

Moom R. Roosan (Mumtahena Rahman), PharmD, PhD

Assistant Professor, Department of Pharmacy Practice
Chapman University School of Pharmacy
Harry and Diane Rinker Health Science Campus
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EDUCATION

Department of Biomedical Informatics
School of Medicine, *University of Utah*, Salt Lake City, UT
Doctor of Philosophy. Graduation: December 2015
Focus: Translational and clinical informatics

School of Pharmacy and Pharmaceutical Sciences
Purdue University, West Lafayette, IN
Doctor of Pharmacy (PharmD). Graduation: May 2010

College of Engineering, Technology, and Computer Science.
Indiana University Purdue University Fort Wayne (IPFW), IN
Associate of Science in Computer Science (AS). Graduation: May 2006
with Highest Distinction

CREDENTIALS

California Registered Pharmacist # 76654
Expiration: November 30, 2022
Utah Pharmacist License # 8280116-1701
Expiration: September 30, 2023
Texas Registered Pharmacist. License # 49401
Expiration: November 30, 2022
National Intravenous Training Program for Pharmacists
ACPE #0156-9999-11-115-H04-P
Issue Date: February 15, 2012
National Provider Identifier (NPI) 1235657792
Basic Life Support Certified. Reissue date: September 21, 2021
Test2Learn™NACDS Community-based Pharmacogenomics Certified.
Issue date: July 7, 2019
APhA Pharmacy-Based Immunization Delivery Certified. Issue date:
January 22, 2021
MedWise Advisor™ Certified. Issue date: September 9, 2021

PROFESSIONAL EXPERIENCE

Assistant Professor (Tenure-track) Pharmacy Practice Department, Chapman University School of Pharmacy Irvine, CA	06/18 – Present
Pharmacogenomics Counselor. DNAVisit, San Diego, CA	11/20 – Present
Informatics Pharmacist Cardinal Health, Houston, TX	08/17 – 05/18
Director of Clinical Informatics at ItRunsInMyFamily.com, Inc. Charleston, SD	08/16 – 05/17
Research Associate, College of Pharmacy, Department of Pharmacology and Toxicology, University of Utah	08/15 – 01/16
Clinical Pharmacist at St. Joseph Medical Center, Houston, TX	10/15 – 08/17
Post-Doctoral Research Associate, Department of Pharmacology and Toxicology, College of Pharmacy, University of Utah, Salt Lake City, UT	08/15 – 01/16
Per-Diem Pharmacist at Davis Hospital, Layton, UT	10/12 – 08/15
Clinical Pharmacist at Christus Santa Rosa Hospital, San Antonio, TX	01/11 – 08/12
Per-Diem Pharmacist at Southwest General Hospital, San Antonio, TX	06/11 – 08/12
Per-Diem Pharmacist at Methodist Stone Oak Hospital, San Antonio, TX	08/11 – 07/12
Retail Pharmacist at CVS Pharmacy, San Antonio, TX	10/10 – 12/10

HONORS AND AWARDS

NLM Post-doctoral Fellowship, University of Utah	08/12 – 07/15
Kathy McCaffrey Memorial Endowed Scholarship, American Health Information Management Association (AHIMA)	12/14
IOM Healthcare App Competition, University of Utah BMI Team	08/13
Rho Chi Honor Society, Purdue University	01/08 – 05/10
Dean's and Semester's Honor's List, Purdue University	12/06 – 05/09
Flemming Scholarship, Purdue University	08/09
Carnaghi Scholarship, Purdue University	04/08
Robert C. Anderson Family Scholarship, Purdue University	05/07

Summer Undergraduate Research Fellowship, Purdue University	05/07
Dean's and Semester's Honor List, Purdue University	
	08/06 – 05/07
Who's Who among Students in American Universities & Colleges, IPFW	05/06
Phi Kappa Phi, IPFW	05/06
Merit Scholarship, Bangladesh University of Engineering and Technology (BUET), Bangladesh	04/02 – 07/04

RESEARCH INTERESTS

Biomedical Informatics- Clinical and Consumer Informatics
 Cancer genomics
 Gene Expression
 Omics Data Analysis
 Pharmacogenomics
 Growth Factor Receptor Network
 Bioinformatics
 Health Application Development

PROGRAMMING LANGUAGE AND SOFTWARE SKILLS

R, Python, Shell Scripting, Stata, XML, XML Schema, RX2000, RX CONNECT, Horizon Meds Manager™, MEDITECH, BD Pyxis™, Medication Order Management Systems (MOMS), Cerner™

DATASETS, SOFTWARES AND REPOSITORIES

Gene Expression Omnibus (GEO) datasets: GSE83083, GSE73628, GSE76877, GSE62820 and GSE62944.

GitHub repositories: https://github.com/mumtahena/GFRN_signatures and https://github.com/srp33/TCGA_RNASeq_Clinical

R software packages: Adaptive Signature Selection and InteGratioN (ASSIGN)

PEER REVIEWED PUBLICATIONS

1. **Roosan MR**, Mambetsariev I, Pharaon R, Fricke J, Baroz AR, Chao, J, Chen C, Nasser MW, Chirravuri-Venkata R, Jain M et al. Evaluation of Somatic Mutations in Solid Metastatic Pan-Cancer Patients. *Cancers* **2021**, *13*, 2776. <https://doi.org/10.3390/cancers13112776>.
2. **Roosan MR**, Mambetsariev I, Pharaon R, Fricke J, Husain H, Reckamp KL, Koczywas M, Massarelli E, Bild AH, Salgia R. Usefulness of Circulating Tumor DNA in Identifying Somatic Mutations and Tracking Tumor Evolution in Patients with Non-Small Cell Lung Cancer. *Chest*. 2021 Apr 18;. doi: 10.1016/j.chest.2021.04.016.
3. Kathuria A, **Roosan MR***, Sharma A. CYP2C9 Polymorphism and Use of Oral Nonsteroidal Anti-Inflammatory Drugs. *US Pharm*. 2021;54(3):23-30. <https://www.uspharmacist.com/article/cyp2c9-polymorphism-and-use-of-oral-nonsteroidal-antiinflammatory-drugs>.
4. Li Y, Duche A, Sayer MR, Roosan D, Khalafalla FG, Ostrom RS, Totonchy J, **Roosan MR***. SARS-CoV-2 early infection signature identified potential key infection mechanisms and drug targets. *BMC Genomics* **22**, 125 (2021). <https://doi.org/10.1186/s12864-021-07433-4>.
5. Guan YN, Li Y, **Roosan MR***, Jing Q. Single-cell transcriptomics of murine mural cells reveals cellular heterogeneity. *Sci. China Life Sci.* (2020). <https://doi.org/10.1007/s11427-020-1823-2>.
6. Roosan D, Chok J, Karim M, Law AV, Baskys A, Hwang A, **Roosan MR**. Artificial Intelligence–Powered Smartphone App to Facilitate Medication Adherence: Protocol for a Human Factors Design Study. *JMIR Res Protoc*. 2020 Nov 9;9(11):e21659. <http://dx.doi.org/10.2196/21659>.
7. Roosan D, Hwang A, Law AV, Chok J, **Roosan MR**. The inclusion of health data standards in the implementation of pharmacogenomics systems: a scoping review. *Pharmacogenomics* (2020). <https://www.futuremedicine.com/doi/10.2217/pgs-2020-0066>.
8. Bodily WR, Shirts BH, Walsh T, Gulsuner S, King MC, Parker A, **Roosan MR**, Piccolo SR. Effects of germline and somatic events in candidate BRCA-like genes on breast-tumor signatures. *PLOS ONE* (2020)15(9): e0239197. <https://doi.org/10.1371/journal.pone.0239197>.
9. Roosan D, Hwang A., **Roosan MR***. Pharmacogenomics cascade testing (PhaCT): a novel approach for preemptive pharmacogenomics testing to optimize medication therapy. *Pharmacogenomics J* (2020). <https://doi.org/10.1038/s41397-020-00182-9>.
10. Nuñez FJ, Johnstone TB, Corpuz ML, Kazarian AG, Tliba O, Panettieri RA, Kozio-White C, **Roosan MR**, Ostrom RS. Glucocorticoids rapidly activate cAMP production via Gas to initiate non-genomic signaling that contributes to

one third of their canonical genomic effects. *The FASEB Journal*. 2019; 00:1-14.

11. Roosan D, Law AV, Karim M, **Roosan M**. Improving Team-Based Decision-Making Using Data Analytics and Informatics: Protocol for a Collaborative Decision Support Design. *JMIR Research Protocol*. 2019; 8(11): e16047.
12. Roosan D, Li Y, Law A, Truong H, Karim M, Chok J, **Roosan M**. Improving Medication Information Presentation Through Interactive Visualization in Mobile Apps: Human Factors Design. *JMIR Mhealth Uhealth*. 2019;7(11):e15940.
13. **Rahman M**, MacNeil SM, Jenkins DF, Shrestha G, Wyatt SR, McQuerry JA, Piccolo SR, Heiser LM, Gray JW, Johnson WE, Bild AH. Activity of distinct growth factor receptor network components in breast tumors uncovers two biologically relevant subtypes. *Genome Medicine*. 2017 Apr 26;9(1):40.
14. Roosan D, Weir C, Samore M, Jones M, **Rahman M**, Stoddard GJ, Del Fiol G. Identifying complexity in infectious diseases inpatient settings: An observation study. *Journal of Biomedical Informatics*. 2016 Nov 3;71:S13-S21.
15. **Rahman M**, Jackson LK, Johnson WE, Li DY, Bild AH, Piccolo SR. Alternative preprocessing of RNA-sequencing data in The Cancer Genome Atlas leads to improved analysis results. *Bioinformatics*. 2015 Nov 15;31(22):3666-72.
16. Shen Y, **Rahman M**[‡], Piccolo SR, Gusenleitner D, El-Chaar NN, Cheng L, Monti S, Bild AH, Johnson WE. ASSIGN: Context-specific genomic profiling of multiple heterogeneous biological pathways. *Bioinformatics*. 2015 Jun 1;31(11):1745-53.

*corresponding/co-corresponding author

[‡] co-first author

BOOK CHAPTERS

Petry NJ, **Roosan MR**, Cicali EJ, Duarte JD. Implementation: A Guide to Implementing Pharmacogenomics Services. In: Lam JT, Gutierrez MA, Shah S. eds. *Pharmacogenomics: A Primer for Clinicians*. McGraw-Hill; 2021.

OTHER PUBLICATIONS

1. **Rahman M**, Roosan D. Do pharmacists want to miss the boat again in informatics? Bangladesh-American Pharmacists Association Annual Convention, 2016. Ellenville, NY.
2. **Rahman M**. Dissertation- Development of pathway-based biomarker in breast cancer and assessment of feasibility of integrating transcriptomics data in electronic health record. The University of Utah; 2015.

ABSTRACTS

1. Galvaz-Peralta M, Cropp CD, Ham AL, Hoger JD, Petry NJ, **Roosan MR**, Gammal RS, Kinney S, Ward KM, Brazeau D, Berenbrok LA, Lee YM, Iwuchikwu O, Cicali EJ, Kisor DF. Development of an Open-Access Pharmacogenomics Patient Case Repository for Pharmacy Educators. AACP Virtual Annual Meeting. 07/21
2. Sayer MR, Duche A, Nguyen TJT, Le M, Patel K, Vu J, Pham D, Vernicke B, Beuttler R, Roosan D, Roosan MR. Clinical implications of combinatorial pharmacogenomic tests based on CytochromeP450 variant selection. 3rd Annual CUSP Research Day (Virtual) 05/21
3. Duche A, **Roosan MR**. Characterization of the growth factor receptor network oncogenes in lung cancer. 3rd Annual CUSP Research Day (Virtual) 05/21
4. Nguyen LP, **Roosan MR**. Evaluation of polygenic risk scores as a clinical instrument in assessing Alzheimer's Disease risk. 3rd Annual CUSP Research Day (Virtual) 05/21
5. Pak C, Sayer MR, **Roosan MR**. Clinical Sensitivity Analysis of CYP2C19 Pharmacogenomics Tests in Different Ethnic Backgrounds. ASHP Midyear Virtual Meeting. 12/20
6. Xu A, Roosan D, Seone Vazquez E, **Roosan MR**. Evaluation of FDA Structured Product Labeling and the Biomarker Table for Pharmacogenomics Information. CSHP 2020 Virtual Seminar. 10/20
7. Le M, Vu J, Patel K, **Roosan MR**. CYP2C9 and CYP2C19 Allele Coverage in PGx Tests for Caucasian and East Asian Ethnicities. Chapman University Virtual 2020 Graduate Research Showcase. 05/20
8. Adams M, Jain M, Okonkwo P, Pham D, Rho J, Sun C, Tran Nguyen JT, Wong C, Goad J, Lewis J, **Roosan MR**. Pharmacists' Perception and Willingness to Counsel on Direct-To-Consumer Genomic Testing Products. Western Pharmacy Exchange 2020 Virtual Poster. 05/20
9. **Roosan MR**, Nuñez FJ, Ostrom RS. Non-genomic glucocorticoid signaling via G contributes to one-third of their canonical genomic effects. Experimental Biology 2020. San Diego, CA 04/20
10. Roosan D, Karim M, Chok J, **Roosan MR**. Operationalizing Healthcare Big Data in the Electronic Health Records using a Heatmap Visualization Technique. HEALTHINF 2020. Valetta, Malta. 02/20
11. Tran Nguyen JT, Roosan D, **Roosan MR**. Evaluation of CYP2C19 and CYP2D6 polymorphisms among Asian populations. 2019 ASHP Midyear Clinical Meeting, Las Vegas, NV 12/19
12. Roosan D, Troung H, J Chok, **Roosan MR**. PGxKnow: A Pharmacogenomics Educational Application in Augmented Reality. AMIA Annual Symposium, Washington, DC 11/19
13. Adams M, Jain P, Okonkwo P, Pham D, Rho J, Sun C, Trang Nguyen JT, Wong C, Goad J, Lewis J, **Roosan M**. Pharmacists' Perception and Willingness to

- Counsel on Direct-to-Consumer Genomic Testing Products (Interim). CSHP Seminar 2019. Anaheim, CA 10/19
14. **Roosan MR**, Le M, Roosan D. Analysis of Multi-Panel Pharmacogenomics Tests available in NCBI Genetic Testing Registry. Clinical Pharmacogenetics Implementation Consortium (CPIC) 2019 Annual Meeting, Memphis, TN 06/19
15. **Roosan MR**, Jamjoom M, Seone-Vasquez E. Analysis of Pharmacogenomics Actionable Drugs in the United States from 1980 to 2017. American Pharmacists Association (APhA) 2019 Annual Meeting, Seattle, WA 03/19
16. Wyatt SR, MacNeil S, **Rahman M**, Shrestha G, Brady S, Rethmeyer J, Bild A. Predicting Drug Response in Breast Cancer Using Multi-pathway Gene Expression Signatures and BH3 Profiling. UCUR 2016, University of Utah, Salt Lake City, UT 12/15

INFORMATICS EXPERIENCE

- Implementation Informatics Pharmacist at Cardinal Health Pharmacy Services
Various locations in Arizona, Texas and Utah 08/17 – 05/18
- Director of Clinical Informatics at ItRunsInMyFamily.com, Inc.
Charleston, SD 08/16 – 05/17
- Health Application Development “MyMedAdmin”, University of Utah,
Salt Lake City, UT 02/13 – 04/13

TEACHING EXPERIENCE

- Course Coordinator and Lecturer**, PHRM 651: Pharmacogenomics and Personalized Medicine - Chapman University, School of Pharmacy 08/18 – Present
- Lecturer, PHRM 571L: Introduction to Health Care Lectures and Recitations- Chapman University, School of Pharmacy 08/18
- Lecturer, PHRM 681: Pharmacy Practice Management- Chapman University School of Pharmacy 01/19 – Present
- Lecturer, PAS 504: Pharmacology- Chapman University School of Pharmacy 01/19 – Present

Course Coordinator and Lecturer, PHRM 523L: Pharmacist Care Lab III
(Pharmacy Informatics)

05/19 –Present

CURRENT GRADUATE AND POST-GRADUATE TRAINEES

PhD Committee Advisor for Michael Sayer, PharmD 08/19- Present
PhD Committee Advisor for Ashley Duche 08/21- Present

PAST GRADUATE AND POST-GRADUATE TRAINEES

1. Post-doctoral Fellow Advisor for Yue Li 10/19-04/21
2. MS Committee Advisor for Ashley Duche in Pharmaceutical Sciences 08/19-07/21
3. Capstone Project Advisor for Linh Nguyen, PharmD candidate. Class of 2022. 08/20-05/21
4. PhD Committee Member for Romina Nabie, PhD in Pharmaceutical Sciences 01/19-01/21
5. PhD Committee Member for Maha Jamal, PhD in Pharmaceutical Sciences 03/19-06/20
6. PhD Committee Member for Emira Bousoik, PhD in Pharmaceutical Sciences 05/19-05/20
7. PhD Committee Member for Oluyemi Odeyemi, PhD in Computational Data Science 08/19-04/20
8. Independent Research Project Advisor for Ava Xu, PharmD. 08/19-12/19
9. Capstone Project Advisor for Trang Jenny Tran Nguyen, PharmD. 08/18-05/19

RESEARCH FUNDING

Chapman University Kay Family Foundation Data Analytics Grant. Analysis of Non-Small Cell Lung Cancer Heterogeneity Using Biopsies and Clinical Data (PI: Moom Rahman Roosan)
Total funding: \$100,000 08/19-07/21

2T15LM007124-16 (PI: John F. Hurdle; Trainee: Mumtahena Rahman)

National Library of Medicine. University of Utah Biomedical Informatics
Training Grant 08/12-07/15

Dean's Summer Undergraduate Research Fellowship, Purdue University School
of Pharmacy (PI: JC Rochet; Awardee Mumtahena Rahman)
Total funding: \$4000 05/07-08/07

PRESENTATIONS

1. **Roosan MR.** Pharmacogenomics: An Approach to Personalized Medicine.
City of Hope, Duarte CA. 11/18
2. **Roosan MR.** Pharmacogenomics: Promises and Challenges. 2018 Population
Health Conference: Medical Innovations. Industry Hills, CA. 11/18
3. **Rahman M.** Personalized Medicine: Past, Present and Future. Bangladesh-
American Pharmacist Association Annual Convention, 2017. West Palm
Beach, FL 04/17
4. **Rahman, M.** ASSIGN: Adaptive Signature Selection/Identification in
GeNome-wide Profiling. Presented in National Library of Medicine
Informatics Training Conference, University of Pittsburgh, Pittsburg, PA
06/14

PROFESSIONAL AND INSTITUTIONAL SERVICE

Member of Pharmacogenomics Sig Committee for PGx Cases 2020-present
Member of Clinical Pharmacogenetics Implementation Consortium (CPIC) and
CPIC Informatics Working Group 2018-present
Chapman University School of Pharmacy Assessment Committee 2018- present
Chapman University School of Pharmacy Celebration Committee 2018- 2019
Chapman University School of Pharmacy, Pharmacy Practice Department Retreat
Committee 2018-2019