

NABIHA HALEEMA KHAN

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EDUCATION

University of Illinois College of Medicine-Rockford

MS in Medical Biotechnology

2021

Dissertation: Determining Mechanism of Response to PLK1 SPHK2 Inhibition in TKI-Resistant Non-Small Cell Lung Cancer

Scholarship|Honors|Activities: AACR Co-Author, AACR First Author, Travel Award, NCRI Co-Author, 3-Minute Thesis Participant Award

Illinois Institute of Technology

BS in Biochemistry

2015

Scholarship|Honors: Heald Scholar, InterProfessional Track Award and Medal, University Scholar, Presidents Scholar

SKILLS

- **Molecular Biology** - designing gRNAs, ssODNs and donor plasmids for CRISPR/Cas9, enzyme mismatch cleavage assay, plasmid construction, plasmid extraction, DNA ligation, phosphorylation and annealing, primer designing, genomic DNA extraction, PCR, qRT-PCR, agarose gel electrophoresis, electroporation, lipid transfection, RNA extraction, protein extraction, production of retroviruses and lentiviruses, viral transfection
- **Tissue Culture** - experience with freezing, thawing, seeding and maintaining different types of cell lines such as iPSCs, human fibroblasts, melanoma and lung cancer cells, and proficient in creating cell lines resistant to different drugs, dosing, perfusion, in vivo and in vitro work
- **Microbiology** - bacterial transformation, generation of ultra-competent bacterial cells, yeast transformation, spread and streak plating, spot testing, replica plating, microbe testing
- **Immunology** - western blotting, ELISA, bead-based immunoassays, multi-color flow cytometry, immunocytochemistry, immunohistochemistry, immunofluorescence, FRET, FRAP, and basic animal handling including cardiac puncture, drug delivery, blood retrieval, and euthanasia
- **Imaging** - confocal microscopy, inverted fluorescent microscopy, live cell imaging, analyzing mitochondrial and synaptic transport, ImageJ, Photoshop, Illustrator
- **Bioinformatics** - NCBI, Ensembl, Primer3, BLAST, SnapGene, ApE, Benchling, sciNote

RESEARCH EXPERIENCE

Northwestern University FSM – Shilatifard Lab

Next-Generation Sequencing & Drug Discovery Assay RTI

2020 — Present

Currently working on a drug discovery assay with Yuki Aoi and periodically work on NGS when needed.

University of Illinois College of Medicine-Rockford

Non-Small Cell Lung Cancer & Epithelial Mesenchymal Transition

2018 — Present

Currently researching on NSCLC and Osimertinib in relation to EMT. Osimertinib is a third-generation, oral, irreversible epidermal growth factor receptor (EGFR) tyrosine kinase inhibitor. Osimertinib exhibits a nine-fold greater affinity for select EGFR-sensitizing and T790M-resistance mutations than to wild-type EGFR. In vitro, osimertinib inhibits the activity of HER2, HER3, HER4, ACK1, and BLK.

Melanoma & Telomeres

2017 — 2018

Aimed to combat melanoma by targeting the telomerase and telomeres of cancer cells. Telomeres are the caps of repetitive TTAGGG sequences on the ends of chromosomes that act as a safety region and prevent the chromosome from shortening every time our cells divide. Telomerase is a protein that aids in protecting these telomeres. Therefore, we have hypothesized that the drug T-oligo and 6-thio-DG will prevent telomerase from protecting telomeres in cancer cells and eventually cause apoptosis or cell death by induced DNA damage through chromosome shortening

Melanoma & Photodynamic Therapy

2017

Worked on a novel photodynamic therapy with a novel drug called MP106 and a well-known 5-ALA drug in combination with a 405nm LED to treat the MMAN melanoma cancer cell line.

WORK EXPERIENCE

University of Illinois College of Medicine-Rockford

Research Assistant

July 2017 – Present

Some of the requirements expected of my position besides research work: •Assisting the faculty writing NIH grant and helping the funding of the lab •Assisting colleagues with their academic research •Maintaining various melanoma cancer cell lines •Assisting the faculty with scientific writing •Attend project meetings •Analyzing data

Apple Inc.

Specialist

January 2016 – July 2019

Transform Apple Store visitors into loyal Apple customers. As a Specialist, we help create the energy and excitement around Apple products, providing solutions and getting products into customers' hands. Always curious, we stay on top of news about products and initiatives, ready to apply our expertise in customer interactions.

The Clerk or Circuit Court of Cook County

Equipment Manager

2008 — Present

The Equipment Manager is the quarterback of the polling place team. Manager will set up all voting equipment in the assigned polling place the night before an election. On Election Day, the Manager will troubleshoot any equipment problems. He/She will also act as an election judge and be responsible for consolidating and transmitting elections results after the polls close. At the end of the night, it will be up to the Manager to return results cartridges and other materials to the receiving station.

Advanced Cardiovascular Specialist [ACS HeartCare]

Office Receptionist and Administrator

2014

Responsible for the operations and administration side of a medical office. Ensured office was running smoothly by supervising office staff, assisting with intake and in-house procedures, and training employees, and overseeing the billing portion of the office.

Illinois Institute of Technology

Research Assistant

May 2012 — August 2014

Maintained the equipment, designed experiments, taught others on how to do those experiments, and taught/mentored peer undergraduate students accordingly. As a RA, I worked with two individual professors, Dr. Thomas Irving and also Dr. Andrew Howard. As an undergraduate, I was mainly focused on conducting simple experimental procedures such as gel electrophoresis, CPRs, protein analysis, and also analyzing data in FITYK and FIT2D.

Illinois Institute of Technology

Academic Tutor

January 2012 — May 2012

Tutored students in specific course material and integrated study and learning strategies to promote independent learning. This can be done on a one-to-one or small-group basis. Met with the instructor of the course discussed next steps in curriculum and information to teach students.

Schaumburg High School

Student Intern

August 2008 — May 2009

Common tasks included assisting students with their work, taking attendance, teaching portions of the class lessons, or teach lessons to small groups of students who need extra instruction. Worked "one-on-one" with special needs. Assisted with classwork, organization, and behavior management.

PUBLICATIONS AND PAPERS

Mechanism of tyrosine kinase inhibitors resistance and role of epithelial mesenchymal transition in NSCLC
Proceedings of American Association for Cancer Research Annual Meeting 2019

2019

Induction of DNA damage responses by T-oligo and 6-thio-dG via modulating telomere associated proteins and telomerase

Proceedings of American Association for Cancer Research Annual Meeting 2019	2019
<i>Oligonucleotides Targeting Telomeres and Telomerase in Cancer Molecules</i>	2018
<i>Current Molecular-Targeted Therapies in NSCLC and Their Mechanism of Resistance Cancers</i>	2018
<i>T-oligo mediates DNA damage responses by modulating telomere associated proteins and telomerase AACR 2018 Proceedings: Abstracts 1-3027</i>	2018
<i>T-oligo mediates DNA damage responses by modulating telomere associated proteins and telomerase NCRI Cancer Conference Abstracts 2018</i>	2018
<i>Mechanism of Action of G-Quadruplex-Forming Oligonucleotide Homologous to the Telomere Overhang in Melanoma</i> Journal of Investigative Dermatology	2018

LANGUAGES

English – native language
Hindi| Urdu — highly fluent (native language spoken at home)
Spanish – speak, read, and write with basic competence

MEMBERSHIPS

American Association for Cancer Research (AACR)
National Cancer Research Institute (NCRI)