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R. J. COLLEGE of Arts, Science & Commerce (AUTONOMOUS)

(Hindi Vidya Prachar Samiti's RAMNIRANJAN JHUNJHUNWALA COLLEGE of Arts, Science & Commerce)
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College is recognized under Section 2(f) & 12(B) of the UGC Act, 1956

Affiliated to UNIVERSITY OF MUMBAI || NAAC Re-Accredited 'A' Grade (CGPA: 3.50)

Department of Biotechnology

On Job Training Completion Report

This is to certify that Aleena Saud Siddiqui has completed On Job Training at

Gateway Sonography and diagnostic centre.

Date of Commencement	Date of Completion	Total Number of Days	Total Number of Hours completed in OJT
1st Jan 2024	31st Jan 2024	21 days	~~168 hrs~~ 90 hrs

Name of the Guide/ PI/ Incharge : Shivanna Gowda

Phone Number of Guide/ PI/ Incharge : 9323028768

Email Address of the Guide/ PI/ Incharge : Ghowdashivanna@gmail.com

Gupta
22-03-24

Signature of Guide/ PI/ Incharge

Stamp

GATEWAY SONOGRAPHY & DIAGNOSTIC CENTRE
P. L. Lokhande Marg
Opp. Priyadarshini Buddha Vihar,
Chembur (W), Mumbai - 400 089.

Name :- Aleena Saud siddiqui
Class :- MSC-1
Roll No:- 418

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OJT Report

During the period from 1st Jan to 31st Jan, I had the opportunity to undertake one-month internship at Gateway Dignostic Lab. During my internship, I worked on various tests in the lab. I assisted with the reports, which were to be formed. I also had the opportunity to observe how Sonography is done. Overall, my internship was a valuable learning experience that allowed me to develop new skills and gain practical experience.

I was happy to have this opportunity to intern at the lab. The lab Specializes in Providing various diagnostic services which include CBC testing, X ray, widal test, sonography, and various biochemistry tests.

The primary objective of my internship was to gain practical experience in laboratory procedures and techniques.

During my internship, I was responsible for Performing ~~For Performing~~ a variety of laboratory procedures under the guidance of experienced Professionals. The things I learned during the onset of my ~~One moth~~ internship included:

Sample collection techniques for CBC testing, TB testing, X-rays and biochemistry tests which includes ~~LFF~~ LFT, KFT, Creatinine, Lipids, total cholesterol, fasting blood glucose etc. Some samples were collected in the lab itself and some samples came from outside. I had to scan those samples so that they have a record and then proceed it for testing, the tubes had labels as to, which tests needs to be performed.

- Processing and analysis of blood samples for CBC testing using automated hematology analyzers. For CBC test the sample tubes were put directly into the machine and a report was generated from the machine itself. After the blood sample has been processed the computer/monitor showed ~~no~~ number of leukocyte, monocyte, erthrocyte hemoglobin level etc.
- I also learned how X rays and sonography is performed. For sonography a gel is applied on the skin and then machine is used. The gel which is appied to skin is refferred to as ultrasound gel or Coupling gel. It is a water-based gel and has several purposes:

a) conductivity :- the gel helps transmit the ultrasound waves between the transducer (the device that emits the ultrasound waves) and the patients skin. It ensures efficient

transmission of the sound waves and minimizes air pockets that can interfere with imaging.

b) lubrication: The gel provides lubrication, allowing the transducer to move smoothly over the skin during the imaging procedure.

— X rays were Performed by a radiologist. I observed how he does it. The doctor explained me about X-ray's how it works. X-ray imaging is also known as radiography, is a medical imaging technique used to visualize the internal structures of the body, such as bones, organs and tissues. The patient is asked to remove any jewelry or clothing so that it does not interfere with the X-ray images. The patient is provided with a lead apron to protect parts of the body not being imaged from unnecessary radiation exposure. The x-ray Photons Pass through the body and are absorbed to varying degrees by different tissues, depending on their density. X ray film or digital detectors capture the X-ray Photons that Pass through the body and create an image of the internal structures. After that the radiologist interprets the X-ray images to evaluate the anatomy and detect any abnormalities such as fractures, tumors or foreign objects.

I also learned how widal test is done for detecting typhoid fever. It is a laboratory test used to aid in the diagnosis of typhoid fever and other illnesses caused by bacteria called Salmonella typhi and salmonella Paratyphi. The blood sample is collected from the patients and transferred to a sterile container. In widal test, the serum is mixed with specific antigens ~~are~~ derived from Salmonella. The antigens used in the test include O and H antigens. The Presence of specific antibodies in the serum, which reacts with the bacterial antigens is detected using agglutination reactions. The test results are interpreted based on the Presence of titre (level of antibodies) of agglutination reactions. The test results are reported as either Positive or negative based on the presence or absence of significant agglution reaction.

- I also learned how to Perform various biochemical test. For Performing various biochemistry test machines were used. I just had to Put the sample in their respective machines and the test was done. There were two machines in which tests were Performed.

Some biochemistry test which I learned to perform were blood glucose test, lipid profile test which includes test such as total Cholesterol, HDL cholesterol, LDL cholesterol.

- Liver function tests which consist of several tests including alanine transaminase (ALT), aspartate transaminase (AST), alkaline Phosphatase (ALP), total bilirubin.
- Renal function tests were performed in the machine in which creatinine and blood urea nitrogen is estimate.
- Electrolyte panels tests were performed which measured the level of electrolytes such as sodium, Potassium, Chloride and bicarbonate test. All the tests were not performed in ~~the~~ single machine, there were two machines which were operated/designed to perform specific biochemical test. I also observed how QA/QC of machine is done. It is usually done in the morning everyday before putting the samples into the machine. QA/QC of the machine is done by replacing the liquids which are used for testing with a new one.
- I also learned urine analysis. One strip is used which is dipped in urine and proccessed in the machine. Then

from the strip colour, Odour is checked. After that microscope is used to examine the urine Sediment, which contains cells, Crystals, bacterial and other practicals.

The internship at the Lab was a wonderful experience that improved my understanding of laboratory diagnostics. I got to learn lot of things. The knowledge and experienced gained during this internship was helpful for me as I learned some new SKills.

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Karyotyping report.

I had the opportunity to gain hands on training on Karyotyping in RJ College. During this Period of time I learned lot of things and Performed practical to Visualize Chromosome.

The Karyotyping session was started by ma'am taking some theory lectures and then moving forward with practicals/hands on training. In theory lecture I learned how to identify Chromosome (it's shape) what Karyotyping is, Chromsome abnormalities.

A Karyotype is a procedure that analyzes size, shape and number of chromosomes. Karyotyping is a technique that is use to examine chromosomes in a sample of cells which can help identify genetic problem as the cause of disorder or disease. In humans, the normal Karyotype consists of 46 chromosomes including 22 pairs of autosomes and 1 pair of sex chromosomes. Chromosomes consists of two chromatids connected by a centromere, with telomers at the end. Banding techniques, such as Giemsa banding, involve staining chromosomes to reveal characteristic banding pattern, which helps in their identification and analysis.

The Process of Karyotyping involves several steps i.e. Planting, termination, fixation, Preparation of Slide, Preparation of stock Gimsa Stain, and banding technique.

Leucocyte was cultured for preparation of Chromosome

Principle :- T lymphocytes from peripheral blood are induced to divide using a Plant lectin, Phytohemagglutinin. The maximum mitotic index is reached at 72 hours of Culture. The Culture is treated with Colcemid to arrest cells at metaphase. The cells are harvested using the standard hypotonic treatment and fixation.

The Procedure for leucocyte culturing for chromosome preparation are :-

a) Planting :- Prepare RPMI 1640 culture medium, human Serum and Phytohemagglutinin (PHA) Solution. Mix the ingredients and blood samples in vials, maintaining Proper Proportions. Clean the mouth of all the vials with methanol and close the Screwcaps tightly. Incubate the vials at 37°c for 72 hours. At the 70th hour add 0.1 ml of Colchicine to each vial to arrest the cells at metaphase.

b) Termination :- Remove the vials from the incubator, transfer the contents into centrifuge tubes. centrifuge at 1000 rpm for 10 min. Remove the Supernatant and add Prewarmed KCl solution to the Pellet. Mix thoroughly and incubate at 37°c for 20 min.

c. Fixation: Centrifuge at 1000rpm for 10 mins and remove the supernatant. Add fixative (glacial acetic acid: methanol) to the pellet, making the volume to 5ml. Store in refrigerator over-night.

d. Preparation of slide:- Next day the tubes are removed from the refrigerator centrifuged, give 2-3 wash with fixative till the pellet becomes white. Add the end discard supernatant leaving behind fixative till 0.5 ml. Mix the pellet thoroughly and drop it on the cold slide from a height and keep on hot plate to heat dry. Remove the slide with plain Giemsa and see under microscope.

e. Preparation of stock Giemsa stain:-
Prepare Giemsa stock by mixing Giemsa powder with glycerol and methanol.

f. Banding Technique:- Prepare TEDTA buffer for the preparation of working Giemsa stain. Take the slide, immerse in Buffer and treat with trypsin EDTA. Stain the slide and see it under the microscope.

This was the procedure for chromosome preparation. The chromosome was observed under the microscope. Some chromosomes were arrested in the metaphase and was observed.

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The hands on training on karyotyping provided a great learning experience providing theoretical concepts and practical skills.
The procedure of karyotyping was well understood and can be useful in future.