Nidhi Menon, Ph.D.

Results-oriented engineer and scientist, bringing strategic thinking and innovation to build revolutionary diagnostic products

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2022156612

Philadelphia, United States

SKILLS

IVD Product Development | Biomaterials | Microfluidics | Assay Development | Preclinical and Clinical Research | Design and Engineering Medical Devices | Data Analysis and Statistics in Research | Cancer and Immunoengineering

WORK EXPERIENCE

Head of Research & Development

HueDx, Inc.

08/2023 - Present *Philadelphia, PA*

Accelerate time-to-market for Rapid, Quantitative, Assay-based diagnostic tests

- Implement management strategies to execute timely completion of projects for Big Pharma clients.
- Lead the publication of white papers and journal publications demonstrating the HueDx platform.
- Manage the operations and logistics for preclinical and clinical research for the validation of the HueDx platform, serving as the Principal Investigator for the site following 21CFR and ICH guidelines.
- Create and implement protocols and SOPs for QMS requirements following ISO13485 guidelines.
- Serve as the lead scientific and technical strategist for external partnerships forged to develop rapid diagnostic assays.

Senior Biomedical Engineer

HueDx, Inc.

06/2021 - 08/2023 *Philadelphia, PA*

Accelerate time-to-market for Rapid, Quantitative, Assay-based diagnostic tests

- Developed the design for the company's first flagship diagnostic device platform for POC colorimetric diagnostic assays, directly resulting in the first revenue-generating product of the company.
- Implimented protocols and analyses to be included in 510(k) submissions following CLSI guidelines.
- Oversaw the engineering design and development for paper-based in vitro diagnostic devices for 8 unique infectious disease targets and metabolic analytes.
- Collaborated with the Software team to integrate the product with the HueCloud and HueReader App for customers to integrate and evaluate their quantitative colorimetric assays using digital image colorimetry.
- Contributed to several patents(pending) held by HueDx, successful grants and manuscripts.

WORK EXPERIENCE

Graduate Research Scientist
Virginia Tech

08/2015 - 05/2021 *Blacksburg, VA*

- Investigated heparin and hyaluronic acid-based hydrogels for engineering in vitro models of the breast tumor microenvironment.
- Spearheaded a lead author publication featured on the front cover of a high-impact journal, quantifying the transcriptomic changes (RNA-Seq with NGS), as well as chemoresistance of matrix-encapsulated 3D breast cancer spheroids.
- Designed and fabricated silicone elastomer-based (PDMS) microfluidic platforms to investigate tumor and immune cell interactions, as well as pseudomonas-neutrophil interactions in the context of sepsis.
- Managed cross-functional collaboration to develop an innovative FRET-based biosensor for cell-surface receptors with direct implications in point-of-care diagnostics.
- Engaged with Clinicians to procure whole blood samples of healthy and septic patient volunteers. Isolated PBMCs from whole blood for sensor characterization.
- Supervised and motivated young researchers in a preliminary drug development process to screen over 400 endophytic fungal extracts and identify novel and potent anti-breast cancer drug candidates.

Graduate Teaching Instructor
Virginia Tech

08/2016 - 05/2021 *Blacksburg, VA*

- Prepared and delivered lectures, laboratory instructions and led discussion for 4 unique courses over the 5 years at Virginia Tech, teaching over 500 undergraduate students.
- Evaluated assignments and reports and scheduled regular office hours to meet with students.
- Inducted into the Graduate Academy for Teaching Excellence at Virginia Tech in 2017.
- Nominated by my students for the Favorite Faculty Recognition Award (2018) and GTA Excellence Award (2019).

Undergraduate Research Fellow
Purdue University

08/2012 - 05/2015 *West Lafayette, IN*

- Successful teamwork with undergraduate researchers in designing genetic constructs for reliable protein expression on GeneDesigner, as part of the International Genetically Engineered Machine (iGEM) Club.
- Excellent working knowledge of Taguchi Statistical Methods and JMP Statistical software for Robust Design of Experiments.
- Presented our project to over 500 people at the Jamborees at University of Toronto and at MIT, Boston, winning the Gold medal.
- Team nationally ranked 3rd in the in the regional iGEM competition held in Toronto (October 2013) and won several accolades at both the national and international conferences.
- Awarded the competitive Purdue Summer Undergraduate Research Fellowship for my contributions.

Research Intern, Vaccine Development
TATA Institute of Fundamental Research

06/2014 - 08/2014

- Analyzed function and reaction kinetics of enzyme GAPDH in malarial parasite (P. yoelii) as potential candidate for the development of an eective vaccine.
- Planned and executed several experiments for protein purification to determine GAPDH distribution in parasite soluble and insoluble fractions.
- Acquired skills to work with mice models: injecting parasite stock, tail pricking and retro-orbital bleeding.

EDUCATION

Ph.D. Translational Biology, Medicine and Health
Virginia Tech

08/2015 - 05/2021 *Blacksburg, VA*

- Engineered microsystems and their application in the culture and characterization of three-dimensional (3D) breast tumor models

BS Biological Engineering
Purdue University

08/2011 - 05/2015 *West Lafayette, IN*

PATENTS & PUBLICATIONS

Journal Biomaterials Science

Heparin-based hydrogel scaolding alters the transcriptomic profile and increases the chemoresistance of MDA-MB-231 triple-negative breast cancer cells

Author(s)

N. Menon, H. X. Dang, U. S. Datla, M. Moarefian, C. B. Lawrence, C. A. Maher and C. N. Jones,

21 May 2020,

DOI: 10.1039/C9BM01481K

Issue 10, Front Cover of the Issue

Journal Cell Reports

LYSMD3 is a novel epithelial cell pattern recognition receptor for chitin

Author(s)

He X, Howard B, Li L, Liu Y, Menon N., Roach T, Kita H, Hu T, Luo M, Jones CN, Squillace D, Lawrence C. B

2021

Patent

Microfluidic Devices and Rapid Processing Thereof

Author(s)

Nidhi Menon,Reshma Rajan, Divykumar Patel, Nisarg Dave, Achal Shah, Akshay Gutha Ravichandran, Brittany Auyoung, Manjeet Dhindsa

2024/3/7

US20240076714A1

Journal Frontiers in Chemistry

A Low-Cost Paper-Based Device for the Colorimetric Quantification of Bilirubin in Serum Using Smartphone Technology

Author(s)

Brittany AuYoung, Akshay Gutha Ravichandran, Divykumar Patel, Nisarg Dave, Achal Shah, Brianna Wronko-Stevens, Franklin Bettencourt, Reshma Rajan, Nidhi Menon

2022

Journal Lab on a chip

Quantifying neutrophil extracellular trap release in a combined infection–inflammation NET-array device

Author(s)

Udaya Sree Datla, Bhaskar Vundurthy, Jessica S Hook, Nidhi Menon, Hossein Razmi Bagtash, Tarik Shihabeddin, David W Schmidtke, Jessica G Moreland, Marko Z Radic, Caroline N Jones

2024

WIPO Registered Design

Diagnostic assay device

Author(s)

Nidhi Menon, Samuel Parks, Rohan Vemu

2023

DM/229 552

HONORS & AWARDS

Virginia Tech Academy For Graduate Teaching Excellence (2017)
Virginia Tech

Winner of Biological Engineering Senior Captsone (2015)
Purdue University

Summer Undergraduate Research Fellowship (2013)
Purdue University

iGEM National Jamboree Finalist Purdue iGEM Team Win
Purdue University

- Purdue iGEM Team, the Biomakers second runner-up overall in the undergraduate North America Regional Jamboree competition of iGEM