

Immunodiagnosics workshop under mou at ciims advance research centre, nagpur

Report:

The students of M. Sc second year attended the two days hands on training at CIIMS ADVANCE RESEARCH CENTRE, NAGPUR under MoU on 5th and 6th October 2023. The hands-on-training provided opportunities to witness the practical application of immunodiagnosics in real-world scenarios. Students observed how the results obtained from various tests influenced clinical decisions, emphasizing the direct impact of immunodiagnosics on patient outcomes. This aspect added a layer of practical relevance to students' theoretical knowledge.

Day 1: On the inaugural day, students explored the fundamentals of immunodiagnosics techniques specifically ELISA assays, grasping its pivotal role in disease identification and monitoring within modern healthcare. as the start from working principle of ELISA assays and end on the protein peptide as a future of immunodiagnosics assay. A comprehensive lab tour acquainted them with the laboratory's workings, familiarizing with equipment such as ELISA assays, engineering of protein peptides Witnessing various tests on specific software enhance our understanding.

Day 2 : Statistical Workshop Practical

Starting of hands-on training on first day and continuing ELISA tests provided hands-on insight into the meticulous steps of assay setup, reagent preparation, and test execution. This practical involvement emphasized the precision demanded by immunodiagnosics.

Data Analysis: Participating in result analysis and interpretation underscored the importance of accuracy and quality control in immunodiagnosics as an indispensable aspect crucial for patient care. As taking the example of Mycobacterium tuberculosis for data analysis and testing .

Feedbacks of students:

1. As the workshop concluded, students reflected on the transformative nature of the experience. The immersion in immunodiagnosics not only equipped students with technical skills but also instilled a sense of responsibility regarding the crucial role diagnostics play in healthcare. Looking ahead, students are inspired to pursue further education and training to contribute meaningfully to the advancements in medical diagnostics.

2. This two-day internship at CIIMS ADVANCE RESEARCH CENTRE, NAGPUR Immunodiagnosics Lab significantly enhanced the students understanding of this critical healthcare domain. The experience solidified their interest in pursuing a career in medical diagnostics.

Schedule of workshop:



**CIIMS Advanced Research Centre, Plot No. 78, Bajaj
Nagar, Nagpur-440010
Maharashtra, India**

Hands-on Workshop- Immunodiagnosics **Detailed Module**

Day 1 – Day 2 (Practical and Theory session)

Time- 10.30am -5 pm

Sr. No.	Days	Workshop Details (Technical sessions)
1	Day 1	Inaugural and Key note address by Dr. Rajpal Singh Kashyap, Director, CIIMS-ARC Practical- Reagent Preparation, Micropipette handling, Multichannel pipette handling, Instrumentation handling and Demonstration of Indirect ELISA (TB Multiplex antibodies ELISA) Lecture 1- Immunoassay and it's applications in Neurological disorders by Ms. Payal Khulkhule, Research officer, CIIMS-ARC, Nagpur Lecture 2- Statistical analysis and peptide designing by Dr. Amit Nayak, Sr. Research Consultant, CIIMS-ARC, Nagpur
2	Day 2	Practical- Hands on training of Indirect ELISA (TB Multiplexantibodies ELISA) Lecture 1- Development of Lateral Flow assays by Dr. Amit Nayak Lecture 2- Translational Research – An Entrepreneur view by Dr.Rajpal Singh Kashyap.

Content of hands-on-training programme:

Day 1 and 2 (Practical session)
**Technical demonstration on Synthetic peptide based Multiplex ELISA Assay
for Antibody detection in Clinical samples**

Practicals:

Sr. No.	Days	Practical details
1	Day 1	<ol style="list-style-type: none"> 1. Reagent Preparation, Micropipette handling, Multichannel pipette handling, Instrumentation handling 2. Demonstration of Indirect ELISA (TB Multiplex antibodies ELISA) 3. Analysis of all compiled data using Medcalc software. 4. Graphical representation of data using Graph pad prism
2	Day 2	<ol style="list-style-type: none"> 1. Hands on training for Reagent Preparation, Micropipette handling, Multichannel pipette handling, Instrumentation handling 2. Hands on training of Indirect ELISA (TB Multiplex antibodies ELISA) 3. Analysis of all compiled data using Medcalc software. 4. Graphical representation of data using Graph pad prism 5. Report preparation

Day 1 and 2 (Theory session)
Applications of Immunodiagnostics in Clinical Research

Sr. No.	Lecture details
1	<p>Basics of ELISA: What is ELISA, History, Components of ELISA (Antibody, Enzyme, Substrate etc.), Introduction to ELISA, Principle of ELISA, Different antigens and antibodies in sample, How does ELISA work, Peptide designing using bioinformatics tools, peptide based assay, Standardization of ELISA using different peptide concentration and different sample dilutions.</p>
2	<p>Instrumentation and role of Reagent: What is the Use of ELISA Reader, ELISA Washer, What is the role of Phosphate buffer Saline, Blocking Buffer, Primary antibody, Secondary antibody, Stop solution etc...</p>
3	<p>Types of ELISA:</p> <ul style="list-style-type: none"> • Indirect ELISA: Principle of Indirect ELISA, Procedure for Indirect ELISA, Advantages and disadvantages of Indirect ELISA; • Direct ELISA: Principle of Direct ELISA, Procedure for Direct ELISA, Advantages and disadvantages of Direct ELISA; • Sandwich ELISA: Principle of Sandwich ELISA, Procedure for Sandwich ELISA, Advantages and disadvantages of Sandwich ELISA; • Competitive ELISA: Principle of Competitive ELISA, Procedure for Competitive ELISA, Advantages and disadvantages of Competitive ELISA; Comparison between Various types of ELISA.
4	<p>Applications of ELISA: Detecting antibodies and antigens to diagnose bacterial and viral infections like TBM, Brucella,</p>

	<p>Listeria, M. bovis, Chikungunya virus, Dengue virus, Japanese encephalitis virus, Herpes simplex virus etc.; Screening of donated blood for evidence of viral contamination by HIV1 & 2 (presence of anti HIV antibodies), Hepatitis C (Presence of antibodies), Hepatitis B (testing for both antibodies and a viral antigen); Measuring hormone levels like HCG (as a test for pregnancy), LH (determining the time of ovulation), TSH, T3 & T4 (for thyroid function); Detecting illicit drugs; Detecting potential food allergens (milk, peanuts, walnuts, almond and eggs); Disease outbreaks- Tracking the spread of disease ex: HIV, Bird flu, common colds, Cholera, STD etc.; Detection of antibodies in blood sample for post exposure to disease like Zyme disease, trichinosis, HIV, Bird flu etc.</p>
5	<p>Lateral Flow Immunoassays (LFA): Introduction, Main components of LFA <i>Sample application pad, Conjugate pad, Nitrocellulose membrane, Adsorbent pad:</i> Types of Lateral flow assays Sandwich format, Competitive format, Multiplex detection format Advantages and disadvantages of LFA Applications Clinical analysis, RNA/DNA detection, Proteins and cells, other clinical analytes, Food borne pathogens and toxins, Pesticides, Toxic pollutants, Heavy metals</p>
6	<p>Commercial ELISA Kit Explanation of role of each reagent provided in the ready to use ELISA kit for Antibody (IgM & IgG) kit; Preparation of wash buffer, sample dilutions, antibody dilutions etc; Interpretation of obtained results, Importance of blank, positive control, negative control and cut off control</p>
7	<p>Statistical analysis Comparison of means T-test, ROC curve, determination of sensitivity, specificity, cut-off, chi-square test, using MedCalc (version 10) statistical software. Graphs preparation by Graph pad prism version 5.0.3(San Diego, CA, USA).</p>
8	<p>Immunoassay and its applications in Neurological Disorders (Summarize the immunology session) Why there is need to develop an ELISA assay. What is Immunoassay, how ELISA is developed in an Laboratory and how it is important as a diagnostic tool in Neurology based hospitals for screening Neurological Disorders (comprehensive webinar). Online technical session to understand detail and key insights to ELISA technique and approaches used to design effective diagnostics for detection of CNS disorders and diseases. Interpretation of results using Statistical analysis.</p>

———— End of Session ————

This Memorandum of Understanding entered into on the Date 8th May 2023 between

Central India Institute of Medical Sciences, Nagpur (hereinafter referred to as CIIMS), an autonomous Institute registered under Societies Registration Act (XXI of 1860) Vide Registration No. Maharashtra 215/83 and is recognized as a Scientific and Industrial Research Organization (SIRO) under the scheme on recognition 1988 by Department of Scientific and Industrial Research, Government of India, 88/2, Bajaj Nagar, Nagpur – 440 010

and

and **Department of Microbiology, Rajasthan Aryans Mahavidyalaya, Washim**

1. Objectives

CIIMS and **Department of Microbiology, Rajasthan Aryans Mahavidyalaya, Washim** desiring to promote academic and research co-operation between the two institutes and will undertake joint research work in the areas of mutual interest.

The concerned scientists/faculty members of **Department of Microbiology, Rajasthan Aryans Mahavidyalaya, Washim** and corresponding Doctors or scientific and technical personnel of CIIMS will formulate

- a) Research projects for joint work with due approval of both the institutions,
- b) Training programs for staff, students and technical personnel within the areas of co-operation.
- c) Joint sponsored and consultancy projects with both long term and short-term goals could be undertaken, keeping in view the interests and philosophies of the respective institutions.

2. Joint Conference/Workshop/Courses

Both the institutes agree to hold/conduct, whenever feasible, joint Workshops, Conferences, Training Courses within the areas of co-operation.

The host institution shall provide accommodation to the participating members from the visiting institutes wherever feasible at special minimum rates applicable to research and academic institutions.

3. Areas of Co-operation

The areas of co-operation will be defined and modified from time to time by the co-ordination committee set up for the purpose. The areas identified for cooperation are:

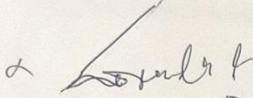
- a) emerging areas of public health and environment interaction
- b) biohazards and toxic waste management for protection of health

5. Validity Period

This MOU shall be valid for a period of **THREE** years from the date of signing with a provision of dissolution of the agreement by either party, with a prior notice of six months.

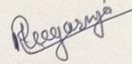
At the end of validity period of the MOU, a fresh MOU with similar/modified terms may be considered for signing.

In witness whereof the two parties have signed this memorandum of understanding in three original copies by both the parties on date, month and year referred above.

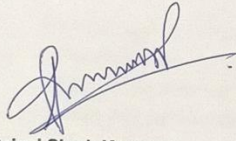


Dr. Lokendra Singh
Director
Central India Institute of Medical Sciences, Nagpur -440 010

Dr. LOKENDRA SINGH
M.S., MCH., D.NB., FRCS.(S.N.)
Director
CIIMS HOSPITAL, NAGPUR-10

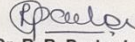


Dr. R. F. Pagariya
Principal
R.A.Mahavidyalaya,
Washim- 444 505
Principal
R.A.Arts Shri M.K. Commerce &
Shri S.R.Rathi Sci.College, WASHIM

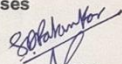



Dr. Rajpal Singh Kashyap
Director, Research
Central India Institute of
Medical Sciences, Nagpur-440010

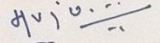
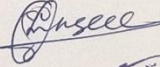
Dr. Rajpal Singh Kashyap
Ph.D. (Biochemistry)
Director, Research
C.I.I.M.S., NAGPUR-10 (INDIA)
Witnesses



Dr. R. R. Pachori
HOD Dept of Microbiology
R.A.Mahavidyalaya,
Washim- 444 505

- 1) 
2) 

Witnesses

- 1) 
2) 

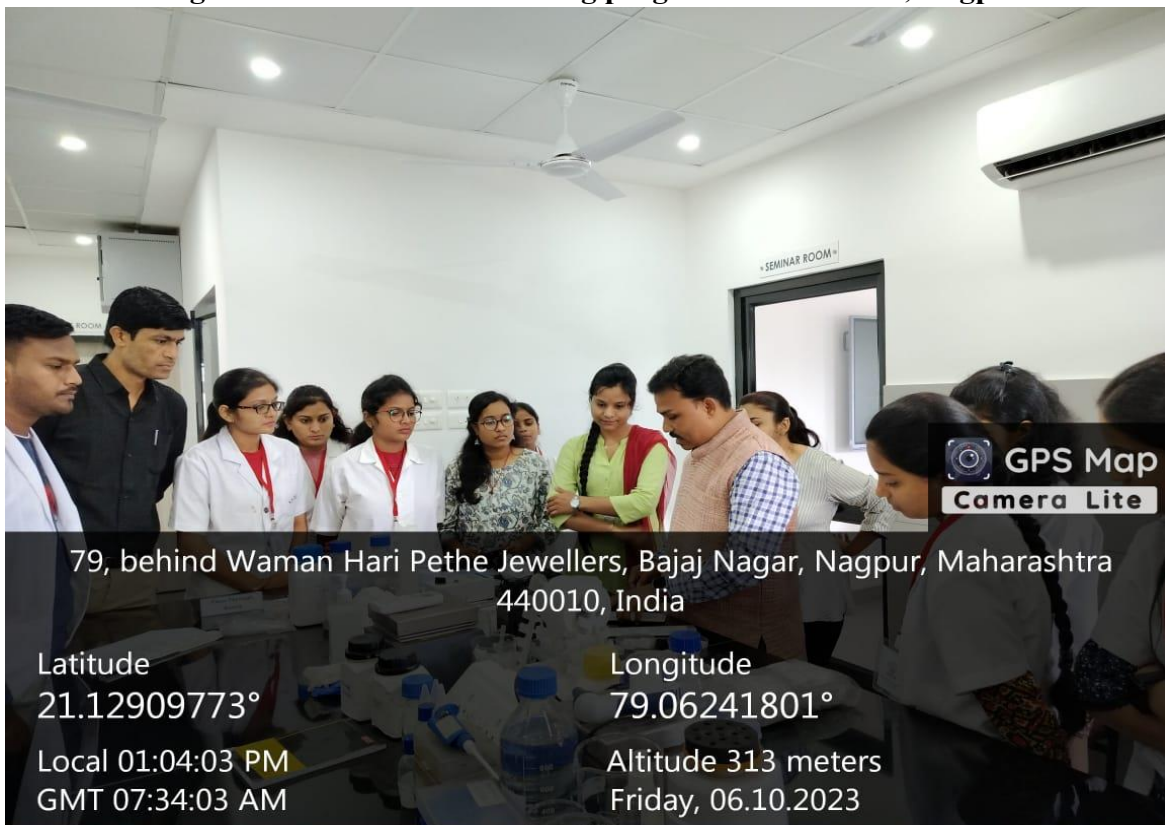
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Photos:



Inauguration of hands-on-training programme at CIIMS, Nagpur



Scientist at CIIMS demonstrating ELISA technique to students



Students performing practicals at CIIMS, Nagpur

Permission letter:



College with Potential For Excellence
Rajasthan Education Society's
Rajasthan Aryan Arts, Shri Mithulalji Kacholiya Commerce and Shri
Satyanarayanji Ramkrishnaji Rathi Science Mahavidyalaya, Washim
(M.S.)
Affiliated to Sant Gadge Baba Amravati University
Phone No: (07252) 235662 e-mail: racwashim701@sgbau.ac.in
website: www.rac.ac.in

Shri. Thakurdasji Malani
President

Shri. Sudhirji Rathi
Secretary

Dr. Omprakash Zanwar
Principal

Date :- 4/10/2023

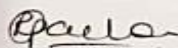
To
The Director
Central India Institute of Medical Sciences,
Nagpur -440 010

As per our communication following students along with staff members are participating in the Immunodiagnostic workshop organized under MoU at your renowned research institute. We are sure that this workshop will be beneficial for our students and it will help for their future endeavours.


Faculty members: 1. Dr. A. M. Pande
2. Ms. A. N. Adhao
3. Ms. R. R. Vyavahare

List of students

SN	MSc. II 2023-24
1.	S. P. WAKUDE
2.	N. S. MAHAJAN
3.	A. K. BORKAR
4.	G. D. WADHEKAR
5.	KU. R. R. WAGH
6.	KU. V. S. METANGALE
7.	KU. A. R. KAVAR
8.	KU. K. A. PANDULE
9.	KU. D. P. BODHANKAR
10.	KU. S. S. JOGI
11.	KU. R. P. JADHAO
12.	KU. P. R. AMBHORE
13.	KU. P. P. PATHAK
14.	KU. M. B. SOLANKE
15.	V. H. RANBAWALE


Head

U.G., P.G. & Research Section
Department of Microbiology
R. A. College, Washim


Principal

H. A. Arts, Shri M. K. Commerce &
Shri. S. R. Rathi Science College, Washim

Attendance sheet:

**POST GRADUATE DEPARTMENT OF MICROBIOLOGY
R.A. COLLEGE WASHIM**

WORKSHOP ON IMMUNODIAGNOSTIC TECHNIQUES AT CHMS, NAGPUR

Attendance sheet

SN	MSc. II 2023-24	Signature Day-1 5/10/23	Signature Day-2- 6/10/23
1.	S. P. WAKUDE		
2.	N. S. MAHAJAN		
3.	A. K. BORKAR		
4.	G. D. WADHEKAR		
5.	KU. R. R. WAGH		
6.	KU. V. S. METANGALE		
7.	KU. A. R. KAVAR		
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14.	KU. M. B. SOLANKE		
15.	V. H. RANBAWALE		

Head

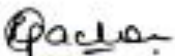
U.G. PG & Research Section
Department of Microbiology
R. A. College, Washim

Undertaking by students

UNDERTAKING BY THE STUDENTS POST GRADUATE DEPARTMENT OF MICROBIOLOGY R.A. COLLEGE WASHIM

As per the notice regarding the Workshop on "Immunodiagnostic techniques" to be held on 5th & 6th October 2023 at CHIMS, Nagpur. We hereby agree with terms and condition given during the orientation on this workshop.
We herewith signed the undertaking and are permitted by our parents and ready to join the workshop at our own expenditure and responsibility.

Sr. No.	Name of Students	Signature of Students
1.	Pratiksha. Pradip Pathak	Pathak
2.	Pragati Ramesh Ambhore	Pragati
3.	Rani Prakash Jadhav	Rani
4.	Sakshi Sutej Jogi	Sakshi
5.	dipati pandia Badhanke	Badhanke
6.	manda bali Solanke	mandap
7.	Nishant Santay Mahajan	Nishant
8.	Aniket Kailas Borkar	Borkar
9.	Vivek. H. Ranbarande	Ranbarande
10.	VEUSHALI S. METARGALE	Metargale
11.	kamal A. Pandit	kamale
12.	Rajeshwari Ravindra Wagh	Rajesh
13.	Ashi R. Kaval	Ashi
14.	Suraj. Prabhakar Wakade	Wakade
15.	Gajanan Dattatray Wadhkar	Wadhkar


Head
U.G., P.G. & Research Section
Department of Microbiology
R. A. College, Washim


Principal
R. A. Arts, Shri M. K. Commerce &
Shri S. R. Rathi Science College, Washim

Feedback:



सीम्स हॉस्पिटल

Dr. G. M. TAORI CENTRAL INDIA INSTITUTE OF MEDICAL SCIENCES

88/2, Bajaj Nagar, N A G P U R - 440 010 (INDIA)

Phone : (0712) 6687700 (Recpt.)
6687760 (CT, MRI)
Email : ciimsngp@gmail.com
Website : www.ciimsnagpur.com

Date: 06/10/2023

To whomsoever it may concern

This is to certify that, 15 students and 03 faculty members (List enclosed) from Post Graduate Department of Microbiology, Rajasthan Aryan Arts, Shri Mithulalji Kacholiya Commerce and Shri Satyanarayanji Ramkrishnaji Rathi Science Mahavidyalaya, Washim had attended a two-day workshop on "Immunodiagnostic Techniques" organized by Central India Institute of Medical Science - Advanced Research Centre (CIIMS-ARC), Nagpur on 5th and 6th October 2023, under the MOU signed between these two Institutes, at CIIMS-ARC, Nagpur.

Best Regards,

Dr Rajpal Singh Kashyap,
Director, Research,
CIIMS-ARC





सीम्स हॉस्पिटल

Dr. G. M. TAORI CENTRAL INDIA INSTITUTE OF MEDICAL SCIENCES
88/2, Bajaj Nagar, N A G P U R - 440 010 (INDIA)

Phone : (0712) 6687700 (Recpt.)
6687760 (CT, MRI)
Email : ciimsngp@gmail.com
Website: www.ciimsnagpur.com


**POST GRADUATE DEPARTMENT OF MICROBIOLOGY
R.A. COLLEGE WASHIM**

WORKSHOP ON IMMUNODIAGNOSTIC TECHNIQUES AT CIIMS, NAGPUR

Date: - 4/10/2023

SN.	STUDENT NAME	Gender	AGE	SN.	FACULTY MEMBERS	Gen der	A GE
1.	S. P. WAKUDE	M	22	1.	DR. A. M. PANDE	M	33
2.	N. S. MAHAJAN	M	24	2.	MS. A. N. ADHAO	F	24
3.	A. K. BORKAR	M	22	3.	MS. R. R. VYAVAHARE	F	24
4.	G. D. WADHEKAR	M	25				
5.	KU. R. R. WAGH	F	22				
6.	KU. V. S. METANGALE	F	23				
7.	KU. A. R. KAVAR	F	22				
8.	KU. K. A. PANDULE	F	22				
9.	KU. D. P. BODHANKAR	F	22				
10.	KU. S. S. JOGI	F	22				
11.	KU. R. P. JADHAO	F	22				
12.	KU. P. R. AMBHORE	F	22				
13.	KU. P. P. PATHAK	F	22				
14.	KU. M. B. SOLANKE	F	22				
15.	V. H. RANBAWALE	M	22				




Dr. Rajpal Singh Kashyap
Ph.D. (Biochemistry)
Director, Research
C.I.I.M.S., NAGPUR-10 (INDIA)

Certificate





CERTIFICATE OF PARTICIPATION

THIS IS TO CERTIFY THAT

ANIKET BORKAR

Participated in two-day workshop on "Immunodiagnostic Techniques"
organised by Central India Institute of Medical Science - Advanced Research
Centre (CIIMS-ARC), Nagpur on 5th and 6th October, 2023.

Dr. Rajpal Singh Kashyap
Director, Research, CIIMS-ARC

Dr. Amit Nayak
Coordinator, Capacity
Building Wing, CIIMS-ARC