelectric generators using phase change materials for low voltage applications	Dr. Abhay Dinker (PI); Dr. Madhu Agarwal (Co-PI)	27.86	SERB, CRG Scheme, New Delhi	DEPS
8)	Development and Scaling of Graphene/Nano-copper Infused High Antiviral (Corona) Nano fabric as coronavirus protective equipment	Dr. Alok Pandya (PI) & Mr. Neel Panchal (Co-PI)	12.72	DST, New Delhi	DEPS
9)	Development of an aptamer-based rapid point of care diagnostic test for novel coronavirus	Dr. Alok Pandya (Co-PI) & Dr. Rakesh Rawal (PI)	11.1	GSBTM, Gujarat	DEPS
10)	A PESTEL Analysis on textile Industries in Gujarat	Dr. Haresh Narayan Pandey (PI); Dr. Radha Tiwari (Co-PI)	27.60	Indian Council of Social Science Research (ICSSR)-	DBM
11)	Pre-Project Proposal: "Process Improvisation in	Prof B. Rao & Dr. Abhay	Pre-Project	Research Council of	DEPS

	CO2 Capture Pilot Plant, energy integrated, and Intensified demonstration with slipstream electrochemical Conversion for electricity generation. (IndiaCO2-Phase-II) "	Dinaker In Collaboration with PDPU	Proposal	Norway LYSAKER, Norway	
--	--	---	----------	------------------------------	--

DST: Department of Sciences & Technology, New Delhi; SERB: Scientific Extramural Research Board, New Delhi; ICMR: Indian Council of Medical Research, New Delhi; ICSSR: Indian Council of Social Science Research; GSBTM: Gujarat State Biotechnology Mission, Gujarat

## Thriving Research Environment

### Ongoing Research Grants

Sr. No	Title of Grant	Faculty Name	Role (PI/Co-PI)	Award Year	Funding Agency	Grant (Lakh)
<b>Department of Biological Sciences &amp; Biotechnology</b>						
1)	Involvement of chloroplasts in oxidative stress-induced Programmed Cell Death (PCD): characterization of cytochrome f release from chloroplast and its interacting partners involved in cell death process	Dr. B.S. Tiwari	PI	2018	SERB, New Delhi	30
2)	Study of the role of Appl & Tau gene during mitochondrial axonal transport in Drosophila model of Alzheimer's disease	Dr. A.K. Tiwari	PI	2018	SERB, New Delhi	44.42
3)	Evaluation of immunogenicity and protective efficacy of bivalent vaccine candidate against Shigella and Salmonella using food-grade bacteria L. lactis.	Dr. Priti Desai	PI	2018	SERB, New Delhi	27.2
4)	Development of Environmentally and Economically Sustainable Composite Solution for Municipal Solid Waste Management	Dr. GS Vishwakarma	PI	2019	GSBTM	9.69

### Department of Engineering & Physical Sciences

1)	Development of plasma rotating electrode process to obtain high purity spherical metallic powders.	Dr. Ganesh Prasad	PI		BRNS	32.58
2)	3D ImmunoStrip for detection of Potato infection.	Dr. Alok Pandya	PI	2019	GSBTM	30.1

### Inter-departmental Research (Inter-disciplinary)

Sr. No.	Title of Grant	Faculty Name	Role (PI/Co-PI)	Award Year	Funding Agency	Amount Sanctioned (Lakh)
1)	Design and development of bio-inspired multi-layered membrane for Industrial wastewater treatment”	Dr. Alok Pandya/Dr. Dhaval/ D.Gjendra Vishwakarma	PI/Co-PI/ Co-PI	2020	DST, New Delhi	38.41

### External Collaborative Grants

Sr. No.	Title of Grant	Faculty Name	Role (PI/Co-PI)	Award Year	Funding Agency	Amount Sanctioned (Lakh)
1)	cFMS kinase blockade for Macrophage depletion as a potential immunotherapeutic strategy for antibiotic induced Immunosuppression.	Dr. Reena Rajput (PI); Dr. Manish Nivsarkar (Co-PI)	PI	2020	SERB, New Delhi	27.44

### Funds Mobilized From Non-Governmental Agencies

Sr. No.	Name of the Project/ Endowments, Chairs	PI	Department	Year	Funds provided (lakhs)	Duration (Month)	Funding Agency
1)	Demonstration of microwave	Dr. K.S. Ganesh	DEPS	2019	2	3	SAMATWA Jewels

	plasma	Prasad					
2)	Reduction of ferromanganese fines	Dr. K .S. Ganesh Prasad	DEPS	2019	79+GST	24	TATA STEELS

### Funded Projects Completed (2020)

Sr. No	Title of Grant	Faculty Name	(PI)	Funding Agency	Amount Sanctioned (Lakh)
1)	Deciphering the role of FADD and HMGB1 in subset to the regulation of NLRP3 inflammasome and cell proliferation	Dr. C.M. Pathak	PI	SERB, New Delhi	34.9
2)	Unravelling the Molecular Mechanism of Berberine against Neuroblastoma Immunosuppressive Tumor-microenvironment	Dr. R.A. Rajput	PI	GSBTM	21.91

### Infrastructure Grants

- **FIST Grant to Department of Biological Sciences & Technology (2020)**

Department of Biological Sciences & Biotechnology, Institute of Advanced Research Gandhinagar has received the “Fund (69 lakh) for Improvement of S&T Infrastructure (FIST)” from the Department of Science & Technology (DST), Government of India.

- **Supercomputer Facility (2020)**

IAR has received a Supercomputer facility supported by the Gujarat Council of Science and Technology (GUJCOST), Gujarat.

### Ph.D. students

Department of Biological Science and Biotechnology			
Sr. No.	Nam of Ph.D. Scholar	Reg. No.	Supervisor
1	Komal Rajendrakumar Panchal (Submitted)	UIAR/10300	Dr. Anand K. Tiwari

2	Ms. Bhatt Vidhiben Dhavalkumar	UIAR/11080	Dr. Anand K. Tiwari
3	Ms. Priyadarshi Khushbu Jashvantbhai (Submitted)	UIAR/10596	Dr. Chandramani Pathak
4	Ms. Foram Vaidya (Submitted)	UAIR/10599	Dr. Chandramani Pathak
5	Ms. Pooja Prashant Doshi	UIAR/11106	Dr. Chandramani Pathak
6	Ms. Bhatt Manasi Ashokbhai	UIAR/10811	Dr. Budhi Sagar Tiwari
7	Ms. Rohi Tusharkumar Bhatt	UAIR/11073	Dr. Budhi Sagar Tiwari
8	Mr. Vipin Tomar	UIAR/11078	Dr. Budhi Sagar Tiwari
9	Ms. Shah Dhruvi Urmilbhai	UIAR/10812	Dr. Reena Rajput
10	Mr. Naveen C R	UAIR/10839	Dr. Reena Rajput
11	Mr. Parameswar Dalai	UIAR/11356	Dr. Reena Rajput
12	Mr. Shivani Yadav	UIAR/11368	Dr. Reena Rajput
13	Ms. Hima Vatsal Vora	IAR/11590	Dr. Reena Rajput
14	Mr. Sachinkumar Amrutlal Vaidh	IAR/11591	Dr. Gajendra Singh
15	Ms. Anushree Ashok Kamath	IAR/11603	Dr. Dhara Patel
16	Mr. Bhargav Prakashchandra Pandya	IAR/11605	Dr. Priti Desai
17	Ms. Divyaben Kamleshbhai Tarwadi	IAR/11607	Dr. Priti Desai
18	Mr. Rajkishansinh Raghuvirsinh Thakor	IAR/11581	Dr. Dhaval Patel
19	Ms. Pandya Kavya Ajit*	Pending	To be determined
20	Ms. Dharni Mukesh kumar Parekh*	Pending	To be determined
21	Ms. Sagarika Saha*	Pending	To be determined

**Business & Management**

<b>Sr. No.</b>	<b>Nam of PhD Scholar</b>	<b>Reg. No.</b>	<b>Supervisor</b>
1	Ms. Kushwaha Manisha	UIAR/10813	Dr. Radha Tiwari
2	Mr. Thakkar Himanshu Dahyabhai	UIAR/10814	Dr. Radha Tiwari
3	Mr. Mithileshkumar Hiteswar Singh	IAR/11588	Prof. Rao Bhamidimarri
4	Mr. Priteshkumar Satishbhai Patil	IAR/11589	Prof. Rao Bhamidimarri

5	Mr. Rupesh Maheshprasad Kumar	IAR/11602	Prof. Rao Bhamidimarri
6	Mr. Aarsheykumar Pankajkumar Shah	IAR/11604	Prof. Rao Bhamidimarri
7	Mrs. Madhubanti Joydutta Dutta	IAR/11617	Prof. Rao Bhamidimarri
8	Mr. Kalpesh Vithlani*	Pending	To be determined
9	Mr. Jay Pandya*	Pending	To be determined
10	Mr. Amit Rupela*	Pending	To be determined
<b>Engineering and Physical Sciences</b>			
	<b>Nam of Ph.D. Scholar</b>	<b>Reg. No.</b>	<b>Supervisor</b>
1	Mr. Snehkrishn Aniruddha Chaubey	UIAR/10809	Dr. Roli Mishra
2	Mr. Verma Chetan	UAIR/10817	Dr. Gurudatt Gaur
3	Chandani Halpani	UIAR/11382	Dr. Satyendra Mishra
4	Sejal Patel	UIAR/11807	Dr. Satyendra Mishra
5	Patel Nidhi Miteshbhai	UIAR/11381	Dr Ganesh Prasad
6	Mr. Dipakkumar Amrutbhai Bariya	IAR/11571	Dr. Satyendra Mishra
7	Mr. Yash Bhagawatprasad Barot	IAR/11572	Dr. Roli Mishra
8	Mr. Azriel Anthony Henry	IAR/11593	Dr. Sunil Gautam
9	Mrs. Divya Dileep	IAR/11599	Dr. Gurudatt Gaur
10	Ms. Shubhangi Rajendrarao Deshmukh	IAR/11601	Prof. Rao Bhamidimarri
11	Ms. Nidhi Vijay Verma	IAR/11606	Dr. Alok Pandya
12	Ms. Rani Vinod Gupta	IAR/11653	Dr. Ganesh Bajad
13	Ms. Sushmita Anilkumar Mishra	IAR/11573	Dr. Gurudatt Gaur
14	Mr. Mukesh Choubisa*	Pending	To be determined
15	Ms. Nidhi Dubey*	Pending	To be determined
16	Ms. Ketaki Anandkumar Pattani*	Pending	To be determined
17	Mr. Prabhudutta Ray*	Pending	To be determined
18	Mr. Parmar Rahul Valabhai*	Pending	To be determined

\* Newly joined Ph.D. scholar in 2020 (11 students [3 DBSB; DBM 3; DEPS: 5])



Total No. of Ph.D. students: 21 (DBSB)+10 (DBM)+18 (DEPS)=49

## List of Students submitted their Theses

Following students have submitted their theses:

Sr. No.	Name of Student	Registration No.	Supervisor	Title of Thesis
1)	Komal Rajendrakumar Panchal	UIAR/10300	Dr. Anand K. Tiwari	Study of the Role of Miro, mitochondrial outer membrane protein in Drosophila model of Alzheimer's disease
2)	Ms. Priyadarshi Khushbu Jashvantbhai	UIAR/10596	Dr. Chandramani Pathak	Synthesis, Characterization and Biological evaluation of surface modified PAMAM dendrimer with Gallic acid for Anti-proliferative effects in cancer cells
3)	Ms. Foram Vaidya	UAIR/10599	Dr. Chandramani Pathak	Biological evaluation of Nanoformulated Anti-cancer agents: A Multifaceted approach to improve bioavailability, multi drug resistance and apoptotic cell death

## PhD Completions

Sr. No.	Registration Number	Name of Student	Authentication No.	Doctorate in	Thesis Title
1	10308	VINITA MISHRA	DC201910308100	Biotechnology	"Computational drug discovery for designing novel hTLR4 antagonist and their biological evaluation as anti-inflammatory/anti-proliferative agent"
2	10628	BHUMI PATEL	DC202010628100	Biotechnology	"Structural and Functional Characterization of Metabolic Pathway Proteins from Leishmania donovani as potential drug

## Publications (2019-20)

2019					
Sr. No.	Publication Type	DBSB	DEPS	DBM	Total
1)	Research Article	8	17	3	28
2)	Review Article	2	2	0	4
3)	Book Chapter	9	11	1	21
<b>Total</b>		<b>19</b>	<b>30</b>	<b>4</b>	<b>53</b>
2020					
Sr. No.	Publication Type	DBSB	DEPS	DBM	Total
1)	Research Article	24	14	4	42
2)	Review Article	3	6	0	09
3)	Book Chapter	8	10	0	18
<b>Total</b>		<b>35</b>	<b>30</b>	<b>4</b>	<b>69</b>
<b>Total 12019 and 2020</b>		<b>54</b>	<b>59</b>	<b>8</b>	<b>121</b>

### Details of publications:

#### 2019

#### Department of Biological Sciences & Biotechnology (DBSB) (19)

- 1) Mishra V, **Pathak C. (2019)**. Structural insights into pharmacophore assisted in silico identification of protein-protein interaction inhibitors for inhibition of human Toll-like receptor 4 – myeloid differentiation factor-2 (hTLR4-MD -2) complex. ***Journal of Biomolecular Structure and Dynamics***. 37:1968-1991. **(Research Article)**
- 2) Vaidya FU Sharma R, Shaikh S, Ray D, Aswal VK, **Pathak C. (2019)**. Pluronic micelles encapsulated Curcumin manifests apoptotic cell death and inhibits pro-

- inflammatory cytokines in Human breast adenocarcinoma cells. **Cancer Reports**, 2:1-e1133. <https://doi.org/10.1002/cnr2.1133>. **(Research Article)**
- 3) Mishra V, **Pathak C.** (2019). Human Toll-Like Receptor 4 (hTLR4): Structural and functional dynamics in cancer. **International Journal of Biological Macromolecules**. 122:425-451. **(Research Article)**
  - 4) Manglani K, Vijayan V, **Pathak C**, Khandelwal M, Singh P, Chellappa S, Yadav VK, Surolia A, Gupta S. (2019). Development and characterization of supramolecular calcitonin assembly and assessment of its interactions with the bone remodeling process. **Bone**. 122:123-135. **(Research Article)**
  - 5) Kulkarni PG, Shah N, Waghela BN, **Pathak C**, Pappachan A. (2019). *Leishmania donovani* adenylate kinase 2a prevents ATP-mediated cell cytolysis in macrophages. **Parasitology International**. 72:101929 <https://doi.org/10.1016/j.parint.2019.101929>. **(Research Article)**
  - 6) Rao TS, Mustfa SA, **Pathak C**, Ranjan K. (2019). "Cancer Immunotherapy: Future prospective with wide therapeutic spectrum". **Cancer Sci Res** 6. 1-8. **(Review Article)**
  - 7) **Pathak C**, Vaidya F.U. Pandey S.M. (2019). Mechanism for Development of Nanobased Drug Delivery System "Applications of Targeted Nano Drugs and Delivery Systems Nanoscience and Nanotechnology in Drug Delivery: A volume in Micro and Nano Technologies. DOI <https://doi.org/10.1016/C2017-0-00274-4>; ISBN 978-0-12-814029-1; Imprint Elsevier. **(Book Chapter)**
  - 8) A Manhas, **Patel D**, MY Lone, PC Jha. (2019). Identification of natural compound inhibitors against PfDXR: A hybrid structure-based molecular modeling approach and molecular dynamics simulation studies. **Journal of cellular biochemistry**. 120 (9),14531-14543. **(Research Article)**
  - 9) N Gour, V Kshtriya, S Gupta, B Koshti, R Singh, **D Patel**, KB Joshi. (2019). Synthesis and Aggregation Studies of Pyridothiazole Based AIEE Probe and its Application in Sensing Amyloid Fibrillation. **ACS Applied Bio Materials**. 2(10) 4442–4455. **(Research Article)**
  - 10) Patel B, Singh V, **Patel D.** (2019). Structural Bioinformatics Essentials of Bioinformatics, Understanding Bioinformatics: Genes to Proteins III, 169-199. **(Book chapter)**.
  - 11) Panchalk, **Tiwari AK.** (2019). Mitochondrial dynamics, a key executioner in neurodegenerative diseases. **Mitochondrion**. 47:151-173. **(Review Article)**

- 12) Pandey SS, Bhatt R, **Tiwari BS. (2019).** Plant Death: Short and Long Life Span to Immortality. ***Sensory Biology of Plants***. 601-619 (**Book Chapter**)
- 13) Singh S, **Tiwari BS. (2019).** Biosynthesis of High-Value Amino Acids by Synthetic Biology. ***Current Developments in Biotechnology and Bioengineering***. 257-294. (**Book Chapter**)
- 14) Gour N, Kanth P C, Koshti B, Kshtriya V, Shah D, Patel S, **Agrawal-Rajput R, Pandey MK. (2019).** Amyloid-like Structures Formed by Single Amino Acid Self-Assemblies of Cysteine and Methionine. *ACS Chem Neurosci*. 20;10(3):1230-1239. (**Research article**).
- 15) Nisarg G., Panchasara H., Patel S., **Singh V. (2019).** “Molecular Biology 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. 203-226. (**Book Chapter**).
- 16) Bhattacharjee G., Khambhati K., **Singh V. (2019).** “RNA-Guided CRISPR-Cas9 System for Removal of Microbial Pathogens” chapter in Microbial genomics in sustainable agroecosystems, eds Tripathi V., Kumar P., Tripathi P., Singh AK. Springer. 227-248. (**Book Chapter**).
- 17) Bhattacharjee G., Mani I., Gohil N., 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**. pp 39-44. (**Book Chapter**).
- 18) 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 Baudh, Elsevier pp. 501-516. (**Book Chapter**).
- 19) 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 Baudh, Elsevier pp. 615-568. (**Book Chapter**).

#### **Department of Engineering & Physical Sciences (DEPS) (31)**

- 1) Sutariya PG, Soni H, Gandhi SA, **Pandya A. (2019).** Luminescent behavior of pyrene-allied calix[4]arene for highly pH selective recognition and determination of Zn<sup>2+</sup>, Hg<sup>2+</sup> and I<sup>-</sup> via CHEF-PET mechanism: Computational experiment and paper based device, **New J. Chem.** 43, 9855-9864. (**Research Article**)

- 2) Sutariya PG, Soni H, Gandhi SA, **Pandya A. (2019)**. Novel tritopic calix[4]arene CHEF-PET fluorescence paper based probe for La<sup>3+</sup>, Cu<sup>2+</sup>, and Br<sup>-</sup> computational investigation and application to real samples, **Journal of Luminescence**. 212 , 171-179. **(Research Article)**
- 3) Sutariya PG, Soni H, Gandhi SA, **Pandya A. (2019)**. Single-step fluorescence recognition of As<sup>3+</sup>, Nd<sup>3+</sup> and Br<sup>-</sup> using pyrene -linked calix[4]arene: application to real samples, computational modelling and paper-based device, **New Journal of Chemistry**. 43, 737-747. **(Research Article)**
- 4) Sutariya PG, Soni H, Gandhi SA, **Pandya A. (2019)**. Novel luminescent paper based calix [4] arene chelation enhanced fluorescence-photoinduced electron transfer probe for Mn<sup>2+</sup>, Cr<sup>3+</sup> and F<sup>-</sup>, **Journal of Luminescence**. 208, 6-17. **(Research Article)**
- 5) Ansari N, Sutariya PG, **Pandya A. (2019)**. Nano-tools for illicit sensing: advances and challenges in forensic investigation, **Nova Science Publishers, USA**, ISBN: 978-1-53616-040-6. **(Book Chapter)**
- 6) **Pandya A**, Roz HB and Shukla RK. **(2019)**. Role of Nanotechnology in Forensic Document Examination and Preservation, **Nova Science Publishers, USA**, ISBN: 978-1-53616-040-6**(Book Chapter)**
- 7) Raijiwala P, **Pandya A**, Shukla RK. **(2019)**. An Analytical Approach to Investigate Nanoparticle– Protein Corona Complexes, Book: Nanoparticle–Protein Corona: Biophysics to Biology Edited by Ashutosh Kumar and Alok Dhawan, The Royal Society of Chemistry, ISBN:978-1-78801-391-8. **(Book Chapter)**
- 8) Prajapati A, **Pandya A. (2019)**. Nanosensor for body fluid identification: recent advances and future opportunities, Nova Science Publishers, USA, ISBN: 978-1-53616-040-6. **(Book Chapter)**
- 9) Ansari N, Sutariya P, **Pandya A. (2019)**, Nano-tools for illicit sensing: advances and challenges in forensic investigation, **Nova Science Publishers, USA**, ISBN: 978-1-53616-040-6. **(Book Chapter)**
- 10) Pandya A. Roz H. and K Shukla R. **(2019)**. Role of Nanotechnology in Forensic Document Examination and Preservation, **Nova Science Publishers, USA**, ISBN: 978-1-53616-040-6. **(Book Chapter)**
- 11) Raijiwala P, **Pandya A**, Shukla R. **(2019)**. An Analytical Approach to Investigate Nanoparticle– Protein Corona Complexes: Nanoparticle–Protein

- Corona: Biophysics to Biology Edited by Ashutosh Kumar and Alok Dhawan, **The Royal Society of Chemistry**, ISBN:978-1-78801-391-8 (**Book Chapter**)
- 12) Prajapati A, **Pandya A.** (2019). Nanosensor for body fluid identification: recent advances and future opportunities, **Nova Science Publishers**, USA, ISBN: 978-1-53616-040-6. (**Book Chapter**)
- 13) Patel RJ, **Chandra RS**, Patel Y. (2019). Synthesis and Investigation of Mesomorphic Properties of Ester Linkage containing Compounds. **International, Jour. For Res. in App. Sci. and Eng. Tech.**7(4):1411-1416. (**Research Article**)
- 14) Kher SN, Prajapati HR, Makwana NG, **Chandra RS**. (2019). Dependence of mesomorphism on terminal polar group in novel azoester series group in novel azoester series, **LCMC**. 682(1):44-53. (**Research Article**)
- 15) Mehta DR, **Chandra RS**, Maisuria MM. (2019). Thermodynamic Studies of Complexes of Amlodipine Besylate with  $Fe^{3+}$ ,  $Ni^{2+}$ ,  $Mg^{2+}$ ,  $Co^{2+}$  and  $Ca^{2+}$  cations in pure Methanol and in the mixtures of Methanol-Water at 303.15, 313.15 and 323.15 K by Conductometric Method. **Int. Jour.of App.Chem.**15(2):133-143. (**Research Article**)
- 16) **Mishra S**, Halpani CG, Sejal S. (2019). Updates In Curcumin Pyrazole and Isoxazole Derivatives: Synthesis and Biological Application. **Chemistry & Biodiversity**16(3), e1800366. (**Review Article**)
- 17) **Mishra S**, Halpani CG. (2019). Nickel-Catalyzed Heck Reaction of Aryl Halides and Terminal Olefins Using Zinc/Triflate Ligand/DMA/TBAB, **ChemistrySelect**, 23(4) 6913-6916. (**Research Article**)
- 18) **Mishra S**. (2019). Quinazolinone and Quinazoline Derivatives: Synthesis and Biological Application, **IntechOpen**, 75 ISBN: 978-1-83880-140-3. (**Book Chapter**)
- 19) **Mishra R**, Mishra JS, Chaubey SA. (2019). Recent Advances on Triazolium Ionic Liquids: Synthesis and Applications. **Current Organic Chemistry**23(11): 1237-1253 (**Review Article**)
- 20) **Padariya N**, Patel N. (2019). A Survey on Future Modernization of Agriculture using IOT "Journal of Emerging Technologies and Innovative Research (JETIR)". VI: 2349-5162. (**Survey paper**)
- 21) Gedam S, Chaudhary A, Vijayakumar R, Goswami A, **Bajad G.**(2019). Thermal, mechanical and morphological study of Carbon nanotubes-Graphene oxide and

- Silver nanoparticles based Polyurethane composites. **Materials Research Express**. Vol 6. No. 8,1-12. (Research Article)
- 22) Sahni M., Shah D, **Sahni R. (2019)**. A new modified accelerated iterative scheme using amalgamation of fixed point and NR method, **Journal of Interdisciplinary Mathematics**, vol. 22: 679-688. (Research Article)
- 23) Shah D, Sahni M, **Sahni R. (2019)**. Comparison of Newton-Raphson and Kang's Method with newly developed Fuzzified He's Iterative method for solving nonlinear equations of one variable, **WSEAS Transactions on Mathematics**, Vol. 18:6-13. (Research Article)
- 24) Sahni M, **Sahni R.**, Verma R, Mandaliya A., Shah D. (2019). Second Order Cauchy Euler Equation and Its Application for Finding Radial Displacement of a Solid Disk using Generalized Trapezoidal Intuitionistic Fuzzy Number, **WSEAS Transactions on Mathematics**, Vol. 18:37-45. (Research Article)
- 25) Sahni M, Mandaliya A, **Sahni R. (2019)**. Evaluation of Teachers' Performance Based on Students' Feedback Using Aggregator Operator, **WSEAS Transactions on Mathematics**, vol.18: 85 – 90. (Research Article)
- 26) Shah D, Sahni M, **Sahni R. (2019)**. Solution of Algebraic and Transcendental Equations using Fuzzified He's Iteration Formula in terms of Triangular Fuzzy Numbers. **WSEAS Transactions on Mathematics**, vol.18:91-96. (Research Article)
- 27) Sahni M, **Sahni R.**, Verma R., Mandaliya A., Shah D. (2019). Generalized Trapezoidal Intuitionistic Fuzzy Number for Finding Radial Displacement of a Solid Disk. **WSEAS Transactions on Mathematics**, vol. 18:105 – 111. (Research Article)
- 28) Sahni M, Mandaliya A, **Sahni R. (2019)**. Ranking of Teachers Based on Feedback from the Students using Multiple Subjects, **WSEAS Transactions on Mathematics**, 13; 7 – 12. (Research Article)
- 29) **Gaur, G. (2019)**. as part of LIGO Scientific Collaboration and Virgo Collaboration (B.P. Abbott et al.), GWTC-1: A Gravitational-Wave Transient Catalog of Compact Binary Mergers Observed by LIGO and Virgo during the First and Second Observing Runs Published in **Phys. Rev. X** 9, 031040. (Research Article)



- 30) Mishra P, **Talati I**, Shaikh A. (2019). Supply Chain Network Optimization Through Player Selection Using Multi-objective Genetic Algorithm, *Optimization and Inventory Management, Springer, Singapore*, 281-315. **(Book Chapter)**
- 31) Shaikh A, Mishra P, **Talati I**. (2019). Allocation of Order Amongst Available Suppliers Using Multi-objective Genetic Algorithm, *Optimization and Inventory Management, Springer, Singapore*, 317-329. **(Book Chapter)**

#### **Department of Business & Management (DBM)**

1. Thakkar H, **Tiwari R**. (2019). An Empirical Assessment of Gujarat Textile Policy 2012: Industrial Compatibility and Policy Support for Textile Industries. *IJMTE*, 9(4):4635-4652. **(Research Article)**
2. Kushwaha M, **Tiwari R**. (2019). A Pragmatic Approach of Budgeted Expenditure on Social Sector in Gujarat. *IJRAR*, 6(1): 837-843. **(Research Article)**
3. **Rathod, D**. (2019). Student - Centred Curriculum Design and Market Demand of English Language. D. B. Hathi, Redefining the Methods of Curriculum: Designing and Delivering. *M P Arts & M H Commerce*: 168-174. **(Book Chapter)**
4. **Rathod, D**. (2019). Deconstructing Language Teaching Approach for E-learners. *Laglit*. 6(2): 76-80 **(Research Article)**

**2020**

#### **Department of Biological Sciences & Biotechnology (DBSB) (35)**

- 1) Kallio P, Jokinen E, Högström J, **Das S**, Heino S, Lähde M, Brodtkin J, Korhonen E A, Alitalo K. (2020). Blocking angiopoietin-2 Promotes Vascular Damage and Growth Inhibition in Mouse Tumors Treated with Small Doses of Radiation. *Cancer Res.* 2020 Jun 15;80(12):2639-2650. doi: 10.1158/0008-5472.CAN-20-0497. **(Research Article)**
- 2) Waghela B.N., Vaidya F.U, Chhipa A.S., Ranjan K., Tiwari B.S., **Pathak C**. (2020). AGE-RAGE synergy influences Programmed Cell death signaling to promote cancer. *Molecular and Cellular Biochemistry* DOI : 10.1007/s11010-020-03928-y. **(Research Article)**
- 3) Ranjan K, Waghela B.N., Vaidya F.U. and **Pathak C**. (2020). Cell penetrable peptide conjugated FADD induces apoptosis and regulates inflammatory signaling in cancer cells. *Int. J. Mol. Sci.*, 21, 6890; doi:10.3390/ijms21186890. **(Research Article)**

- 4) Waghela BN, Vaidya FU, Agrawal Y, Santra MK, Mishra V, **Pathak C. (2020)**. Molecular Insights of NADPH Oxidases (NOX) and Its Pathological Consequences. **Cell Biochemistry and Function**. 2020;1–17. <https://doi.org/10.1002/cbf.3589>. **(Research Article)**
- 5) Vaidya F.U, Chhipa A.S., Mishra V, Gupta V.K., Rawat S.G, Kumar A &**Pathak C. (2020)**. Molecular and Cellular Paradigms of Multidrug Resistance in Cancer. **Cancer Reports**. DOI: 10.1002/cnr2.1291. **(Research Article)**
- 6) Priyadarshi K, Shirsath K, Waghela B., Sharma A., Kumar A., **Pathak C. (2020)**. Surface modified PAMAM Dendrimers with Gallic acid inhibits, cell proliferation cell migration and inflammatory response to augments apoptotic cell death in human colon carcinoma cells. **Journal of Biomolecular Structure & Dynamics**. <https://doi.org/10.1080/07391102.2020.1802344>. **(Research Article)**
- 7) Waghela B.N., Vaidya F.U, Dave G., and **Pathak C. (2020)**. Inhibition of NADPH oxidase activity augments 5-fluorouracil mediated cell Death in human colon carcinoma cells, **Int. J. Adv. Res.** 8(07), 865-874. **(Research Article)**
- 8) Varma R., Pandya J., Vaidya F.U., **Pathak C**, Bhatt B.S. and Patel M.N. (2020). Biological activities of pyrazoline-indole based Re(I) carbonyls: DNA interaction, antibacterial, anticancer, ROS production, lipid peroxidation, in vivo and in vitro cytotoxicity studies. **Chemico-Biological Interactions**. [doi.org/10.1016/j.cbi.2020.109231](https://doi.org/10.1016/j.cbi.2020.109231). **(Research Article)**
- 9) Varma R., Pandya J., Vaidya F.U., **Pathak C**, Bhatt B.S. and Patel M.N. (2020). Synthesis, Characterization and Biological Application of Ppyrazolo [1,5-a]pyrimidine] Based Organometallic Re(I) Complexes. **Acta Chimica Slovenica**. DOI: 10.17344/acsi.2020.6017. **(Research Article)**
- 10) Patel N.J, Bhatt B.S., Vekariya P.A., Vaidya F.U., **Pathak C.**, Pandya J., & Patel M.N. (2020). Synthesis, characterization, structural-activity relationship and biomolecular interaction studies of heterolepticPd(II) complexes with acetyl pyridine scaffold. **Journal of Molecular Structure** <https://doi.org/10.1016/j.molstruc.2020.128802>. **(Research Article)**
- 11) Pursuwani B.H., Bhatt B.S., Vaidya F.U., **Pathak C.&** Patel M.N. (2020). Oxadiazole based Os(IV) compounds as potential DNA intercalator and cytotoxic agents. **Inorganic Chemistry Communications**. <https://doi.org/10.1016/j.inoche.2020.108070>.**(Research Article)**

- 12) Doshi P., Bhargava P., Singh V., **Pathak C.**, Joshi C., Joshi M. (2020). Escherichia coli strain engineering for enhanced production of serratiopeptidase for therapeutic applications. *International Journal of Biological Macromolecules*. <https://doi.org/10.1016/j.ijbiomac.2020.05.256>. (Research Article)
- 13) Bhatt B.S., Gandhi D.H., Vaidya F.U., **Pathak C.** & Patel T.N. (2020). Cell apoptosis induced by ciprofloxacin based Cu(II) complexes: Cytotoxicity, SOD mimic and antibacterial studies, *Journal of Biomolecular Structure and Dynamics*, DOI: 10.1080/07391102.2020.1776641. (Research Article)
- 14) Kanthecha D.N., Bhatt B.S., Raval D.B., Thakkar V.R., Vaidya F.U., **Pathak C.** & Patel M.N. (2020). Bipyrazole based novel bimetallic  $\mu$ -oxo bridged Au(III) complexes as potent DNA intercalative, genotoxic, anticancer, antibacterial and cytotoxic agents. *Journal of Inorganic and Organometallic Polymers and Materials*. DOI: <https://doi.org/10.1007/s10904-020-01618-2>. (Research Article)
- 15) Pursuwani B. H., Bhatt B.S., Vaidya F.U., **Pathak C.** & Patel M.N. (2020). Tetrazolo[1,5-a]quinoline moiety-based Os(IV) complexes: DNA binding/cleavage, bacteriostatic and photocytotoxicity assay, *Journal of Biomolecular Structure and Dynamics*, DOI: 10.1080/07391102.2020.1756912. (Research Article)
- 16) Varma R.R., Pandya J.G., Sharma J., **Pathak C.** & Patel M.N (2020). DNA interaction, in vivo and in vitro cytotoxicity, reactive oxygen species, lipid peroxidation of –N, S donor Re(I) metal complexes. *Molecular Diversity*, DOI <https://doi.org/10.1007/s11030-020-10040-2>. (Research Article)
- 17) Priyadarshi K., Mishra R., Sharma A., and **Pathak C.** (2020). Application of Dendrimers in drug delivery: A multifaceted approach" *Int. J. Sci. Res* 9(4) 1-17| DOI:10.36106/ijsr. (Research Article)
- 18) Parmar M.P., Waghela B.N., Vaidya F.U, **Pathak C.** & Parmar D.P. (2020) "Evaluation of Antimitotic Activity of Herbal Extracts Using Plant-Based Model Systems and Their Cytotoxic Potential against Human Colon Carcinoma Cells", *Journal of Cancer Research and Therapeutics*. DOI: 10.4103/jcrt.JCRT\_853\_19. (Research Article)
- 19) **Pathak C.**, Vaidya F.U., Waghela B.N., Chhipa A.S., Tiwari B.S., & Ranjan K (2020) Advanced glycation end products mediated oxidative stress and regulated cell death signalling in cancer; Chakraborti, Sajal, Ray, Bimal K, Roychowdhury,

Sushanta (Eds.) ***Handbook of Oxidative Stress and Cancer***. Springer-Nature, ISBN 978-981-15-9412-0 **(Book Chapter)**

- 20) Vaidya F.U., Chhipa A.S., Sagar N & Pathak C. (2020). Oxidative stress and inflammation can fuel cancer; In Maurya et al. (Eds) ***Role of oxidative stress in pathophysiology of disease***. Springer, Singapore. DOI: [https://doi.org/10.1007/978-981-15-1568-2\\_14](https://doi.org/10.1007/978-981-15-1568-2_14). ISBN: 978-981-15-1567-5. **(Book Chapter)**
- 21) Desai P, Tarwadi D, Pandya B, Yagnik B. (2020). Immunoinformatic Identification of Potential Epitopes In Immunoinformatics. Humana, New York, NY. (pp. 265-275) **(Book Chapter)**.
- 22) Verma N., Sharma S., Vishwakarma GS., and Pandya A., (2020) Plant Stimulant to Nanotoxicity: Recent Advancements and Opportunities. ***Current Nanotoxicity and Prevention***, 1, 1-11. **(Review Article)**
- 23) Vishwakarma GS, Bhattacharjee G, Gohil N, Singh V., (2020) Current status, challenges and future of bioremediation in chapter ***Bioremediation of pollutants: From genetic engineering to genome engineering***. Elsevier ISBN: 9780128190258 **(Book Chapter)**
- 24) Bhattacharjee G, Gohil N, Vaidh S, Joshi K, Vishwakarma GS., (2020) Microbial bioremediation of industrial effluents and pesticide. in chapter ***Bioremediation of pollutants: From genetic engineering to genome engineering*** Elsevier ISBN: 9780128190258 **(Book Chapter)**
- 25) Verma N., Vaidhya S., Vishwakarma GS., Pandya A., (2020). Antimicrobial nanomaterials for water disinfection. ***Prevention and Antibacterial Applications of Nanomaterials***. Elsevier, ISBN: 9780128199435. **(Book Chapter)**
- 26) Tiwari AK, Tiwari BS. (2020). Cyanotherapeutics: an emerging field for future drug discovery. ***Applied Phycology***. 1:1-14. **(Review Article)**
- 27) Ambastha V, Chauhan G, Tiwari BS and Tripathy BC. (2020). Execution of programmed cell death by singlet oxygen generated inside the chloroplasts of *Arabidopsis thaliana*. ***Protoplasma*** 257(3):841-851. **(Research Article)**
- 28) Ambastha V, S.K. Sopory, B.C. Tripathy and Tiwari BS (2020). Salt induced programmed cell death in rice: evidence from chloroplast proteome signature. ***Functional Plant Biology*** doi: 10.1071/FP19356. Online ahead of print. PMID: 32702286. **(Research Article)**

- 29) Waghela BN, Vaidya FU, Chhipa AS, Ranjan K, **Tiwari BS**, Pathak C (2020). Advanced glycation end products mediated oxidative stress and regulated cell death signalling in cancer. In: Handbook of Oxidative Stress and Cancer Springer Verlag. (Accepted for publication) (**Book Chapter**)
- 30) Panchal K, **Tiwari AK**. (2020). Miro, a Rho GTPase genetically interacts with Alzheimer's disease-associated genes (Tau, A $\beta$ 42 and Appl) in **Drosophila melanogaster**. *Biology Open*. 9 (9). (**Research Article**)
- 31) Panchal K, Bhatt V, Raval M, **Tiwari AK**. (2020). Heat Shock Proteins, a Key Modulator of Neuroinflammation in Alzheimer's Disease. **Springer, Dordrecht**. 1-57. [https://doi.org/10.1007/7515\\_2020\\_12](https://doi.org/10.1007/7515_2020_12) (**Book Chapter**)
- 32) Challagundla N and Agrawal-Rajput R. (2020). microRNAs (miR 9, 124, 155 and 224) transdifferentiate macrophages to neurons. *bioRxiv*.07.19.210633; <https://doi.org/10.1101/2020.07.19.210633>. (Research article)
- 33) Panchal K, **Tiwari AK**. (2020). Miro (Mitochondrial Rho GTPase), a key player of Mitochondrial axonal transport and mitochondrial dynamics in neurodegenerative diseases. **Mitochondrion (In Press)** (**Review Article**)
- 34) **Patel D\***, et al. (2020). Computational investigation of binding of chloroquinone and hydroxychloroquinone against PLPro of SARS-CoV-2. **J. Bio. Structure & Dynamics(In Press)** (<https://doi.org/10.1080/07391102.2020.1844804>). (**Research Article**).
- 35) Sharma A\*, Vora J\*, **Patel D\***, et al. (2020). Identification of natural inhibitors against prime targets of SARS-CoV-2 using molecular docking, molecular dynamics simulation and MM-PBSA approaches. *J. Bio. Structure & Dynamics*, 1-16 (10.1080/07391102.2020.1846624). (**Research Article**). (\* equal contribution)

#### **Department of Engineering & Physical Sciences (DEPS) (30)**

- 1) Verma, N; Sharma, S., Vishwakarma GS, **Pandya A.**, (2020). Plant Stimulant to Nanotoxicity: Recent Advancements and Opportunities. **Current Nanotoxicity and Prevention**, 1, 1-11. (**Review Article**).
- 2) Kongor A,Panchal M, Athar M, Vora M, Verma N, **Pandya A**, Jha PC, Bhadresha K, Rawal R, Jain V. (2020). Colorimetric and electrochemical sensing of As (III) using calix [4] pyrrole capped gold nanoparticles and evaluation of its cytotoxic

- activity, *Journal of Inclusion Phenomena and Macrocyclic Chemistry*. 98: 29–41. (Research Article)
- 3) Sutariya PG, Soni H, Gandhi SA, **Pandya A.** (2020). Turn on fluorescence strip based sensor for recognition of Sr<sup>2+</sup> and CN via lower rim substituted calix [4] arene and its computational investigation, *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*. 118456. (Research Article)
  - 4) Shah J, **Pandya A**, Goyal P, Misra SK, Singh S. (2020). BSA-Decorated Magnesium Nanoparticles for Scavenging Hydrogen Peroxide from Human Hepatic Cells, *ACS Appl. Nano, Mater.* 3, 4, 3355–3370. (Research Article)
  - 5) Prajapati A, Verma N, **Pandya A.**(2020). Highly sensitive vertical flow-based point-of-care Immunokit for rapid and early detection of human CRP as a cardiovascular risk factor, *Biomedical Microdevices*. 28,22(2),28. (Research Article)
  - 6) **Gautam S**, Om H, Kumar D. (2020). “Intrusion Detection System in Internet of Things” Design Frameworks for Wireless Networks, pp. 65-93, Springer. (Book Chapter)
  - 7) Sharma N, **Gautam S**, Henry A, Kumar A. (2020). “Application of Big Data and Machine Learning” Machine Learning and Big Data: Concepts, Algorithms, Tools and Applications, pp. 305-333, Willey Scrivener Publishing. (Book Chapter)
  - 8) **Gautam S**, Prajapati R, Om Hari, (2020). “Big Data Applications in Transportation System using Internet of Things” *Handbook of Research for Big Data: Concepts and Techniques*, Taylor & Francis. (Book Chapter)
  - 9) **Sharma S.** (2020). Drawing Insights from COVID-19 Infected Patients Using CT Scan Images and Machine Learning Techniques: A study on 200 Patients "Environmental Science and Pollution Research". *Environ Sci Pollut Res Int.* 1–9. doi: 10.1007/s11356-020-10133-3. (Springer Nature) (Research Article)
  - 10) Jayaraj P B, Limna Das P, Akondi Sai Manoj and **Sharma S.** (2020). Early Detection of Covid-19 on CT Scans Using Deep Learning Techniques: International Conference on Computing and Network Communications (CoCoNet'20), Proceedings in **SpringerLink digital library** (Review Article)
  - 11) Mehta DR, **Chandra RS**, Maisuria MM. (2020). Thermodynamic Studies of Complexes of Amlodipine Besylate with Ni<sup>2+</sup>, Mg<sup>2+</sup>, Co<sup>2+</sup> and Ca<sup>2+</sup> cations in pure and in mixed binary solvent systems at 303.15, 313.15 and 323.15 K by

- Conductometric Method. *Int. Jour. of Chem.Tech. Res.*13(1):206-216.  
(Research Article)
- 12) **Mishra S** and Patel S. (2020). Design, Synthesis, and Anti-bacterial Activity of Novel Deoxycholic Acid- Amino Alcohol Conjugates, *Medicinal chemistry*16(3) 385 – 391. (Research Article)
- 13) **Sanghvi H** and **Mishra S.**(2020). Structure-Activity Relationship and Antimicrobial Evaluation of N-Phenylpyrazole Curcumin Derivatives, *Curr. Bioact. Compd.*14(4),481 – 488. (Research Article)
- 14) **Kalepu R** and **Mishra S.**(2020). Lewis acid catalyst system for Diels–Alder reaction. *J. Chem. Sci.*132(48). (Research Article)
- 15) **Mishra R,** **Mishra S.** (2020). Updates in Bile Acid-Bioactive Molecule Conjugates and Their Applications, *Steroids*,159, 108639. (Review Article)
- 16) **Halpani C G,** **Mishra S.** (2020). Lewis acid catalyst system for Claisen-Schmidt reaction under solvent free condition. *Tet Lett.* 61 (31), 152175. (Research Article)
- 17) **Gupta R K,** **Apte G R,** **Lokhande, K B,** **Mishra S,** **Pal J K.** (2020). Carbohydrate-Binding Agents: Potential of Repurposing for COVID-19 Therapy. *Curr. Protein Pept. Sci.* (Review Articles) .
- 18) **Priyadarshi K,** **Mishra R,** **Sharma A,** and **Pathak C.** (2020). Application of Dendrimers in drug delivery: A multifaceted approach, *Int. J. Sci. Res,* 9(4). (Review Article)
- 19) **Chaubey S A,** **Mishra R.**(2020). Synthesis of Task Specific Imidazolium Ionic Liquid as an Efficient Catalyst in Acetylation of Alcohols, Phenols and Amines *Chemical Papers* 74, 3259–3268. (Research Article)
- 20) **Muwal PK,****Mishra R** and **Pandey PS.** (2020). Novel Bile Acid Based 1,2,3-Triazole Receptors for Recognition of Acetate and Dihydrogen Phosphate Ions *Chemistry Select,* 5,10982–10987. (Research Article)
- 21) **Chaubey SA,** **Patra N** and **Mishra R.**(2020). Synthesis of novel proline-based imidazolium ionic liquids, *Monatshefte für Chemie - Chemical Monthly,* 151, 1409–1417. (Research Article)
- 22) **Mishra R,** **Mishra S** (2020). Synthesis and Therapeutic Applications of Pyrazole Scaffold. *Nova Science Publishers.* ISBN: 978-1-53618-250-7. (Book Chapter)



- 23) Enamala MK, Chavali M, Tangellapally A, Pasumarthy D, Murthy MK, Kuppam CS, Chaudhary V, **Mishra R**, Naradasu D (2020). Use of chalcogenides-based nanomaterials for wastewater treatment including bacterial disinfection and organic contaminants degradation. Elsevier Publishers ISBN: 978-0-12-820498-6. **(Book Chapter)**
- 24) **Padariya N**, Patel N. (2020). Quality Grading Classification of Dry Chillies using Neural Network *Lecture Notes on Data Engineering and Communications Technologies (LNDECT)* Springer publication ISSN : 2367-4512". **(Research Article)**
- 25) Shaikh A, Mishra P, Talati I. (2020). Allocation of Order Amongst Available Suppliers Using Multi-objective Genetic Algorithm Optimization and Inventory Management 317-329, Springer. **(Book Chapter)**.
- 26) Mishra P, Talati I, Shaikh A. (2020). Supply Chain Network Optimization Through Player Selection Using Multi-objective Genetic Algorithm Optimization and Inventory Management 281-315, Springer. **(Book Chapter)**.
- 27) Sahni, M., **Sahni, R.** (2020). Analysis of Orthotropic Variable Thickness Rotating Disc. ***Structural Integrity Assessment***, 479 – 486. **(Book Chapter)**.
- 28) **Choubisa M.** (2020). "Big Data Applications in Transportation System using Internet of Things" Handbook of Research for Big Data: Concepts and Techniques, Taylor & Francis **(Book Chapter)**.
- 29) Verma N., Patel D., **Pandya A.** (2020). Emerging diagnostic tools for detection of COVID-19 and perspective. ***Biomedical Microdevices.*** (In Press). (<https://doi.org/10.1007/s10544-020-00534-z>). **(Review Article)**
- 30) **Dinaker A** et al.,(2020). Modelling and simulation of helical coil embedded heat storage unit using beeswax/expanded graphite composite as phase change material. Publication in Book Series "Advances in Intelligent System and Computing". Springer Nature. (Book Chapter)

### **Department of Business & Management (DBM)**

- 1) Kushwaha, M., **Tiwari, R.**, & Thakkar, H. (2020). An Empirical Investigation of Public Expenditure on Education and Economic Growth in Gujarat. *Our Heritage*, 68:23,60-77. **(Research Article)**

- 2) Thakkar, H., & **Tiwari, R. (2020)**. Active Mechanism of Industries Associations in the Sustainable development of Micro Small and Medium Enterprises in Gujarat- An Assessment. *SIJSS*,18:3,26 (**Research Article**)
- 3) Thakkar, H., & **Tiwari, R. (2020)**. Exploring hurdles faced by Industry Associations to mitigate water pollution: Study of CETP facilities, *GJSS*,3:2, 64-72. (**Research Article**)
- 4) Singh, A., **Das U**, Kumar, S. (2020). Gender, Technology, and Innovation: The Role of Women in Indian Micro Small and Medium Enterprises. '*World Review of Entrepreneurship, Management and Sustainable Development*'; Inderscience Publishers (In press) (**Research Article**)
- 5)

### **Patents Filed (2019-20)**

<b>Sr. No.</b>	<b>Authors Name</b>	<b>Title</b>	<b>Patent No.</b>	<b>Year</b>
1	Prajapati A, Pandya A	"Rapid flow through based point-of-care Immuno-Kit for the early detection of heart fatty acid-binding protein (h-FABP) on myocardial infarction"	PTIN/0020444	2020
2	Raijiwala P, Pandya A, Shukla R	A nano based immunoassay forensic blood detection kit	PTIN/0019434	2020
3	Pathak CM, Mishra V, Tiwari S, Waghela B N., Vaidya FU., Kapoor N, Kumar D	Novel Caffeic Acid Analogs as Toll-like receptor 4 Antagonists	Application No. 201921039249	2019

**Scheme of Developing High-quality research  
(SODH) fellowships from Government of Gujarat**

Department of Education, Government of Gujarat strives to facilitate and promote qualitative research in emerging areas in Humanities, Social Sciences, Languages, Literature, Pure sciences, Engineering & Technology, Pharmacy, Medical, and Agricultural Sciences etc. Therefore, to facilitate and encourage young research scholars for undertaking research, the Department of Education, Government of Gujarat has initiated the Scheme Of Developing High-quality research (SHODH). The following students from the Institute of Advanced Research received the SODH scholarships.

<b>Sr. No.</b>	<b>Student Name</b>	<b>Guide Name</b>	<b>Title of the SODH Proposal</b>
<b>Department of Biological Sciences &amp; Biotechnology</b>			
1	Chhipa Abu Sufiyan Shahid	Dr. Chandramani Pathak	Reprogramming Programmed Cell Death and Survival Pathways in Cancer via Regulation of Oxidative Stress and metabolic switch through stat3 and pkm2 signaling pathway
2	Kamath Anushree Ashok	Dr. Dhara Patel	Rhizobacterial determinants mediated elicitation of plant defense mechanism against fungal phytopathogens.
3	Vaidh Sachinkumar Amrutlal	Dr. Dhara Patel	To investigate the leachate treatment potential of immobilized white-rot fungi loaded with metallic nanoparticles
4	Parameswar Dalai	Dr. Reena Agrawal Rajput	To test the anti-cancer potential of Doxycycline via modulation of the Tumor-microenvironment.
5	Vora Hima Vatsal	Dr. Reena A Rajput	to test the improved efficacy of glycopeptide conjugate of Berberine for its anti-cancer potential and effect on the tumor microenvironment
6	Tarwadi Divyaben Kamleshbhai	Dr. Priti Desai	Evaluating the Immunogenicity of Recombinant Outer Membrane Proteins (OMPs) against salmonella
7	Thakor Rajkishansinh Raghuvirsinh	Dr. Suvendu Das	“Designing and Characterization of amyloid Based Biomembrane for Metal Binding as a sustainable solution for Contaminated Water”
<b>Department of Engineering &amp; Physical Sciences</b>			
1	Dipakkumar Bariya	Dr. Satyendra Mishra	Design, Synthesis of Bile Acid Based Conjugates and Their Pharmacological and

			Physicochemical Applications
2	Nidhi Verma	Dr. Alok Pandya	Design and Development of Paper Based low cost Immunokit for Early Detection of Plant Pathogens.

### **Newly Accredited Ph.D. Supervisor (2020)**

The following faculties have been recognized as Ph.D. Supervisor during the year 2020.

<b>Sr. No.</b>	<b>Name of Faculty</b>	<b>Designation</b>	<b>Department</b>
1)	Dr. Dhaval Patel	Assistant Professor	DBSB
2)	Dr. Gajendra Singh	Assistant Professor	DBSB
3)	Dr. Ruchi Singh	Assistant Professor	DBSB
4)	Dr. Dhara Rathod	Assistant Professor	DBM
5)	Dr. Niranjana Patra	Assistant Professor	DEPS
6)	Dr. Raviprakash Chandra	Assistant Professor	DEPS
7)	Dr. Sunil Gautam	Assistant Professor	DEPS
8)	Dr. Ganesh S Bajad	Assistant Professor	DEPS
9)	Dr. Deepalakshmi	Assistant Professor	DEPS
10)	Dr. Sachin Sharma	Assistant Professor	DEPS

DBSB: Department of Biological Sciences & Biotechnology

DBM: Department of Business & Management

DEPS: Department of Engineering & Physical Sciences

## Seminar/Webinar/Workshop Organized

Webinars Delivered:

Sr. No.	Date	Title of Webinar	Speaker/s
1	23/04/2020	Rapid Point-of-Care Diagnostic Testing In a Pandemic Environment.	Dr. Alok Pandya
2	30/04/2020	Covid-19 and Drug Development	Dr. Dhaval Patel
3	07/05/2020	Early & Accurate Diagnosis of Covid-19 using CT scan images & AI techniques.	Dr. Sachin Sharma
4	15/05/2020	Impact of Lockdown due to Covid19 on Economic Development.	Dr. Jay Joshi
5	21/05/2020	Impact of Covid-19 infection on brain and nervous system.	Dr. Anand K. Tiwari
6	25/05/2020	Cold Atmospheric Plasma Gateway for Disinfection.	Prof. K.S. Ganesh Prasad
7	28/05/2020	Novel CoronaVirus (Covid-19): Preventive Vaccines and Therapeutics.	Dr. Priti Desai
8	29/05/2020	Covid-19 Crisis and Cyber Security.	Mr. Naresh Kumar
9	01/06/2020	Institutional Design & Student Support for Excellence	Dr. Ruchi Singh
10	04/06/2020	Cellular and Molecular Insights into innate immunopathology of Covid-19.	Dr. Reena Agrawal Rajput
11	25-27/06/2020	Novel Polymer Composite for Mitigation of Covid-19.	Dr. S Sridhar, CSIR-IICT, Hyderabad; Dr. Vijaykumar R P, VNIT, Nagpur; Mr. Himalaya Vardikar, CIPET, Chandrapur; Dr. Ganesh Bajad, IAR Gandhinagar
12	15/06/2020	Cyber Crime Protective Strategies	Dr. Varun Kapoor (IPS), ADGP, Indore, MP.
13	19/10/2020	Blooms taxonomy	Dr Ajeet Kumar Rai, BHU, Varansi
14	06/11/2020	Outcome-based education	Dr Sriram Seshdri, Nirma University

## Workshops Organized (2019-20)

Sr. No.	Program detail	Theme/Title	Duration	Funding	Coordinator
1	Workshop	5 Days workshop on Microscopy	8-12/4/2019	GSBTM, Local Venders	Dr. Anand K. Tiwari & Dr. Budhi Sagar Tiwari
2	Workshop	7th PSSI-Plasma Scholars Colloquium	8-10/8/2019	-	DEPS
3	Workshop	One Day workshop on Recent Trends of Cloud Computing	28/08/2019	-	Dr. Sunil Gautam
4	Symposium	National Symposium on Basic & Translational Research in cancer Biology	11-12/9/2019	GSBTM, Local Venders	Dr. C.M. Pathak
5)	e-Workshop	Online Workshop on novel polymer composites for mitigation of Covid 19	25-27/6/2020	IAR	Dr. Ganesh Bajad
6)	Workshop	Python for data science	10/2/2020	Amkay Software Solution	Dr. Sachin Sharma
7)	Crash workshop	CSIR-UGC-NET exam	18-23/5/2020	GSBTM	Dr. Reena Rajput

## Collaborations

IAR has been actively collaborating with other academic and research Institutes/Universities for further strengthen her focused research areas. Recently University has extended coloration with Industries as well in some key areas of research. The details of collaborations are as follows:

Sr. No.	Faculty Name	Department	Name of Collaborator	Nature of Collaboration
1	Prof. Ganesh Prasad	DEPS	Tata Steel	Research & Development
2	Dr. Alok Pandya	DEPS	Mr. Neel Shah, LHP nanotechnology, Ahmedabad,	Research & Development
3	Dr. Alok pandya	DEPS	Mr. Anil Peddi, Reckcon Diagnostics	Research & Development
4	Dr. Reena Agrawal-Rajput	DBSB	Dr. Manish Nivsarkar, BV Patel PRD Centre, Ahmedabad	Research & Development
5	Dr. Reena Agrawal-Rajput	DBSB	Dr. Manish Dutt, Ahmedabad University	Research & Development
6	Dr. Reena Agrawal-Rajput	DBSB	Dr. Jean-Christophe Bourdon, University of Dundee	Research & Development (Had submitted Newton Bhabha fellowship application)
			Dr. Chirag Desai, Vedanta, Ahmedabad	Research & Development
			Dr. Heena Dave, Nirma University	Research & Development

## Awards & Honours (2019-20)

### 2019

#### International Travel Support:

- a) Dr. Priti Desai was awarded travel support from BactiVac group, University of Birmingham, UK to attend 2nd Annual Network Meeting held between 20 - 21 March.
- b) Ms. Komal Panchal, Ph.D. students, DBSB has been awarded travel support from DMM, the company of Biologist to attend 26<sup>th</sup> European Drosophila Research Conference (EDRC)-2019 organized at Swiss Tech Convention Centre at EPFL, Lausanne, Switzerland during 5 -8 September, 2019.
- c) Mr. Naveen CR has been awarded travel support to attend EMBO workshop on the theme "The impact of bacterial infections on human cancer" to be held between 26-29 October 2019 at Berlin, Germany
- d) Mr. Naveen CR has been awarded travel support to attend IUIS-IIS-FIMSA Course on "Basic and Advanced Translational Immunology" to be held between Oct 12-Oct 16, 2019 at Jaipur
- e) Dr. Priti Desai, DBSB has been awarded travel from the Chinese Society for Immunology (CSI), to attend the 17th International Congress of Immunology (IUIS 2019) which will be held during 19-23 October 2019, in Beijing, China

#### IAR Best Research & Innovation Award 2019

To promote research and innovation activities at IAR, IAR is offering best Research and Innovation award each year. Prof. Ganesh Prasad, Department of Engineering and Physical Sciences has received IAR best research & Innovation award in 2019.

#### IAR Best Teacher Award

Dr. Divya Dileep, Department of Engineering and Physical Sciences has received IAR best teacher award in 2019.

### 2020

- a) Dr. Sachin Sharma, Assistant Professor, Dept of Engineering and Physical Sciences has received the following awards:
  - **Special Mention Award** in Fight Corona Ideathon" organized by AICTE in the educators and researcher's category
  - **2nd Runner Up** in COVID-19 hackathon organized by Vadodara Innovation Council and Yuvalay Labs. Came 3rd out of final 100 short-listed entries



- **Award with prize money in “Samhar COVID-19 Hackathon”** organized by Centre for Development of Advanced Computing (C-DAC) under the aegis of the National Supercomputing Mission (NSM), a Ministry of Electronics & Information Technology (MeitY) and Department of Science & Technology (DST) initiative.

**b) IAR best Research & Innovation Award 2020:**

Dr. Reena Agarwal Rajput, Associate Professor, Department of Biological Sciences & Biotechnology has received the best research and innovation award in the year 2020.

**c) IAR Best Teacher Award**

Dr. Suvendu Das, Department of Biological Sciences and Biotechnology has received IAR best teacher award in 2020.

**d) IAR Best Employee Award**

Mr. Manga Ji, gardener received the best employee award in 2020.

## **Memorandum of Understanding**

IAR had signed the following Memorandum of Understanding:

- 1) IAR signed MOU with **Talent Sprint Centre of Excellence (TSCOE)** for transformational high-end and deep-tech learning programs to our students. The Company's digital platform offers a hybrid onsite/online experience to seekers of deep technology expertise.
- 2) **SSIP (Student Startup and Innovation Policy)**, Govt of Gujarat has signed MOU with IAR for sensitization and support the innovation and ideas of students for two years. Now, IAR will be a Nodal Institute to execute the action plans and strategies to support the innovation and ideas of students
- 3) **Caliche global company:** collaboration (MOU) with IAR in petroleum biotechnology research
- 4) **MoU with Atal Incubation Center**, Gujarat Technological University, Ahmedabad for support in viable enterprise/Startup with a specific focus on Healthcare, Medical Devices and Biotechnology and allied areas.



IAR signed MoU with Atal Incubation Center”–Gujarat Innovation and Startup Center Foundation (AIC-GISC) promoted by Gujarat Technological University and supported by Atal Innovation Mission, NITI Aayog, Government of India.

## GSIRF (Gujarat State Institutional Rating Framework)

The Institute of Advanced Research was placed 24<sup>th</sup> in the GSIRF Rankings. There were a total of 71 universities in Gujarat

## Research Advisory Committee (RAC), 2020

<b>Chairperson:</b>			
	<b>Name</b>	<b>Designation and Organization</b>	<b>Email Ids</b>
1	Dr. Raksh Vir Jasra	Sr. Vice President, (R&D), Reliance Industries Ltd., Vadodara Manufacturing Centre, Vadodara 391346, Gujarat	<a href="mailto:rakshvir.jasra@ril.com">rakshvir.jasra@ril.com</a>
<b>Members:</b>			
2	Prof. Suman Kumar Dhar	Special Centre for Molecular Medicine Molecular Medicine, JNU Delhi	<a href="mailto:skdhar@mail.jnu.ac.in">skdhar@mail.jnu.ac.in</a> ,
3	Prof. Tapan Choudhary	Kusuma School of Biological Sciences, Indian Institute of Technology, Delhi, Hauz Khas, New Delhi– 110016	<a href="mailto:tkchaudhuri@bioschool.iitd.ac.in">tkchaudhuri@bioschool.iitd.ac.in</a>
4	Prof. Rajiv Gupta	Department of Chemistry,	<a href="mailto:rgupta@chemistry.du.ac.in">rgupta@chemistry.du.ac.in</a>

		University of Delhi, North Campus, Mall Road, Delhi – 110 007	
5	Prof. Surjit Mukherjee	Department of Physics, MS University Baroda	<a href="mailto:sk.mukherjee-phy@msubaroda.ac.in">sk.mukherjee-phy@msubaroda.ac.in</a>
6	Prof. Pramod Damodar Paliwal	School of Petroleum Management, Pandit Deendayal Petroleum University, Raysan Gandhinagar-382007	<a href="mailto:Pramod.Paliwal@spm.pdpu.ac.in">Pramod.Paliwal@spm.pdpu.ac.in</a>
7	Prof. Bhamidimari Rao	President, Institute of Advanced Research, Gandhinagar	<a href="mailto:president@iar.ac.in">president@iar.ac.in</a>
8	Dr. Anand K. Tiwari	Department of Biological Sciences & Biotechnology, Institute of Advanced Research, Gandhinagar	<a href="mailto:anandk.tiwari@iar.ac.in">anandk.tiwari@iar.ac.in</a>

### University Research Committee (URC) 2020

Sr. No.	Name of Member	Designation	Designation
1)	Prof. Rao Bhamidimarri	President, IAR Gandhinagar	Chairperson
2)	Prof. Ganesh Prasad	Prof, DEPS, IAR, Gandhinagar	Member
3)	Dr. Anand K. Tiwari	Dean, Research & Innovation, IAR, Gandhinagar	Member
4)	Dr. Gurudatt Gaur	Dean, Academics, IAR Gandhinagar	Member
5)	Dr. Priti Desai	Head, DBSB, IAR, Gandhinagar	Member
6)	Dr. Abhay Dinker	Head, DEPS, IAR, Gandhinagar	Member
7)	Dr. Sharad Kumar	Head, DBM, IAR, Gandhinagar	Member
8)	Dr. Vivek Anand	Assistant Professor, DEPS, IAR Gandhinagar	Member
9)	Mr. Ritesh Thakkar	In charge, Ph.D. Section, IAR, Gandhinagar	Member Secretary

## Eureka – Science and Innovation Conclave

Institute of Advanced Research organizes Eureka – Science and Innovation conclave annually bringing together some 400 students from secondary schools, colleges and universities from across Gujarat. Students’ research and innovation projects are presented in the form of posters, business competitions and presentations. A range of awards are made as adjudicated by faculty from universities and colleges, and businessmen



## Faculty Profiles

### Prof K S Ganesh Prasad

Professor  
PhD: Gujarat University  
Post Doc: IPR, Gujarat  
Marseillie, France  
Research Interests:  
Industrial Plasma  
Applications, Industrial  
Electronics, Engineering  
Product Development



### Dr Budhi Sagar Tiwari

Associate Professor  
PhD: Banaras Hindu  
University  
Post Doc: Bose Institute,  
Kolkata; HUJI, Israel  
RU, New Jersey; UNL,  
USA; SLU, Sweden  
Virginia Tech, SA  
Research Interests:  
Photosynthesis PCD &  
Anhydrobiosis



### Dr Anand K Tiwari,

Associate Professor  
PhD: Banaras Hindu  
University  
Post Doc: Indian Institute of  
Toxiology Research, UP  
Research Interests:  
Drosophila Neurobiology  
Genetics, Dev. Biology



### Dr Reena Agrawal Rajput

Associate Professor  
PhD: NCCS – Pune  
University  
Post Doc: B V Patel PERD  
Centre, Ahmedabad  
NIPER, Ahmedabad  
Research  
Interests: Immunology and  
Regenerative Medicine



**Dr Gurudatt Gaur**  
Assistant Professor  
PhD: IPR  
Post Doc: IPR, Gujarat  
Research  
Interests:Gravitational Wave  
, Astronomy, Plasma  
Physics



**Dr Priti Desai**  
Assistant Professor  
PhD: Bhavnagar University  
Post Doc:NIPER,  
Ahmedabad  
Research Interests:Infection  
& Immunity, Vaccine  
Development,  
Biotherapeutics



**Dr Abhay Dinker**  
Assistant Professor  
PhD: MNIT  
Research Interests:  
Energy Storage,  
Simulation and Modelling  
Green Energy



**Dr Jay Joshi**  
Assistant Professor  
PhD: Sardar Patel  
University  
Research Interests:  
Finance Accounting,  
General Management,  
Law



**Dr Ganesh Bajad**  
Assistant Professor  
PhD: VNIT  
Research  
Interests:Synthesis  
ofNanomaterial and  
polymer nano  
composits.



**Dr Sharad Kumar**  
Assistant Professor  
PhD: IIT Kharagpur  
Research Interests:  
Entrepreneurship,  
HealthcareManagement



**Dr Roli Mishra**  
Assistant Professor  
PhD: Allahabad  
University  
Post Doc:IISC Banglore  
University of Minnesota,  
USA, IIT, Delhi  
Research  
Interests:Novel  
SyntheticMethodologies,  
Ionic Liquid



**Dr Radha Tiwari**  
Assistant Professor  
PhD: CSJM University  
Research Interests:  
DevelopmentalEconomic  
s, Endogenous factor  
analysis.





**Dr Ritu Sahani**

Assistant Professor  
PhD: Jaypee Institute of Information Technology  
Research Interests:  
Applications of Fixed Point theorems,  
Application of Fuzzy Set theory, Solid Mechanics Problem, Fractals and Chaos



**Dr Dhara Rathod**

Assistant Professor  
PhD: Bhavnagar University  
Research Interests:  
Psycholinguistic Feminism  
Partition Fiction



**Dr Alok Pandya**

Assistant Professor  
PhD: Gujarat University  
Post Doc: Ahmedabad University  
Research Interests:  
Nano Chemistry, Nano Biotechnology,  
Diagnostics Kit Development



**Dr Ravi Prakash Chandra**

Assistant Professor PhD:  
Gujarat University  
Research Interests: Supra-molecular Chemistry, Ion Sensing Device, Liquid Crystals



**Dr Satyendra Mishra**

Assistant Professor  
PhD: Allahabad University  
Post Doc: IISc, Bangalore, University of Connecticut, USA, University of Minnesota, USA, IIT, Delhi  
Research Interests:  
Organic Synthesis, Medicinal Chemistry



**Dr Sachin Sharma**

Assistant Professor  
PhD: Gujarat Technology University  
Research Interests: Image Processing, Artificial Intelligence, NLP, Computer Vision



**Dr Dhara Patel**

Assistant Professor  
PhD: Gujarat University  
Post Doc: Gujarat University, Ahmedabad  
Research Interests: Agricultural Microbiology, Applied Microbiology



**Dr G S Vishwakarma**

Assistant Professor  
PhD: Central University of Punjab  
Research Interests:  
Wastewater Treatment, Solid Waste Treatment, Water Quality Monitoring, Bioremediation



**Dr Dhaval Patel**

Assistant Professor  
PhD: M S University  
Research Interests:  
Protein structure and  
function, Computational  
Biology, Structural  
Biology, Bioinformatics



**Dr Sudhir Bhatt**

Assistant Professor  
PhD: University of Pierre  
and Marie Curie, France  
Post Doc: Old Dominion  
University, USA  
Research  
Interests: Experimental  
Plasma Physics, Plasma  
Medicine  
Coating and Smart  
Surfaces, Condensed  
Matter Physics



**Dr Vivek Anand**

Assistant Professor  
PhD: IIT Madras  
Research Interests:  
Synthesis of conjugated  
polymers and small  
molecules, Study of white  
light emission and  
Aggregation – induced  
emission of organic  
molecules.



**Dr Suvendu Das**

Assistant Professor  
PhD: JNU, Delhi  
Post Doc: Centre for  
Cellular and Molecular  
Biology, Hyderabad, Mount  
Sinai School of Medicine,  
USA, University of Helsinki,  
Finland  
Research  
Interests: Angiogenesis,  
Tumor Metastasis



**Dr Deepalakshmi**

Assistant Professor  
PhD:  
Research  
Interests: BioFuels,  
NanoTechnology



**Dr Anjali Mishra**

Assistant Professor  
PhD: Dr B R Ambedkar  
University, Agra  
Research Interests: BioFuel,  
Method Validation for  
drugs, Pesticides,  
formulation and residue  
analysis



**Dr Niranjan Patra**  
Assistant Professor  
PhD: University of  
Genova  
Post Doc:Imperial  
College, University of  
Wyoming, USA, Friedrich-  
Alexander-Universitat  
Erlangen- Germany,  
Technical University of  
Liberec. Czech Republic.  
Research Interests:  
Additive manufacturing  
(3D Printing) of materials



**Dr Ishanki Bhardwaj**  
Assistant Professor  
PhD: IIT Delhi  
Research Interests::  
SupramolecularChemistry  
, Peptidomimetics



**Dr Ruchi Singh**  
Assistant Professor  
PhD:  
PurvanchalUniversity,  
Jaunpur  
Research  
Interests:Bioinformatics,  
Proteomics



**Dr Isha Talati**  
Assistant Professor  
PhD: PDPU, Gujarat  
Research Interests:  
OptimizationTechniques  
, Inventory  
Management, Ship route  
optimization in ice field



**Dr Sunil Gautam**  
Assistant Professor  
PhD: ISM Dhanbad,  
Jharkhand  
Research Interests:  
Intrusion  
DetectionSystems  
Wireless Sensor Network  
Internet of Things



**Mr. R C Goswami**  
Assistant Professor  
PhD: Gujarat University  
(in progress)  
Research Interests:  
Internet of Things  
Wireless Sensor Network,  
Mobile Adhoc Network





**Dr Arvind Saxena**

Assistant Professor  
PhD: PRL, Ahmedabad  
Post Doc:PRL, Ahmedabad  
Oulu University, Finland  
University of Latvia,  
Institute of Atomic Physics  
and Spectroscopy, Latvia  
Max-Planck Centre for  
Attosecond Science, South  
Korea, IPR, Gandhinagar  
Research  
Interests:Experimental  
Atomics and Plasma Physics



**Dr Mangilal Choudhary**

Assistant Professor  
PhD: IPR, Gujarat  
Post Doc:JLU, Germany  
Research  
Interests:Experimental  
Plasma Physics,  
Experimental Dusty  
Plasma, Low Temperature  
Plasma



**Dr Tvarit Patel**

Assistant Professor  
PhD: IIT Gandhinagar  
Research Interests:  
Min Film Solar Cell,  
Polymer Composite,  
Nano Materials



**Dr Rajesh Handa**

Assistant Professor  
PhD: Gujarat Technical  
University  
Research  
Interests:Economic  
Policies



**Dr Ankit Oza**

Assistant Professor  
PhD: PDPU, Gujarat  
Research Interests:  
Micro Machining  
Non-Traditional  
Machining, Hybrid  
Machining Process



**Dr Ankita Joshi**

Assistant Professor  
PhD:DAVV, Indore  
Research Interests:  
Students Migration for  
higher education, Internal  
and International  
Migration, Rural-Urban  
youth migration related  
studies



**Dr Sujata Behera**  
Assistant Professor  
PhD: Nirma University,  
Gujarat  
Research Interests:  
Valuation Models  
and Other Accounting,  
Financial Performance  
Issues



**Dr Ujjwal Das**  
Assistant Professor  
PhD: Central University  
of Assam  
Post  
Doc: EDI, Ahmedabad  
Research Interests:  
Finance  
and Accounting



**Dr Neeru Singh**  
Assistant Professor  
PhD: Delhi University  
Post Doc: IIT Gandhinagar  
Research Interests: Cancer  
Biology, Cell Biology,  
Cancer Therapeutics



**Dr Arpit Shukla**  
Assistant Professor  
PhD: Gujarat University  
Research  
Interests: Agricultural  
Microbiology



**Dr Sudhakar Ingole**  
Assistant Professor  
PhD: Central  
University of  
Gujarat,  
Gandhinagar  
Research  
Interests: Culture,  
Language,  
Literature



**Dr Rachana Gupta**  
Assistant Professor  
PhD: MNIT, Jaipur  
Research Interests:  
Image Processing,  
Machine Learning,  
Signal Processing



**Dr Vishal Vyas**  
PhD: IIT, Mumbai  
Research Interests:  
Non-Linear Vibration of  
Structure



**Dr Keyur Patel**  
PhD: IIT-RAM,  
Research Interests:  
Control & Robotics, EV  
Design, Embedded  
System



**Dr Sumit Kumar**

PhD: Central University  
of Rajasthan

Research Interests:  
Product Control Process  
CentralBayesian



## Research and Development Funding Agencies

Institute of Advanced Research gratefully acknowledges research and development support received of the following agencies and industries:





॥ जीवो ब्रह्मैव नापरः ॥



THE PURI FOUNDATION FOR EDUCATION IN INDIA



INSTITUTE OF ADVANCED RESEARCH  
*The University for Innovation*



**Institute of Advanced Research, *the*  
*University for Innovation*  
Koba Institutional Area  
Gandhinagar  
382426  
Gujarat India**