



# NIRMALA COLLEGE OF PHARMACY

(A UNIT OF CATECHIST SISTERS OF ST.ANN'S, HYD)

ATMAKURU (Village), Mangalagiri (M), Guntur Dist-522503, A.P, India.

Approved by AICTE & PCI New Delhi & Govt. of A.P, Affiliated to SBTET& A.N University, Guntur  
Accredited by NAAC & Approved under UGC 2f & 12b and Approved Institutional Innovation Council by AICTE

Ph: 08645-236255, 236722, 9912342142 E-mail: [nepa@csagp@yahoo.co.in](mailto:nepa@csagp@yahoo.co.in) Web site: [www.ncpacsag.ac.in](http://www.ncpacsag.ac.in)

3.5.1 The number of MOUs, collaborations / linkages for Faculty exchange, Student exchange, Internship, Field trip, on-the- job training, research and other academic activities during the year

## 2021-2022

### LIST OF MOU's / COLLABORATIVE ACTIVITIES FOR ACADEMIC YEAR 2021-2022

S.NO	NAME OF THE ORGANISATION	Year of MOU
1.	SEEKO BIOTICS	2021-2022
2.	MANIPAL HOSPITAL	Initial: 2011-2012 Renewed Date:2021-2022
3.	CAVAXIA- CLINICAL RESEARCH ACADEMY, VIJAYAWADA	2021-2022
4.	AVENIDA INNOVATIONS	2021-2022
5.	KALINGA UNIVERSITY, RAIPUR	2021-2022
6.	JOURNAL OF CARDIOVASCULAR DISEASE AND RESEARCH	2021-2022





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## 1. SEEKO BIOTICS



ఆంధ్ర ప్రదేశ్ ఆంధ్ర ప్రదేశ్ ANDHRA PRADESH 19 MAR 2022

SL.No: 4361 Dt: 19/03/2022, Rs. 50/-

Sold to: S.V. Sai Kumar & Venkateswara Rao; Atmakuru

For Whom: Nirmala College of Pharmacy, Atmakuru

AP 158136

G. MOHANA KRISHNA  
LICENSED STAMP VENDOR  
L.No. 07-08-013/2019  
R.L. No: 07-08-031/2022-24  
Nowiluru, MANGALAGIRI.  
GUNTUR-522 503, Cell: 9866722367

### MEMORANDUM OF UNDERSTANDING BETWEEN NIRMALA COLLEGE OF PHARMACY AND SEEKO BIOTICS

This agreement is made on 21<sup>st</sup> March, 2022 by and between:

Nirmala College of Pharmacy, an educational institution, Atmakuru, Mangalagiri affiliated to Acharya Nagarjuna University, Guntur, Andhra Pradesh which expression shall expressly include its legally constituted signatories, assigns, successors and officers duly authorized to execute such agreement of the First Party through **Rev.Sr.G. Nirmala Jyothi**, Secretary & Correspondent and **Dr.SK.Abdul Rahaman**, Principal & Professor who is duly authorized to represent the College.

AND

**Seeko Biotics**, a Manufacturing Unit (GST Bo: 37AVDPS7991N2ZG), 14-309/A, Krishna Nagar, Tadepalli, Guntur-522502, Andhra Pradesh which



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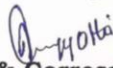
expression shall expressly include its legally constituted signatories, assigns, successors and officers duly authorized to execute such agreement of the Second Party through **Sri. Jayarami Reddy**, Chairman & Managing Director (CMD), who is duly authorized to represent the Organization.

Whereas, both the organizations are desire to impart Student Knowledge enhancement Programme through the arrangements of:

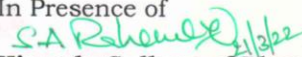
- Industrial Visit/Field Visit, Entrepreneurship programmes, Organizing Collaborative Conferences, Seminars, Workshops, research work.
- To strengthen the practical and theoretical exposure of B.Pharmacy, M.Pharmacy, Diploma Pharmacy, Pharm D students and Research scholars.
- Second Party will be provided the gift sample of API's to carry out the regular research, related experiments of pharmacy courses of First Party.
- The students of Nirmala College of Pharmacy, Guntur, Andhra Pradesh will be allowed to participate in the various campus interviews of Seeko Biotics.

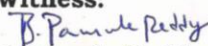
AGREED, ACCEPTED AND EXECUTED AT 21<sup>st</sup> March, 2022(Monday).

This agreement shall be in effect for three years from the date of signature and automatically extended for the same period if written intent of termination by either party is not presented six months prior to the date of expiration.

  
**Secretary & Correspondent**  
Nirmala College of Pharmacy


  
**Seeko Biotics**  
Sri. Jayarami Reddy, Director  
**Seeko Biotics**  
#14-309/A, KRISHNANAGAR-522502  
Tadepalli (M), Guntur Dist., A.P.

In Presence of  
  
**Nirmala College of Pharmacy**  
Principal & Professor

**Witness:**  
  
**Dr. B. Pamula Reddy**  
Professor & Head  
Department of Pharmaceutics  
Nirmala College of Pharmacy  
Atmakur, Mangalagiri, Guntur.  
**NIRMALA COLLEGE OF PHARMACY**  
ATMAKURU VILLAGE  
MANGALAGIRI, Guntur Dt., A.P

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## Collaborative Work carried out:

Conducted Industrial Visit to the outgoing batch B.Pharm and M.Pharm - Pharmaceutics students on 21/03/2022. A total number of 87 students are participated and they aquired the knowledge on Manufacturing of Tablets, Parenterals.







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## MOU exchange between Seeko Biotics and Nirmala College of Pharmacy



*SARASWATI*  
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## 2. MANIPAL HOSPITALS, TADEPALLI, ANDHRA PRADESH

ఆంధ్ర ప్రదేశ్ ఆంధ్ర ప్రదేశ్ ANDHRA PRADESH

S.No: 70 Dt: 17/11/2021

Sold to: B. Vijay Kumar s/o B. Venkateswara Rao Nirmala College Pharmacy

For whom: Manipal health enterprises Pvt Ltd Tadepalli, Guntur Dist

CS 068720  
V. S. Rao  
HEAD POST MASTER  
MANGALAGIRI HEAD POST OFFICE  
POSTAL LICENSE No: 07-08-003-20

This AGREEMENT is executed at Tadepalli on this the 1st day of November 2021 BY AND BETWEEN

MANIPAL HOSPITALS a unit of MANIPAL HOSPITALS(JAIPUR) PRIVATE LIMITED., at Tadepalli, NH-5 Road , Guntur (Dt), Andhra Pradesh-522501, and having its registered office at "The Annexe", No. 98/2, Rustom Bagh Road, HAL Airport Road Bangalore-560017, India a company incorporated under the companies Act 1956 (herein after referred to as "MHJPL" which expression shall, unless excluded by or repugnant to the context or meaning thereof, be deemed to mean and include its successors, and assigns) of the ONE PART.

AND

NIRMALA COLLEGE OF PHARMACY, an institution affiliated to ACHARYA NAGARJUNA UNIVERSITY, GUNTUR (Dt) Andhra Pradesh 522503 (hereinafter referred to as "NCPA" which expression shall, unless excluded by or repugnant to the context or meaning thereof, be deemed to mean and include its successors and assigns) of the OTHER PART.



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In this agreement wherever the context so requires MHJPL and NCPA shall be collectively referred to as the "Parties" and individually as "Party".

## WHEREAS,

1. MHJPL inter-alia, is in the business of providing health care services and has a 300 bedded hospital
2. NCPA is interested in availing a minimum space of 1200 sq ft at MHJPL for training their Pharm D students
3. The parties have held discussions in regard to working together and have decided to reduce their agreement for the same in writing

**NOW THEREFORE, THIS AGREEMENT WIPNESSETH AND THE PARTIES HEREBY AGREE AS FOLLOWS:-**

### 1. Scope of Agreement


- a) MHJPL agree to provide 1200 sq ft space and preceptors required to train NCPA Pharm D students
- b) MHJPL shall permit NCPA students to undergo training in the specialty departments
  - Medicine
  - Surgery
  - Pediatrics
  - Gynecology and obstetrics
  - Skin and VD
  - Orthopedics
- c) NCPA shall provide the academic staff and necessary infrastructure for Pharm D course as per the PCI norms and takes the overall responsibility for smooth conduct of the programs

### 2. Scope of NCPA students & Interns

They have to carry out monthly drug audits with monthly defined sample size and submit by 26<sup>th</sup> of every month.

- a) Patient counseling on drug usage
- b) In-Patient Drug audits (Prescription, Transcription, Dispensing, Administration, Documentation errors audit)



  
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- c) Outpatient Prescription audits
- d) Identification and documentation of Adverse drug reaction in ADR forms
- e) Explaining patients about Food drug interactions.

### 3. Term

The term of this agreement shall be for a period of 10 [TEN] years effective from 27 Sep 2021. However, either Party may elect to terminate this Agreement by giving 45[forty five] days written notice to the other parties without assigning any reason what so ever. However these being an academic programme the termination clause will be in accordance with the terms / semester ending of the Pharm D programme

### 4. Payment

In consideration of MHJPL agreeing to provide services under this agreement, NCPA shall pay to MHJPL a fixed fee of Rs. 3,00,000/- (Rupees Two Lakhs only) per year.

### 5. Representations of MHJPL

a. MHJPL here by, represents and warrants to the following:-

MHJPL is a company, duly formed and validly existing under the law and is qualified to do business, and to undertake the obligation under this agreement.

### 6. Representations of NCPA

a.) NCPA is an institution duly formed and validly existing under the Law and is qualified to do business, and has obtained all approvals required for it to enter into this Agreement

b.) NCPA is in compliance with all Laws and that there is no pending or threatened event that NCPA is aware of which event can adversely affect the ability of NCPA

c.) NCPA undertakes to comply with all the necessary Laws as are in force relating to the provision of services under this agreement

d.) NCPA shall adhere to the protocols and other instructions as provided by MHJPL towards provision of the services

e.) NCPA agrees and undertakes to refrain from using any trademarks, logo or signage of MHJPL, and / or its intellectual property in any manner without the prior written consent of MHJPL







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## 7. GENERAL COVENANTS:

a.) The relationship between the parties is independent and is honor Principal to Principal basis. Nothing in this agreement shall be interpreted or construed as constituting, expressly or by implication, an employer – employee relationship between the parties here to. Further, none of the provisions of this agreement shall be deemed to constitute a partnership or agency between the parties hereto and neither shall have any authority to bind the other or shall be deemed to have any authority of the other otherwise than as strictly provided under this agreement.


b.) The parties agree that all details, information, documents, designs, data, applications, papers, included trade secrets, business methods, business processes, business techniques, marketing plans, business plans and ideas (herein after referred to as “confidential information” which may be communicated or disclosed by one party to the other party shall be received and held by the other party on a strictly confidential basis , and shall not be disclosed to any person or business entity whatsoever. The confidentiality obligations as contained in this clause shall survive the termination of this agreement

c.) The parties also agree not to disclose any information (except for complying with any statutory requirement or any governmental/ judicial process) pertaining to the transaction as contemplated in this agreement including identity of the parties without the prior written consent to the other party

d.) If for any reason any part or provision of this agreement is held by a court of competent jurisdictions to be void, invalid, illegal or unenforceable because it is invalid or in conflict with any law of any relevant jurisdiction, its invalidity shall not affect the validity and effect of the other provisions of this agreement, unless such provision that has become invalid or unenforceable is inseparable from the other parts of the agreement and the rights and obligations of the parties shall be construed and enforced as if this agreement did not contain the particular provisions held to be invalid and unenforceable and the invalid and unenforceable provision(s) shall be replaced by mutually acceptable provision(s) which, being valid, legal and enforceable , comes closest to the intentions of the parties underlying the invalid or unenforceable provision.

e.) Each party undertakes to indemnify and keep the other party fully indemnified against any loss(es), damage(s), liability(ies), suit(s), proceedings(s), action(s), cost(s) etc. incurred / suffered /instituted as a result of noncompliance with the covenants, undertakings and representations made herein or as a result of any act of omission / commission or negligence on its part and / or on the part of its servants , agents, employees etc. or as a consequence of third party claims or legal dues of any nature. This clause shall survive the termination of this agreement.



  
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f.) Neither party shall be liable to the other party upon termination for loss or prospective profits on anticipated sales, for any consequential, indirected or exemplary damages arising thereof

g.) It is being agreed and understood that MHJPL shall not be responsible for death , injury or accidents to NCPA's students ,employees , which may arise out of or in the course their duties within MHJPL and or outside the location

h.) NCPA shall ensure that its employees and students on the location shall carry and display at all times appropriate identification showing that they are the employees or students of NCPA

i.) Each party agree that it shall not release any statements, information, advertisement in connection with or relating to this agreement , the transactions contemplated hereunder unless the prior written consent of the other party has been obtained. In no event shall either party use the trademark, trade name, logo, or other intellectual property right of the other party unless authorized in writing

j.) Any provision of this agreement or a right or obligation created under this agreement may not be waived except in writing signed by the party granting the waiver, or varied except in writing signed by the parties. Further, any delay or indulgence by any party in enforcing the terms of this agreement or any forbearance to the other party shall not be considered as waiver by the first mentioned party of any breach of or non-compliance with any of the terms and conditions of this agreement by the other party nor shall the same in any manner prejudice the rights of the first mentioned parties hereunder.

k.) The parties confirm and acknowledge that this agreement constitutes the entire agreement between them with respect to the subject matter hereof supersedes and over rights all previous communications, either oral or written , between the parties with respect to the subject matter of this agreement and no agreement or understanding varying or extending the same shall be binding upon any party unless it is arising out of the specific provisions of this agreement and is in writing signed by both the parties.

l.) Any notice, request, demand, instruction or other communications to be given by any party in writing shall be effective upon delivery during regular business hours at the offices of the other party and which are herein after set forth. Such communications shall be given by facsimile, commercial delivery service or sent by certified mail , postage prepaid and returned receipt requested , as follows:







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To MHJPL

To NCPA

The Courts in Guntur District will have exclusive jurisdictions in respect of any proceedings arising under this Agreement.

IN WITNESS WHEREOF, the parties have caused this agreement to be executed the day and the year first hereinabove written.

For and on behalf of MHJPL

Authorized Signatory Authorized Signatory

**Dr. SUDHAKAR KANTIPUDI**  
MBBS, MD (Hosp. Admin.), PG Dip(Medical Law)  
HOSPITAL DIRECTOR  
MANIPAL HOSPITALS  
TADEPALLI, GUNTUR-522 501. A.P.

For and on behalf of NCPA

Secretary & Correspondent  
NIRMALA COLLEGE OF PHARMACY  
ATMAKUR VILLAGE - 522 503  
Mangalagiri Mandal, Guntur Dist., A.P.



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## Collaborative Activities:

MOU has been signed with **Manipal hospitals** to provide necessary facilities and preceptors to train the Pharm D students in various departments like Medicine, Surgery, Paediatrics, Gynaecology, Obstetrics, Orthopaedics, etc.,



"**Awareness on Organ Donation**" organized by our Nirmala College of Pharmacy in association with Manipal Hospitals, Vijayawada on 17<sup>th</sup> August, 2018. The same programme is conducted by Dr. K. Charan Tej, Medical Superintendent, Manipal Hospital, Tadepalli, Guntur (Dt), Andhra Pradesh.



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## INSTITUTIONAL REVIEW BOARD APPROVED CLINICAL PROJECTS



### INSTITUTIONAL REVIEW BOARD

### NIRMALA COLLEGE OF PHARMACY

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Atmakuru (Village), Mangalagiri (M), Guntur Dist-522503, A.P.

In Association with  
**MANIPAL HOSPITALS**  
Tadepalli, Vijayawada

Approval No: **PIB004/IRB/NRM/2018/2019**  
Date: 13/07/18

### CERTIFICATE

The Institutional Review board Committee meeting held on 13/07/18  
has approved the thesis protocol titled "A PROSPECTIVE OBSERVATIONAL STUDY ON ADVERSE DRUG REACTIONS OF DIFFERENT CLASSES OF DRUGS AT A TERTIARY CARE HOSPITAL" under the guidance of Dr.D.SubbaREDDY, M.Pharm., Ph.D, HOD OF Pharmacology & Pharmacy practice Department, Nirmala college of Pharmacy, for Doctor of Pharmacy project to be conducted during 2018 to 2019 at Department of Pharmacy Practice, Nirmala College of Pharmacy, Atmakuru, Mangalagiri and Manipal Hospitals, Tadepalli, Vijayawada

 <b>President, IRB</b> (Dr.K.Charan Tej)	 <b>Vice President, IRB</b> (Dr.SK.Abdul Rahaman)	 <b>Member Secretary</b> (Dr. D. Subba Reddy)
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**Dr. CHARAN TEJ**  
MBBS, MD, DNB, F.M.S. (C)  
MEDICAL SUPERINTENDENT  
Member, Manipal Hospitals  
Tadepalli, Guntur District-522503

1. Dr. S. Balanah
2. Dr. T. Vinay Kumar
3. Dr. P. Divya Jyothi
4. Mr. Sk. Liakhat Ali

  
PRINCIPAL  
NIRMALA COLLEGE OF PHARMACY  
ATMAKUR VILLAGE,  
MANGALAGIRI, GUNTUR DI., A.P





# NIRMALA COLLEGE OF PHARMACY

(A UNIT OF CATECHIST SISTERS OF ST. ANN'S, HYD)

ATMAKURU (Village), Mangalagiri (M), Guntur Dist-522503, A.P, India.

Approved by AICTE & PCI New Delhi & Govt. of A.P, Affiliated to SBTET & A.N University, Guntur

Accredited by NAAC & Approved under UGC 2f & 12b and Approved Institutional Innovation Council by AICTE

Ph: 08645-236255, 236722, 9912342142 E-mail: [nepa@csagp@yahoo.co.in](mailto:nepa@csagp@yahoo.co.in) Web site: [www.ncpacsag.ac.in](http://www.ncpacsag.ac.in)



## INSTITUTIONAL REVIEW BOARD NIRMALA COLLEGE OF PHARMACY

(A UNIT OF SOCIETY OF CATECHIST SISTERS OF ST ANN, HYD)

Approved by AICTE & PCI New Delhi

Accredited by NAAC & Approved under UGC 2f & 12b

Atmakuru (village), Mangalagiri (M), Guntur Dist 522 503 A P

In Association with

**MANIPAL HOSPITALS**

Tadepalli, Vijayawada

Approval No: PD010/IRB/NRMI/2018-2019

Date: 13-07-2018

### CERTIFICATE

The Institutional Review Board Committee meeting held on 13.07.2018  
Has approved the thesis protocol titled "PREVALENCE AND IMPACT OF  
PATIENT COUNSELLING IN MANAGEMENT OF DIABETES MELLITUS"  
Of DOKKU. MOUNIKA, PUCHAKAYALA. KRISHNA SWETHA under the guidance of  
Dr. Yuva Sri Sai Anumula of PHARMACY PRACTICE Department, Nirmala college of  
Pharmacy, for V/VI DOCTOR OF PHARMACY project to be conducted during 2018 to  
2019 at Department of Pharmacy Practice.


  
President, IRB  
(Dr. K. Charan Tej)

  
Vice President, IRB  
(Dr. SK. Abdul Rahaman)


  
Member Secretary,  
(Dr. D. Subba Reddy)

Dr. CHARAN TEJ  
MBBS, MD DNB F. I. C. E.  
MEDICAL SUPERINTENDENT  
Manipal Hospitals  
Tadepalli, Guntur District - 522503

#### Members:

1. Dr. S. Balalah - 
2. Dr. P. Divya Jyothi -
3. Dr. T. Vinay Kumar -
4. Mr. Sk. Liakhat Ali -



  
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## CAVAXIA CLINICAL RESEARCH ACADEMY:

Confidentiality Agreement

27/01/14-03-2022. Rs.100/- ఉత్పాదక వాణిజ్యమునకు 50-వసంకరము. విజయవాడ  
ఆంధ్ర ప్రదేశ్ రాష్ట్రం ANDHRA PRADESH

CV 422870  
16-03-2022

**MEMORANDUM OF UNDERSTANDING**

**PARTIES**

1. CAVAXIA- Clinical Research Academy; Vijayawada
2. Nirmala College of Pharmacy; Atmakur

together the "Parties", and each a "Party".

**BACKGROUND**

For the purposes of this Agreement the terms: "Affiliate" means any business entity that, directly or indirectly through one or more intermediaries, controls, is controlled by or is under common control with, a Party, with "control" meaning direct or indirect ownership of 50% or more of the voting interest in such other entity, and in the case of a partnership control of the general partner, or the power to direct the management of any such entity, and the term "Representative" means, with respect to a Party, such Party's Affiliates and its and their respective employees, officers (including directors), trustees, agents, professional advisors, authorised non-employee contractors and consultants (which in the case of the Company and its Affiliates shall include contract research organisations retained by the Company or its Affiliates for the delivery of research and development projects).

The Parties and/or their Representatives wish to disclose providing to training service Nirmala College of Pharmacy the confidentiality of the design to provide educational service will not be disclosed to any other third parties or any members outside or Nirmala College of Pharmacy of the Recipient participating in the set-up and delivery of Company-sponsored studies (the "Purpose").



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## Confidentiality Agreement

The Purpose of this is to form a mutual collaboration with Narasaraopet Institute of Pharmaceutical Sciences for the duration of five tenure years in between CAVAXIA & Nirmala College of Pharmacy to provide service of clinical research certifications.

Each Party wishes to ensure that the other Party maintains the confidentiality of the Confidential Information. In consideration of the benefits to the Parties of disclosing and receiving the Confidential Information, the Parties have agreed to comply with the following terms.

## EFFECTIVE DATE

The effective date of this Agreement (16/Mar/2022) shall be the date on which the last (16/Mar/2024) of the Parties signs this Agreement.

## AGREED TERMS

### 1. THE CONFIDENTIAL INFORMATION

1.1 The Confidential Information includes all confidential information i.e Educational materials, trainees details, software details, mode of training platforms along with meeting links & passwords, Certification course details & Syllabus and client details or made available, directly or indirectly, in any form by a Party and/or its Representatives (the "Disclosing Party") to other Party (the "Recipient"), including but not limited to: (i) the fact that discussions are taking place concerning the Purpose and the status of those discussions; (ii) any confidential or proprietary information, data or opinions communicated by either Party, including any information relating to the Disclosing Party's and/or its Affiliates' business practices, plans or relationships, or any of its products, processes, operations or intellectual property (iii) information that relates to the Company; (iv) any information or analysis derived from the Confidential Information; (v) any other information or material that the Disclosing Party indicates is confidential.


1.2 In consideration of the Disclosing Party disclosing or making its Confidential Information available to the Recipient, the Recipient shall keep the Confidential Information confidential at all times and maintain it securely. The Recipient shall not without the Disclosing Party's prior written consent: (i) use the Confidential Information in any way except for the Purpose; (ii) publish, make available or disclose any Confidential Information to any third party; (iii) copy the Disclosing Party's Confidential Information except as strictly necessary for the Purpose; or (iv) disclose that there is any relationship between the Parties.

1.3 The Recipient will notify the Disclosing Party immediately of any loss or compromise of the Confidential Information and shall cooperate with the Disclosing Party's reasonable instructions in order to minimise the consequences of the same.

1.4 The confidentiality obligations of each Party shall continue for a period of **two 2 years** from the date of this Agreement, or until the Parties enter into a separate Agreement relating to the Purpose which addresses the use of the Confidential Information. Termination of this Agreement shall not affect any accrued rights or remedies.

1.5 After completion of the Purpose, termination of this Agreement, or at the Disclosing Party's request, the Recipient shall cease all use of the Confidential Information. The Recipient shall promptly (i) return or, at the Disclosing Party's option, destroy all Confidential Information and all documents and materials containing any Confidential Information; (ii) use reasonable endeavours to erase all Confidential Information from its computer systems, provided that the Recipient may retain Confidential Information where it is required to do so by law or where necessary for the Recipient to demonstrate that it has performed its obligations under this Agreement. The terms of this Agreement shall continue to apply to any Confidential Information retained.



  
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## Confidentiality Agreement

1.6 All Parties do hereby agree as under:

1. The party A agrees to collaborate and support in organizational development, innovation, and incubator, start up, mentoring, industry partnership, internship, starting new healthcare programs with party B.
2. The party A agrees to collaborate for conducting workshop/seminar/conference at least once in every year at the campus of party B.
3. The party A agrees to provide training & Certification to the Pharmacy/Pharm D students of party B in the fields of:
  - Clinical Research Certification
  - Clinical Data Management Certification
  - Clinical Data Analytics
  - Pharmacovigilance Certification
  - Clinical SAS Programming
  - Training on Clinical Trial Systems
  - Clinical Trials Guidelines
  - Certified Clinical Research Coordinator
  - Certified Clinical Research Associate
  - Certified Clinical Research Professional
  - Career Abroad
  - Personality Development Skill Training including Mock Interviews
  - CAVAXIA Webinar Access.

## 2. EXCEPTIONS AND PERMITTED DISCLOSURES

- 2.1 The confidentiality obligations set out in this Agreement shall not apply to information that is: (i) generally available to the public other than as a result of any breach of this Agreement by the Recipient; (ii) obtained from a third party who had the full right to disclose it; (iii) lawfully in the Recipient's possession (with full rights to disclose) before its disclosure under this Agreement; or (iv) developed independently by or for the Recipient without reference to the Confidential Information.
- 2.2 The Recipient may disclose the Confidential Information to those of its Representatives who need to know such Confidential Information for the Purpose, provided that it (i) informs those Representatives of the confidential nature of the Confidential Information before disclosure; (ii) ensures that all such Representatives maintain the confidentiality of all such Confidential Information in accordance with the provisions of this Agreement; and (iii) remains liable for any unauthorised disclosure of Confidential Information by any of its Representatives as if it had made such disclosure itself.
- 2.3 The Recipient may disclose the Confidential Information to the extent required by law, by any governmental or other regulatory authority or by a court or other authority of competent jurisdiction, provided always that: (i) to the extent it is legally permitted to do so, it gives the Disclosing Party as much notice of such disclosure as possible; and (ii) it complies with the Disclosing Party's reasonable directions for taking legally available steps to resist or narrow such requirement (at the Disclosing Party's reasonable expense).







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Confidentiality Agreement

and in any event restricts the disclosure to only those parts of the Confidential Information lawfully required to be disclosed.

### 3. RIGHTS TO AND ACCURACY OF CONFIDENTIAL INFORMATION

- 3.1 All rights, title and interest in and to the Confidential Information (including all intellectual property rights) shall remain the exclusive property of the Disclosing Party or its licensors. No rights in respect of the Confidential Information are granted to the Recipient other than those set out in this Agreement.
- 3.2 The Disclosing Party does not give any representation or warranty concerning the Confidential Information, its accuracy or its completeness, and neither the Disclosing Party nor any of its Representatives accept any liability to the Recipient for the accuracy or completeness of any of the Confidential Information or for any opinions, errors, omissions or misstatements contained in the Confidential Information.


### 4. EDUCATIONAL SECTOR REPRESENTATIVES' ATTENDANCE AT MEETINGS

- 4.1 Where any discussions between the Parties concerning the Purpose involve the attendance of health sector representatives (whether health care professionals or otherwise), the Parties shall ensure that any such meetings are conducted in accordance with all applicable laws and guidance and that all necessary approvals have been obtained from the organisations by which all attendees are employed or to which they are affiliated. In particular, the Parties agree that the attendees will not receive any compensation for attendance or participation in such meetings, although they may be provided with reasonable and modest expenses in respect of accommodation, meals and travel as permitted in accordance with applicable laws and guidance, and (where applicable) subject to the attendee's consent to such payments being publicly disclosed.
- 4.2 Attendees shall provide reasonable evidence for all expenses claimed. The Company will not reimburse expenses of individuals who do not attend the meetings or who are accompanying the attendees.
- 4.3 The Parties shall enter into separate agreements where any attendees or third parties are required to attend meetings other than for the Purpose, or to perform any services.
- 4.4 The Parties agree that attendance at any meeting is not intended as an inducement to or in return for any attendee to recommend, prescribe, purchase, supply or order any of the Company's products.

### 5. GENERAL

- 5.1 The Recipient acknowledges that damages alone would not be an adequate remedy for the breach of any of the terms of this agreement, and that without prejudice to any other rights and remedies it may have, the Disclosing Party is entitled to seek injunctive relief concerning any threatened or actual breach of any of the provisions of this agreement.
- 5.2 Neither Party may assign, sub-license or otherwise transfer any or all of its rights or obligations under this Agreement without the prior written consent of the other Party save that the Company shall be entitled to assign, delegate, sublicense or otherwise transfer its rights and obligations under this Agreement to any Affiliate, any external service providers such as contract research organizations retained to assist the Company in delivering



  
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Confidentiality Agreement

research and development projects sponsored by the Company, and to any successor in interest to all or substantially all of the business to which this Agreement relates. The Company shall always have the right to perform any or all of its obligations and exercise any or all of its rights under this Agreement through any of its Affiliates.



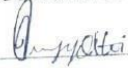
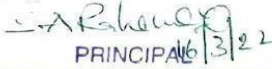

5.3 This Agreement constitutes the entire agreement between the Parties and supersedes all prior written or oral agreements or understandings with respect to the subject matter of this Agreement.

5.4 Any amendment or modification to this Agreement must be in writing and signed by authorised representatives of each Party.

5.5 This Agreement may be executed in two or more counterparts, each of which shall be deemed an original and all of which shall together be deemed to constitute one and the same agreement. The Parties agree that execution of this Agreement by industry standard electronic signature software and/or by exchanging PDF signatures shall have the same legal force and effect as the exchange of original signatures, and that in any proceeding arising under or relating to this Agreement, each Party hereby waives any right to raise any defence or waiver based upon execution of this Agreement by means of such electronic signatures or maintenance of the executed agreement electronically.

5.6 This Agreement does not address the law that governs disputes arising out of this Agreement or the subject matter of this Agreement.

**AGREED** by the Parties on the dates indicated below

<p>SIGNED for and on behalf of <b>CAVAXIA</b></p> <p>Signature: </p> <p>Name: T. Pavon Kumar</p> <p>Title: Director of Academics</p> <p>Date: 16-03-2022</p>		<p>SIGNED for and on behalf of <b>NIRMALA COLLEGE OF PHARMACY</b></p> <p>Signature: </p> <p>Name: Nirmala Jyothi</p> <p>Title: Secretary / Correspondent</p> <p>Date: 16/3/2022</p> <p>Secretary &amp; Correspondent NIRMALA COLLEGE OF PHARMACY ATMAKUR VILLAGE - 522 503 Mangalagiri Mandal, Guntur Dist., A.P</p>
<p>Read and Acknowledged By:</p> <p>Witness Signature: </p> <p>Date: 16/3/22</p> <p>PRINCIPAL</p> <p>NIRMALA COLLEGE OF PHARMACY ATMAKUR VILLAGE, MANGALAGIRI, GUNTUR DI., A.P</p>		







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## Collaborative Activities:

MOU has been signed with **CAVAXIA Clinical Research Academy**, Vijayawada to collaborate and support in Organizational development, Innovation, Incubator, Start-up, Mentoring, Industry Partnership, etc., CAVAXIA also provides training & Certifications to pharmacy/ Pharm D students in fields of Clinical Research, Clinical Data Management, Clinical Data Analytics, Pharmacovigilance, Clinical SAS, Clinical trail Guidelines, Training on Clinical Trail Systems, Career Abroad, Personality Development Skill Training etc.,



CHHJ+66F, Mangalagiri, Atmakur, Andhra Pradesh 522503,  
India

Latitude  
16.4283481 N

Longitude  
80.5813295 E

Local 03:59:30 PM  
GMT 10:29:30 AM

Altitude -53.6 meters  
Wednesday, 16-03-2022







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## 3. AVENIDA INNOVATIONS



### MEMORANDUM OF UNDERSTANDING

This MEMORANDUM OF UNDERSTANDING (hereinafter referred to as the "MOU") is made and entered into as of 03/3/2022 by and between:-

**"AVENIDA INNOVATIONS"**, Address: SPS Vamsi Nivas, Plot no 4, KPHB colony Phase V, Hyderabad, contact Dr. Karthik Rakam 7569692853, Email: [ceo@avenidapro.com](mailto:ceo@avenidapro.com), (henceforth referred to as the **"Party A"** and collectively as the **"Parties"**).

**AND**

**"Nirmala College of Pharmacy"**, Mangalagiri, Contact Dr. SK. Abdul Rahaman, Email: [rahamanphd@gmail.com](mailto:rahamanphd@gmail.com) (henceforth referred to as the **"Party B"** and collectively as the **"Parties"**).


WHEREAS, in consideration of the mutual understandings contained therein and for other good and valuable consideration, the receipt and sufficiency of which hereby are acknowledged, it is mutually agreed between the Parties to this MOU, as follows:

#### **BACKGROUND**

Avenida Innovations is a global organization focused on establishing benchmarks of excellence in training for the **Pharmacy**, healthcare and life sciences industries. With offices in the United States and India, Avenida offers excellent support to the individuals and companies who it serves. Avenida has highly experienced experts from health sector in its network and also a base of approximately 10000 pharma graduates, 100s of college and universities in direct contact as on date. There is always a need for quality, job ready pharmacy/ health care graduates and professionals for industry. There is a huge skill gap in pharmacy/healthcare graduates in the country.

All Parties hereby form themselves into this MOU for the benefits of each other in future and ultimately the wider population (hereinafter jointly referred to as the "Purpose") or for upcoming projects as both have a synergy in their space of work and engagements. The objective of this MOU is to



  
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bridge this skill gap through collaboration and partnership between both parties. Under this MOU All the parties shall complete projects on agreed conditions of this MOU which shall be followed during the course of this MOU.

## ENGAGEMENT & SCOPE

This MOU contemplates the proposed engagement of the Parties. All Parties accept such engagement and agree that they shall during the term of their engagement hereunder conscientiously provide their resources and perform the required services to full limit of their ability, and further agree that they shall promptly and faithfully comply with all requirements, directions, requests, rules, and regulations.

### All Parties do hereby agree as under:

1. The party A agrees to collaborate and support in organizational development, pedagogy, patent, research, innovation, incubator, startup, mentoring, industry partnership, internship, starting new healthcare programs with party B.
2. The party A agrees to collaborate for conducting workshop/seminar/conference at least once in every year at the campus of party B.
3. The party A agrees to provide training to the Pharmacy/Pharm D students of party B in the fields of:

**Clinical Pharmacy**

**Clinical Research**

**Clinical Data Management, Data Analytics**

**Pharmacovigilance**

**Career Abroad**

**Medical Writing and Communication**

**Informatics**

**Any other fields as needed**

4. The party A agrees to provide career guidance to interested students of Pharmacy/Pharm D and other courses of party B
5. Both the parties agree to use each other promotional materials (logo, pamphlets, name & address, contact details, etc) in any event organized by both the parties only for promotional activities.

All parties have full capacities for the responsibilities above and will execute as described. Except this all the parties will share responsibilities on







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mutually agreed basis and hence share expense, profit and any other credits depending on agreed terms and conditions as mutually agreed.

## 1. INDEMNIFICATIONS

All Parties shall indemnify and hold harmless each other, their affiliates and respective officers, directors, agents and employees from any and all claims, demands, losses, causes of action, damage, lawsuits, judgments, including attorneys' fees and costs, arising out of, or relating to, the services of Parties under this MOU.

**2. LIABILITY** All partners, sponsors, volunteers are absorbed of any liability resulting from any and all services provided during the mutually agreed events.

**3. NON-DISCLOSURE** All partners are working together in this endeavor. Neither Party will use, copy, adapt, alter or part with possession of any information of the others which is disclosed or otherwise comes into its possession under or in relation to this MOU and which is of a confidential nature.

**4. FINANCIAL IMPLICATIONS:** Once both the parties agree and decide the priority areas of implementation, financials will be mutually discussed and decided.

## 5. GENERAL

- 1) The parties to this MOU shall not be deemed to be in breach of this understanding or otherwise liable to any other party in any manner whatsoever for any failure or delay in performing or initiating the activities proposed in this MOU.
- 2) This MOU records the understanding between the parties and is not intended to be a legally binding document and shall not be enforceable in any Court of Law.
- 3) The parties to this MOU shall be permitted to use the other's name, crest, logo or branding after obtaining the other's prior consent to such use and fully complying with the user guidelines.

## 6. NOTICES & COMMUNICATION

Communication necessary for the performance of this MOU shall be made through the contact details provided in this MOU.

## 7. ADDENDUM

A party to this MOU may request an amendment to this MOU at any time, provided such amendment is with the prior written consent of the authorised representatives of all parties.







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## 8. TERMINATION

Termination of this MOU by each Party prior to the execution and delivery of the definitive agreements shall be without liability and no Party hereto shall be entitled to any form of relief whatsoever, including without limitation, injunctive relief or damages.

For the purposes of this MOU the nominated "AVENIDA" contact is:

**Dr. Karthik Rakam**

**Co-founder & CEO**

**Email:** [karthika@avendidapro.com](mailto:karthika@avendidapro.com)

The nominated contact for "Nirmala College of Pharmacy" is:

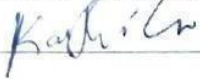
**Dr. SK. Abdul Rahaman**

**Principal**

**Email:** [rahamanphd@gmail.com](mailto:rahamanphd@gmail.com)

## SIGNATURES:

This MOU is executed on behalf of the parties by their respective duly authorized signatory as set out below:

  
\_\_\_\_\_

"AVENIDA"

Party "A"

Date: 3/3/2022


  
\_\_\_\_\_

"Nirmala College of Pharmacy"

Party "B"


Date: -----/-----/2022

**Witness Signatures:**

1.   
3/3/2022

NIRMALA COLLEGE OF PHARMACY  
ATMAKURU VILLAGE,  
MANGALAGIRI, Guntur Dt., A.P



  
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ATMAKURU VILLAGE,  
MANGALAGIRI, GUNTUR Dt., A.P



# NIRMALA COLLEGE OF PHARMACY

(A UNIT OF CATECHIST SISTERS OF ST. ANN'S, HYD)

ATMAKURU (Village), Mangalagiri (M), Guntur Dist-522503, A.P, India.

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## Collaborative Activities:

MOU signed with **Avenida Innovations** to provide training to the Pharmacy / Pharm D students in the fields of Clinical Pharmacy, Clinical Research, Clinical Data Management, Data analytics, Pharmacovigilance, Career guidance, etc.,

“Awareness on Real Time training and Learning approach of Pharm D graduate in Hospital” on 03/03/2022 by Dr Karthik Rakam.



## NIRMALA COLLEGE OF PHARMACY

(A UNIT OF THE SOCIETY OF CATECHIST SISTERS OF ST. ANN, HYDERABAD)  
Approved by AICTE, PCI & Affiliated to Acharya Nagarjuna University  
Accredited by NAAC & Approved under UGC 2f & 12b; NIRF-2021 Rank: 76-100 BAND



## Awareness on Real Time training and Learning approach of Pharm D graduate in Hospital

### 3<sup>rd</sup> March, 2022 (Thursday)

Organized by  
**Department of Pharmacy Practice**  
Nirmala College of Pharmacy  
in association with  
**Avenida organisation, Hyderabad**  
Resource Person: **Dr. Karthik Rakam**  
CEO & Co- Founder Avenida



Last date of registration: 25<sup>th</sup> February, 2022  
Registration Fee: Rs. 100/-  
All registered participants will be provided  
with e-certificates

Chief patron	: Rev. Sr. K. Sundari
Patron	: Rev. Sr. G. Nirmala Jyothi
Convener	: Dr. SK. Abdul Rahaman
Organizing Secretary	: Dr. T. Vinay Kumar
Staff Co-ordinator	: Dr. Y. Malyadri
Student Co-ordinators:	Ms. Ruby & Ms. Meghana







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CHHJ+66F, Mangalagiri, Atmakur, Andhra Pradesh 522503, India

Latitude

16.4288808 N

Longitude

80.580124 E

Local 10:51:59 AM

GMT 05:21:59 AM

Altitude 0 meters

Thursday, 03-03-2022



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## 4. KALINGA UNIVERSITY

### MEMORANDUM OF UNDERSTANDING

M O U

M O U. Dated 21/08/2021

Between

Kalinga University, Raipur (First Party)

And

Nirmala College of Pharmacy, Atmakur, Mangalagiri, Guntur (Dt), Andhra Pradesh  
(Second Party)

#### First Party

1. There will be collaboration between Kalinga University and Nirmala College of Pharmacy in the field of academics and research
2. The subject experts of Nirmala College of Pharmacy will participate in the faculty development programs organized by the Kalinga University.
3. The research scholars of the Kalinga University will be given necessary support and guidance by the research experts/ guides of Nirmala College of Pharmacy
4. The experts of various subjects of Nirmala College of Pharmacy will deliver lectures to the students of Kalinga University for updation of their knowledge when requested by the University
5. The faculty of Kalinga University can participate in the various academic programmes like seminars, conferences and workshops organized by Nirmala College of Pharmacy, Guntur, Andhra Pradesh, India

#### Second Party

1. The eminent subject expert of Kalinga University will deliver expert lectures for enriching the knowledge of the students when requested by the college authorities
2. The students of Nirmala College of Pharmacy, Guntur, Andhra Pradesh will be allowed to participate in the various campus interviews of Kalinga University

*For and on behalf of*  
KALINGA UNIVERSITY  
CHHATTISGARH

Page 1 of 2



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This agreement shall be in effect for three years from the date of signature and automatically extended for the same period if written intent of termination by either party is not presented six months prior to the date of expiration

## Authorized Representative

For First Party

*Sandip*  
21/08/2021  
Dr. Sandeep Gandhi  
Registrar  
Kalinga University, Raipur  
REGISTRAR  
KALINGA UNIVERSITY  
KOTNE NEAR MANTAPAYA  
RAIPUR (CHHATTISGARH) - 492015

For Second Party

*Alphonsa*  
Rev. Sr. P. Alphonsa  
Vicar General CSA  
Secretary & Correspondent  
Nirmala College of Pharmacy  
Atmakuru, Mangalagiri, Guntur (Dt)  
Andhra Pradesh, India  
Secretary & Correspondent  
NIRMALA COLLEGE OF PHARMACY  
ATMAKUR VILLAGE - 522 503  
Mangalagiri, Mandal, Guntur Dist., A.P



*SK Abdul Rahaman*  
21/8/2021  
Prof. Dr. SK Abdul Rahaman  
Principal & Professor  
Nirmala College of Pharmacy  
Atmakuru, Mangalagiri, Guntur (Dt)  
Andhra Pradesh, India  
PRINCIPAL  
NIRMALA COLLEGE OF PHARMACY  
ATMAKUR VILLAGE,  
MANGALAGIRI, GUNTUR DT., A.P

Witness to the above M.O.U. -

That the name, day and year of persons related to M.O.U. have been counter signed as above.

Witness -

*[Signature]*

Witness -

1



*SK Abdul Rahaman*  
PRINCIPAL  
NIRMALA COLLEGE OF PHARMACY  
ATMAKUR VILLAGE,  
MANGALAGIRI, GUNTUR DT., A.P





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## Collaborative Activities:

MOU has been signed with **Kalinga University, Raipur** to collaborate with college in field of academics and Research including participation in various academics like Seminars, Conferences, Workshops, Campus Interviews, etc., In this context both the institutions are planned and conducted an International e-conference on Recent Trends in Pharmaceutical Research with a theme: "Research innovations leading to intellectual property generation in Drug Discovery and Development" held on 28<sup>th</sup> and 29<sup>th</sup> October, 2021.

### International e-Conference on Recent Trends in Pharmaceutical Research

"Research Innovations leading to Intellectual Property Generation in Drug Discovery & Development"  
28<sup>th</sup> and 29<sup>th</sup> October, 2021

Organized by  
**NIRMALA INNOVATIONS AND INCUBATION CENTRE**  
In Association with  
**University of UTAH, College of Pharmacy, USA**  
**Thermo Fischer Scientific Inc., CANADA**  
**Faculty of Pharmacy, Kalinga University, RAIPUR**

**ORGANIZING COMMITTEE**

<b>Chief Patron</b> Rev. Sr. MARIA SUNDARI K Wilkes University, USA	<b>Patron</b> Rev. Sr. G.Nirmala Jyothi
<b>Chief Advisors</b> Rev. Sr. P. ALPHONSA Vicar General, St. Ann's Society, Hyderabad	<b>Convener</b> Dr. SK. ABDUL RAHAMAN Ph.D
<b>Dr. AJAY BOMMAREDDY, Ph.D</b> Wilkes University, USA	<b>Organizing Secretary</b> Dr. SAILENDRA KUMAR MAHANTA Ph.D
<b>Dr. KASHYAP YELLEPEDDI Ph.D, RPh, DABCP</b> University of Utah Health, College of Pharmacy, USA	<b>Co-ordinators</b> Dr. SANDEEP GANDHI Ph.D Dr. T. VINAY KUMAR Ph.D Dr. ANJANA MALE Ph.D
<b>Dr. BENJAMIN JASON Ph.D</b> Thermo Fischer Scientific, Toronto, Canada	

**VENUE: Nirmala College of Pharmacy**  
Atmakuru, Mangalagiri, Guntur, Andhra Pradesh, India, 08645-236722, 9849702527 <http://www.ncpacsag.ac.in/>

**OBJECTIVES OF THE CONFERENCE:**

- To provide an international forum for the budding researchers and students to showcase their research in the presence of eminent scientists.
- To share and exchange the research ideas with the international speakers pertaining to their research.
- To provide the participants a perspective of the Pharmaceutical Research and Practice worldwide.

**IMPORTANT DATES:**

- Last date of Abstract Submission : 23/10/2021
- Intimation of Accepted Abstracts : 25/10/2021
- Commencement of Registration : 16/08/2021
- Last date of Registration : 23/10/2021

**ABSTRACT SUBMISSION:**  
Delegates are required to submit the abstract related to their respective presentations should email: [nrmmlabstracts2021@gmail.com](mailto:nrmmlabstracts2021@gmail.com)

**ARTICLE SUBMISSION FOR PUBLICATION:**  
Delegates who are interested for publishing their article to the mentioned journal should email the Research / Review Articles to the email [nrmconference2021@gmail.com](mailto:nrmconference2021@gmail.com) on or before 23<sup>rd</sup> October, 2021.  
Registration fee: Rs. 200 or 20 USD will be charged for participation  
Where as 3540 INR (Optional for interested participants) will be charged towards the processing of full length Research/Review article by Research Journal of Pharmacy and Technology through their payment gateway <https://anvpublication.org/OnlinePayment.aspx>

**Abstracts / Full length articles are invited from the following areas:**

Pharmacology & Pharmacy Practice	Pharmaceutical Analysis
Pharmaceutical chemistry & Phytochemistry	Pharmaceutical Technology

**Who can Participate:** National & Foreign Students, Research Scholars, Faculty from Pharmacy and Medical Colleges, Industry & Research Institutes.

**\* ORAL / e-POSTER SPECIFICATIONS:**

- Oral presentation: 10 minutes
- e-poster: 80 cm x 120 cm

\*\* Winners would be awarded with cash prize and appreciation certificate (1<sup>st</sup> & 2<sup>nd</sup> prize) under various disciplines

**Organizing Committee**

**Scientific Committee**  
Dr. B. PAMULA REDDY, Ph.D (9848553611)  
Dr. S. PADMAVATHI, Ph.D

**Registration & Online Streaming Committee**  
Mr. R. Naresh Babu (9949096910)  
Dr. G. Swapna  
Mrs. SK. Asha Begum

Registration fee: Rs. 200 (or) 20 USD.

**Article Processing Charges for Publication: Rs. 3540/-** (Optional for interested participants) will be charged towards the processing of full length Research/Review article by Research Journal of Pharmacy and Technology through their payment gateway <https://anvpublication.org/OnlinePayment.aspx>

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- Please refer Author guidelines <https://rjptonline.org/AuthorsGuidelines.aspx>
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- Kindly upload the Transaction details during the Registration process.

The accepted articles will be published in Scopus indexed journal  
"Research Journal of Pharmacy and Technology"  
For Article preparation refer to: <https://rjptonline.org/AuthorsGuidelines.aspx>

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Faculty Co-Ordinators: 7842552555 Mr. S. Kameswara Rao  
9959969834 Mr. V. Joji Babu



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## 5. JOURNAL OF CARDIOVASCULAR DISEASE AND RESEARCH

### Journal of Cardiovascular Disease Research (Scopus/) MoU with International e-Conference on Recent Trends in Pharmaceutical Research

Book Series/Journal: JCDR online

ISSN: 0976-2833

UAN No: AECFS9024C

MoU NO: 00-20072021

DATE: AUG-05-2021

DUE: On Receipt

BALANCE DUE

INR ₹125,000.00

Regarding: conference minimum 50 papers publication MoU

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Account name: JCDR online

ACCOUNT NUMBER: 920020019058765

IFSC CODE: UTIB0000698

BANK Name: AXIS

Branch: BALANAGAR, Hyderabad, India

Publication Email support

Email : [conf.trends@gmail.com](mailto:conf.trends@gmail.com)

Support Email: [conf.trends@gmail.com](mailto:conf.trends@gmail.com)

Vimal Gupta

*S.A. Ramesh*  
6/8/2021  
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## Collaborative Activities:

Publication MOU has been signed with Journal of Cardiovascular Disease and Research for publication into JCDR. In this context our research articles are published around 50 research / review papers in Vol.12, issue. 4, 5 in 2021

**Journal of Cardiovascular Disease Research**

ISSN: 0975-3583, 0976-2833 VOL 12, ISSUE 04, 2021

### A DETAILED REVIEW ON COMPLETE UNDERSTANDING OF MIGRAINE AND ITS TREATMENT

KCL Venkat<sup>2</sup>, Shaik Asha Begum<sup>1,3</sup>, T. Vinay Kumar<sup>\*1</sup>, Neeli Sai Kiran<sup>2</sup>, Dr. Shaik Abdul Rahaman<sup>4</sup>,  
Dr. Veena Yeruva<sup>1</sup>

<sup>1</sup>Department of Pharmacology and Pharmacy Practice, Nirmala college of Pharmacy, Atmakur, Mangalagiri, AP, India-522503

<sup>2</sup>Pharm D students, Nirmala college of Pharmacy, Atmakur, Mangalagiri, AP, India-522503

<sup>3</sup>IPT, SPMVV, Tirupati, AP, India- 517501

<sup>4</sup>Department of Pharmaceutical Chemistry, Nirmala college Of Pharmacy, Atmakur, Mangalagiri, AP, India-522503  
Corresponding author:

KCL Venkat Pharm D student Nirmala college of Pharmacy, Atmakur, Mangalagiri, AP

Email: [kclvenkat3151976@gmail.com](mailto:kclvenkat3151976@gmail.com)

Mobile no: 9248496011

#### ABSTRACT:

Migraine is a disabling primary headache disorder that directly affects more than one billion people worldwide including children. Migraine is the third most prevalent illness in the world. Despite its widespread prevalence, migraine remains under-diagnosed and under-treated. There is very little known about migraine for several years, however in the last few decades, considerable advances in our understanding of migraine and its pathophysiology have paved the way for better understanding of the disease condition. Migraine is of several types among which Migraine with Aura, Migraine Without aura and chronic migraine are frequently seen among patients. Migraine has strong genetic component (80% of people with migraine tend to have familial histories of the disease.) and known triggers that induce pain. ICH-3 guidelines were used in diagnosis of Migraine and there are many acute and preventive migraine treatments that are proved to be effective in migraine. Acute treatment is either specific (triptans and ergots) or non-specific (analgesics). Preventive treatment decreases migraine frequency and improves quality of life. Recent advances led to development of newer classes of drugs like CGRP antagonists namely gepants and 5-HT<sub>1F</sub> receptor agonists—namely ditans were also included. Despite of various pharmacological treatments available there is a strong need in clinical practice for alternative approaches for both acute and preventive treatment due to limited efficacy and poor toleration of pharmacological treatment in some patients.

This review tends to provide a complete overview of Migraine disorder that includes types, etiology, epidemiology, pathophysiology, ICH guidelines for diagnosis, current available Treatments of migraine with special emphasis of FDA approved novel drugs in last 5 years and also various non-pharmacological treatments available and lifestyle management of patients with Migraine.

**Keywords:** Migraine, Classification, Pathophysiology, Therapy, Novel Drugs, Non Pharmacological Therapy

#### I. INTRODUCTION:

Migraine is a primary episodic headache disorder characterized by various combinations of neurological, gastrointestinal, and autonomic changes. Migraine is derived from the Greek term hemicrania, which means "headache" (1).

##### > Types of Migraine:

##### 1.1 Migraine without aura (Previously used terms: Common migraine; hemicranias simplex)

Recurrent headache disorder that is characterized by attacks lasting 4–72 hours involving unilateral location, pulsating quality, moderate or severe intensity, aggravated by normal physical activity, and associated with nausea, and/or photophobia and phonophobia (2)

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## Journal of Cardiovascular Disease Research

ISSN: 0975-3583, 0976-2833 VOL 12, ISSUE 04, 2021

### CHEMOMETRIC ASSISTED NEW STABILITY INDICATING RP-HPLC METHOD DEVELOPMENT AND VALIDATION OF BOSWELLIA SERRATA (AFLAPIN) AND COLLAGEN TYPE II IN COMBINED DOSAGE FORM

SK.Abdul Rahaman<sup>1\*</sup>, L P Vistaja Singamsetty<sup>\*</sup>, Dr.Shanta Kumari Adiki<sup>2</sup>, Pamidiboyina Sri Pujitha<sup>1</sup>, Sucharitha Kuppala<sup>1</sup>, SK Rajiya Sulthana<sup>1</sup>, Injety Sundar Raj<sup>1</sup>, Pamarthi Anil<sup>1</sup>, Nallagorla Pramodh Venkata sai<sup>1</sup>

<sup>1</sup>Department of Pharmaceutical Analysis, Nirmala college of Pharmacy, Atmakuru, Mangalagiri, Andhra Pradesh, India

<sup>2</sup>Sarojini Naidu Vanita pharmacy Maha Vidyalaya Tarnaka -500017 Telangana, India.

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L P Vistajasingamsetty; email- [vistaja@gmail.com](mailto:vistaja@gmail.com)  
Sk.AbdulRahaman; email-[rahamanphd@gmail.com](mailto:rahamanphd@gmail.com)

#### ABSTRACT:

A new chemometric assisted by high-performance liquid chromatography (HPLC) with photodiode array (PDA) detection was implemented for the simultaneous determination of Boswellia serrata (AFLAPIN) and Collagen type II tablet dosage form. Two chemometric calibration techniques Principal component analysis (PCA) and partial least squares (PLS) were applied to the peak area at 221 nm of PDA detector responses. The method was carried out on a Luna Phenyl Hexyl (150X4.6mm, 3.5 $\mu$ ), column with a mobile phase consisting of Hexane and IPA (20:80v/v) with 0.1% Acetic acid and flow rate of 1.0 ml/min. The detection was carried out at 221nm. The retention time for Boswellia serrata (AFLAPIN) and Collagen type II were found to be 4.1 and 6.2 min respectively. The method was validated according to the ICH guidelines for specificity, LOD, LOQ, precision, accuracy, linearity and robustness. The method showed good reproducibility and recovery with %RSD less than 2. So the proposed method was found to be simple, specific, precise, accurate and linear. The 'UNSCRAMBLER (camo)' software was used for the numerical calculations. All of the two-chemometric analysis methods in this study can be satisfactorily applied for the quantitative analysis of Boswellia serrata (AFLAPIN) and Collagen type II in pharmaceutical capsule dosage form.

**KEYWORDS:** Boswellia serrata (AFLAPIN), Collagen type II, RP-HPLC, unscramble software, PLS, PCA.

#### INTRODUCTION:

In data analysis the quality assurance of the bulk drugs and pharmaceutical preparations plays a vital role. The pharmacopoeias may not provide the standard analytical procedure for the determination of the newer drugs and formulations. Thus, it is essential to develop chemometric assisted RP-HPLC method for the development of rapid qualitative analysis pharmaceutical properties of intermediate and finished dosage forms.<sup>1</sup>The chemometric methods are one type of multivariate analysis that is considering more than one variable at a time.<sup>2</sup>Thus, it does not exist in one dimensional data.<sup>3</sup>the science of chemometric can be briefly described as the interaction of certain mathematical and statistical methods to chemical problems. It has developed as a consequence of a change of in the data obtained with the chemistry with the emergence of the new analytical techniques as well as microprocessors<sup>4</sup>.The applications of using chemometric techniques in analytical chemistry are now numerous and applications have been revealed in spectroscopy, chromatography and other disciplines of analytical chemistry<sup>3</sup>.

The resinous part of Boswellia serrata contains, monoterpenes, diterpenes pentacyclic triterpenic acids (boswellic acids); tetracyclic triterpenic acids. The 4 major components are  $\beta$ -Boswellic acid, acetyl- $\beta$ -boswellic acid, 11-keto- $\beta$ -boswellic acid, acetyl-11-keto- $\beta$ -boswellic acid. The 20% concentration of acetyl-11-keto- $\beta$ -boswellic acid is known as aflapin. It is used as Antiseptic, Antiarthritic And Antiinflammatory<sup>5-6</sup>. It is believed that type II collagen will be transported across the gut epithelial cells to the underlying immune cells in the Peyer's patches where it activates naive T cells to become T regulatory (Treg). The activated Treg cells then migrate from the GALT through the lymphatic system and enter circulation. When they recognize a compound similar to what

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