



MANIPAL
UNIVERSITY

Manipal University Research Bulletin

July-September, 2016



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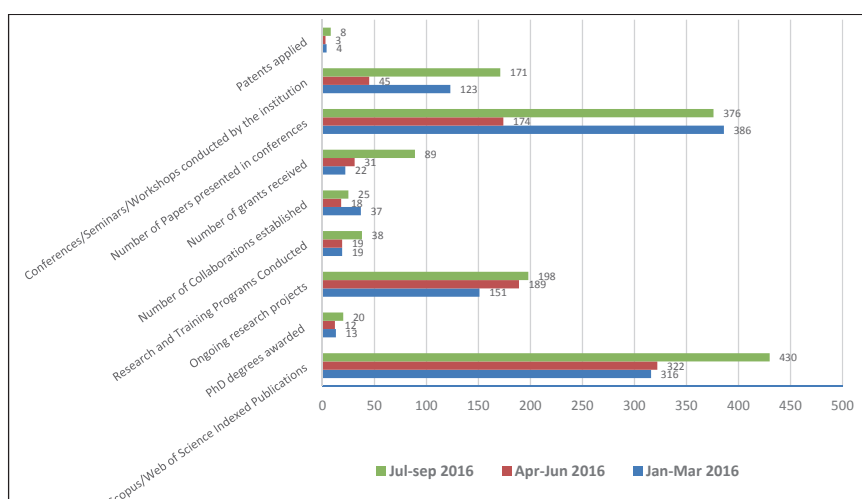
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Part I

Manipal University (MU) is one of the premier universities in India. MU considers both academics and research equally important for the betterment of an institution. The faculty members and the research scholars at MU have embraced the research culture. They publicize their research work in scientific publications, through presentations in various conferences and obtaining patents, research grants etc. In this report, we present to you an overview of the research activities at Manipal University for the period Jul-Sep 2016.

A. Details of Research Activities of Manipal University for the period Jul - Sep 2016



B. Faculty Achievements

1. Dr Yeshwanth Rao K, Professor, Department of Pharmacology, completed a four-month Australian Executive Endeavour Fellowship in James Cook University (JCU), Queensland, Australia in the area of technology in education, medical education and professional development. During this period, he facilitated a three year MoU between MU and JCU. Dr Rao also carried out a research project titled "Evaluating the impact of an integrated blended e-learning program on learning delivery and enhancement in medical education".



2. Mr Abraham Samuel Babu has been appointed as an Honorary Research Fellow in the Department of Cardiology, Austin Health, University of Melbourne, Melbourne, Australia for a period of 5 years from Sep 2016. Abraham, visited



the University last year as an Endeavour Fellow.

His academic and clinical prowess impressed his supervisor, Prof David Hare, leading to this prestigious invitation. In his honorary position he will continue to be associated with the department in research and clinical development of rehabilitation programs for pulmonary hypertension (his doctoral thesis).

3. Manipal University Association of Pharmacy Students (MAPS) is the only body in India to get IPSF MiA recognition.

MAPS, a student body of Manipal College of Pharmaceutical Sciences (MCOPS), Manipal, became the first organisation in the country to receive the Membership in Association (MiA) recognition by the International Pharmaceutical Students' Federation (IPSF). MAPS was accorded membership during the 62nd IPSF General Assembly session held at Harare, Zimbabwe in Aug 2016. The advantages of the membership are many. To list a few, it will help MAPS to contribute towards global pharmacy education and professional development programmes, public health campaigns and other projects of the federation worldwide. Student exchange programmes and pharmacy internships will get a big boost at MCOPS following this affiliation. IPSF is one of world's oldest international student organization of pharmacy students and pharmacists and it represents more than 320,000 pharmacy and pharmaceutical sciences students and recent graduates in 80

countries. Headquartered in The Hague in Netherlands, IPSF is associated with World Health Organization and United Nations Educational, Scientific and Cultural Organization and works closely with the International Pharmaceutical Federation (FIP).

4. The fourth 'DBT-AIST International Laboratory for Advanced Biomedicine (DAILAB@MU-Manipal)' was inaugurated at the School of Life Sciences, Manipal on 4 Aug 2016. This collaborative arrangement between the two institutions aims at exchange of research knowledge, education and training in the areas of mutual expertise in the field of biomedicine.

Dr Vinod Bhat (Vice-Chancellor, Manipal University, Manipal), Dr Yoshihiro Ohmiya (Director, BMRI-AIST, Japan), Dr Yoshiaki Onishi (BMRI-AIST, Japan), Dr Ramjee (Director, International Relations, Manipal University, Manipal), Dr Sunil Kaul and Dr Renu Wadhwa (AIST, Japan) graced the occasion in the presence of Dr M S Valiathan (National Research Professor, Manipal University, Manipal) and Dr K Satyamoorthy (Director, SLS, Manipal University, Manipal). A memorandum of understanding was also signed during the event.

5. Dr T Vamshi Krishna, Assistant Professor (Senior Scale), Department of Pharmaceutics, Manipal College of Pharmaceutical Sciences, successfully completed his post-doctoral fellowship at Laboratory of Biomedical Vibrational Spectroscopy (LEVB), Instituto de Pesquisa e Desenvolvimento (IP&D), Universidade do Vale do Paraiba (UNIVAP), Brazil between Aug 2015 and Jul 2016. He worked with



Prof Airton Abrahão Martin in the field of the application of confocal Raman spectroscopy to human skin. This non-invasive technique is used to evaluate various novel cosmetic and topical pharmaceutical

preparations. One of the work titled “Statistical strategies to reveal potential vibrational markers for in vivo analysis by confocal Raman spectroscopy” was published in Journal of Biomedical Optics, (Volume-21, Issue-7) with an impact factor of 2.556.

6. MCOPS collaborated with Nerve24 Technologies Private Limited for various short and long-term research projects. Nerve24, a Healthcare service provider based in Mumbai, enables patient community



or healthcare providers to engage with any other/each service provider through “innovative tech platform”. Dr Girish Pai K, Faculty, Department of Pharmaceutics, MCOPS facilitated the collaboration with Nerve24. Mr Mohit Khullar (Director and Co-Founder, Nerve24), an engineer by profession and alumnus of IIM Lucknow, visited Manipal University.

C. Achievement by Research Scholars

Mr Stephen R Samuel, PhD student working with Dr G Arun Maiya, has been appointed as an honorary vice chair of the fatigue study group of the Multinational Association of Supportive Care in Cancer (MASCC). In addition, the MASCC Executive Committee



has appointed Stephen on the international committee that will formulate guidelines for cancer practitioners for the management of cancer related fatigue. The Guidelines committee includes eight other experts in the field of cancer from renowned cancer centres like University of Texas MD Anderson Cancer Centre in USA.

Part II

A. Featured Scientist of Manipal University

Professor B S Satish Rao

Associate Director – Research

*Head of the Radiation Biology & Toxicology department
School of Life Sciences, Manipal University, Manipal*



Prof Satish Rao has served Manipal University with more than 25 years of Research and Teaching experience in field of biomedical sciences. Dr Rao obtained his postgraduate degree in Zoology from Mysore University, securing first rank and completed his PhD at the Kasturba Medical College (KMC), Manipal then affiliated to Mangalore University. As a researcher, he was an active team member in establishing the only independent radiation biology department of the country at that time, at KMC, Manipal under the leadership of Prof P Uma Devi, a renowned radiation biologist. Over the years, Dr Rao has contributed significantly for the growth of the department for its national and international recognition. Later, in 2006 the department became a part of School of Life Sciences.

His multi-disciplinary research explorations include experimental radiation oncology and radiation biology (radiomodulation); radiation biodosimetry; cellular and molecular responses to radiation; DNA damage and repair; anticancer drug targeting using chitosan, microspheres, liposomal and SPION based platforms; genotoxicity of xenobiotics; mitigation of radiation and environmental toxicants using natural products; and translation of fundamental/molecular understanding to clinics. Indian Council of Medical Research (ICMR), Department of Biotechnology (DBT), LSRB, BRNS, Department of Science and Technology (DST) and Manipal University have actively funded his research programs over the years. The outcome of his research has generated more than 100 scientific research papers in Scopus indexed, high impact peer reviewed international journals. Dr Rao has mentored several doctoral, postgraduate and graduate students. His most significant research accomplishment is in the area of radiation

genomics, especially to understand the genetic basis of radiation induced normal tissue toxicity with the aim of developing predictive biomarkers for clinical applications in collaboration with Department of Radiotherapy and Oncology. He believes in multidisciplinary team effort and research exploration for more productive outcome of translational significance. He has collaborated with the radiation oncologists from Kasturba Hospital for research. His recent series of publications has appeared in the reputed "RED Journal" (International Journal of Oncology, Biology and Physics) and one of them has been selected as featured article for an online ASTRO/CME offering in Oct 2010 to attain Category 1 CME credit.

He is the recipient of several Young Scientist Travel Grants. He has undertaken postdoctoral research fellowship at the University of Texas Health Science Centre at San Antonio, USA. He was a visiting researcher at the Research Reactor Institute, Kyoto University, Japan and a Guest Investigator at the Institute fur Medizinische Strahlenbiologie Universitätsklinikum Essen, Germany. He has also received International Cancer Technology Transfer Fellowships (ICRETT) from UICC, Visiting Faculty position to undertake research at the Sylvester Cancer Centre, Department of Radiation Oncology and University of Miami School of Medicine, USA and Visiting Research Fellowship of the University of New South Wales, Australia.

He strongly believes that research and teaching go hand-in-hand. Students should be encouraged to develop observational and analytical skills, innovative thinking, and scientific reasoning at the undergraduate level itself. His message to the young and budding scientists is "Nothing is impossible as long as we have an open and receptive mind, sustained scientific temperament with perseverance along with a clear-cut career vision and mission". His primary interest is to establish his department as one of the "Centres of Excellence" in research as well as teaching at the international level and thereby contributing positively to the glory of School of Life Sciences and Manipal University.

B. Top publications for the period Jul - Sep 2016

Title of The Publication	Author Name	Institution	Department	Name of the Journal	Month & Year of Publication	1-Yr Impact Factor
Association of MTOR Mutations With Developmental Brain Disorders, Including Megalencephaly, Focal Cortical Dysplasia, and Pigmentary Mosaicism	Girisha K M et al.	Kasturba Medical College, Manipal	Medical Genetics	JAMA Neurology	Jul 2016	8.230
Development and evaluation of carboplatin-loaded PCL nanoparticles for intranasal delivery	Angel Alex et al.	Manipal College of Pharmaceutical Sciences, Manipal	Pharmaceutical Biotechnology	Drug Delivery	Sep 2016	4.843
A novel multiple joint dislocation syndrome associated with a homozygous nonsense variant in the EXOC6B gene	Girisha K M et al.	Kasturba Medical College, Manipal	Medical Genetics	European Journal of Human Genetics	Aug 2016	4.580
Nanostructured lipid carriers for the topical delivery of tretinoin	Ghate V et al.	Manipal College of Pharmaceutical Sciences, Manipal	Pharmaceutics	European Journal of Pharmaceutics and Biopharmaceutics	Aug 2016	3.975
Catalytic etherification of glycerol to tert-butyl glycerol ethers using tertiary butanol over sulfonic acid functionalised mesoporous polymer	Shivashankaran et al.	Manipal Institute of Technology, Manipal	Chemical Engineering	RSC Advances	Aug 2016	3.289
Effect of Amalaki rasayana on DNA damage and repair in randomized aged human individuals	Vishwanatha U et al.	School of Life Sciences, Manipal	Department of Ageing Research	Journal of Ethnopharmacology	Sep 2016	3.055

Part III

Manipal University Students' Research Forum (MUSRF)

Summer Training is an initiative undertaken by the Manipal University Student Research Forum (MUSRF) every year to foster and promote research among students across Manipal University; promoting interactions between the faculty researchers and students from different scientific disciplines. The third edition of the summer training was organised between Jul 2 and 11, 2016.

Dr H Vinod Bhat, Honourable Vice-Chancellor, Manipal University, along with Dr N Udupa, Director Research (Health Sciences) and Dr Satish Shenoy, Director Research (Technical), Manipal University, inaugurated the event in Interact lecture halls on Jul 2, 2016. Vice-Chancellor Dr H Vinod Bhat, addressed students from different domains about publication incentives in Scopus indexed journals and the University's commitment to promote research and publications.

Summer Training program witnessed good participation with over 160 students registering for different modules. More than 100 students registered for the Health Sciences module and approximately 50 registered for the Technical Sciences module. Students from Manipal, Mangaluru, Bengaluru campuses and a few participants from Hyderabad benefitted from the summer training.

The Health Sciences module included talks by eminent faculty from constituent institutions of MU, including Kasturba Medical College (KMC) Manipal, KMC Mangalore, School of Life Sciences (SOLS), School of Allied Health Sciences (SOAHS), Manipal College of Pharmaceutical Sciences (MCOPS) and Manipal College of Dental Sciences (MCOADS), Manipal. The workshops covered basic research techniques like ICSI, IVF, DNA PCR, foetal autopsy, immunofluorescence, ELISA etc.

The Technical Sciences module included talks by faculty from Manipal Institute of Technology (MIT), Manipal; the talks ranged from data mining, tribology, machine learning, big data analytics and semantics.

A few special sessions on entrepreneurship, customer relationship management, and patents were planned for the management students.

The training program concluded on Jul 11, 2016 with a valedictory function. Dr Udupa informed the students about the university policies on research and publications. Certificates were awarded to the participants at the function.



Editorial Team

1. Dr N Udupa Director Research (Health Sciences) – Manipal University, Manipal
2. Dr Satish Shenoy Director Research (Technical) – Manipal University, Manipal
3. Dr Raghu A R Deputy Director Research (Health Sciences) – Manipal University, Manipal
4. Dr Rekha R Shenoy Associate Professor, Department of Pharmacology, Manipal College of Pharmaceutical Sciences, Manipal University, Manipal
5. Dr Manthan D Janodia Associate Professor, Department of Pharmacy Management, Manipal College of Pharmaceutical Sciences, Manipal University, Manipal