



PMS COLLEGE OF DENTAL SCIENCE & RESEARCH

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RESEARCH AND PUBLICATION

The aim of the research policy is to provide guidance for the proper conduct of research by the students as well as faculty of the institution. All research proposals from the institution should be submitted to the research department in the specified format and a soft copy mailed to researchdirector@pmscollege.ac.in. Student proposals should be forwarded by Head of the department. Written agreement or MOU from the authorized person of the involved departments or Institutions should be submitted if any other departments within the institution and/or outside the institution are involved. Investigators are invited to present their proposed research work at a scheduled scientific review committee (SRC) meeting. Investigators are advised to make brief presentation of their project which will be followed by questions and clarifications. SRC scrutinize the scientific merit of each research proposal and give appropriate suggestions to improvise the same in a prescribed reviewers form. Researcher must resubmit the proposal to research committee after making necessary corrections. Then it will be forwarded to Institutional ethics committee (IEC) which overview the ethical aspects of all the research work carried out in the institution. Registration in clinical trial registry is mandatory for conducting any clinical trials. Research can be started only after getting approval from IEC and CTRI (Clinical trial registry of India). Yearly progress of research work is assessed by IEC and necessary

action will be taken to prevent any violation in ethical conduct of research. All studies that involve use of animals should follow the rules and ethics that govern such studies. No modifications in the study will be allowed after obtaining the final approval from the IEC. Required modifications must be explained properly and presented by the Principal Investigator before the IEC for final approval to make the necessary modifications in the study. After completion of the research work a copy of the report should be submitted to research and publication department. All research conducted in the institution will be the property of the institution. Presentations and publications made based on the research should carry the due credit for the Institution and the staff involved in the conduct of the research. Research committee will have the power to take necessary action against faculty or student if misconduct of research or publication is proved. All records of the study must be maintained in the department for a period of 5 years.

Department of research and publication periodically conduct scientific programs by eminent researchers in related fields to stimulate research activities among students and faculty. A yearly scientific conclave is conducted for undergraduate students where innovative research ideas are presented by students under the mentorship of faculty members. Best 3 proposals are selected and students as well as mentors are awarded. Institutional funding is allotted for selected projects based on recommendation of research committee. Financial support is provided after submission of project



completion report and statement of expenditure at the end of study. If study takes more than a year yearly progress report also should be submitted to research department. The data obtained from institution funded preliminary research can be utilized for applying extramural funding from various agencies. Faculty and students are encouraged to submit proposal for research funding from external funding agencies. Necessary guidance is provided to those who are interested and notifications regarding call for proposal from various funding agencies like ICMR, KSCTEC, DBT, SERB etc. are intimated to students and faculty by the research department.

Students and faculty are encouraged to present their research work at international and national conferences. Financial support is also provided for selected faculty based on the merit of the paper and nature of conference. Best researcher award is given every year in undergraduate, postgraduate and faculty category after evaluating the completed research report.



PUBLICATION POLICY

This policy is based on the norms laid by the committee on publication ethics (COPE) which addresses the following areas

1. Ethical approval and trial registration
2. Research misconduct
3. Plagiarism
4. Simultaneous submission
5. Duplicate publication
6. Ethics of authorship
7. Conflict of interest
8. Journal selection

Guidelines for publications from the institution

Students and faculty are encouraged to publish in good quality journals. Under the research and publication department a publication committee is functioning for guiding the students as well as faculty in timely publication of their results. All publications from the institution should be submitted to Department of research and publication and permission should be obtained before sending the publication. There are certain rules which should be mandatorily followed. This includes



- Authorship should be provided to those who have contributed genuinely
- Authorship order should be proportional to the contribution of each author
- Obtain consent from each author before sending the article
- Due credit to the institution should be provided in all the publications
- Faculty and students are advised to publish in high impact and indexed journals

The publication committee will scrutinize the article and will provide necessary guidance in selecting the appropriate journal, preparation of draft, analysis of data and clarify any doubts regarding the submission procedure. The institution encourages publishing in high impact and journals indexed in Scopus, web of science and Medline. Authors are instructed to report the Department of research and publication once the article is accepted for publication. Best article published every year is awarded based on strict selection criteria formulated by publication committee. The institutional journal is regularly published to provide opportunity for faculty and students to showcase their research and clinical work.



Principal





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INTERNATIONAL ADVISORY PANEL FOR RESEARCH

1. **Dr. Dana Vioru York**, President of EMLA, France, Fellow of American Society for Laser in Medicine & Surgery.
2. **Dr Anil Ardeshta**, Director of Post Graduate Orthodontics -Rutgers University, New York
3. **Dr Armin Nedjat**, Founder-Champions Innovations I.I.C, Champion Implants, Germany

NATIONAL ADVISORY PANEL FOR RESEARCH

1. **Padmasree Dr Mahesh Varma**, Director – Principal Maulana Azad Institute of Dental Sciences, New Delhi
2. **Dr K Nandakumar**, Dean, Azeezia Dental College
3. **Dr Visakha Grover**, Associate Professor, Dr. Harvansh Singh Judge Institute of Dental Sciences and Hospital, Punjab University, Chandigarh
4. **Dr Nisha KJ**, Professor and Head, Vydehi Institute of Dental Science and Research Centre, Bengaluru.
5. **Dr Manju V**, Professor, Amritha School of Dentistry and Visiting Professor- Maxillofacial Prosthetic Division at University of California, Los Angeles (UCLA)
6. **Dr InduRaj**, Professor, Government Dental College, Kottayam
7. **Dr Elby Peter**, Professor, Government Dental College, Kottayam






RESEARCH PROGRAMMES CONDUCTED TO IMPROVE THE INNOVATIVE ECOSYSTEM

1. IPR WEBINAR Conducted on 06.05.2021



Schedule

Session I	'Significance of Intellectual Property Rights' Dr. Ajit Prabhu V, Chief Scientist, KSCSTE & Nodal Officer, IPRICK
Session II	'Patent searching and filing procedure' Shri. Krishnaprasad Project Scientist, PIC-Kerala, KSCSTE
Interaction	




WEBINAR ON
INTELLECTUAL PROPERTY RIGHTS

On 6th May 2021
Jointly Organized by
Department of RESEARCH AND PUBLICATION,
PMS COLLEGE OF DENTAL SCIENCE AND RESEARCH
Intellectual Property Rights Information Centre-Kerala (IPRICK), KSCSTE






Chief Speaker



Dr. AJIT PRABHU
Chief Scientist (Scientist 'G') in the Kerala State Council for Science, Technology and Environment, and the Nodal Officer of the Intellectual Property Rights Information Centre - Kerala.

Time : 11am to 1pm
On Zoom App


Intellectual Property (IP)

- IP refers to the creations of mind
 - ❖ inventions
 - ❖ literary and artistic works
 - ❖ symbols, names, images and designs.

Press ESC or double-click to exit full screen mode

Participants: Dr. Ajit Prabhu, Dr. Anjali, PMS COLLEGE, Vivek V, Rakesh, PMS College of, MRIDULA, ABE ANVINY, DR. NIKHIL M K, Aneesh Alim, Aparna M Nair, Arya S, Shemil Sha, Dr. Resha, Krishna Prasad



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Certificate of Attendance

This is to certify that

Dr. Ambili R

has attended the Webinar on

"INTELLECTUAL PROPERTY RIGHTS"

Organised by

**PMS College of Dental Science and Research , Thiruvananthapuram, Kerala
& Intellectual Property Rights Information Centre-Kerala(IPRIC-K), KSCSTE**

on 6th May 2021



Dr.Sudeep S
Principal



Dr.P.S Thaha
Chairman and Patron

Dr. Ajit Prabhu
Nodal Officer, IPRIC-K
Chief Scientist, KSCSTE



Dr.Ambili.R
Research Director




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2. RESEARCH GRANT WRITING WORKSHOP



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Cordially invites you to attend

Research Grant Writing Workshop

Faculty:

Dr. Jeemon Panniyammakal
Assistant Professor
Achutha Menon Centre for Health Science Studies
(ACMCHSS)

Conducted by:
Research Department
PMS College of Dental Sciences & Research

9
CDE POINTS

January
15,16
2021

Limited to
30 seats

Registration only for
Faculties
INR 3000/-

SCOPE OF THE WORKSHOP

- To create awareness regarding external funding for research projects
- To identify Various funding opportunities
- to enable the participants to prepare research proposals
- To refine the prepared proposals and clear the doubts

For more Information contact:
CDE Coordinator
+919544639400





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3. Industry academia collaboration

Technology Transfer and Intellectual Property Services (TIPS)



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PMS ONLINE WEBINAR SERIES

Jointly Organizes Online Webinar On:

ADDING VALUE TO YOUR INNOVATION

Technology Transfer and Intellectual Property Services (TIPS) situated at SCTIMST-TIMed is set up by National Bio Pharma Mission- BIRAC with an aim to create an ecosystem so that the research outcomes are put to action to benefit the society as a whole.

Program Highlights :

1. Innovation Story
2. Scripting Innovation
3. Discussion with Faculty & Students

Coordinator:
Ms.Indu Govind
Business Development Manager
TIPS-TIMed

Coordinator PMS:
Dr.Ambili R
Research Director, PMS

www.timed.org.in
Timed.tto1@gmail.com

www.pmscollege.ac.in

12th
November
2021

WORKSHOP ON
"ADDING VALUE TO YOUR INNOVATION"
12th NOVEMBER 2021

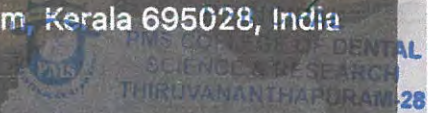
PROGRAM SCHEDULE

- 9:00 A.M - 9:10 A.M. WELCOME ADDRESS:
DR. RAJESH PILLAI, PRINCIPAL, PMS
- 9:10 A.M - 9:15 A.M. INAUGURAL ADDRESS
MR. BALRAM, S. CEO, SCTIMST, TIMed
- 9:15 A.M - 9:45 A.M. INNOVATION STORY
MS. SANDHYA C.G, ENGINEER 'IP'
TECHNOLOGY BUSINESS DIVISION, SCTIMST
- 9:45 A.M - 10:15 A.M. SCRIPTING INNOVATION
MS. INDU GOVIND,
BUSINESS DEVELOPMENT MANAGER, TIPS-TIMed
- 10:15 A.M - 10:30 A.M. Q&A-INTERACTION WITH PARTICIPANTS
INTERACTION MODERATOR: **DR. ANJANA RAVINDRAN, SR.LECTURER (PROSTHO)**
- 10:30 A.M. VOTE OF THANKS,
DR. AMBILI R, RESEARCH DIRECTOR, PMS



Thiruvananthapuram, Kerala, India
JX33+CRR, Thiruvananthapuram, Kerala 695028, India
Lat N 8° 36' 13.4712"
Long E 76° 57' 16.992"
12/11/21 09:05 AM

GPS Map Camera





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PMS/ADMN/NOT/137/2020

22.09.2020

NOTICE

A "**Workshop on Research Methodology**" will be conducted for the first year Post Graduates Students on 7th & 8th October 2020. Dr.Ambili.R MDS. PhD, Dr.Jayanthi.P MDS and Dr. Krithika Datta MDS will be the speakers for the program. All the HODs are advised to ensure that the first year PG students in their departments are registering for the program.

Registration fees : Rs.1500/-
Venue : Dr.R.Ahmed Central Auditorium
Time : 8.30 AM to 1.00 PM

All are expected to assemble in the venue at least 10 minutes before the scheduled start.


Principal

Cc: Chairman, Vice Principal, Administrator, Director (PG Studies), All Departments, All Clinics, PRO, HR & File.



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PMS/ADMN/NOT/326/2018

16.07.2018

NOTICE

A **Workshop on Research Methodology** will be conducted for the first year Post Graduates Students on 18th & 19th July 2018. Dr. Kritika Datta, MDS and Dr. Jayanthi P. MDS will be speakers of the program. All first year PGs should register their names with Dr. Prasanthila Janam, Director (CDE). All the HODs are advised to ensure that the first year PG students in their departments are compulsorily registering for the program.

The inauguration of the program will be held at 9.00 am on 18th July 2018, Wednesday in the A/C Auditorium. All the faculty members, PGS & Interns are advised to attend the inaugural function without fail.

Dr. Prasanthila Janam
CDE Director

Principal

Cc: Chairman, Vice Principal, Administrator, Director (PG Studies), All Departments, PRO, Medical OP, Manager, HR & File.



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RESEARCH METHODOLOGY WORKSHOP



GPS Map Camera



Vattappara, Kerala, India
Punkumoodu - Thekkada Road, Vattappara, Kerala 695561,
India
Lat 8.603721°
Long 76.95482°
30/12/21 08:48 AM



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Golden Hills, Venkodes P.O., Vattappara, Thiruvananthapuram.

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ORGANISED BY
DEPARTMENT OF RESEARCH
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PMS/ADMN/NOT/164/2021

07.10.2021

NOTICE

Department of research and publication is planning to conduct a **Research Conclave for Undergraduate Students** in the month of December 2021. This program is intended to stimulate research aptitude among undergraduate students and create a research ecosystem in the institution. Undergraduate students who are interested to participate in the program can submit their names through batch representative to Dr. Ambili.R, Research Director on or before 30.10.2021. Interested candidates will be allotted to individual faculty members who will mentor the students to prepare the study proposal. The completed study proposal has to be mailed to researchdirector@pmscollege.ac.in on or before 30.11.2021.

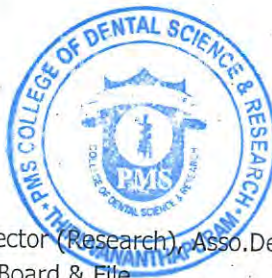
Research Proposal should be prepared in brief with the following sections:

- Title (up to 25 words)
- Introduction (up to 300 words)
- Objectives (up to 100 words)
- Methodology (up to 800 words)
- Implications (up to 100 words)
- References (up to 300 words- Vancouver style only).

(For writing Research Proposal please follow - Times New Roman with font size 12 and 1.5 spacing)

The submitted proposals will undergo a process of review and first three proposals will be provided funding to conduct research.

Director (Research)



Principal

Cc: Chairman, Director PG, Director (Research), Asso. Dean (Acad), Administrator, Education Dept., All Clinics, Basic Science, QM, HR, Notice Board & File



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From

Dr. Santhu Sadasivaan

Post graduate

Department of Oral & Maxillofacial Pathology

To

The Principal

PMS College of Dental Science and Research

Vattappara, Trivandrum

Subject: Request for an internal research funding

Respected Sir,

I have taken up '*Human tongue print analysis for biometric authentication using edge histogram descriptor, color autocorrelogram and multi-texton histogram feature extractors- A descriptive study*' as my dissertation topic. The same topic got accepted to be presented in an international symposium to be held at IITMK Trivandrum on December 18 to 21, 2019. The organizers of the Conference have also agreed to publish my thesis work in an International Journal with impact factor of 1.6. Estimated cost for the study is Rs 80,000. A detailed proposal of the study is attached herewith. I humbly request you to provide an internal research funding based on the merit of the proposal.

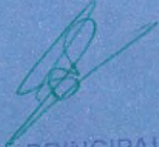
Expecting a favourable response at the earliest.

Thanking you

Yours faithfully


Dr. Santhu Sadasivaan




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P. O. Venkodes, Vattappara, Thiruvananthapuram - 695 028

BANK VOUCHER

Rs. 20000

No. 221115
Date 22/11/15

Paid to Dr. Santhu Sada Srin


Rupees Twenty thousand only

towards by cheque No. 698847 dated

dated drawn on Vijaya Bank, Kesavadasapuram

Head of Accounts Financial Assistant

Particulars	Rs.	Ps.
Final year P.S. -	20000	
(Financial Assistant to Student)		
(P.A.)	20000	
as per chairman sanction		
TOTAL		

Passed by 

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Signature
Name



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MDS DISSERTATION PROPOSAL-2017

NAME: **Dr. SANTHU SADASIVAN,**

COURSE: MASTER OF DENTAL SURGERY

DEPARTMENT: ORAL PATHOLOGY AND MICROBIOLOGY

INSTITUTION: PMS COLLEGE OF DENTAL SCIENCE AND RESEARCH, TRIVANDRUM

GUIDE:

Dr. ANNA. P. JOSEPH,
PROFESSOR,

DEPARTMENT OF ORAL PATHOLOGY AND MICROBIOLOGY,
PMS COLLEGE OF DENTAL SCIENCE AND RESEARCH, TRIVANDRUM

CO-GUIDES:

Dr. T. T. SIVAKUMAR,
PROFESSOR AND HEAD,
DEPARTMENT OF ORAL PATHOLOGY AND MICROBIOLOGY,
PMS COLLEGE OF DENTAL SCIENCE AND RESEARCH, TRIVANDRUM

Dr. MADHU S.NAIR,
ASSISTANT PROFESSOR,
DEPARTMENT OF COMPUTER SCIENCE, UNIVERSITY OF KERALA,
KARIAVATTOM, TRIVANDRUM

TITLE: HUMAN TONGUE PRINT ANALYSIS FOR BIOMETRIC AUTHENTICATION USING
EDGE HISTOGRAM DESCRIPTOR, COLOR AUTOCORRELOGRAM AND MULTI-TEXTON
HISTOGRAM FEATURE EXTRACTORS – A DESCRIPTIVE STUDY

IEC NO: PMS/IEC/2017/01

INTRODUCTION

Tongue is a unique vital organ and the characteristic features of the tongue exhibits remarkable difference between individuals. The dorsum of the tongue carries a great deal of information along with its visual difference in shape, texture and pattern which can be called the tongue print. The anterior portion of dorsum of tongue shows three types of papillae- circumvallate, filiform papillae and fungiform papillae. Fungiform papillae are rounded reddish elevations present near the tip and margins of tongue and when prominent may appear rough and pebbly. Filiform papillae are most numerous and cover most of the anterior 2/3rd of tongue and impart a velvety appearance to the tongue. The arrangement of these papillae



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along with circumvallate papillae and sulcus terminalis gives rise to different geometrical shapes and surface textures making the tongue print unique for each individual.

Histogram is the most commonly used characteristic to represent the global feature composition of an image. Edge in the image is considered an important feature to represent the content of the image. The edge histogram descriptor consists of 80 local edge histogram bins.¹To localize edge distribution to a certain area of the image, we divide the image space into 4×4 sub-images. The sub-image is further divided into small square blocks called image blocks. The color autocorrelogram (CAC) expresses the spatial correlation of pairs of colors with distance information. CAC of the image only captures spatial correlation between identical colors. Multi-texton histogram (MTH) idea is texton theory proposed by Julesz. MTH uses four types of texton to detect the micro structure of an image.²MTH extracts image features by utilizing a color histogram in RGB color space and detects the edge orientation of an image using sobel operator. Deep belief networks (DBN) introduced by Hinton et al. are probabilistic generative models that contain many layers of hidden variables, in which each layer captures strong high order correlations between the activities of hidden features in the layer below³

Personal identification is becoming increasingly important not only in legal medicine but also in criminal investigation and genetic research. In this computer driven era, biometric authentication is a method of personal identification, and has gained popularity. This method had replaced the age old tradition of recognizing a person using the identification marks. A biometric system is a real-time identification system which identifies a person by measuring a particular physical or behavioural characteristic and later comparing it to a library of characteristics belonging to many people.⁴Many modes of biometric systems have come into existence such as finger print, iris scan, skin colour, signature verification, voice recognition, and face recognition. Tongue print also holds the promise of a potential forensic tool for personal identification as it is well protected within the oral cavity.

AIMS & OBJECTIVES

Aims:

To evaluate the uniqueness of human tongue prints for biometric authentication using digitalized techniques.

Objectives:

- To analyze the marginal contour feature of tongue using edge histogram descriptor.
- To analyze the tongue color using color autocorrelogram feature extractor.
- To analyze the tongue texture using multi-texton histogram feature extractor.
- To evaluate the uniqueness of tongue prints using these three feature extraction techniques.
- Baseline study to acquire database information of human tongue prints.




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STUDY HYPOTHESIS

Null Hypothesis

Human tongue prints are not unique for individuals and there by cannot be used for biometric authentication.

Alternate Hypothesis

Human tongue prints are unique for individuals and can be used for biometric authentication.

REVIEW OF LITERATURE

J H Jang et al in 2002 paper shows digital tongue inspection system that has been developed that consists of the implemented hardware part for tongue image acquisition, the image processing part that includes colour interpolation, edge detection algorithm for tongue area separation and tongue colour detection algorithm, and the database and user interface system for archiving and managing acquired tongue images.⁵

Zuo et al. have presented a technique for automated tongue segmentation by merging polar edge detector and active contour model. Experimental results revealed that the tongue segmentation can segment the tongue precisely. Recently, developing approaches for segmenting the tongue images have received a great deal of attention among researchers.⁶

M. Diwarkar and M. Maharshi have demonstrated an extraction and recognition of tongue- print images for biometric system from the tongue database in 2013. Their paper demonstrated two phases. First, find out spots on the tongue with the help of histogram and second phase to extract image of tongue and recognize from the tongue- image database.⁴

In 2014 B. Zhang and H. Zhang thoroughly examined tongue shapes using geometry features through computerised methods. The features helped to define 5 tongue shapes rooted upon traditional Chinese medicine and using a decision tree⁷

In 2017 Jeddy et al. in their paper have explained the search for a new personal identification method which has led to the use of the lingual impression or the tongue print as a method of biometric authentication.⁸

MATERIALS AND METHODS

STUDY QUESTIONS

Is the human tongue print unique for each individual?

Can human tongue prints be used for biometric authentication?




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STUDY SETTING

Tertiary care setting

The study is being planned to be conducted in the Department of Oral Pathology and Microbiology at PMS College of Dental Science and Research, Vattappara, Thiruvananthapuram, in collaboration with Department of Computer Science, University of Kerala, Kariavattom, Thiruvananthapuram.

STUDY DESIGN

Descriptive study

STUDY SUBJECTS

The study group comprises randomly selected 180 individuals with age ranging between 17 to 35 years of both genders who volunteer to participate in the study.

CRITERIA FOR SELECTING STUDY SUBJECTS

Inclusion criteria for tongue prints:

Individuals with healthy tongue of age between 17 to 35 years from both genders will be included.

Exclusion criteria for tongue prints:

Individuals having known systemic diseases, autoimmune disorders, tongue pathologies and those not willing to participate will be excluded from the study.

OUTCOME/ DEPENDENT VARIABLE

Tongue prints

SAMPLE SIZE

$$n = \frac{Z_{\alpha}^2 p(1-p)}{d^2}$$

Where n= Sample size

Z_{α} = Z statistics for a level of confidence




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p = Estimated proportion of an attribute present in the population

d = Level of precision

In this study: -

p = 0.90 (Accuracy of shape classification by tongue image)

d = 5% of p = 0.045

$Z_{\alpha} = 1.96$ for $\alpha = 0.05$

$$n = \frac{(1.96)^2 \times (0.90) \times (0.10)}{(0.045)^2}$$

$$= 171$$

Minimum sample size for the study is 171 rounded to **180**

STUDY PERIOD

One and a half year

COST OF STUDY

Approximately Eighty Thousand Rupees.

PROCEDURE

Armamentarium:

- Digital SLR camera
- Digital photographs of dorsum of tongue
- Tongue diagnostic software

Method

The study group comprise randomly selected 180 individuals with age ranging from 17-35years of both genders who volunteered to participate after taking informed consent. Images of the dorsal tongue are captured under the standardized lighting conditions using a digital SLR camera with fixed head position, tongue protrusion maintaining the distance of subject to camera. For each individual 5 photographs are taken from dorsum of tongue.

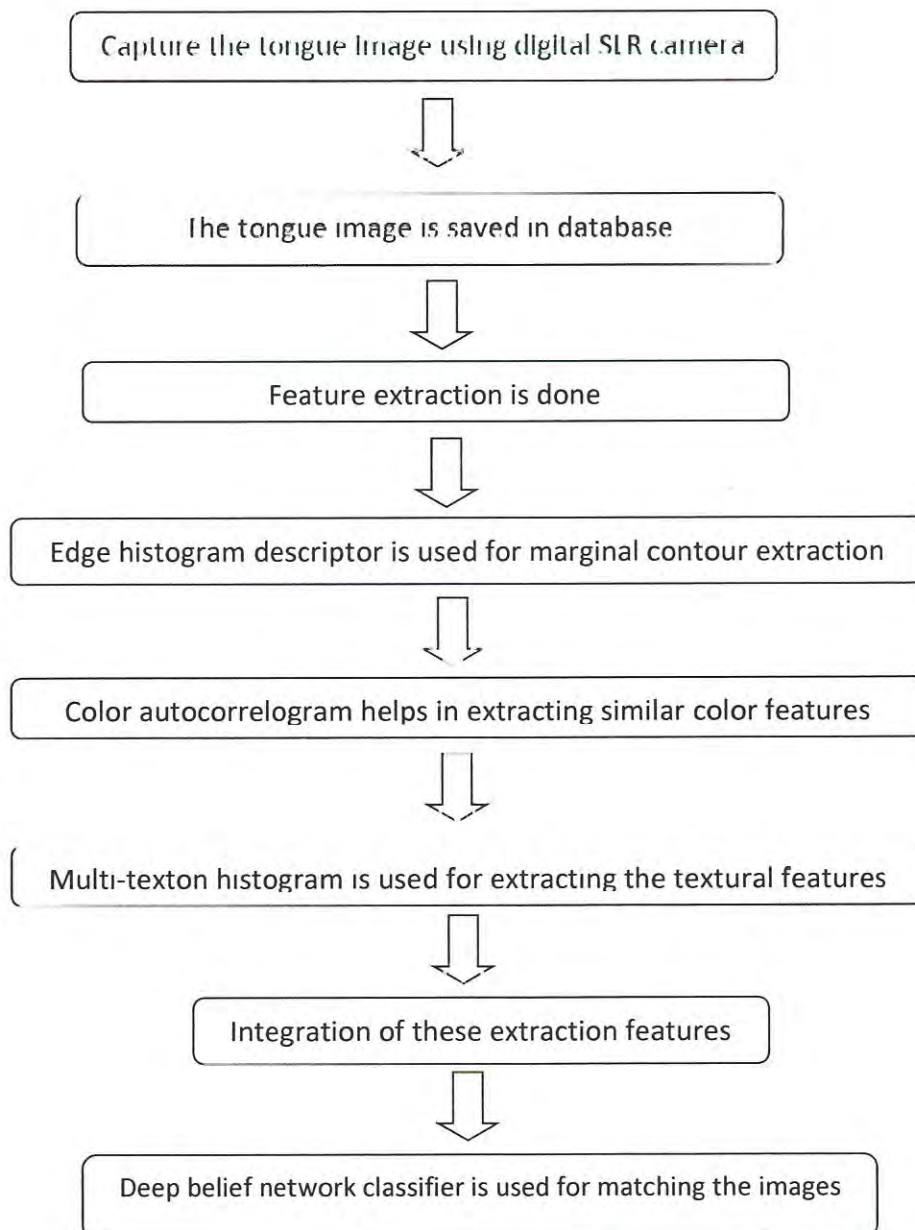


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A handwritten signature in green ink, appearing to be 'S. S.', located at the bottom right of the page.

The image of tongue is cropped and saved in data base. Feature extraction is done by creating a biometric template or mathematical representation for the tongue feature to be compared to those in the reference database. The computerized image classification uses tongue image acquiring devices and tongue diagnostic software. By using a combination of recognition techniques, such as edge histogram descriptor, color autocorrelogram, multi-texton histogram feature extractors and deep belief networks as classifier, the given tongue images are classified and evaluated digitally for marginal contour, colour and texture of the tongue.

Work Protocol




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RATIONALE

Biometric authentication is a method of personal identification and the uniqueness of tongue prints has its advantage over other methods as it is difficult to forge. To our knowledge, little work has been done in digital tongue prints. Research in tongue prints is at a preliminary stage. Using digital technologies, identification of individuals from the uniqueness of tongue print is a futuristic tool.

ETHICAL CONSIDERATION

The patient will be informed in written format about the procedure. A written consent will also be obtained from the patient for the same. Ethical clearance obtained from the institutional ethics committee (IEC NO: PMS/IEC/2017/01).

EXPECTED OUTCOME

Recognize tongue prints from the tongue- image database and identify the uniqueness of tongue print.

STATISTICAL ANALYSIS

Statistical analysis will be done using SPSS software.

The accuracy of the method will be analyzed using percentage analysis

REFERENCES

1. Park D.K, Jeon Y.S, Won C.S. Efficient use of local edge histogram descriptor. Association for Computing Machinery.2000: 51-54.
2. Minarno A.E and Suciati N. Image Retrieval Using Multi Texton Co-Occurrence Descriptor. Journal of Theoretical and Applied Information Technology.2014;67:103-110.
3. Li J, Tian Y, Wang Q, Jun Y. The Application of an Improved Deep Belief Network in BLDCM Control System. International Journal of Simulation - Systems, Science & Technology . 2016; 17(31):1-7.
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5. Jang J.H.et al. Development of the Digital Tongue Inspection System with image analysis. Institute of Electrical and Electronics Engineers 2007;2: 1033 1035
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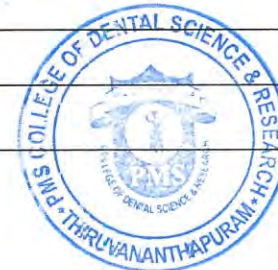
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LIST OF TEACHERS PROVIDED FINANCIAL SUPPORT FOR ATTENDING CONFERENCES

SI No	Name of the Teacher	Name of the conference
2019-2020	Dr.Mathew Tharakan	Faculty of CDE – Back to basics in clinical dentistry -AKMG Emirates – Sharjah UAE
	Dr.Sheena N	IAOMP
2019-2020	Dr Shabnaz N S	Indian Dental Conference 2020
	Dr Deepa D S	Indian Dental Conference 2020
	Dr Shemil Mohamed Sha	Indian Dental Conference 2020
	Dr Aparna M Nair	Indian Dental Conference 2020
	Dr Vinod Nair S	Indian Dental Conference 2020
	Dr Anjana Kavindran	Indian Dental Conference 2020
	Dr Dilna S	Indian Dental Conference 2020

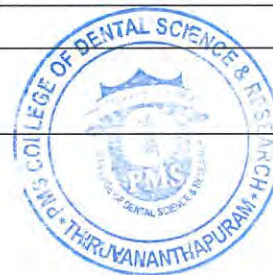


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Dr Nikhil Murali	Indian Dental Conference 2020
Dr Shaniya Sain	Indian Dental Conference 2020
Dr Sageena Jose	Indian Dental Conference 2020
Dr Vinod Mony	Indian Dental Conference 2020
Dr Devi Gopakumar	Indian Dental Conference 2020
Dr Gayathri S	Indian Dental Conference 2020
Dr Soorya R A	Indian Dental Conference 2020
Dr Abe Antony	Indian Dental Conference 2020
Dr Nisha S Raj	Indian Dental Conference 2020
Dr Reshmi A	Indian Dental Conference 2020
Dr Benila Mathew	Indian Dental Conference 2020
Dr Jyothilekshmi B	Indian Dental Conference 2020
Dr Geetha Ramachandran	Indian Dental Conference 2020
Dr Varsha Rajeev	Indian Dental Conference 2020
Dr Rakesh Koshy Zachariah	Indian Dental Conference 2020

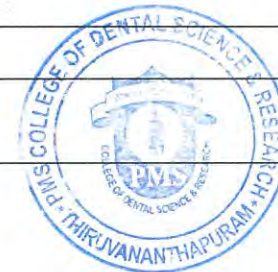


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Dr Sheeba F Gladstone	Indian Dental Conference 2020
Dr Sapna Bhaskaran	Indian Dental Conference 2020
Dr Saranya S Nair	Indian Dental Conference 2020
Dr Surej Kumar L K	Indian Dental Conference 2020
Dr Reejamo M K	Indian Dental Conference 2020
Dr Abha Nair	Indian Dental Conference 2020
Dr Neethu Suresh	Indian Dental Conference 2020
Dr Nikhil M Kurien	Indian Dental Conference 2020
Dr Sherin N Rahim	Indian Dental Conference 2020
Dr Adersh C A	Indian Dental Conference 2020
Dr Mathew Tharakan	Indian Dental Conference 2020
Dr Seba Abraham	Indian Dental Conference 2020
Dr Swathy Anand	Indian Dental Conference 2020
Dr Deepan Kumar C V	Indian Dental Conference 2020
Dr Rekha Peter	Indian Dental Conference 2020
Dr Daniel Sunitha Mariam	Indian Dental Conference 2020



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2018-2019	Dr.Surej Kumar L K	43rd AOMSI National Conference (Indo Japan Summit)
	Dr.Mathew Tharakan	Clinical Dentistry Congress - 2018 – MEDCON – AKMG Emirates
	Dr.Vinod S Nair	Conference on Medical and Health Sciences (2nd ICMHS- 23rd NCMHS) in conjunction with 2nd Translational Craniofacial Conference (2nd TCC). Universiti Sains Malaysia. October 2018.
2017-2018	Dr.Sudeep.S	International digital conference at Delhi
	Dr.Noxy George	International digital conference
	Dr.Sageena Geerge	39 th Annual conference of Indian Society of Pedodontics and Preventive Dentistry, September 2017
	Dr.Anandaraj.S	39 th Annual conference of Indian Society of Pedodontics and Preventive Dentistry, September 2017



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	Dr.Jyothi Sumi	39 th Annual conference of Indian Society of Pedodontics and Preventive Dentistry, September 2017
	Dr.Shaniya Sair	39 th Annual conference of Indian Society of Pedodontics and Preventive Dentistry, September 2017
	Dr.Deepak Jose	39 th Annual conference of Indian Society of Pedodontics and Preventive Dentistry, September 2017
	Dr.Seba Abraham	42 nd National Conference Indian Society of Periodontics, Kolkata
	Dr.Arunima	42 nd National Conference Indian Society of Periodontics, Kolkata
	Dr.Reejamol	42 nd National Conference Indian Society of Periodontics, Kolkata
	Dr.Sivakumar.T.T	International Conference on Advance in Degenerative Diseases
	Dr.Sheena.N	International Conference on Advance in Degenerative Diseases

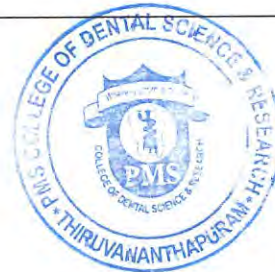


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	Dr. Anna.P.Joseph	International Conf on Advance in Degenerative Diseases
	Dr.Deepu Leander	52 Nd Indian National Conference by Indian Orthodontic Conference Jaipur
	Dr.Surej Kurnar L.K	22nd Mid Term Conference by Asso. Of Oral and Maxillo facial Surgeons of India At Nepal
	Dr.Nikhi Kurien	22nd Mid Tern Conference by Asso. Of Oral Maxillo facial Surgeons of India At Nepal
2016-2017	Dr. Surej Kumar L K	AOMSI Master Class Programme, February 2017
	Dr. Surej Kumar L K	International Cleft Cong RESS Chennai, India- February 2017

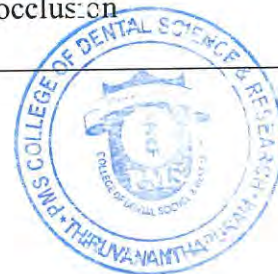


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Dr Nikhil M Kurien	21 st Mid Term Conference And 7 th Post Graduate Student Convention Chandigarh -Panchkula, April 2017
Dr Deepan C V	LAPHD PG Convention May 2017
Dr Anjana Ravindran	Maxillofacial Prosthetics Symposium FFOFR Outreach Program (Dr.John Beumer) Held At AIMS Kochi.Held On 23 rd 24 th 25 th March 2017
Dr Sheena N	National Seminar on Recent Biochemical Approaches In Therapeutics February 2017
Dr.Mathew Tharakan	21 st Mid Term Conference And 7 th Post Graduate Student Convention April 2017
Dr Shaniya Sain	Training In New Approach to The Diagnosis Treatment And Clinical Management Of Malocclusion



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Dr Sudeep Dr Sheeba S Gladson	Maxillofacial Prosthetic Symposium in Association With Outreach Program FFOFR-Maxillofacial Prosthetics Led By Dr John Beumer And Team UCLA, Cochin - 23rd, 24th, 25th March 2017
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PMS/ADMN/NOT/027/2022

18.01.2022

NOTICE

- **Indian Council of Medical Research (ICMR)** has invited applications from interested **MBBS/BDS students (1st year to 4th year (before appearing in 4th year final exams))** to participate in the **Short Term Studentship-2022 (STS-2022)**.
- The main objective of this program is to provide an opportunity to undergraduate medical students to familiarize themselves with research methodology and techniques by being associated for a short duration with their seniors on ongoing research program or by undertaking independent projects. It was expected that this may serve as an incentive for them to take up research as a career in the future.
- Approximately 1500 students (1200 seats- MBBS and 300 seats- BDS) will be awarded STS after the report submission and review for the year 2022
- Online registration begins from 10th January, 2022 (9:00am) only until 31st January, 2022 (by 5:00pm) and online application submission starting from 10th January, 2022 (9:00am) till 9th February, 2022 (by 5:00pm), which will be then evaluated by the ICMR. The results will be announced by end of April or first week of May, 2022 and list of selected students to undertake STS research work will be displayed on the STS website. The selected students are expected to complete the project in any two given months between May, 2022 and September, 2022 and submit the report before the last date of submission i.e. 29th October, 2022 (Friday by 5:00pm). The student will be awarded stipend and certificate only if his/her STS report is approved by ICMR
- **The value of the studentship from 2022 is Rs. 25,000/- per month for 2 months duration (Total Rs. 50,000/)**

Research Proposal should be prepared in brief with the following sections:

1. Title (up to 25 words),
2. Introduction (up to 300 words),
3. Objectives (up to 100 words),
4. Methodology (up to 800 words),
5. Implications (up to 100 words),
6. References (up to 300 words- Vancouver style only).

Interested Participants may register in ICMRSTS Website. For more information contact Dr Ambili.R (Research Director)

Principal

Cc: Chairman, All Clinics, All HODs, Basic Science, Academics HR & file.



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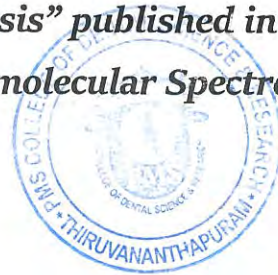
Dr Sunila Thomas

*for the best publication of the year 2021 for the reaserch paper
entitled " Optical diagnosis of oral lichen planus : A clinial
study on the use of autofluorescence spectroscopy combined with
multivariate analysis" published in Spectrochimica Acta, Part A :
Molecular and Biomolecular Spectroscopy with an impact Factor of 4.098*



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DR.PS THAHA
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Principal

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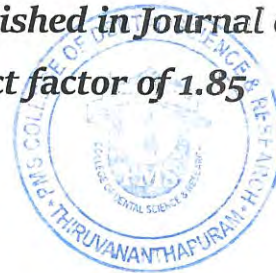
Dr. Anna P Joseph

*for the best publication of the year 2020 for the reaserch paper
entitled "Tonque print identification using deep CNN for
forensic analysis" published in Journal or intelligent & Fuzzy
Systems with an Impact factor of 1.85*



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DR.SUDEEP S
Principal



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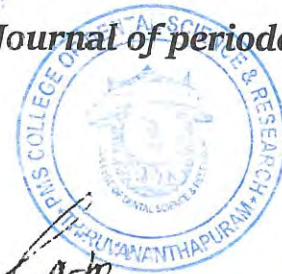
This certificate is awarded to

Dr. Presanthila Janam

*for the best publication of the year 2019 for the reaserch paper
entitled " Identiftiacion of a novel salivary biomarker miR - 142-3p
for periodontal diagnosis : A proof of concept study" published in
the Journal of periodontology with an Impact Factor of 3.742*



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Ps
DR.PS THAHA
Chairman & Patron

No

DR.NO VARGHESE
Principal



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BEST PUBLICATION AWARD

This certificate is awarded to

Dr. Sivakumar TT

*for the best publication of the year 2018 for the reaserch paper
entitled "Forensic application of fluorescence spectroscopy : An
efficient technique to predict the presence of human saliva "
published in the Journal Of Luminescence with an impact factor of 3.28*



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BEST PUBLICATION AWARD

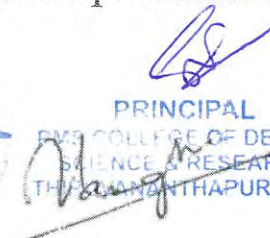
This certificate is awarded to

Dr Ambili. R

*for the best publication of the year 2017 for the reaserch paper
entitled "An ex vivo evaluation of the efficacy of andrographolide in
modulation differential expression of transcription factors and
target genes in periodontal cells and its potential role in treating
periodontal diseases" published in Journal of enthopharmacology
with an impact factor of 2.58*



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PUBLICATIONS FORM INSTITUTION

1. Institutional journal-Journal of maxillofacial science and research




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2. Institutional News letter- PMS TIMES

www.pmscollege.ac.in

PMS TIMES

THE OFFICIAL NEWS BULLETIN OF PMS COLLEGE OF DENTAL SCIENCE AND RESEARCH II

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Department of Oral & Maxillofacial Surgery

Department has completed a short study project and published in a reputed journal- Pain control efficacy of Ibuprofen in therapeutic premolar extraction: pre-treatment Vs post treatment administration- A Randomised comparative study (Dr. Mathew Tharakan, Dr. Surej Kumar L.K, Dr. Nikhil M Kurien, Dr. Adersh GA)

ACHIEVEMENTS:

1. Dr. Georgie P Zachariah , Post graduate student has got 3rd rank in kerala health university MDS examination -July 2021
2. Dr. Shiad Salim, Reader Dept of OMFS- Was an invited speaker at the 2021 world hepatitis day. Also an invited speaker in CDE smart city cochin



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KERALA UNIVERSITY OF HEALTH SCIENCES

Abstract

KUHS- Academic- Institutions having with approved Departments – Recognition as Centres of Research – Orders issued.

ACADEMIC I BRANCH

No. 11668/2019/AC1/GEN A2/KUHS

Thrissur, 07.08.2019

Read:- 1. Notification No.15739/A/Dean R/KUHS/2017 Dated 29.01.2018
2. U.O.No.46/A2/Dean R/KUHS/2018 Dated 31.03.2018
3. Decision No.21.05 of the 21st Academic Council meeting held on 21.05.19
4. Decision No.54.07 of the 54th Governing Council meeting held on 24.05.19
5. U.O.No. 11668/2019/AC1/GEN A2/KUHS Dated 04.07.2019
6. Decision No. 22.09 of the 22nd Academic Council meeting held on 12.07.19
7. Decision No. 55.45 of the 55th Governing Council meeting held on 15.07.19

ORDER

1. As per Chapter XXII –(Recognition of Research Centres) of the 1st Statute of the Kerala University of Health Sciences, it shall be competent for the Governing Council to recognize any institution engaged in research or specialized studies as recognized institution which satisfies the conditions specified therein.

2. The 21st Academic Council meeting held on 21.05.2019 and the Governing Council meeting held 24.05.2019 vide decisions read as 3rd and 4th respectively have decided to grant recognition as “Centres of Research” to the institutions having with approved Departments listed, conducting PG course and the first batch of students have been passed out from that Department. The decisions have been implemented vide order read 5th above.

3. Accordingly the list of Institutions with Departments satisfying the above criteria, applied for approval as “Centres of Research” was placed before the Academic Council and the 22nd Academic Council meeting held on 12.07.2019 vide decision read 6th above has recommended for granting approval for such departments.



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4. The 55th Governing Council meeting held on 15.07.2019 vide decision read 7th above approved the recommendation of Academic Council and decided to grant approval for "Centres of Research" as per list appended.

5. The Hon'ble Vice Chancellor has accorded sanction to implement the decision of Governing Council.

6. In the above circumstances, institutions with the departments as appended are recognized as "Centres of Research" under Kerala University of Health Sciences.

7. Orders are issued accordingly.

REGISTRAR

To,

The Principals of all the colleges affiliated to KUHS

Dean (Research)

IT Branch (for uploading the University website)

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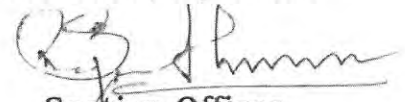
All Branches of Academic Branches

O/o the Deans (Research)


P.S to VC/PVC/Registrar/F.O/CE /Deans

Stockfile/OC

Forwarded/ By Order


Section Officer




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(Annexure of U.O.No.11668/2019/AC1/GEN A2/KUHS Dated 07.08.2019)

List of Institutions, recognized as Centres of Research under KUHS having-department conducting PG courses and the first batch of students have been passed out from that Department

Sl.No	Name of the Institution	Department
1.	Pankajakasturi Ayurveda Medical College & Post Graduate Centre, Thiruvananthapuram	Department of Shalyathanthra
2.	Vaidyaratnam Ayurveda College, Thrissur	Dept. of Kayachikitsa
3.	Govt. Ayurveda College, Thiruvananthapuram	Dept. of Agad Tantra Dept. of Ayurveda Siddhanta Dept.of Dravyaguna Vigyana Dept. of Kaumar Bhritya Dept. of Kayachikitsa Dept. of Panchkarma Dept. of Rasashastra & Bhaishajya Kalpana Dept. of Swasthvritta Dept. of Prasuti Tantra Dept. of Ayurveda dhanvantari-Shalakya Dept. of Ayurveda dhanvantari-Shalya
4.	Govt. Medical College, Thrissur	Dept. of Neurosurgery Dept. of Anaesthesiology Dept. Of Anatomy Dept. of Forensic Medicine Dept. of Physiology Dept. of Biochemistry Dept. of Community Medicine Dept. of Dermatology and Leprosy Dept. of General Medicine Dept. of Microbiology Dept. of Paediatrics Dept. of Pathology Dept. of Pharmacology Dept. of Psychiatry




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5. Govt. Medical College,
Thiruvanthapuram

Dept. of Pulmonary Medicine
Dept. of Radiodiagnosis
Dept. of Radiotherapy
Dept. of General Surgery
Dept. of Obstetrics and Gynaecology
Dept. of Ophthalmology
Dept. of Orthopaedics
Dept. of Oto-Rhinolaryngology

Dept. Endocrinology
Dept. of Genito Urinary Surgery
Dept. of Cardiovascular & Thoracic
Surgery
Dept. of Surgical Gastroenterology
Dept. of Plastic Surgery
Dept. of Paediatrics Surgery
Dept. of Neurosurgery
Dept. of Nephrology
Dept. of Neurology
Dept. of Medical Gastroenterology
Dept. of Cardiology
Dept. of Immuno Haematology and
Blood Transfusion
Dept. of Forensic Medicine
Dept. of Physiology
Dept. of Ophthalmology
Dept. of General Surgery
Dept. of Oto-Rhino Laryngology
Dept. of Physical Medicine and
Rehabilitation
Dept. of Pharmacolgy
Dept. of Pathology
Dept. of Microbiology
Dept. of General Medicine
Dept. of Community Medicine
Dept. of Biochemistry
Dept. of Anatomy
Dept. of Anesthesiology
Dept. of Dermatology Venerology and
Leprosy
Dept. of Paediatrics
Dept. of Orthopaedics
Dept. of Psychiatry
Dept. of Radiodiagnosis
Dept. of Radiotherapy
Dept. of Pulmonary Medicine




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Dept. of Obstetrics and Gynaecology
Dept. of Clinical Pathology
Dept. of Anesthesiology
Dept. of Public Health
Dept. of Psychiatric Medicine
Dept. of Tuberculosis and Chest
Diseases

Dept. of Pharmaceutics
Dept. of Pharmaceutical Analysis
Dept. of Pharmaceutical Chemistry
Dept. of Pharmacognosy and
Phytochemistry
Dept. of Pharmacology
Dept. of Pharmacy Practice

6. Govt. Medical College, Kozhikode

Dept. of Psychiatry
Dept. of Cardiology
Dept. of Dermatology & Venereology
Dept. of General Medicine

7. Govt. TD Medical College, Alappuzha

Dept. of Anesthesiology
Dept. of Obstetrics and Gynaecology
Dept. of Ophthalmology
Dept. of Orthopaedics
Dept. of Oto-Rhino Laryngology
Dept. of Cardiology
Dept. of Nephrology
Dept. of Neurology
Dept. of Genito Urinary Surgery
Dept. of Neurosurgery
Dept. of Anatomy
Dept. of Forensic Medicine
Dept. of Physiology
Dept. of Community Medicine
Dept. of Dermatology Venerology and
Leprosy
Dept. of General Medicine
Dept. of Immuno Haematology and
Blood Transfusion
Dept. of Paediatrics
Dept. of Pathology
Dept. of Pharmacology
Dept. of Psychiatry
Dept. of Radiodiagnosis
Dept. of General Surgery




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- | | | |
|-----|---|--|
| 8. | Jubilee Mission Medical College & Research Centre, Thrissur | Dept. of Cardiology
Dept. of Neurology
Dept. of Emergency Medicine
Dept. of General Medicine
Dept. of Immuno Haematology and Blood Transfusion
Dept. of Microbiology
Dept. of Paediatrics
Dept. of Pathology
Dept. of Psychiatry
Dept. of Radio diagnosis
Dept. of General Surgery
Dept. of Obstetrics and Gynaecology
Dept. of Orthopaedics
Dept. of Oto Rhinolaryngology
Dept. of Anaesthesiology
Dept. of Physiology |
| 9. | Malankara Orthodox Syrian Church Medical College, Ernakulam | Dept. of Anaesthesiology
Dept. of Obstetrics and Gynaecology
Dept. of Psychiatric Medicine
Dept. of Neonatology
Dept. of General Medicine
Dept. of Paediatrics
Dept. of Psychiatry
Dept. of General Surgery |
| 10. | Azeezia institute of Medical Sciences, Kollam | Dept. of Pharmacology |
| 11. | Amala Institute of Medical Sciences, Thrissur | Dept. of Dermatology Venerology and Leprosy
Dept. of Cardiology
Dept. of Neurosurgery
Dept. of Biochemistry
Dept. of Community Medicine
Dept. of General Medicine
Dept. of Paediatrics
Dept. of Pathology
Dept. of Psychiatry
Dept. of Pulmonary Medicine
Dept. of Radiodiagnosis
Dept. of Radiotherapy
Dept. of General Surgery
Dept. of Obstetrics and Gynaecology
Dept. of Ophthalmology |




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		Dept. of Orthopaedics Dept. of Oto-Rhino Laryngology Dept. of Anaesthesiology Dept. of Physiology
12.	Sree Gokulam Medical College & Research Foundation	Dept. of Ophthalmology Dept. of Orthopaedics Dept. of Oto-Rhino Laryngology Dept. of Radiodiagnosis Dept. of Biochemistry Dept. of Community Medicine Dept. of General Medicine Dept. of Microbiology Dept. of Paediatrics Dept. of Pathology Dept. of Pharmacology Dept. of General Surgery Dept. of Obstetrics and Gynaecology Dept. of Anaesthesiology Dept. of Anatomy Dept. of Physiology
13.	Ahalia School of Optometry, Palakkad	Dept. of Optometry
14.	JDT Islam College of Physiotherapy & Rehabilitation Centre, Calicut	Dept. of Neurology Dept. of Musculo Skeletal and Sports Dept. of Cardio Respiratory
15.	Institute of Mental Health & Neuroscience (IMHANS), Kozhikode	Dept. of Psychiatric Social Work Dept. of Clinical Psychology
16.	Rajeev Gandhi Institute of Pharmacy, Kasargod	Dept. of Pharmaceutics Dept. of Pharmaceutical Analysis
17.	National College of Pharmacy, Kozhikode	Dept. of Pharmaceutics Dept. of Pharmaceutical Analysis Dept. of Pharmaceutical Chemistry Dept. of Pharmacy Practice
18.	Mar Dioscorus College of Pharmacy, Sreekaryam, Trivandrum	Dept. of Pharmaceutics
19.	Malik Deenar College of Pharmacy, Kasargod	Dept. of Pharmacognosy and Phytochemistry
20.	KVM Trust College of Nursing, Cherthala	Dept. of Medical Surgical Nursing Dept. of Community Health Nursing Dept. of Psychiatric Nursing Dept. of OBG Nursing



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21.	Sree Gokulam Nursing College, Trivandrum	Dept. of Community Health Nursing Dept. of Medical Surgical Nursing Dept. of OBG Nursing Dept. of Paediatric Nursing
22.	Bishop Benziger College of Nursing, Kollam	Dept. of OBG Nursing Dept. of Child Health Nursing Dept. Medical Surgical Nursing Dept. of Psychiatric Nursing Dept. of Community Health Nursing
23.	Govt. College of Nursing, Alappuzha	Dept. of OBG Nursing Dept. of Child Health Nursing Dept. Medical Surgical Nursing Dept. of Community Health Nursing
24.	Govt. College of Nursing, Thiruvananthapuram	Dept. of OBG Nursing Dept. of Child Health Nursing Dept. Medical Surgical Nursing Dept. of Community Health Nursing
25.	Malankara Orthodox Syiran Church College of Nursing, Ernakulam	Dept. of OBG Nursing Dept. Medical Surgical Nursing Dept. of Mental Health Nursing
26.	Jubilee Mission College of Nursing, Thrissur	Dept. Medical Surgical Nursing Dept. of OBG Nursing Dept. of Paediatric Nursing Dept. of Mental Health Nursing
27.	PMS Dental College, Trivandrum	Dept. of Oral Pathology and Micro Biology Dept. of Pedodontics & Preventive Dentistry Dept. of Periodontics Dept. of Oral Medicine and Radiology
28.	Azeezia Dental College, Kollam	Dept. of Oral Pathology and Micro Biology
29.	Anmoor Dental College, Ernakulam	Dept. of Oral Pathology and Micro Biology
30.	KMCT Dental College, Kozhikode	Dept. of Conservative Dentistry and Endodontics Dept. of Oral and Maxillofacial Surgery Dept. of Oral Medicine and Radiology



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Dept. of Oral Pathology and
Microbiology
Dept. of Orthodontics and
Dentofacial Orthopaedics
Dept. of Pedodontics and Preventive
Dentistry
Dept. of Periodontology
Dept. of Prosthodontics and Crown
and bridge




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Prof. (Dr.) Alka Kulkarni
REGISTRAR

Ref: N(DU)/REG/RC/2020-21/501

23-12-2020

NOTIFICATION

Sub: Recognition of PMS College of Dental Sciences, Thiruvananthapuram as a Research Centre to carry out Research Work leading to the award of Ph.D Degree.

With reference to the subject cited above, I am directed to inform you that as per the decision of the Board of Research Studies, **PMS College of Dental Sciences, Thiruvananthapuram** has been recognized as a Research Centre to carry out Research Work leading to Ph.D Degree of NITTE (Deemed to be University), Mangalore. The validity of centre recognition is 4 years from the date of this notification.

By Order,


REGISTRAR



To,

The Principal
PMS College of Dental Sciences
Golden Hills, Vattapara, Venkode,
Thiruvananthapuram, Kerala 695028

Copy:

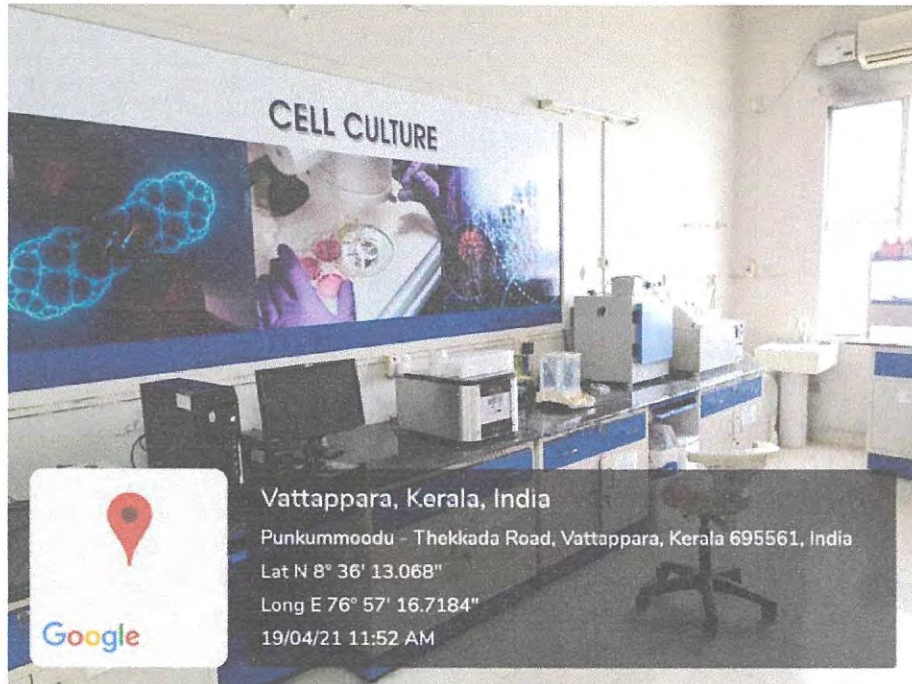
- The Office of the Vice Chancellor, Nitte (DU)
- The Office of the Pro Vice-Chancellor, Nitte (DU)
- The Director (R&D), Nitte (DU)




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RESEARCH FACILITIES

CELL CULTURE LAB



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PMS COLLEGE
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DENTAL SCIENCE & RESEARCH

IMMUNO HISTO CHEMISTRY LAB




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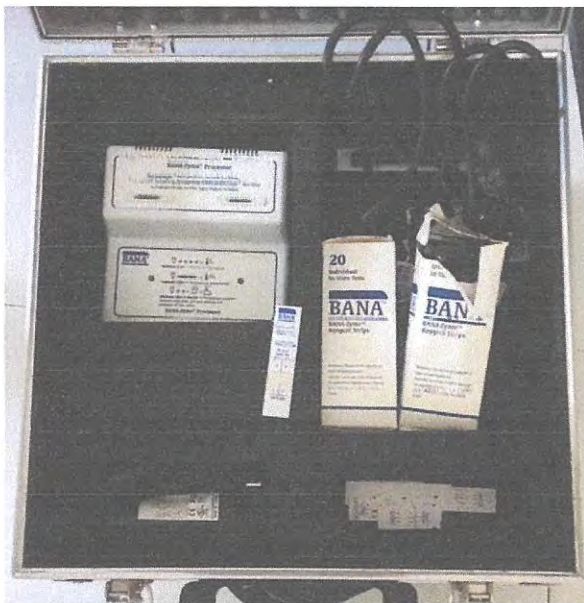


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BANA TEST



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Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram 695014, Kerala State, India.
An Autonomous National Institute for Discovery, Innovation & Translation
in Biotechnology and Disease Biology,
Government of India. Ministry of Science & Technology, Department of Biotechnology.

राजीव गाँधी जैव प्रौद्योगिकी केन्द्र, तिरुवनन्तपुरम 695 014, केरल, भारत.
जैवप्रौद्योगिकी और रोग जीवविज्ञान में आविष्कार, नवीनता एवं अनुवाद
की स्वायत्त राष्ट्रीय संस्थान,
भारत सरकार विज्ञान एवं प्रौद्योगिकी मंत्रालय, जैवप्रौद्योगिकी विभाग.

RGCB/DIR/PMS/06/2019

June 26, 2019

Dr. P. S. Thaha

Chairman, PMS Dental College
Golden Hills, Vattapara, Venkode,
Thiruvananthapuram, Kerala 695028.

Ref: Clinical study for Mouth Wash reg:

Sir,

Greetings from Rajiv Gandhi Centre for Biotechnology (RGCB).

I am writing this mail in connection with a formulation developed jointly by RGCB and RCC for radiation induced oral mucositis. A clinical trial for the same was done at RCC in 2016 and the study outcome was found very encouraging. Accordingly a patent disclosure was filed and is under scrutiny and examination.

Meanwhile, we were approached by Ceego Labs Pvt. Ltd, Chennai for exploring the possibility of bringing this product into the market for common cancer patients. Ceego Labs is of the opinion that the acceptability of this product will enhance if we can increase bandwidth by conducting a small bridging study to show its efficacy for mouth ulcer and as a regular mouth wash. I appreciate if PMS team can help us in doing this bridging study. Consequently, I understand that my scientists had a preliminary discussion with **Dr. Ambili and Dr. Mathew** for taking up the study at PMS as you have enough number of OP patient population. Ceego Labs has agreed that they will be able to support this study by giving the study material in three types, which comprise of Active Ingredient Powder (30gm), Whole Extract Powder (50gm) and Whole Extract Liquid (60ml).

I appreciate your help and support in bringing this product to market and help the general population by considering the conduct of this study proposal. RGCB will support all the off line studies required in RGCB laboratory.

Warm regards,

Yours truly,

Professor M. Radhakrishna Pillai,
FRCPath, PhD, FASc, FNASc, FAMS
Director



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An ex vivo evaluation of the efficacy of andrographolide in modulating differential expression of transcription factors and target genes in periodontal cells and its potential role in treating periodontal diseases

R. Ambili^{a, *}, Prasanthila Janam^b, P.S. Saneesh Babu^c, Manu Prasad^c, D. Vinod^d, P R Anil Kumar^d, I.V. Kumary^d, S. Asha Nair^c, M. Radhakrishna Pillai^c

^a PMS College of Dental Sciences and Research, Trivandrum 695028, Kerala, India

^b Government Dental College, Trivandrum 695011 Kerala, India

^c Rajiv Gandhi Centre for Biotechnology (RGCB), Poojappura, Thiruvananthapuram 695014, Kerala, India

^d Tissue Culture Laboratory, Sree Chitra Thirunal Institute for Medical Sciences and Technology (SCTIMST), Biomedical Technology Wing, Poojappura 695012, Thiruvananthapuram, India

ARTICLE INFO

Chemical compounds studied in this article:
Andrographolide (PubChem CID: 5318517)

Keywords:

NF- κ B and STAT3
Transcription factor
Host modulation therapy
Periodontitis
Andrographolide

ABSTRACT

Ethnopharmacological relevance: Andrographolide is a herbal extract traditionally used in South Asian countries for treating inflammatory diseases.

Aim of the study: To evaluate the efficacy of andrographolide in management of periodontal disease which is a highly prevalent oral disease.

Materials and Methods: Periodontal ligament fibroblasts (PDLF) were cultured from healthy and diseased periodontium using explant culture methods. The safe dose of AG was determined using MTT assay. LPS (lipopolysaccharide) of the most important periodontopathogen, *P. gingivalis* was used to activate NF- κ B and STAT3 in PDLF. The efficacy of AG in inhibiting NF- κ B and STAT3 was analyzed using immunofluorescence. Down regulation of expression of target genes of these transcription factors related to inflammation and bone resorption were analyzed using real time PCR.

Results: AG up to the concentration of 25 μ M was found to be safe as determined by MTT assay. Statistically significant activation of NF- κ B and STAT3 in cultured PDLF was observed in diseased group compared to healthy controls before and after LPS challenge. 5 μ M AG pretreatment significantly inhibited activation of NF- κ B and STAT3 and down regulated expression of inflammatory and bone resorptive genes in cultured PDLF.

Conclusions: The findings of the present study propose the adjunctive use of a novel herbal drug andrographolide as a promising host modulation agent for periodontal therapy by inhibiting NF- κ B and STAT3 activation and inhibition of inflammation and bone resorption related genes.

1. Introduction

Periodontitis is a chronic inflammatory disease where microbial factors in the dental plaque induce complex inflammatory and immune responses in a susceptible host (Page et al., 1997). Inflammatory response in periodontitis is initiated through multiple cell surface receptors and their corresponding ligands and the nature of it differs with triggering factors, receptors and the signal transduction pathways. Bacterial lipopolysaccharide (LPS) is the most important triggering factor and the interaction between LPS and the receptors initiates intracellular signaling events leading to activation of transcription factors which

regulate the production of multiple inflammatory mediators (Souza et al., 2012).

NF- κ B (nuclear factor kappa B) and STAT3 (signal transducers and activators of transcription 3) are two important transcription factors implicated in periodontal pathogenesis (Souza et al., 2012). The activators of both the factors are abundant in periodontal disease environment and their target genes mediate disease progression (Pali, 1999, Levy and Lee, 2002, Bartold and Natayanan, 2006). *P. gingivalis* (*Porphyromonas gingivalis*) is the most important pathogen associated with periodontal disease and its LPS is found to activate both NF- κ B and STAT3 in periodontal cells (Hajishengallis, 2014; Götz et al., 2015; Mao

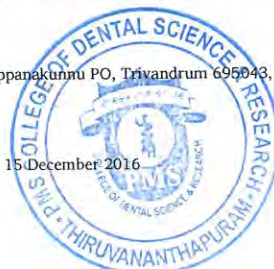
* Correspondence to: Devikripa, KRA-A-143(A), Thumbikkonam Lane, Kudappanakkunnu PO, Trivandrum 695043, Kerala, India.
Email address: ambiliranjith@yahoo.com (R. Ambili)

http://dx.doi.org/10.1016/j.jep.2016.12.029

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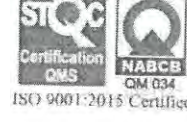
प्रगत संगणन विकास केंद्र

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इलेक्ट्रॉनिक्स और सूचना प्रौद्योगिकी मंत्रालय का आर एच डी संगठन, भारत सरकार
R&D Organization of the Ministry of Electronics and Information Technology, Government of India

सी डैक
CDAC

डा. पी. सं: 6520 वेल्ल्यंबलम
तिरुवनंतपुरम 695 033, भारत
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फैक्स/Fax: +91-471-272 3456
P.B. No: 6520, Vellayambalam
Thiruvananthapuram 695 033, India
www.cdac.in



To

31/05/2021

Dr. Adersh G A

Assistant Professor,
Department of Oral and Maxillofacial Surgery
PMS College of Dental Science & Research
Vattappara, Trivandrum

Sub: Reg. **Collaborative Development of Cost effective Bionic Arm**


Sir,

At the onset, I would like to thank you for discussions we had during Feb-Mar 2021 regarding need for development of prosthetic limb where you had demonstrated working prototype of upper prosthetic arm developed using Gyro Sensor.

We had further explored the need and market for such a system. As per the study it has been evident that lack of research and indenisation in the area resulted in increased cost and systems available were not functional enough to assist routine activities of the Individual.

C-DAC(T) has allocated Rs. 19.00 Lakhs, from Internal funds, for project **Indigenised Cost Effective Bionic Arm** with the objective of developing a prototype for BCI based Bionic Arm.

Going forward C DAC(T) would like to continue the collaboration with you and PMSCDSR in similar areas


31/05/2021

Deepak R. U.

Joint Director,

I Health Technology Group




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के.के.के. केरल KERALA

CX 250104

This agreement is made on August.....^{9th}....., 2021 ("Effective Date") by and between **PMS College of Dental Science and Research, Golden Hills, Vattappara and Rajiv Gandhi Centre for Biotechnology**, having and address at Thycaud P.O. Thiruvananthapuram, Kerala. In order to protect certain confidential information that may be disclosed between PMS College and RGCN, the parties agree as follows:

1. Definition:

Confidential information ("Information") shall consist of all-unpublished or nonpublic information, including but not limited to written, oral or virtually presented information regarding the research and development by RGCN and its collaborators, including, but not limited to, study on the efficacy of synthetic peptides to target TIF1y and cancer stem cells in oral cancer, which are provided from RGCN in the course of discussions regarding possible future agreement relating to research collaborations, licensing, co-development and marketing of such technology ("Negotiations").

2. Non Disclosure and Non Use. Recipient shall not:

- (a) Use the Information for any purpose other than the Negotiations; or
- (b) Disclose the Information in any manner to any third party without the prior written consent of the RGCN. Recipient may disclose Information to Recipient's employees, Board of Directors, lawyers and accountants ("Recipient Representatives") who have a need to know exclusively for purposes of the Negotiations, provided that Recipient Representatives are bound by Recipient in writing to maintain the confidentiality of the Information in compliance with this Agreement.



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MAJIN SOBBANA
TATTOO VENDOR



No 493
12.4.2021

pms
B.101

3. Intellectual Property.

Recipient expressly acknowledges and agrees that RGCB solely owns all the Information on any and all patentable or unpatentable intellectual property or inventions conceived or generated by the Recipient and resulting from the use of or access to the Information. In the event Recipient conceives or generates any such intellectual property or inventions, Recipient will promptly assign those to RGCB

4. Exceptions.

This Agreement imposes no obligation upon Recipient with respect to information that Recipient can prove to court of competent jurisdiction:

(a) was at the time of receipt, in the public domain, which means information that is generally known among or readily accessible to persons that normally deal with the kind of information in question; or

(b) Became, after its receipt, part of the public domain through fault of Recipient; or

(c) Was in the possession of Recipient before its receipt from the RGCB or its representatives; or

(d) is received in good faith by Recipient from a third party and is not subject to an obligation of confidentiality owed to the third party; or

(e) Is independently developed by Recipient without reference to Information received hereunder, as established competent proof; or

(f) is disclosed pursuant to a requirement or request of a government agency or required under the law, provided that in the event that Recipient becomes legally compelled to disclose any of the Information, Recipient shall provide the RGCB with prompt written notice of such requirement prior to such disclosure to allow the RGCB to seek a protective order or other remedy. In the event that a protective order or other remedy is not obtained, or that the RGCB waives compliance with the provisions hereof, Recipient agrees to furnish only that portion of the Information that Recipient reasonably believes is legally required to be furnished.

5. Standard of Care.

Recipient will protect information using the same degree of care, but no less than a reasonable degree of care, as it uses to protect its own confidential information. In the event that Recipient becomes aware of any use or disclosure not consistent with the purpose of this Agreement, Recipient will immediately notify the RGCB to prevent any further unauthorized disclosure or use. RGCB may seek equitable and legal remedies as appropriate in the event of a threatened or actual disclosure.

6. Term.

This Agreement controls only Information that is disclosed to Recipient for a period of two (2) years immediately following the Effective Date. However, either party may terminate this period earlier by prior written notice to the other party. The obligations of



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Recipient under this Agreement shall survive and continue for seven (7) years after the expiration or termination of this Agreement.

7. Termination.

Upon the termination or completion of the Negotiations, all documents in each party's possession that incorporate the other party's Information shall be returned to the RGCB. Each party may retain one copy of the Information in its legal offices for archival purposes.

8. No License.

Under this Agreement neither party (a) acquires any license under intellectual property rights of the other party; or (b) has an obligation to purchase from or sell to the other party any service or item.

9. Amendment.

This Agreement may not be amended or modified except by a writing signed by both parties and identified as an amendment to this Agreement.

10. Binding Effect.

This Agreement shall be binding upon and inure to the benefit of the parties, their heirs, legal representatives, successors and assigns.

11. Complete Agreement.

This Agreement constitutes the final, complete and exclusive agreement between the parties with respect to its subject matter and supersedes all past and contemporaneous agreements, promises and understandings, whether oral or written, between the parties. This Agreement may be executed in multiple counterparts, each of which shall be deemed an original, but all of which taken together shall constitute one and the same instrument.

12. Relationship.

It is mutually understood and agreed that the relationship between the parties is that of independent contractors. Neither party is the agent, employee or servant of the other. Except as specifically set forth herein, neither party shall have nor exercised any control or direction over the methods by which the other party performs work or obligations under this Agreement. Further, nothing in this Agreement is intended to create any partnership, joint venture, lease or equity relationship, expressly or by implication, between the parties.

13. Severability.

In the event any provision of this Agreement is held to be invalid or unenforceable, the remainder of this Agreement shall remain in full force and effect as if the invalid or unenforceable provision had never been a part Of the Agreement.

14. Waiver.

The failure of either party to complain of any default by the other party or to enforce any of such party's rights, no matter how long such failure may continue, will not constitute a




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15. Use of Name. Except as provided in Paragraph 3(f) above, neither party will use the name or trademarks of the other party in any news release, publicity, advertising, endorsement or commercial communication without the prior written approval of the other party.

16. Governing Law and Jurisdiction. This Agreement shall be governed by and interpreted and construed in accordance with the laws of India and the courts of the State of Kerala shall have sole jurisdiction in respect of any dispute or difference arising between the Parties under this Agreement.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement in duplicate as of the Effective Date

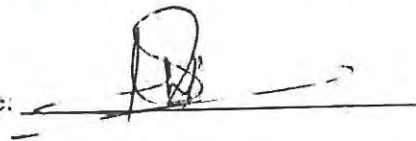
Rajiv Gandhi Center for Biotechnology

PMS College of Dental Science & Research.

Signature: _____



Signature: _____



Name: Shri. S. Mohanan Nair

Name: Dr. Sudeep S

Printed Title: Controller of Administration

Printed Title: Principal




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Memorandum of Understanding (MOU)

This MOU is made this 12th day of November 2021

BETWEEN

SCTIMST-TIMed (herein referred as TIMed), a not for profit registered society promoted by Sree Chitra Tirunal Institute for Medical Sciences and Technology (An Institute of National importance under Department of Science & Technology, Govt. of India), with its office located at 5th Floor, M S Valiathan Building, Biomedical Technology Wing campus, Poojappura Trivandrum, represented by its Chief Executive Officer of the first part

AND

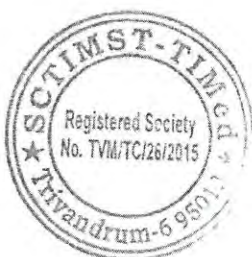
PMS College of Dental Science and Research, a Dental Education Institution governed by NRI services and educational trust, Recognized by Dental Council of India and affiliated with Kerala University of Health Sciences with office at Golden hills, Venkode P.O., Vattappara, Thiruvananthapuram represented by its Administrator of the second part.

Both referred to as together as Parties

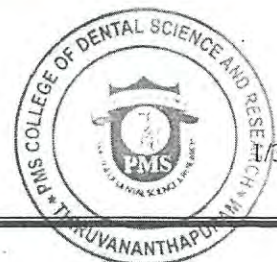
WHEREAS TIMed is a Technology Business Incubator funded by Department of Science and Technology and is engaged in supporting innovators and startups developing innovative medical devices and technologies.

WHEREAS TIMed has been selected by National Biopharma Mission under the Biotechnology Industry Research Assistance Council (BIRAC), to set up a Regional Technology Transfer Office at TIMed called TIPS@TIMed to take a lead role to train and equip other academic institutions and organizations to strengthen their Intellectual Property management and technology transfer activities and thereby build academy industry linkages.

WHEREAS, the main objective of PMS College of Dental Science and Research is to be an outstanding Dental & Research Institute of International repute for producing dental professionals with skills, knowledge and values.

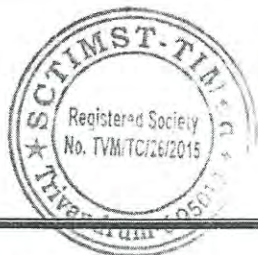


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Therefore, this Memorandum of Understanding (MOU) is entered into by the parties with the following understanding:

1. Availing the services provided by TIPS@TIMed by the faculty, students, researchers and startups of PMS College of Dental Science and research.
 - a. TIPS@TIMed may conduct focused awareness sessions, webinars, training programs, workshops etc. on IPR and Technology Transfer aspects to benefit the faculty, students, entrepreneurs, startups, staff of PMS Dental College from time to time
 - b. TIPS@TIMed may provide specific services such as patent search reports, patentability reports, patent drafting support, advisory on patent filing, novelty search report etc.
 - c. Guidance to researchers, startup and students on patenting strategy
 - d. Guidance on valuation of IPR
 - e. Industry partner scouting and reaching out to potential partners
 - f. Negotiating and drafting Technology Transfer agreements between industry and academia
 - g. Overall Facilitation of linkages between academia and industry
 - h. Support and foster new ventures like start up, spin off etc.
2. PMS College of Dental Science and Research shall facilitate linkages with its students/ faculty/researchers/startups and provide access to various research/ product portfolios based on the research for TIPS@TIMed to provide services as envisaged in clause 1 above.
3. TIMed and PMS Dental College may facilitate periodic interactions through online or offline mode between the students and faculty.
4. Any differences between the parties may be resolved amicably by mutual discussions by the signatories to this MOU. The MOU shall be subject to the jurisdiction of the competent courts of law at Thiruvananthapuram in the state of Kerala.
5. The term of the MOU shall be two years initially and may be renewed with mutual consent.



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6. All notices and other communications required or called for under this MOU shall be in writing in English language and shall be communicated to the address given above in writing.

IN WITNESS WHEREOF the parties here to have caused these presents to be signed by their authorized signatories the date and year first above written.

For and on behalf of TIMed

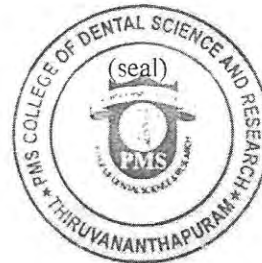
For and on behalf of PMS College of
Dental Science and Research

S. Balram

Dr. Biju Balachandran

Balram S
Chief Executive Officer, TIMed

Dr. Biju Balachandran
Administrator, PMS College of Dental
Science and Research



In presence of witnesses

1. *Rajkeshwari Rajan Rajkeshwari*
Engineer F, BMW

1. *Dr. Rajesh Pillai*

2. *Sandhya Cg*
Engineer F, BMW

2. *Dr. Anubh R.*



[Signature]
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MoU with TIPS-Timed, SCTIMST



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PMS/ADMN/NOT/278/2021


17.12.2021

NOTICE

PMS Dental College is now a registered institution for **Young Innovators program (YIP)**. YIP is a flagship program of the Kerala Development & Innovation strategic council (K-DISC) to promote a culture of innovation among the youth of Kerala. The programme aims to empower future Innovators to innovate new products, services or models to meet emerging requirements, unarticulated needs, or existing market needs of the society more effectively through an innovative challenge.

The program is open to all students above 13 years and below 35 years. It is a team based program and participation will be only in teams of at least 2 and up to 5 candidates. Deserving individual candidates with exceptional ideas will also be considered. Cash award of Rs.25,000 (Rupees Twenty-five Thousand only) will be given to 8000 teams that qualify in the first selection round, and cash award of Rs.50,000 (Rupees Fifty Thousand only) will be given to teams that qualify in the second selection round. In addition, 900 teams that get selection at the state level will be given support for three years in the form of mentoring as well as technical and financial support to successfully implement their ideas. Institutions that register the maximum number of students will receive special prizes.

The preregistration for the students for YIP 2021 has started and it can be done at www.yip.kerala.gov.in. Pre-registration stage is an "INDIVIDUAL" registration of students. "Voice of Customer (VoC) Training will be given to all students who complete the pre-registration. Subsequently, the registered students can form teams (two to five members) and submit their ideas. All interested students (UG, PG, Interns and research scholars below 35 years) are requested to participate in YIP 2021 by completing the pre-registration process immediately.

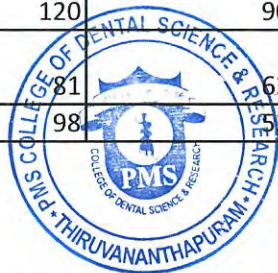

Director (Research)




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Cc: Chairman, Admin, HR, Director (Research), Associate Dean (Academics), Associate Dean (SA), All

Institution Name	Inst id	Total Regn.	Full Prof.	VoC Completion	Groups Created	Tot. Group Members	Tot. Ideas	Tot. Ideators in Groups
COLLEGE OF AGRICULTURE VELLAYANI	15780	461	410	152	43	137	20	67
MAR BASELIOS COLLEGE OF ENGINEERING AND TECHNOLOGY	15767	174	162	122	33	114	18	70
PMS COLLEGE OF DENTAL SCIENCE AND RESEARCH	15799	43	42	32	17	40	17	40
VALIA KOONAMBAIKULATHAMMA COLLEGE OF ENGINEERING AND TECHNOLOGY	15778	302	293	270	40	156	16	74
MARIAN ENGINEERING COLLEGE	17961	787	748	268	43	161	12	53
TRINITY COLLEGE OF ENGINEERING	15777	201	199	186	29	81	10	41
HHMSPBNSS COLLEGE FOR WOMEN, NEERAMANKARA	17507	460	389	275	42	126	10	32
LOURDES MATHA COLLEGE OF SCIENCE AND TECHNOLOGY, KUTTICAL, THIRUVANTHAPURAM	15821	68	66	50	17	53	9	29
JYOTHIS CENTRAL SCHOOL	18111	85	83	62	20	52	9	26
SREE NARAYANAGURU COLLEGE OF ADVANCED STUDIES, CHEMPAZHANTHY.	12946	33	33	31	11	32	8	28
RAJADHANI INSTITUTE OF ENGINEERING AND TECHNOLOGY NAGARROOR	15774	60	57	48	14	45	8	32
ABDUL SALAM RAFI RES SCHOOL	18067	42	39	37	12	44	8	32
THE DALE VIEW COLLEGE OF PHARMACY AND RESEARCH CENTRE	15816	283	272	214	31	91	7	25
SANTHIGIRI SIDHA MEDICAL COLLEGE	15803	104	103	75	17	57	7	22
KENDRIYA VIDYALAYA TRIVENDRAM PANGODE	15922	35	34	30	11	31	7	24
GOVERNMENT COLLEGE FOR WOMEN	12904	47	42	32	12	40	7	30
COLLEGE OF ENGINEERING TRIVANDRUM	15763	126	120	90	22	62	6	18
UNIVERSITY COLLEGE OF ENGINEERING KARIAVATTOM	15823	86	81	62	16	54	6	22
MG COLLEGE, THIRUVANANTHAPURAM	12934	102	98	63	13	36	6	19



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