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

(Hindi Vidya Prachar Samiti's RAMNIRANJAN JHUNJHUNWALA COLLEGE of Arts, Science & Commerce)
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Affiliated to UNIVERSITY OF MUMBAI II NAAC Re-Accredited 'A' Grade (CGPA: 3.50)

Department of Biotechnology

On Job Training Completion Report

This is to certify that SEJAL R. MISHRA 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	12th February	33 days	~~60~~ 90 Hrs

Name of the Guide/ PI/ Incharge : Ambika Pappen

Phone Number of Guide/ PI/ Incharge : 9702369513

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

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

Gupta 22-03-24

Signature of Guide/ PI/ Incharge

T.M. THAKORE PHARMACEUTICALS LABORATORIES MUMBAI 400 060.

Stamp

SEJAL MISHRA
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On-the-Job Training Report

Name: Sejal Mishra

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:

During my on-the-job training at t.m.t Pharmaceutical Laboratory, located in Mumbai, Maharashtra, I had the opportunity to actively participate in the Quality Control department. t.m.t Pharmaceutical Laboratory is known for its highly effective Quality Control system, which encompasses various activities crucial for maintaining the quality standards of its products, including sanitisers, disinfectants, and mouthwash. The training period provided a valuable opportunity to understand the implementation of quality control practices in a pharmaceutical manufacturing environment.

Observations and Practical Work:

During my training, I focused on the quality control processes for products: Sanitizer, Disinfectant, and Mouthwash.

Training Activities:

Familiarisation with Quality Control Systems Ms. Ambika Pappen provided comprehensive training on the Quality Control systems at the t.m.t Pharma laboratory. This included understanding Master Formula Records, Batch Manufacturing Records, Standard Operating Procedures, and other relevant documents. I was trained in conducting various QC tests, including sampling, testing, and record analysis for products such as sanitiser, disinfectant, and mouthwash. These tests were crucial in ensuring the quality and efficacy of the products manufactured by the company. Ms. Ambika Pappen provided valuable mentorship and guidance, answering queries and clarifying concepts related to Quality Control practices. Her expertise and experience enhanced my understanding of the subject matter.

The on-the-job training experience at t.m.t Pharmaceutical laboratory has been invaluable in providing practical insights into Quality Control processes in the pharmaceutical industry. Under the guidance of Ms. Ambika Pappen, I have gained a deeper understanding of QC systems, regulatory compliance, and quality assurance practices. The knowledge and skills acquired during this training will contribute to my professional development in the field of Quality Control.

I would like to extend my sincere gratitude to Ambika Papeen, my supervisor, and the entire Quality Control team at t.m.t Pharmaceutical Laboratory for their guidance and support throughout my training period.

SEJAL MISHRA
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Report on Theory and Protocols for Karyotyping

Submitted by: Sejal Mishra (MSc - I)

Instructor: Mrs. Possam

Introduction:

Karyotyping is a powerful technique used to examine chromosomes, the structures within cells that carry our genetic information. This report will delve into the theory behind karyotyping, provide a detailed protocol for preparing chromosomes from leukocyte cultures, and emphasize the importance of this technique in diagnosing various conditions. Karyotyping is essential for identifying chromosomal abnormalities, understanding genetic disorders, guiding genetic counseling, and even furthering our knowledge of cancer progression.

Theory:

Karyotyping involves preparing and staining chromosomes to visualize their unique patterns. These patterns allow for the identification of structural abnormalities, such as deletions, duplications, or translocations of genetic material. Karyotyping can also reveal numerical abnormalities, like aneuploidy (an incorrect number of chromosomes), which is characteristic of conditions like Down syndrome. This technique has wide-ranging applications including: diagnosing genetic disorders, aiding in cancer research by identifying disease-specific chromosomal changes, informing genetic counseling for families, and investigating potential chromosomal causes of recurrent pregnancy loss.

Leucocyte Culture Protocol:

Principle: Peripheral blood lymphocytes were stimulated to divide using phytohemagglutinin (PHA). Colcemid arrested cells in metaphase for optimal chromosome visualization. Hypotonic potassium chloride (KCl) treatment swelled the cells, followed by fixation for slide preparation.

1) Planting: The planting stage of the procedure required RPMI 1640 culture medium, human serum/FBS, PHA, blood, vials, syringes, and methanol. For safety, the laminar flow hood was sterilized with methanol and UV light. Specific planting ratios were strictly followed according to the provided instructions. After labeling the vials, they were incubated at 37°C for 72 hours.

2) Colchicine Addition: At the 70th hour of incubation, colchicine was added to the cultures. This addition was crucial for arresting the cells in metaphase, the stage where chromosomes are most condensed and suitable for visualization and analysis.

3) Termination: Following incubation, the cultures were centrifuged at 1000 rpm for 10 minutes. To prepare the cells for visualization, they were treated with prewarmed KCl at 37°C for 20 minutes, causing them to swell. The cells were then fixed using a 1:3 mixture of glacial acetic acid and methanol and stored overnight in a refrigerator.

4) Slide Preparation: To remove excess fixative, the cells were repeatedly washed with fixative until the pellet turned white. The pellet was then resuspended and carefully dropped onto cold, acidified slides, followed by heat drying to adhere the chromosomes. Giemsa staining was used to assess the quality of the metaphase chromosomes, aiding in the selection of suitable samples for further analysis.

5) G-Banding Technique: To prepare the slides for G-banding, they were aged at 60°C for 2-3 days. This was followed by a trypsin-EDTA treatment at 60°C, with the treatment time carefully adjusted to achieve optimal banding patterns. The slides were then stained with working Giemsa stain to visualize the bands. For analysis, approximately 15-20 well-spread metaphases were selected and photographed, allowing for a detailed examination of the chromosome structure. Karyotyping is a vital tool in medicine and research, allowing for the detection of chromosomal abnormalities that underpin various conditions. This report,

guided by Mrs. Possam, explored the theoretical foundations of karyotyping and the meticulous laboratory procedures it entails, emphasizing its broad significance for human health.