

MD. DAUD HOSSAIN KHAN

Contact information

Assistant Professor
School of Life Sciences
Independent University, Bangladesh
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Interests

Cancer molecular biology, Biomaterials, Process engineering, Biomaterials, Drug-delivery systems, Protein chemistry, Biotech/Pharma market, sales and evaluation

Work Experience

Independent University, Bangladesh

August 27, 2019 - present

Assistant Professor, School of Life Sciences (Tenure track)

- Instruct and teach core and advanced biochemistry courses including epigenetics & molecular biology of cancer
- Develop IUB's first and fully functional molecular biology lab
- Help expand IUB's global outreach via research collaborations with GMU and Human Frontiers.

George Mason University

January 2016-August 2019

Graduate Research Assistant

- Evaluating the role of nicotine in either EMT or ER stress in breast cancer via $\alpha 9$ nAChRs
- Development of microfluidic-based devices for detection and generation of biomimetic hypoxic conditions for cell culture and hypoxia-induced drug resistance
- Determination of hierarchical relationship between metabolic pathways, UPR and EMT, in different breast cancer cell-lines
- Development of cationic and anionic liposomes
- Aid in development of magnetically hybrid natural killer cells and viral transfection of cell-lines

University of Bridgeport

January 2014- December 2015

Research Assistant

- Development of graphene-based biosensor for detection of mutated proteins present in Lynch Syndrome (colorectal cancer variant)

Graduate Assistant

- Instruct and teach lab courses for Physics, Chemistry and Medical Laboratory courses for undergraduate students
- Grade exams for respective courses

Sanofi Bangladesh Ltd.

April 2012- October 2013

Oncology Associate

- Promoted and marketed other oncology products such as Taxotere, Granocyte, Eloxatin and Jevtana
- Arrange continuous medical education, round table discussions for both healthcare practitioners and general public
- Involved in scientific data collection, literature review and editing for oncologists

Beximco Pharmaceuticals Ltd.

May 2011- June 2011

Factory Intern

- Trained in-plant in operating several analytical equipment such as HPLC, GC and MS

Technical Expertise

Research/Laboratory based

- Cell culture, transfection, protein and mRNA extraction
- Flow cytometry
- H-NMR, IR spectroscopy, HPLC, MS, GC-MS, cGMP protocols
- Fmoc protein synthesis
- Soft Lithography and Electrospinning
- Microscopy (SEM, fluorescent, AFM)

Software

- SAS, MATLAB, GraphPad, SPSS (statistical analysis and coding)

- COMSOL (physics simulation)
- Microsoft Office, Adobe Illustrator

Industry

- Pharmaceutical sales projection, evaluation and market determination

Publications

- Burga, Rachel A., Daud H. Khan, Nitin Agrawal, Catherine M. Bollard, and Rohan Fernandes. "Designing magnetically responsive biohybrids composed of cord blood-derived natural killer cells and iron oxide nanoparticles." *Bioconjugate chemistry* (2019).
- Keck, Forrest, Daud Khan, Brian Roberts, Nitin Agrawal, Nishank Bhalla, and Aarthi Narayanan. "Mitochondrial-Directed Antioxidant Reduces Microglial-Induced Inflammation in Murine In Vitro Model of TC-83 Infection." *Viruses* 10, no. 11 (2018): 606.
- Khan, Daud H., Steven A. Roberts, John Robert Cressman, and Nitin Agrawal. "Rapid Generation and Detection of Biomimetic Oxygen Concentration Gradients In Vitro." *Scientific reports* 7, no. 1 (2017): 13487.
- Macwan, Isaac, Md Daud Hossain Khan, Ashish Aphale, Shrishti Singh, Juan Liu, Manju Hingorani, and Prabir Patra. "Interactions between avidin and graphene for development of a biosensing platform." *Biosensors and Bioelectronics* 89 (2017): 326-333.
- Khan, Md Daud Hossain, Mansur Ahmed, and Christian Bach. "Preliminary detection and analysis of lung cancer on ct images using matlab: A cost-effective alternative." *Journal of Biomedical Engineering and Medical Imaging* 2, no. 6 (2016): 01.

Oral and Poster Presentations

- Investigation of Drug Efficacy Under in Vitro Hypoxic Gradients in Glioblastoma Multiforme (oral) : 2018 AIChE Annual Meeting
- Rapid Generation and Simultaneous Detection of Biomimetic Oxygen Concentration Gradients in vitro (oral) : 2017 AIChE Annual Meeting
- Microfluidic Generation of Physiological Oxygen gradients In Vitro (poster) : IEEE-NIH 2017
- Convenient Generation and Detection of Oxygen Gradients to Investigate Hypoxia-Induced Effects on Cancer Cells (poster) : 2016 AIChE Annual Meeting
- Generation And Detection Of An Oxygen Gradient From A Single Source Inside A Microfluidic Platform (poster) : BMES Annual Conference 2016
- Novel DNA-Graphene Based Biosensor For Colorectal Cancer Diagnosis Via Detection Of Lynch Syndrome (poster) : BMES Annual Conference 2015
- Lung Cancer Detection and Preliminary Analysis on CT images using MATLAB (oral) : ASEE Northeast Conference 2015
- Platinum-based Therapy with Gemcitabine or Docetaxel in Advanced Non-small cell lung cancer (poster) : World Conference on Lung Cancer 2013

Education

George Mason University

Fairfax, VA, USA

PhD in Bioengineering

January 2016 – August 2019

GPA: 3.85/4.0

University of Bridgeport

Bridgeport, CT, USA

MSc in Biomedical Engineering

January 2014 - December 2015

GPA: 4.0/4.0

North South University

Dhaka, Bangladesh

Bachelor of Pharmacy

January 2008 - December 2011

GPA: 3.73/4.0

Awards

- University of Bridgeport Outstanding Achievement in Research
- University of Bridgeport International Student Scholarship
- Magna Cum Laude (North South University)

References

Michael Daro Buschmann

Chairman, Bioengineering
Department
George Mason University

Remi Veneziano

Assistant Professor,
Bioengineering Department
George Mason University

Prabir Patra

Chairman, Department of
Biomedical Engineering
University of Bridgeport