

Ramaiah Medical College & Hospitals

Division of Research and Patents

Patron: Dr.M.R.Jayaram- Hon' Chairman

Advisors: Chief Executive

Principal and Dean-Dr .Medha Y Rao

Vice Principal & Associate Dean- Dr. Harish K

Vice Principal (Academics)- Dr. Shalini C Nooyi

Registrar(Academics)- Dr. A.G.Pratab

Registrar(Administration)- Dr. Hemanth T

TEAM: DR N S MURTHY; DR MALA DHARMALINGAM

DR NANDA KUMAR B S; DR K N CHIDAMBARA MURTHY

PRINCIPAL AND DEAN
M.S. Ramaiah Medical College
& Teaching Hospital
Bangalore - 560 054.

Medha Y Rao

Vision and mission

To create a supportive ecosystem for high impact research

To prepare/support/motivate the faculty and students to undertake research

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Activities

- Support development of policies and SOP for academic research
- Support for drafting MoU and LoA with research partners
- Facilitate faculty/ student's research-providing inputs for designing, execution, bio- statistics and reporting of research studies
- Identify research and funding opportunities: Funding agencies both within and outside India would be approached for supporting research ventures
- Coordinate with Scientific Advisory Board for SIRO status-DSIR Certification

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M. Lakshmi

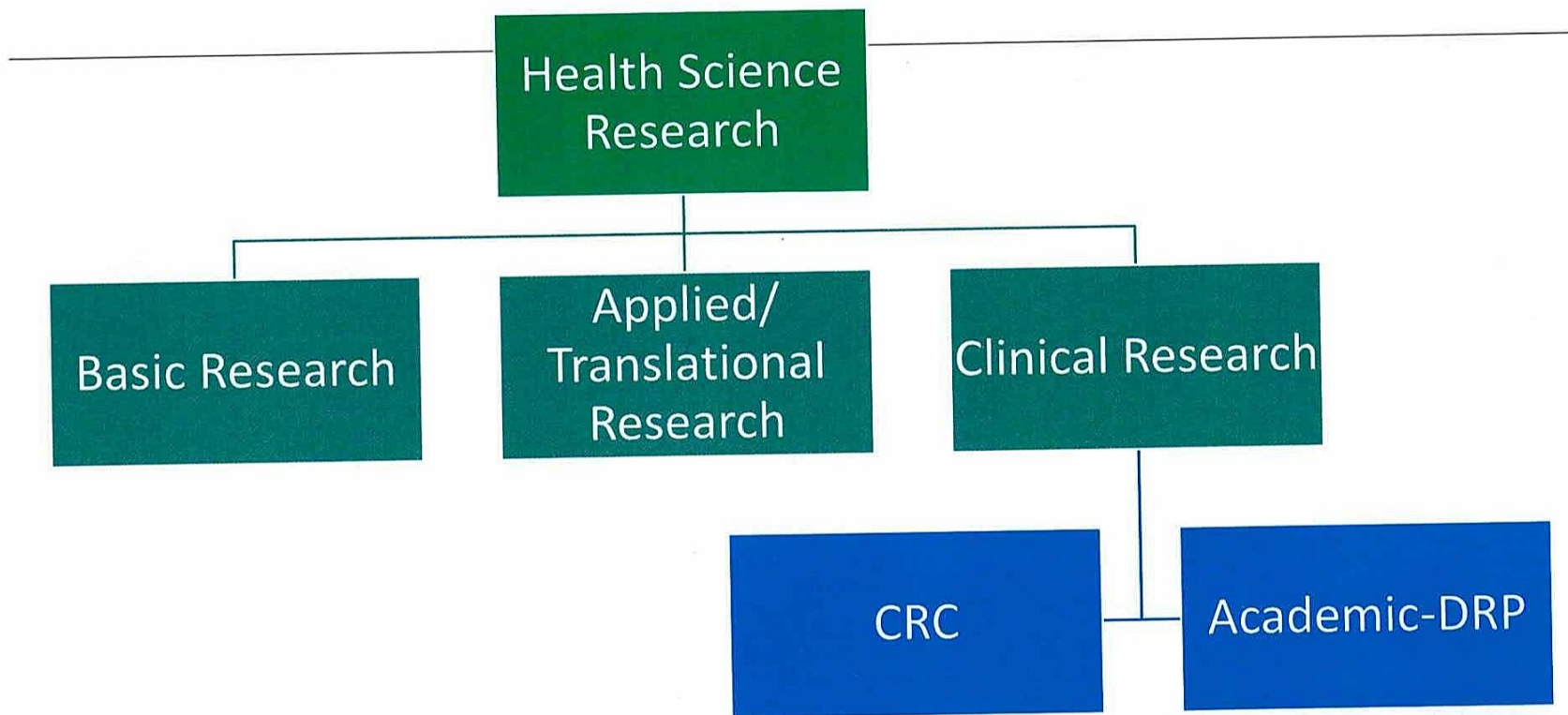
Activities

- **Publication support:** Empower and facilitate student and faculty publications in reputed journals. Support for analysis, medical writing, technical editing and submission of scientific publications.
- **Patents (intellectual property rights):** support the faculty in understanding and applying IPR for their research activities
- **Research training and capacity building:** Plan, organize and deliver student and faculty skill development trainings for various research activities
- Dissemination of Information, Resource Mapping, Team Building for Research Fellowships and Placements

Activities

- Project the institutional research capability to outside entities
- Collaborative research: support the research team in identifying and establishing working collaborations with leading research institutions in India and abroad
- Organize the research activities for submission to NAAC, NIRF and ranking Surveys
- Members serve in committee(s) of GOK, ICMR, NCDIR and other prominent institutions in advisory capacity for research activities
- Support the sister institutions of Ramaiah group for regulatory compliance, curricular development, research designs and analysis

Division of Research and Patents



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Medhaya

Activity	Dr NS Murthy	Dr Nanda Kumar	Dr Mala Dharmalingam	Dr KNC Murthy
Planning & Hypothesis	Large population and Cohorts	Epidemiological & Public Health	Clinical component planning	Translational and Wet Lab component
Research Design	All Experts			
Literature Retrieval and Access				
Methodology- Designing		Population based and Dry lab research		Wet lab and laboratory details
Sampling and Sample Size				
Data Collection & Experimentation				
Data Analysis				
Data Interpretation				
Publication & Presentation				
Technology readiness and Products				
Academic & Industrial Partnering				

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Intra and Inter institutional research ties

General Medicine

Physiology

Plastic Surgery

Pathology

Medical Oncology

Orthopaedics

Ophthalmology

Neurology

Endocrinology

Community Medicine

Pulmonology

DRP

RIT

RUAS- FDS, FHM, F-Pharmacy

RIMS

Ramaiah Arts & Science

IISc

Stockholm Environment Institute

NDSU

Colorado State University

Umea University

UIC

Tampere- Finland

Meena, G

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Technical inputs for

- Technology Development Fund (TDG)- GEF(M)
- Ramaiah International Centre for Public Health Innovations (RICPHI)
- Ramaiah Public Policy Center- (RPPC)
- Ramaiah Indic Specialty Ayurveda Restoration Hospital (RISA)
- Ramaiah Innovation Centre for Healthcare Technologies (RICH-Tech)

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Research studies in 2019

- Number of Academic Research Projects undertaken by the staff : - 104
- Number of Student Research Projects undertaken - 27
- ICMR Short Term Student Projects accepted: - 1
- PG thesis accepted for funding by ICMR: 1
- UG student short term projects Accepted by RGUHS for funding: 6
- Full length Proposals submitted and awaited for results-10
- Research Grants Received : Rs (Lakhs).460.68/-

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Funded Research Projects in progress

Funded Research Projects in progress

- 26 projects

ICMR- 4

RGUHS -4

RNTCP -3

INDO-USA- 1

DST- 1

UNIDO-1,

MSRMC and IISc.-4

DRDO.....1

RICPHI with Medtronics USA-1

Health Care Waste management Cell -1

Endocrine Society -1

DRDO -1

Projects accepted and release of funds awaited-3

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Research in 2020

- Guest lectures on research methodology and biostatistics
 - Dr N S Murthy presented 8 sessions on research methodology and statistics every Saturday
 - Participated in the journal club and post graduate teaching in pulmonology, endocrinology and oncology
 - Guidance provided to various staff members on SPSS analysis and teaching for basic analysis

N. S. Murthy
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Publications & Presentations of DRP staff

Last three years: 2017-2020

- Original research articles- International:32
- Review articles: 08
- Chapters in Books: 07
- Presentation in Conferences and Scientific meetings:25
- Invited talks and seminars: 21

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Recent Researcher papers:

- Somanna SN, Nandagudi Srinivasa M, Chalugarayaswamy R, Malila N. Time Interval between Self-Detection of Symptoms to Treatment of Breast Cancer. Asian Pacific Journal of Cancer Prevention. 2020 Jan 1;21(1):169-74.
- KUNIKULLAYA K, Kunnavil R, Goturu J, Prakash VS, Murthy NS. Acute effects of passive listening to Indian musical scale on blood pressure and heart rate variability among healthy young individuals, a randomized controlled trial. bioRxiv. 2020 Jan 1.
- Bhagwat B, Nooyi SC, Krishnareddy DH, Murthy SN. Association of Practices Regarding Infant and Young Child Feeding with Anthropometry Measurements Among an Urban Population in Karnataka, India. Cureus. 2019 Mar;11(3).
- Sarala, K. S., V. Narendranath, and BS Nanda Kumar. "Incremental expenditure for hospital care associated infections." (2019).

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Publications

- Jacob AM, Pruthvish S, Sastry NB, Kunnavil R, Shankarappa M. An explorative study of the differences in feeding patterns of children with and without disabilities in a rural community in Karnataka. Indian Journal of Community Health. 2019 Apr 1;31(2).
- Sarala KS, Narendranath V, Nandakumar BS. Assessing the Burden of Health Care Associated Infection in Correlation with Patient Characters and Length of Stay. Journal of Research in Medical and Dental Science. 2019 Sep;7(5):5-9.
- Prakash M, Basavaraj BV, Chidambara Murthy K N. Biological functions of epicatechin: Plant cell to human cell health. Journal of functional foods. 2019 Jan 1;52:14-24.

Prakash M

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- Jayaprakasha GK, Chidambara Murthy K N, Pellati F, Patil BS. BetaSweet carrot extracts have antioxidant activity and in vitro antiproliferative effects against breast cancer cells. Journal of Functional Foods. 2019 Nov 1;62:103552.
- Augustine D, Rao RS, Anbu J, Chidambara Murthy K N. In vitro cytotoxic and apoptotic induction effect of earthworm coelomic fluid of Eudrilus eugeniae, Eisenia foetida, and Perionyx excavatus on human oral squamous cell carcinoma-9 cell line. Toxicology reports. 2019 Jan 1;6:347-57.

International book chapters :

- Hepsiba S A, Chidambara Murthy K N, Shetty K. Applications of Cell and Cell-Based Models to Screen the Health-Promoting Properties of Dietary Components. Functional Foods and Biotechnology: Biotransformation and Analysis of Functional Foods and Ingredients. 2020 Apr 13:1.
- Chidambara Murthy K N, Hepsiba SA, Shetty K. Phytochemicals for Cancer Chemoprevention: Applications and Advantages. Functional Foods and Biotechnology: Biotransformation and Analysis of Functional Foods and Ingredients. 2020 Apr 13:41.
- K. N. Chidambara Murthy, Alice Hepsiba S, G.K. Jayaprakasha and and Bhimanagouda S. Patil Grapefruit, Nutritional Composition and Antioxidant Properties of Fruits and Vegetables, Elsevier publications 2020, In press
- Shivapriya M and Chidambara Murthy KN Chapter 33: Musk melon, Nutritional Composition and Antioxidant Properties of Fruits and Vegetables, Elsevier publications 2020, In Press

Madh. 4/9/20

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Title	Role	Collaboration	Agency & Approx. Budget
Recreation and Nutritional Analysis of Traditional Recipes Using Millets for better Consumer Awareness, Satisfaction and Health Perspective	Co-PI	RUAS, ICRISAT	ICRISAT 20 L
Comparative nutritional profile , Glycemic index, mineral bioavailability from millet cultivars : A way forward to establish millet as Nutricereals	PI-RMC	IIMR, NIN	MoAFW 61.58 L(RMC)
Nutrition supplementation for boosting immunity against COVID-19 in Indian population	PI	IISc	SERB 22.6 L
Development of “next generation COVID-19 ELISA”(NGE) for detecting therapeutically most relevant antibodies against SARS-CoV2	PI-RMC	UIC, USA	US ISTEf 95 L
Novel Targeted therapeutic molecules for SARS-CoV 2 using synthetic biology approaches	PI-RMC	E2E, BMC and IISc	BIRAC 180 L

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- ❖ Supported proposal development for the UK- British High Commission call for COVID-19 inventory management platform in association with RPPC and Indian CST.
 - ❖ Supported development of the BIRAC proposal for digital platforms for optimization of resource management and GIS-based AI and ML systems
-
- ❖ Supported development of a proposal for screening and immunization of rural elderly for the prevalence of hepatic morbidity- A cross-sectional study.
 - ❖ **HL7**- Supporting development of basic population GIS standards for COVID-19 native applications
 - ❖ Telemedicine Society of India- Developing a vendor database matrix for tele-solutions
 - ❖ Dr.Sundar and Dr.Sushena: Public health experts (Chennai and Mysore)- Developing a proposal for simple workflow of tele-medicine systems in government health care (Karnataka and Tamil Nadu)
 - ❖ Task force member for state surveillance team- Government of Karnataka
 - ❖ Chief-Editor for the ISHWM National Journal- Efforts are underway to bring up special issue on COVID19
 - ❖ Jury for the NACOM- KBITS- GOK start up accelerator in the areas of health science and bio technology
 - ❖ Core-Editorial team for the special book being brought out by Ramaiah Group of Institutions on COVID19

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Few suggestions for considerations

- ❖ Bringing out research compendium and showcasing recent projects / publication-display board
- ❖ Identify core thematic areas of research for providing institutional support
- ❖ Projects not successful for external funding may be supported internally for providing base line evidence- further strengthens the enthusiasm of the faculty
- ❖ Have a research day where all projects are presented to peers
- ❖ Support high impact publications with acknowledgements / rewards
- ❖ Protected research time for faculty
- ❖ Ensure timely updates on the progress and completion of the research projects on the campus
- ❖ Quarterly workshops on fundamentals of research methodology and protocol for faculty and students
- ❖ Synergize the efforts of ancillary units to work with DRP for research training and capacity building

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Seek support for

Secretarial support for office organization

Research Assistant (MSc/ Btec/ MBA) for documentation and support

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Thank You

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Team:

Dr N S Murthy; Dr Mala Dharmalingam

Dr Nanda Kumar B S; Dr K N Chidambara Murthy

Dr. Thanuja Gopal; Dr. Akshya Rao; Dr. Rathai Rajagopal

Objectives:

- To create a supportive ecosystem for high impact research
- To prepare/support/motivate the faculty and students to undertake research

Functions:

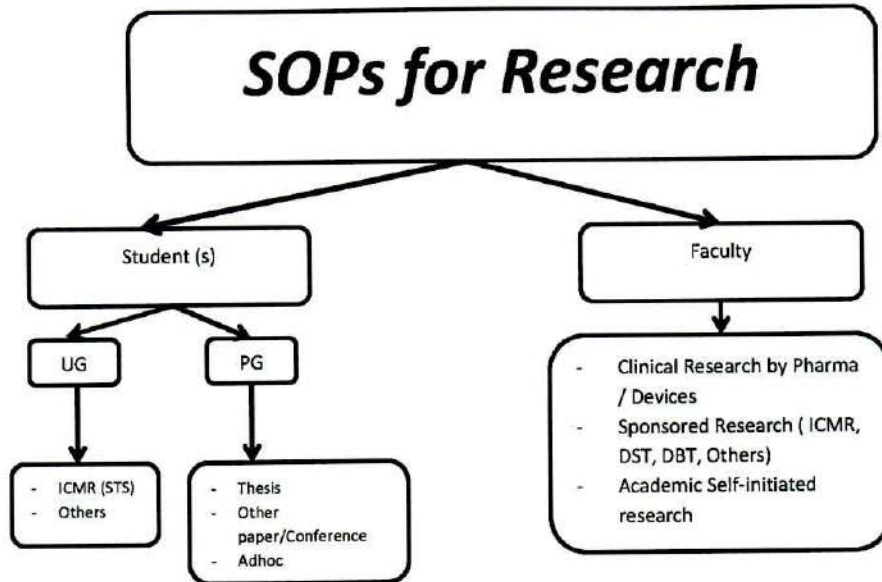
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- Ramaiah Innovation Centre for Healthcare Technologies (RICH-Tech)

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The above research activities may be undertaken entirely within MSRMC (single or multiple Departments) or may involve one or more external agencies / institutions.

*Note: All research activities need to be submitted through proper channel with the concerned departmental heads and administrative authorities.

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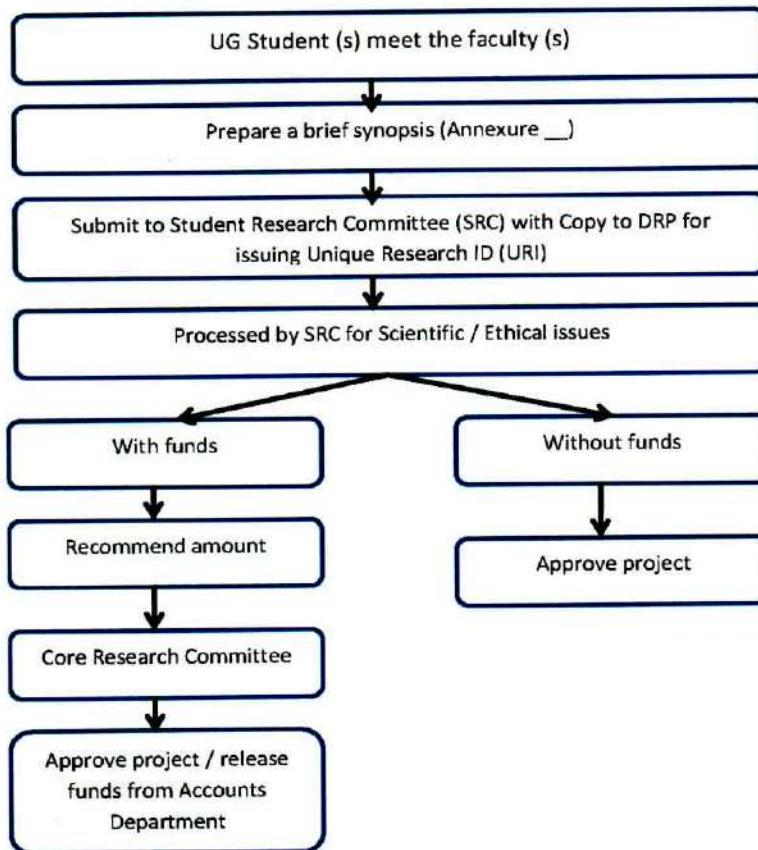
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UG Research Projects:

Preamble:

Division of research and patents has been established by the institution to develop the research activities at the institution. In this context, the following is the recommended flow for undergraduate research projects.

Proposed flow:



*Note: All research activities need to be submitted through proper channel with the concerned departmental heads and administrative authorities.

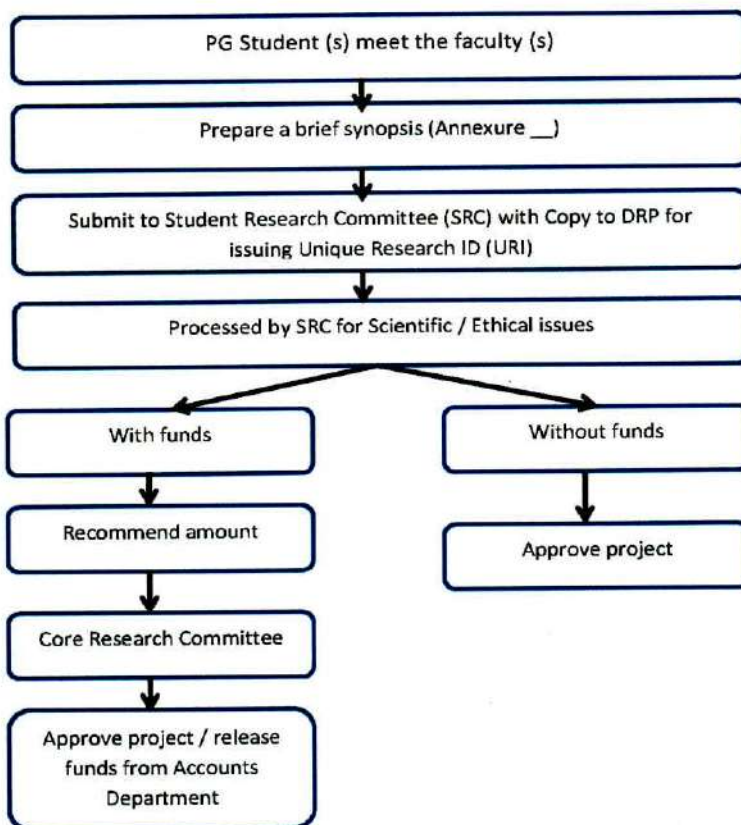
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PG Research Projects (Non – Thesis topics)

Preamble:

Division of research and patents has been established by the institution to develop the research activities at the institution. In this context, the following is the recommended flow for post graduate non-thesis related research projects.

Proposed flow:



*Note: All research activities need to be submitted through proper channel with the concerned departmental heads and administrative authorities.

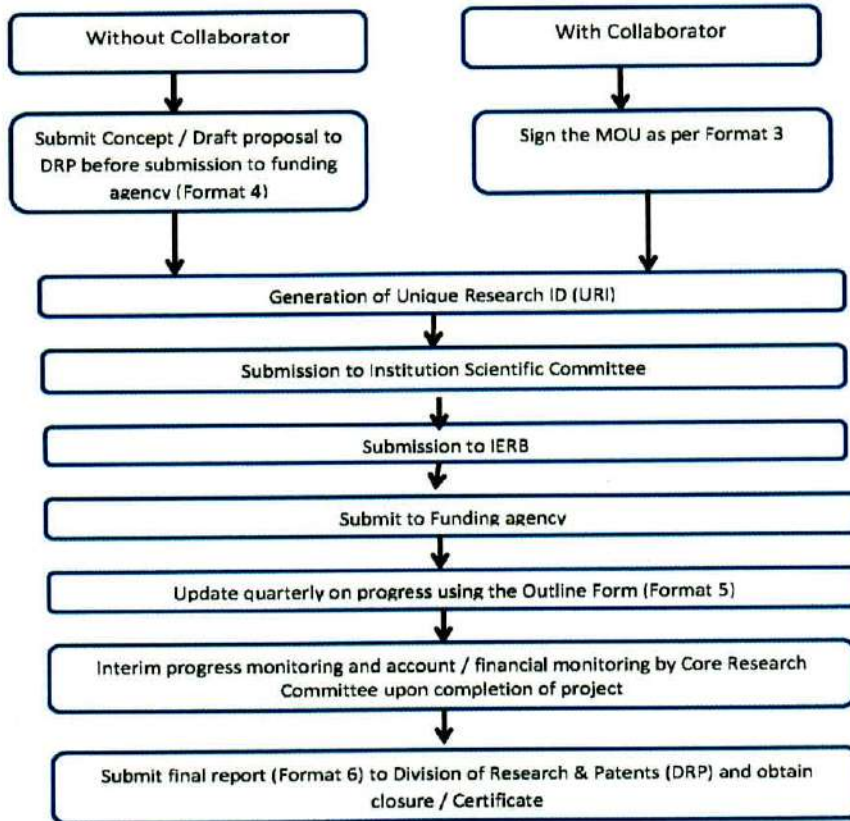
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Faculty Research Projects **(Sponsored Research Projects)**

Preamble:

Division of research and patents has been established by the institution to develop the research activities at the institution. In this context, the following is the recommended flow for sponsored research projects.

Proposed flow:



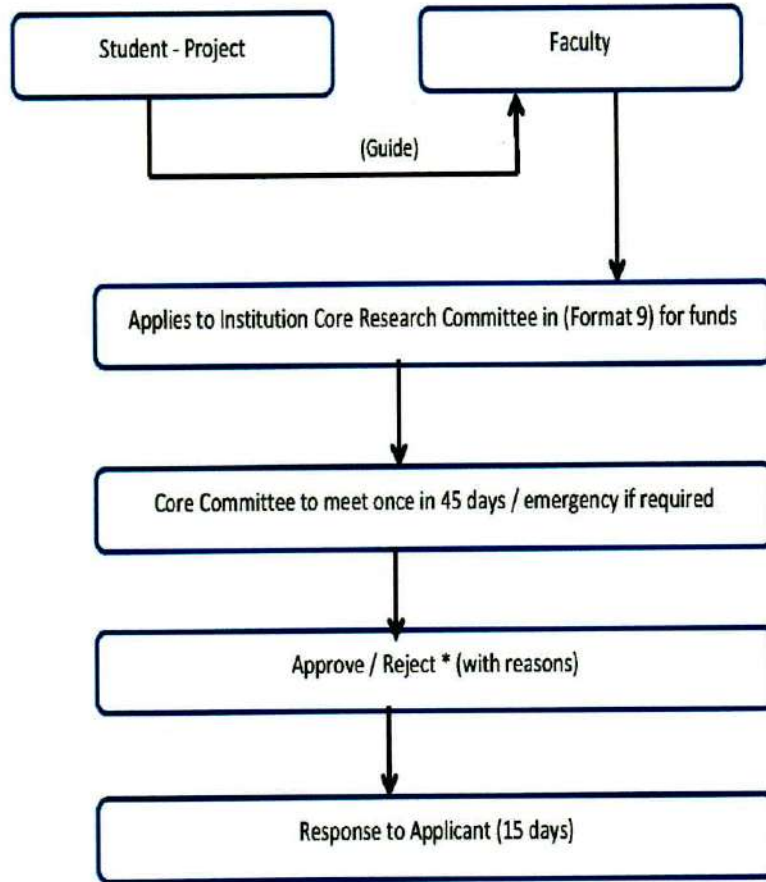
IERB: - Considerations for non-interventional studies involving only data / responses (online / paper based)

After Scientific Committee approval only the copy of the protocol sent to IERB / Sub Committee for rapid clearances (Format 7 application for rapid ethical clearance)

*Note: All research activities need to be submitted through proper channel with the concerned departmental heads and administrative authorities.

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Process for accessing Institutional Research Funds



* If rejected the applicant can submit with modification / change (2nd time only)

*Note: All research activities need to be submitted through proper channel with the concerned departmental heads and administrative authorities.

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Quality Assurance for research activities:

- All research projects are registered at DRP by issuing a unique ID. This is used to track the progress of projects and assess research outputs from the projects.
- All research projects are scrutinized by the scientific committee (Students and Faculty) and subsequently cleared by the DCGI approved Institutions Ethics Review Board (IERB).
- Interim reports are sought to assess the progress of the projects as per the time lines and annual reports as obtained.
- All research grants are handled through the finance department with a separate head of accounts for research. External audited utilization certificates are provided upon completion of the projects.
- All project proposals and publications and student thesis work are subjected to plagiarism check using the Drill bit plagiarism check software.
- Annual assessment of the research projects and quality of publications is undertaken using the standard publication metrics such as citation index, impact factor and publication count in Scopus indexed journals.

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Registration of Project proposal

Title of the Project:

Ramaiah Medical College

Role	Name	Designation	Department
PI			
CO-PI			
Co Investigators			

Collaborations: Yes / No If Yes: Enclose MOU / Letter of Association: Yes/No; Date:

Details of previous reference of collaborations and brief reason or justification for collaboration:

If Yes: **Other Institutional Researchers**

Role	Institution	Name	Designation	Department
PI				
CO-PI				
Co Investigators				

Expected Date of Commencement: **Closure:**

Structured Abstract of the Proposal (200 words)

Introduction
Objectives
Methods
Expected Outcome
Total budget estimate: Source of funding:

Intellectual Property Rights:

Potential Publications:
Potential Patents: Yes / No Other (s): *Specify*

Translational potential (*How the outcome can be applied to practice?*)

For DRP Office Use

DRP Unique ID:

Date of Issue:

Additional Comments:

Authorised Signatory:

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