

Complete Professional Resume for Abhinav Tejasvi Mohur

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Education

HS: Royal College of Curepipe, Mauritius

O-Level: 9

A-Level: A*, A*, A, a, a

Uni: Carleton University, Ottawa, Canada

Graduate Spring 2025, B.Sc. Biochemistry (Hons.)

CGPA: 78% (B+)

Awards: Entrance Scholarship, 2021 Faculty

Scholarship, 2021 Dean's List

Relevant Exp and Employment (>1 Year/16 Month)

McKay Lab, Nesbitt, Carleton U

Lab Tech Assistant

Thesis Student

Molecular Biology

Centre for Biomedical and Biomaterial Research-
University of Mauritius (6 month)

Skills

- Thawing/Freezing/Maintenance/Passage/Seeding (Haemocytometer) of Mammalian cells
- Initiation of bacterial culture from Agar stab/glycerol for plasmid amplification
- Preparation of drug aliquots and treatments for mammalian cells and antibiotic selection
- Isolation of DNA, RNA, Proteins with either in-house products or commercial kits
- Fixing of cells in either formalin or EtOH for downstream analysis
- Dual plasmid transfection of mammalian cells prior to antibiotic selection to make reporter line
- Microplate Reader for luminescence, fluorescence, colorimetry, UV/vis Spec
- Nanodrop for Nucleic Acid Quantification
- Centrifuge/Microcentrifuge Operation
- Sonicator for cell lysis
- Light Microscope operation

Accomplishments

- Used flow cytometry to show Dro ^{-/-} HCT 116 cells undergo apoptosis more than WT using PI and ZVAD
- Used flow cytometry to measure endogenous translation shutdown with Click-IT HPG reaction kit
- Used flow cytometry to measure exogenous ATF4 and XBP1 Transcription in mSc/mNG reporter cell lines
- Used SDS-PAGE and Western Blot to validate Dro ^{-/-} HCT 116 cell lines
- Used SDS-PAGE and Western Blot to show change in ATF4 and XBP1 expression in response to drugs
- Used conventional PCR for cDNA synthesis of transcriptome of HCT 116 cells in response to drugs
- Used qPCR with TaqMan/SYBR Green kits to quantify endogenous ATF4/XBP1 expression
- Used Microplate Reader and Bradford Assay for Protein Quantification
- Used Microplate Reader for Luciferase Assay [Thermofisher/Promega] and quantify Metal-RE in reporter cell line

Accessorial Skills

- WHMIS certified and Lab Safety Certified BSL2 (2024)
- Autoclave Operation for decontamination/sterilization
- Quartz and Excel for Lab inventory Management
- Making Inventory and passing order of supplies
- Preparation of Lab Stock and Working Stock for Abs, Primers, Drugs, EtOH, and so
- Operate dH₂O and Milli-Q Water Dispenser
- Handling Samples from, monitoring, refilling, Liquid Nitrogen
- Use of Statistical Software for Data analysis; GraphPad Prism, Excel, R, SPSS, Python, Origin Pro
- General Maintenance and malfunction report of equipment around lab
- Experienced with Flow Cytometer maintenance and operation [BD Accuri C6]
- Safe storing and proper classification of data in Lab Computer for ease of retrieval
- Participating and Presenting data in lab meetings; PowerPoint presentations, posters, lab report
- Vacuum Pump Filtration
- Use of various Lab software including Imager, Cytometry, qPCR, microplate for instrument set up
- Keep lab orderly, respecting weekly cleaning schedule, LN tank Check, CO₂ tank check.
- Literature search and AI assistance for lab procedures lacking protocol

Course Based Skills & Accomplishments

- THC detection in unknown sample via ELISA
- EMSA to assess interaction between DNA site and Epstein-Barr Nuclear Antigen 1
- Spectrometry for determination of kinetic parameters of MDH2 and the effect of a site mutation
- Spectrometry for determination of Electrochemical Parameters of Cytochrome C
- Extraction and Purification of HRP and MDH2 proteins using spin column commercial kits
- In-lab gel casting and commercial pre-cast gel use for protein resolution
- Agarose DNA gel for plasmid validation following restriction enzyme digestion

Theoretical Knowledge

- RNA-Seq sample preparation and shipment
- Polysome Profiling
- cDNA library generation
- ChIP for DNA-Protein Interaction
- Primer design and optimization for PCR and restriction sites coding for directional cloning into plasmid

Publications

- <https://doi.org/10.1371/journal.pone.035201>

Voluntary

- Assisted in setting up low-budget plant tissue culture lab, equipment, BSL1 cabinet, acclimatization unit, ..
- Micropropagation of orchids for commercial purposes
- Used AI and team collaboration to design protocol, to suite industrial fast-paced, and high throughput drug screening to assess drug effects on cells presenting atopic dermatitis
- Teaching and Training students in use of Flow Cytometer, Microplate Reader, qPCR

Chemistry

Skills & Accomplishments

Organic Synthesis

- Literature guided or fast manual determination of optimum solvent
- Recrystallization of Salicylic acid with dye following Charcoal decolorization
- Preparation of KBr pellet for S.Acid confirmation and by operating FT-IR machine
- LLE for separation and recrystallization from mixture of BzOH, 2-Naphtol, and 1,4-DMB
- Organic Synthesis of 4-choleste-3-one from CHOL to suite downstream Biochemistry use
- Fractional distillation of unknown mix and id of MeOH and EtOH or t-AmOH and 2-Oct using T_b, Refractometer, Solubility, and Complexation properties (Ceric, Chromic, Simon Test).
- Conversion of Maleic Acid to its isomeric Fumaric acid followed by recryst.
- Organic Synthesis by Grignard Rxn following Fischer Esterification for making of MeBz
- Separation of Aromatic HC and its oxidized form by column Chromatography and confirmation by TLC/UV
- Determination of Reducing/NR sugars by Hydrolysis and Complexation reactions

Analytic Techniques

Pharmaceutical/Health

- HPLC/UV determination of components of analgesic tablets to verify correctness of prescribed dosage
- Spectro-fluometric determination of quinine content in consumer tonic water to ensure safe levels
- Spectrophotometric quantification of iron in commercial vitamin tablets by Teflon Bomb Microwave Digest
- Isolation by LLE and quantification of copper in analyte by complexation and spectrophotometry to test against Health Canada guidelines

Water Analysis

- Modification and execution of Health Canada Protocol for determination of Water Hardness relative to guidelines using colorimetric titration
- Determination of TOC against Health Canada guidelines in distributed water sample by TOC-IR apparatus

Petroleum Analysis

- Gas Chromatography-FID sample prep, and apparatus prep for determination of HC in petroleum mixture

Spectral Data Interpretation Ability

Elemental Analysis (Adv)

IR Spec (Adv)

UV/vis Spec

EI Mass Spectrometry (Adv)

CI Mass Spec (Basic)

ESI, MALDI/TOF Mass Spec (Basic)

1D NMR ¹H, ¹³C, DEPT (Adv)

³¹P NMR (Basic Theory)

2D NMR COSY, HETCOR, NOESY (Basic)

Material Science

Cannot go in details; under NDA and working for profit

Hydrogel Synthesis and Characterization

- Experimented on water retention and in application of cooling effect in household equipment
- Evaluation of Young's Modulus of hydrogel mimicking human skin to direct fibroblast growth
- Done through Universal Testing Machine

Nanoparticles Synthesis and Characterization

- Synthesis of carbonate nanoparticles from different sources, and conversion to phosphate
- Experimentation on pore size, characterized through SEM
- Utilized incipient impregnation method to load particles
- Exploited eutectic effect to liquefy salts
- FTIR Operations and Signal Deconvolution in Origin Pro
- CHNS Analysis

Inorganic Syntheses

- Multistep
- Start from cheap raw material to more complex molecules

Accessorial Skills Relevant to Current Application

- Luxmeter Operation for D6500 Calibration
- Digital Camera Operation
- Using CIELAB and ITA to evaluate Δ and Fitzpatrick
- Operation of GIMP Software for image analysis