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 recognized under Section 2(f) & 12(B) of the UGC Act, 1956
Affiliated to UNIVERSITY OF MUMBAI II NAAC Re-Accredited 'A' Grade (CGPA: 3.50)
Best College UNIVERSITY OF MUMBAI

Department of Biotechnology

On Job Training Completion Report

This is to certify that Gayatri. M. Nair has completed On Job Training at

T.M. Thakore Pharmaceutical Laboratories

Date of Commencement	Date of Completion	Total Number of Days	Total Number of Hours completed in OJT
11th January, 2024	12th February, 2024	33 days	90 hours

Name of the Guide/ PI/ Incharge : Ambika Pappen

Ramniranjan Jhunjhunwala College NAAC Re-Accredited "A" Grade Ghatkopar, Mumbai-86

Phone Number of Guide/ PI/ Incharge : 9702369513

Email Address of the Guide/ PI/ Incharge : quality@tmtpharma.in

Gupta 22-03-24

Signature of Guide/ PI/ Incharge

T.M. THAKORE PHARMACEUTICALS LABORATORIES MUMBAI 400 060.

Stamp

Gayatri Nair
430

On-the-Job Training Report

Name: Gayatri Nair

Training Institution: t.m.t Pharmaceutical Laboratory

Address: Premson's Ind. Estate, 15-A, Caves Rd, Jogeshwari (E), Bandrekar Wadi, Jogeshwari East, Mumbai, Maharashtra 400060

Training Period: 11th January 2024 to 12th February 2024

Department: Quality Control

Supervisor: Ms.Ambika Papeen

Introduction:

t.m.t Pharmaceutical Laboratory, located in Mumbai, Maharashtra, allowed me to participate actively in the Quality Control department during my on-the-job training. The t.m.t Pharmaceutical Laboratory is known for its highly effective Quality Control system, which encompasses various activities crucial to maintaining the quality of its products, including sanitizers, disinfectants, and mouthwashes. During the training period, I gained a valuable understanding of the implementation of quality control practices in pharmaceutical manufacturing.

Observations and Practical Work:

During my training, I focused on product quality control processes, including Sanitizer, Disinfectant and Mouthwash.

Training Activities:

Ms. Ambika Pappen offered thorough training on the Quality Control systems at t.m.t Pharmaceutical laboratory, familiarizing me with essential components such as Master Formula Records, Batch Manufacturing Records, Standard Operating Procedures, and other pertinent documents. Through her guidance, I gained a comprehensive understanding of these systems, including their significance in maintaining quality standards and regulatory compliance within the pharmaceutical industry. This training equipped me with valuable knowledge and skills necessary for effective participation in quality control processes and contributed significantly to my professional development.

During my practical training in quality control (QC) testing, I received instruction on performing various essential QC tests, encompassing sampling, testing procedures,

and record analysis for products like sanitizer, disinfectant, and mouthwash. These tests played a pivotal role in verifying the quality and effectiveness of the company's manufactured products. Throughout the training period, Ms. Ambika Pappen offered invaluable mentorship and guidance, readily addressing queries and elucidating concepts about QC practices. Her wealth of expertise and experience significantly enriched my understanding of the subject matter, fostering my professional growth in the field of Quality Control.

My on-the-job training at t.m.t Pharmaceutical Laboratory was an insightful experience. The comprehensive quality system and the QC team's commitment to maintaining high product standards have greatly enhanced my understanding of pharmaceutical quality control. I am grateful for the opportunity to learn from seasoned professionals and contribute to the quality assurance processes of the laboratory's products.

I want to sincerely thank my supervisor, Ambika Papeen, and the entire Quality Control team at t.m.t Pharmaceutical Laboratory for their guidance and support throughout my training period.

Gayatri Nair
430

Submitted by: Gayatri Nair (MSc - I)

Instructor: Mrs. Possam

Abstract:

This report into karyotyping, a fundamental technique in studying chromosomes. We'll dive into understanding how chromosomes are structured and explore the hands-on process of karyotyping, especially the leukocyte culture method. Additionally, we'll look at how karyotyping is used to diagnose genetic disorders and uncover abnormalities in chromosomes.

Introduction:

Karyotyping is a strong tool that helps us see and carefully study chromosomes using a microscope. These intricate structures, tucked inside the nucleus, hold our genetic instructions made of DNA and proteins. Karyotyping means carefully organizing and coloring these chromosomes, so we can spot issues like missing parts (deletions), extra copies, misplaced sections (translocations), and differences in number.

Theory:

Karyotyping goes beyond just looking at things. It's like a guiding light in medical diagnosis, helping find problems like Down syndrome and Turner syndrome. Knowing this helps doctors plan treatment better. Also, karyotyping gives important information to genetic counselors, so families with a history of problems can make better choices about having kids.

When it comes to issues with sex chromosomes that affect how bodies develop and fertility, karyotyping is there to help find out what's going on. In cancer research and diagnosis, karyotyping shows us changes in chromosomes linked to certain cancers. This helps with figuring out what kind of cancer someone has, what might happen next, and how to treat it. Lastly, karyotyping helps us understand why some

pregnancies end in miscarriage by showing if there are any problems with the chromosomes.

Leucocyte Culture Procedure for Chromosome Preparation:

The leucocyte culture procedure, commonly used to obtain metaphase chromosomes from peripheral blood lymphocytes, involved the following steps:

Principle: The division of T lymphocytes was initiated by treating them with phytohemagglutinin (PHA) to reach maximum mitotic activity after 72 hours of culture. Cells were then arrested at metaphase using Colcemid, followed by harvesting, hypotonic treatment, and fixation.

Culture Initiation: Blood was introduced into a specialized culture medium containing RPMI 1640, supplemented with human or fetal bovine serum, and PHA. After 72 hours of incubation, Colchicine was added to arrest cells at metaphase.

Termination: The cultured cells were centrifuged, and the supernatant was removed. Hypotonic shock was induced using potassium chloride (KCl) to promote cell swelling and dispersion of chromosomes.

Fixation: Cells were fixed using a solution containing glacial acetic acid and methanol, followed by overnight refrigeration.

Slide Preparation: The next day, fixed cells were centrifuged, washed, and applied onto acidified chilled slides. Slides were heat-dried, stained with Giemsa, and examined under a microscope.

Chromosome Identification Technique:
Banding techniques, particularly G-banding, were used to distinguish individual chromosomes. G-banding involved treating chromosomes with trypsin and EDTA, followed by staining with Giemsa, which produced distinctive banding patterns essential for identification.

This practical exploration of the leucocyte culture protocol provided invaluable hands-on experience, solidifying the theoretical foundation of karyotyping. It emphasized the importance of meticulous technique and accurate analysis for ensuring reliable results in diagnosing various genetic conditions.As we continue to refine and explore its potential, this technique promises to unveil even more secrets hidden within the intricate world of chromosomes.