IPR- KCG SECTION
DATE: 04-02-2020

OFFICE NOTE:

Request to refer email copy received from Gujarat Biotechnology Research Centre (GBRC), Gandhinagar Gujarat (Attached herewith).

It is stated that, GBRC has been evolving as a state-of-art shared laboratory facility by extending its infrastructure to outside organization/Institutions/Industries/Students for their research purposes to give maximum benefit to the researches. GBRC believes that collaboration can enhance the quality of research and teaching through an exposure to a new perspective and experience of research and teaching.

A training calendar has been prepared for the year 2020 (Attached herewith). Each training will be of minimum 3 days and maximum 5 days. GBRC and GSBTM has invited VNSGU as partnering institute for conducting the Workshop on Metagenomics. Workshop will be funded by Gujarat State Biotechnology Mission (GSBTM) for training program from 6th January to 13th March 2020, the partnering institutes will have no financial obligation but will have role in core implementation of the program. GBRC and VNSGU has to sign an MOU for conducting these workshops. (A)

Kindly provide guidance on the same.

S.H. Sarang.
Jr. Clerk
(Contract Based)

Office Superintendent

(A) Let us Permit.
Research activity will be enhanced and University will get Credit A

O. S. D

R. B Patel
05-02-2020
I/C Registrar

As per (A)
05/02/2020

Hon'ble Vice Chancellor

Re-Accredited by NAAC with 'A' Grade
VEER NARMAD SOUTH GUJARAT UNIVERSITY
University Campus, Udhna-Magdalla Road, SURAT - 395 007, Gujarat, India.
વીર નર્મદ દક્ષિણ ગુજરાત યુનિવર્સિટી
યુનિવર્સિટી કેમ્પસ, ઉધના-મગદલ્લા રોડ, સુરત - ૩૯૫ ૦૦૭, ગુજરાત, ભારત.
Tel : +91 - 261 - 2227141 to 2227146, Toll Free : 1800 2333 011, Fax : +91 - 261 - 2227312
E-mail : info@vnsgu.ac.in, Website : www.vnsgu.ac.in

UGC R B Patel 03-02-2020

Date: Feb 03, 2020

To,
Registrar
Veer Narmad South Gujarat University
Surat

Sub: For Signing MOU with Gujarat State Biotechnology Research Center (GBRC), DST, GOG
Ref: E mail from GBRC

Respected Sir,

Gujarat Biotechnology Research Centre (GBRC), Gandhinagar, Gujarat established under the aegis of Department of Science and technology, Govt. of Gujarat vide GR No. BTM -102016-299-BT dated 11th August, 2017. GBRC has been evolving as a state-of-art shared laboratory facility by extending its infrastructure to outside organization/Institutions/Industries/Students for their research purposes to give maximum benefit to the researchers.

In the light of the same, continuous training programs for a year have been visualized **(Annexure II)** to help in developing biotechnological skills of the researchers and academicians and other stakeholders.

A training calendar has been prepared for the year 2020 **(Annexure I).** Each training will be of minimum 3 days and maximum 5 days.

For each training program coordinating RA/ SRF of GBRC and partnering institute from state are also identified and produced as (Annexure III). **GBRC and GSBTM has invited VNSGU as partnering institute for conducting the Workshop on Metagenomics.**

Workshop will be **funded by Gujarat State Biotechnology Mission (GSBTM)** for training program from 6th January to 13th March 2020, the partnering institutes will have **no financial obligation** but will have role **in core implementation of the program.**

This collaboration can enhance the quality of research and teaching through an exposure to a new perspective and experience of research and teaching among researcher of South Gujarat and have the positive impact in NAAC and NIRF ranking.

The MOU and supporting documents are attached along with for you kind consideration and signing

Thanking you

Sincerely yours

Head
Department of Biosciences
Veer Narmad South Gujarat University
Surat-395 007.

Gmail

Rajesh Patel <raj252000@gmail.com>

MOU VNSGU

2 messages

Dr.Madhvi Joshi(GoG-GBRC Dept.) <jd1-gbrc@gujarat.gov.in> Thu, Jan 9, 2020 at 2:56 PM
To: "raj252000@gmail.com" <raj252000@gmail.com>
Cc: "Prof. Chaitanya Joshi" <dir-gbrc@gujarat.gov.in>

Dear Dr Patel,

Gujarat Biotechnology Research Centre (GBRC), Gandhinagar, Gujarat established under the aegis of Department of Science and technology, Govt. of Gujarat vide GR No. BTM -102016-299-BT dated 11th August, 2017. GBRC has been evolving as a state-of-art shared laboratory facility by extending its infrastructure to outside organization/Institutions/Industries/Students for their research purposes to give maximum benefit to the researchers. In the light of the same, continuous training programs for a year have been visualized (Annexure II) to help in developing biotechnological skills of the researchers and academicians and other stakeholders. A training calendar has been prepared for the year 2020 (Annexure I). Each training will be of minimum 3 days and maximum 5 days. For each training program coordinating RA/ SRF of GBRC and partnering institute from state are also identified and produced as (Annexure III). While we are funded by Gujarat State Biotechnology Mission (GSBTM) for training program from 6th January to 13th March 2020, the partnering institutes will have no financial obligation but will have role in core implementation of the program.

GBRC believes that collaboration can enhance the quality of research and teaching through an exposure to a new perspective and experience of research and teaching. In doing so, GBRC is developing collaboration with many universities. GBRC, eagerly supports the main target of enhancing the quality of training program by actively collaborating with other reputable universities.

To initiate collaboration between GBRC and respective universities, we propose several possible programs for collaboration. we can develop our collaboration by initiating joint training program/workshop. Among others, we may invite national level speakers in the program.

We shall appreciate and look forward to your robust support to make this trainings fruitful and successful exercise.

Regards,

4 attachments

VNSGU MOU.docx
21K

ANNEXURE I.docx
15K

MEMORANDUM OF UNDERSTANDING

This MOU is made and entered into on 05 day of February 2020

BETWEEN

Veer Narmad South Gujarat University, Surat, Gujarat

AND

Gujarat Biotechnology Research Centre, Gandhinagar, Gujarat

Veer Narmad South Gujarat University (hereinafter referred to as VNSGU, and the expression shall include all its present and future Units) was originally established under the South Gujarat University Act, 1965 passed by the Gujarat State Legislative Assembly. It became functional from the academic year of 1966 and was incorporated as a University on 23 May, 1967. Recognized by the University Grants Commission in 1968, it was renamed as Veer Narmad South Gujarat University in 2004 after the great Gujarati poet Narmad, Narmadshankar Lalshankar Dave. The vision of Veer Narmad South Gujarat University, as envisaged in the University Act, is to contribute to the field of higher education in the region and enable its inclusive development in all walks of life by making available trained personnel in various branches of human knowledge, keeping in mind the larger goals of nation-building. The University is committed to maintain high standards in both undergraduate and postgraduate teaching, promoting research and undertaking the requisite extension activities that would reach out to every section of society. The vision of VNSGU is to be an institute of excellence in higher and technical education segment, sensitive to its regional needs and changing global realities.

Gujarat Biotechnology Research Centre (GBRC), Gandhinagar, Gujarat (hereinafter referred to as GBRC, and the expression shall include all its present and future Units) established under the aegis of Department of Science and technology, Govt. of Gujarat vide GR No. BTM -102016-299-BT dated 11th August, 2017. GBRC has its well-equipped lab at MS Building, Sector 11, Gandhinagar. GBRC, DST, GoG has a mandate to conduct innovative research leading to product/prototype/process development with application in healthcare, agriculture, environment and marine sectors. GBRC has a well-established state-of-the art facility in Molecular Biology, Microbiology, Genomics, and Proteomics.

The VNSGU and GBRC shall hereinafter, where the context so permits, be collectively referred to as the "Parties" and individually as "Party".

It is now duly communicated and hereby agreed by and between the parties as follows:

1. NATURE AND SCOPE OF THIS MOU

The purpose of this MOU is to provide best quality education to students, academicians & other staff of both the parties as well as external stakeholders through various activities such as technical training, workshops, fast-track course batches & internship trainings. The Parties shall work towards collaborative research, education & training in the fields of biotechnology, biomedical technology and related inter-disciplinary areas. For this purpose, Parties shall identify mutually agreeable specific research, education, training and awareness programs after due consideration of respective financial means and practical feasibility. The List of the training programs are specified in Annexure 1. GBRC may amend the Programs/courses from time to time.

2. OBJECTIVES

2.1 Undertake collaborative Research, Education, to impart advanced training and workshops and Awareness programs for the students, faculty, officers, scientific & other staff of both the parties as well as external stakeholders.

2.2 Jointly conceptualize collaborative research proposals for funding and publications. Financial arrangements for each specific collaboration will be decided on a case to case basis.

2.3 Collaborate in supervision of students and undertaking joint research in disciplines of mutual interest and for pursuing higher degrees like M.Phil. and Ph.D.

2.4 Extend the laboratories and other infrastructure facilities for specified collaborative Research, Education, Training and Awareness Programs.

2.5 Any other appropriate mode of interaction agreed upon between GBRC and VNSGU.

3. INSTITUTIONAL ARRANGEMENT

3.1 Each of the above areas of interaction will be initiated by entering into a separate agreement between the two parties with the details of implementation including financial considerations. Nothing contained herein shall be construed to obligate either Party to enter into any further agreements with each other.

3.2 Parties shall appoint one member of its senior scientific staff/faculty as a coordinator to jointly identify, plan, coordinate implementation collaborative programs and activities. The Coordinators shall interact on regular basis.

3.3 Programs and activities shall be planned through mutual consultations with the consent of appropriate authorities of both the parties.

3.4 The coordinator shall utilize its strength to align with various skill development programs and initiatives to meet the objectives of the workshop/Training program.

3.5 The coordinator shall design, develop and provide required course materials & practical training to the participants.

3.6 The quality delivery is the responsibility of the coordinator and the coordinator would have to have in-house or engage the required manpower and the faculty as per the requirement, in conjunction with the GBRC.

3.7 The content for holding trainings/workshops/courses etc. will be put up by the Training partner to the Director, GBRC and the Director, GBRC will finalize the same. No change after such finalization will be allowed without due approval of the Director, GBRC.

3.8 Both parties can use logo, trade name, course modules & other related materials for promotion of the courses to be conducted jointly within the scope of this MoU. Both parties shall promote the arrangement and courses through respective websites

3.9 There is no financial commitment on the part of the VNSGU, the GBRC to take up any program mentioned in the MoU. If there is any financial consideration, it will be dealt separately.

4. CONFIDENTIALITY

VNSGU and GBRC shall enter into a non-disclosure agreement if and when dealing with confidential information.

5. NON-EXCLUSIVITY

The relationship of the Parties under this MOU shall be non-exclusive and both Parties, including their affiliates, subsidiaries and divisions, are free to pursue other MOUs or agreements or collaborations of any kind.

6. INTELLECTUAL PROPERTY

No rights of any kind whatsoever in any invention, copyright, trade secret, or any other form of intellectual property (collectively defined as "IP") are granted or transferred under this MOU. Any IP exchanged pursuant to this MOU shall be governed by the terms of a separate written agreement between the parties.

7. TERMS AND TERMINATION

This MOU, unless extended by mutual written agreement of the Parties, shall expire 5 (five) years after the Effective Date. This MOU may be amended or terminated earlier by mutual written agreement of the Parties at any time. Either party shall have the right to unilaterally terminate this MOU without stating any reasons, upon 30 days prior written notice to the other party. In the event of termination, the parties will take steps to bring the activities under the MOU to a prompt and orderly conclusion. However, no such early termination of this

MOU, whether mutual or unilateral, shall affect the obligations of the participants under any Research Agreement, or any other agreement entered into pursuant to this MOU, which obligations shall be independent of any such termination.

8. RELATIONSHIP

Nothing in this MOU shall be construed to make party a partner, an agent or legal representative of the other for any purpose. Nothing contained herein shall be construed to obligate either Party to enter into any further MOU/agreements or any Research Agreement with each other. This MOU does not create any other business arrangement, including but not limited to any partnership, agency or joint venture, between the Parties. A Party shall not quote the other Party's name or reproduce its logo in any form or medium without prior written consent of the other party.

9. ASSIGNMENT

It is understood by the Parties herein that this MOU is based on the professional competence and expertise of each party and hence neither Party shall transfer or assign this MOU, or rights or obligations arising hereunder, either wholly or in part, to any third party.

10. SIGNED IN DUPLICATE

This MOU is executed in duplicate with each copy being an original version of the MOU and having equal legal validity.

11. GOVERNING LAW & DISPUTE RESOLUTION

This MOU shall be governed by the laws of India. Any dispute arising out of or in connection with this MOU shall be mutually resolved. In case such resolution is not possible, the dispute shall be finally settled through arbitration by a sole arbitrator mutually appointed by the Parties as per the provisions of the Arbitration and Conciliation Act (India), 1996, as amended from time to time. The arbitration proceedings shall be conducted in English language and held at Ahmedabad and shall be considered binding and final on the Parties.

BY SIGNING BELOW, the parties, acting by their duly authorized officers, have caused this Memorandum of Understanding to be executed, effective as of the day and year first above written.

For and on behalf of
Gujarat Biotechnology Research Centre

5/2/2020

Prof. C. G. Joshi
Director
GBRC, Gandhinagar

For and on behalf of
Veer Narmad South Gujarat
University

R-B R+1
06-02-2020

I/C Registrar
VNSGU, Gandhinagar

ANNEXURE I: TRAINING CALENDAR FOR THE YEAR 2020

S. No	Q1	Q2	Q3	Q4	Training Module
1	6th to 9th January 2020	6th to 10th April 2020	15th to 19th June 2020	24th to 28th August 2020	Basic Bioinformatics Training
2	15th to 17th January 2020	13th to 17th April 2020	22nd to 26th June 2020	31st August to 4th September 2020	Analytical extraction/ GC-MS/ SFE
3	20th to 24th January 2020	20th to 24th April 2020	29th June to 3rd July 2020	7th to 11th September 2020	Next Generation Sequencing (PGM/ MiSeq)
4	27th to 31st January 2020	27th to 1st May 2020	6th July to 10th July 2020	14th to 18th September 2020	Advances Bioinformatics
5	3rd to 7th February 2020	4th May to 8th May 2020	13th to 17th July 2020	21st to 25th September 2020	Animal Cell Culture/ Flow Cytometry
6	10th to 14th February 2020	11th to 15th May 2020	20th to 24th July 2020	28th September to 2nd October 2020	Metagenomics
7	17th to 21st February 2020	18th to 22nd May 2020	27th to 31st July 2020	5th to 9th October 2020	Capillary Sequencing and Fragment Analysis
8	24th to 28th February 2020	25th to 29th May 2020	3rd to 7th August 2020	12th to 16th October 2020	Basic Molecular Biology
9	2nd to 6th March 2020	1st to 5th June 2020	10th to 14th August 2020	19th to 23rd October 2020	Real Time PCR
10	9th to 13th March 2020	8th to 12th June 2020	17th to 21st August 2020	26th to 30th October 2020	Embryo Transfer Technology

ANNEXURE II: BRIEF OF THE PROGRAM

1. **Basic bioinformatics training:** Bioinformatics is a field of study that uses computation to extract knowledge from biological data. It includes the collection, storage, retrieval, manipulation and modelling of data for analysis, visualization or prediction through the development of algorithms and software. Biological Databases have become an important tool in assisting scientists to understand and explain a host of biological phenomena from the structure of biomolecules and their interaction, to the whole metabolism of organisms and to understanding the evolution of species. Bioinformatics is becoming integral part of life science research due to growing amount of data as a result of advancement in high throughput studies. This training is to impart a basic knowledge of Linux system, biological databases, various basic bioinformatics tools, including tools for analysis of DNA/RNA/protein sequences to the trainees.
2. **Analytical extraction/ GC-MS/ SFE:** The analytical training course will provide the practical and theoretical aspects of Gas Chromatography & GC-MS techniques and Extraction process involving highly versatile and effective technique like supercritical fluid extraction. The course provides a complete training solution enabling to understand the method development, quantitative analysis and spectral interpretation of GC-MS. GC-MS is highly effective and versatile analytical techniques with numerous scientific applications to cater the field of applied Sciences and Technology. GC-MS has wide application for monitoring and tracking organic pollutants in the environment. Detecting adulterations, fatty acid profiling in microbes, presence of free steroids, blood pollutants, metabolites in serum, organo-chlorinated pesticides in river water, drinking water, soft drinks by head space, pesticides in sunflower oil. It is also used to detect and measure contaminants, spoilage, adulteration of food and secondary metabolites. This technique is commonly used in forensic toxicology to find poisons, steroids in biological specimens of suspects and victims. The course also involves the supercritical fluid extraction which delivers a clean and minimal extraction times with higher yield. The supercritical fluid extraction has wide application in the food, pharmaceutical, and fine chemical industries for the extraction of essential oils, flavors from natural resources and fats from food products.
3. **Next Generation Sequencing (PGM/ MiSeq):** Massively parallel sequencing technology known as next generation sequencing (NGS) technology helps in knowing the sequence of any organism and has an advantage of low cost, high accuracy, short-time duration and high precision. Advancement in next generation sequences gives different variant apart from whole genome sequences such as transcriptome sequencing for differential gene expression study, whole exome sequencing for single nucleotide polymorphisms, AmpliSeq for clinical developments, amplicon and shot-gun sequencing of environmental, agricultural and human samples for metagenomics study. These techniques are helping in developing early diagnosis through SNPs detection, identification of useful microbes as biocontrol, biofertilizer, probiotic and other beneficial purpose such as solving environmental problems as well as improvement of microbial database. The training will

focus on a broad spectrum of NGS topics, discuss examples from various research applications, provide technical protocols and hands-on exercises.

4. **Advance bioinformatics:** Bioinformatics is a field of study that uses computation to extract knowledge from biological data. It includes the collection, storage, retrieval, manipulation and modelling of data for analysis, visualization or prediction through the development of algorithms and software. Large scale transcriptome sequencing for differential gene expression study, whole exome sequencing for single nucleotide polymorphisms, AmpliSeq for clinical developments, amplicon and shot-gun sequencing of environmental, agricultural and human samples for metagenomics are performed which produces huge amount of data. This data needs to be analyzed first to make sense out of it. This training is to impart a knowledge of Genome annotation, exome analysis, various bioinformatics analysis tools for data analysis to the trainees for the same.
5. **Animal Cell Culture/ Flow Cytometry:** This five-day program is ideal for those who are looking for an in-depth, hands-on introduction to Basics of Animal Cell Culture Techniques and Flow Cytometry. The training program provides a solid basis for the understanding of the growth of animal cells and combines lecture and laboratory exercises aimed at to develop basic aseptic skills for carrying out mammalian cell culture and a clear understanding of cell-based assays and their applications in a research setting. Flow cytometry is one of the most powerful single cell analysis methods used throughout the life sciences and medicine. The training will also focus on a broad spectrum of flow cytometric topics, discuss examples from various research applications, provide technical protocols for flow cytometric sample preparation, cell culture/treatment dose and time of treatment optimization, as well as data acquisition & analysis, trouble shooting and experimental design.
6. **Metagenomics:** Metagenomics is a molecular tool used for the study of genetic material which is recovered directly from environmental samples. Current research indicates that microorganisms existing in diverse natural environments 99 % of the microorganism unable to culture in normal laboratory condition, and such bacterial species are not accessible for microbiological or basic research. The culture-independent metagenomics approach was developed for direct exploration of the vast genetic diversity of microbial communities, which can complement or even replace and bypass the culture-based approaches and limitations. While comparative metagenomics approach developed for determining the important variation in sequence composition, genome size, evolutionary rates and metabolic capabilities, among the physically dissimilar environments and understanding about how microbes react in different environment. Three different methods are used for the metagenomics studies, sequence-based, functional based and whole genome metagenome sequencing. The workshop will include the computational analysis of the sequence data obtained from metagenomics studies.
7. **Capillary Sequencing and Fragment Analysis:** This workshop includes various methods for analyzing the fragments of DNA for different purposes like in the genome it can highlight changes in a gene that may cause disease. One of the methods of fragment

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analysis is Multiplex Ligation-dependent Probe Amplification (MLPA). Copy number variations (CNVs) are a prominent source of genetic variation in human DNA and play a role in a large number of disorders. MLPA is a semi-quantitative technique that is used to determine the relative copy number of up to 60 DNA sequences in a single multiplex PCR-based reaction. Relative fluorescence quantitation (RFQ) is a technique used in a variety of fragment analysis applications, the gold standard being MLPA, to compare peak heights between samples. Sequencing DNA means determining the order of the four chemical building blocks - called "bases" - that make up the DNA molecule. The sequence provides information of the genetic information that is carried in a particular DNA segment. Scientists can use sequence information to determine which stretches of DNA contain genes and which stretches carry regulatory instructions, turning genes on or off. In addition, and importantly, sequence data can highlight changes in a gene that may cause disease. For example, the human genome contains about 3 billion base pairs that spell out the instructions for making and maintaining a human being.

8. **Basic molecular biology:** Molecular biology is the field of biology which has a profound impact in life science research. Field of molecular biology overlaps with other areas of life sciences such as biochemistry and genetics. Basically, it revolves around the central dogma of life, and aims to study the biology at molecular level. This field acts as an effective tool for scientists to study the molecules i.e. DNA, RNA, proteins of whole organisms or even whole cells. Molecular biology plays an important role in understanding of reactions and regulations within the cells. This workshop includes theory as well as hands on sessions on basic molecular biology techniques such as Genomic DNA isolation, plasmid DNA isolation, electrophoresis, Cloning, PCR, etc. The main aim of the workshop is to provide participants with basic training in the molecular biology techniques, which are useful to create large quantities of a particular gene, to ligate a gene for a particular protein into a plasmid vector, to perform a restriction digestion, to transform a plasmid in a bacterial cell, and to demonstrate the expression of the gene product. The training program has been designed for the students which are new in the field.
9. **Real Time PCR:** Considering the broad application and sensitivity in Diagnostic and Research and Development arena, Real time PCR, a technological refinement on the Polymerase Chain Reaction Method is a cutting-edge equipment with high accuracy and has revolutionized the biological science by empowering researchers to detect and quantify minuscule amounts of specific nucleic acid sequences. It is used for rapid and accurate assessment of changes in gene expression in transcriptome as a result of physiology, pathophysiology, or development as well as to measure responses to experimental stimuli to gain insight into potential changes in protein level and function. Thus, physiology can be correlated with molecular events to gain a better understanding of biological processes. Additionally, it allows detection of less than five copies of a target sequence, making it possible to analyze small samples like clinical biopsies or miniscule lysates from laser capture microdissection and measure viral or bacterial loads. Despite

the importance, access and hands on training of Real time PCR is restricted to researchers owing to the cost of its procurement. This workshop will be beneficial to students and researchers across the disciplines of biological sciences as well as to working professionals interested in elucidating gene expression. The proposed workshop will offer a unique opportunity to participants across country to get into the technology and all theoretic and 'hands on' practical training of this technology during the schedule. The 'hands on' would expose the candidates to relative- as well as absolute- quantitation (Gene expression) and Genetic diagnosis. Better understanding and hands on expertise amongst researchers will boost use of this techniques for improvement of their respective research work.

10. **Embryo Transfer Technology:** Embryo Transfer Technology (ETT) is a technique used to increase the reproduction rate of animals. Embryo transfer simply means collection of an embryo from a donor female and its transfer to the uterus of a recipient female of the same species. IVF is an advanced reproductive technology that is used for production of embryos in in vitro condition for transfer. During IVF, using an ultrasound-guided needle, follicles of ovary of a cow/ buffalo are aspirated through the vaginal wall. A vacuum system is used to recover the contents of each follicle. Once all the follicles are aspirated from ovaries of cow/ buffalo. The oocytes are selected based on the cumulus cell layer. The recovered oocytes are washed before placing into maturation media to mature for 24 hours. Once they have matured, the oocytes will be fertilized with semen and the resulting embryos placed in an incubator for an additional seven days to grow. In between, the media is regularly replaced according to the stage of growth. After that the embryos are transferred into recipient animals that are approximately seven days post-heat, similar to traditional embryo transfer programs. These technologies has a number of distinct advantages: by using laboratory equipment it reduces pressure on natural resources used during a natural breeding process; genotypes and production environments can be matched more closely; and it theoretically could allow farmers to more efficiently use their herd. Although embryo production and transfer may not have dramatic effects on rates of genetic gain, it can have considerable increases in efficiency. Heifer replacement programs take a long time, maintaining a large number of males can be costly and the commercial relevance of some breeds may decline. If ET became a routine operation through artificial insemination, for example, beef operations based on this system could become competitive with pig and poultry production in terms of efficiency of food utilization.

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ANNEXURE III: COORDINATING RESEARCH STAFF, COLLABORATING INSTITUTE AND FACULTY

S. No	Training Module	Coordinating research staff	Collaborating Institute	Faculty
1	Basic Bioinformatics Training	Dr. Bhavya/ Zubair	Hemchandracharya North Gujarat University	Dr. Ashish Patel
2	Analytical extraction/ GC-MS/ SFE	Dr. Preeti/ Mital Nakrani/ Archit Mohapatra	GSFC University	Dr. Aditya Puranik
3	Next Generation Sequencing (PGM/ MiSeq)	Dr. Ramesh/ Dr. Pritesh	Anand Agricultural University	Dr. Prakash Koringa
4	Advance Bioinformatics	Mr Apurva/ Mr Afzal	Gujarat University	Dr. Rakesh Rawal
5	Animal Cell Culture/ Flow Cytometry	Dr. Ritu/ Payal Modi	Ahmedabad University	Dr. Vivek Tanavade
6	Metagenomics	Dr. Neelam/ Dr. Raghawendra	Veer Narmad South Gujarat University	Dr. Rajesh Patel
7	Capillary Sequencing and Fragment Analysis	Dr. Bhumi/ Shaad	Saurashtra University	Dr. Vrinda S. Thaker
8	Basic Molecular Biology	Dr. Chinmayi/ Dr. Manjushree	Indrasheel University	Dr. Vijai Singh
9	Real Time PCR	Dr. Mahrishi	Gujarat Forensic Sciences University	Dr. Bhargava Patel
10	Embryo Transfer Technology	Dr. Chandrashekhar	Kamdhenu University	Dr. Vishal Suthar