Santosh **Bhosale**

Associate Biomedical Scientist

Cedars-Sinai Precision Biomarker Laboratories, Los Angeles, CA, USA

santosh.bhosale@cshs.org | santoshdbhosale.github.io | santoshdbhosale | santoshdbhosale

I do mass spectrometry based proteomics research, including discovery and validation of protein biomarkers in clinical samples. Collaborations with clinicians, mass spectrometry experts and bioinformaticians.

Research Proficiency

Wet lab

Cell culture work, animal handling and clinical samples, Cell & tissue sample lysis, SDS-PAGE electrophoresis (1D, 2D) and western blotting

High throughput proteomics

Trypsin digestion, immunodepletion of serum &/or plasma samples, label free quantification, isobaric labeling, off-line high pH fractionation, PTMs enrichment and immunoprecipitation experiments

Mass spectrometry

Operation and troubleshooting of a range of instruments LTQ Orbitrap Velos Pro, Q Exactive series, Orbitrap Exploris 480 Mass Spectrometer, TSQ Vantage (all from Thermo Scientific), timsTOF Pro (BRUKER), MALDI-TOF-MS (Applied Biosystem)

Mass spectrometry informatics tools

Xcalibur, Proteome Discoverer (Thermo Scientific), Bruker timsControl and Compass HyStar, MaxQuant and Perseus, Progenesis, Skyline, InfernoRDN, FragPipe, Spectronaut (Biognosys) and DIA-NN

Chromatography instrumentation

Easy nLC series (Thermo Scientific), Evosep One

Automation platform

SP100 Automation instrument (Hamilton robot), Biomek i-Series Automated workstation

Language and softwares

R, Python, Machine learning, Jupyter enviornment, Omics data, Cytoscape and Ingenuity Pathway Analysis

Employment

Associate Biomedical Scientist

Los Angeles - USA

Cedars-Sinai Precision Biomarker Laboratories

February 2023 –> Present

- Research and development operations realted to clinical proteomics
- Client facing role

Postdoctoral Researcher

Odense - Denmark

Protein Research Group, Department of Biochemistry and Molecular Biology, University of Southern Denmark

January 2020 –> December 2022

- Development of a post-translational modification (Cysteine, N-linked glycosylated and phospho modified) specific biomarkers discovery platform for the diagnosis of disease
- Analysis of PTMomics data to identify candidate plasma biomarkers to stratify ovarian cancer patients
- Supervise and work with technician and PhD students
- Work presentation internally and to the collaborators and, report writing

Postdoctoral Researcher

Turku - Finland

University of Turku - Turku Bioscience

November 2018 –> December 2019

- Serum proteomics measurements to compare the effects of nutrition supplementation in infancy and, child and mother proteome correlation
- Analyzed temporal serum proteomes of celiac disease (CD) developing children
- Conducted the interactomics measurements and data analysis for several trasnscription factors of T cells
- Designed and presented practical courses on proteomics data analysis

Project Assistant

Pune - India

National Chemical Laboratory

November 2009 –> December 2011

- Proteomics laboratory work including protein extraction, digestion and cleanup, SDS-PAGE, MS analysis of glycated proteins, oligonulceotides and small molecules

Lecturer

Pune - India

JSPMs JSCOPR affiliated to University of Pune

July 2008 –> November 2009

- Taught theory and practicals for pharmaceutical biochemistry and pharmaceutical analysis to the bachelor of pharmacy students
- Supervised undergraduate pharmacy students
- Graded course assignments and examinations

Education

PhD

Turku - Finland

University of Turku (Turku Bioscience)

2012 –> 2018

- Developed quantitative proteomics methodology for the analysis of human serum samples, including immunoaffinity depletion, protein digestion, isobaric labelling, label free quantification, offline-SCX fractionation, LC-MS/MS and data analysis
- Developed targeted SRM-LC-MS methods to monitor multiple protein targets
- Cellular proteomic analyses of Th17 and iTreg cells from mouse and human
- Teaching experience in proteomics data analysis (presented at a national meeting, 2017)

Master of Pharmacy (Pharmaceutical Chemistry)

Jodhpur - India

Rajasthan University of Health Sciences (Lachoo Memorial College of Science & Technology)

2005 –> 2008

Bachelor of Pharmacy

Shirur - Pune

University of Pune (Sitabai Thite College of Pharmacy)

2001 –> 2005

Awards

Doctoral dissertation award

Turku - Finland

Awarded with EUR 5000 from Orion Pharma

2018

Doctoral dissertation award

Turku - Finland

Awarded with EUR 5000 from The Maud Kuistila Memorial Foundation

2018

Travel grant

Turku - Finland

Awarded with EUR 500 to attend computational proteomics course at ETH Zurich from Turku centre for system biology

2015

Research grant

Turku - Finland

Awarded with EUR 3500 from Hospital District of Southwest Finland & Turku City

2014

Dr. Ashok B. Vaidya prize

Mumbai - India

Secured first position in an oral session (6 minute competition) organized by South Asian Chapter of American College of Clinical Pharmacology

2009

Publications

HIC1 interacts with FOXP3 multi protein complex: novel pleiotropic mechanisms to regulate human regulatory T cell differentiation and function

Immunol Lett

Andrabi SBA, Batkulwar K, Bhosale SD, Moulder R, Khan MH, Buchacher T, Khan MM, Arnkil I, Rasool O, Marson A, Kalim UU, Lahesmaa R

2023

Serum APOC1 levels are decreased in young autoantibody positive children who rapidly progress to type 1 diabetes

Sci Rep

Hirvonen MK, Lietzén N, Moulder R, Bhosale SD, Koskenniemi J, Vähä-Mäkilä M, Nurmio M, Orešič M, Ilonen J, Toppari J, Veijola R, Hyöty H, Lähdesmäki H, Knip M, Cheng L, Lahesmaa R

2023

Cardiovascular-related proteomic changes in ECFCs exposed to the serum of COVID-19 patients

Int J Biol Sci

Beltrán-Camacho L, Bhosale SD, Sánchez-Morillo D, Sánchez-Gomar I, Rojas-Torres M, Eslava-Alcón S, Martínez-Torija M, Ruiz de Infante MA, Nieto-Martín MD, Rodríguez-Iglesias MA, Moreno JA, Berrocoso E, Larsen MR, Moreno-Luna R, Carmen Durán-Ruiz M

2023

A systematic comparison of FOSL1, FOSL2 and BATF-mediated transcriptional regulation during early human Th17 differentiation

Nucleic Acids Res

Shetty A, Tripathi SK, Junttila S, Buchacher T, Biradar R, Bhosale SD, Envall T, Laiho A, Moulder R, Rasool O, Galande S, Elo LL and Lahesmaa R

2022

Phosphoproteomics: Methods and Challenges
Reference Module in Life Sciences
Kang T, Bhosale S, Edwards A, Larsen MR
2022

HDL proteome remodeling associates with COVID-19 severity
J Clin Lipidol
Souza Junior DR, Silva ARM, Rosa-Fernandes L, Reis LR, Alexandria G, Bhosale SD, Ghilardi FR, Dalçóquio TF, Bertolin AJ, Nicolau JC, Marinho CRF, Wrenger C, Larsen MR, Siciliano RF, Di Mascio P, Palmisano G, Ronsein GE
2021

Interactome Networks of FOSL1 and FOSL2 in Human Th17 Cells
ACS Omega
Shetty A, Bhosale SD, Tripathi SK, Buchacher T, Biradar R, Rasool O, Moulder R, Galande S, Lahesmaa R
2021

CIP2A Constrains Th17 Differentiation by Modulating STAT3 Signaling
iScience
Khan MM, Ullah U, Khan MH, Kong L, Moulder R, Välikangas T, Bhosale SD, Komsi E, Rasool O, Chen Z, Elo LL, Westermarck J, Lahesmaa R
2020

Protein interactome of the Cancerous Inhibitor of protein phosphatase 2A (CIP2A) in Th17 cells
Current Research in Immunology
Khan MM, Välikangas T, Khan MH, Moulder R, Ullah U, Bhosale SD, Komsi E, Butt U, Qiao X, Westermarck J, Elo LL & Lahesmaa R
2020

Quantitative Proteomics Reveals the Dynamic Protein Landscape during Initiation of Human Th17 Cell Polarization
iScience
Tripathi SK, Välikangas T, Shetty A, Khan MM, Moulder R, Bhosale SD, Komsi E, Salo V, De Albuquerque RS, Rasool O, Galande S, Elo LL, Lahesmaa R
2019

Serum Proteomic Profiling to Identify Biomarkers of Premature Carotid Atherosclerosis
Sci Rep
Bhosale SD, Moulder R, Venäläinen MS, Koskinen JS, Pitkänen N, Juonala M, Kähönen M, Lehtimäki T, Viikari J, Elo LL, Goodlett DR, Lahesmaa R, Raitakari OT
2018

Quantitative proteomic characterization and comparison of T helper 17 and induced regulatory T cells
PLos Biol
Mohammad I, Nousiainen K, Bhosale SD, Starskaia I, Moulder R, Rokka A, Cheng F, Mohanasundaram P, Eriksson JE, Goodlett DR, LÃ¤hdesmÃ¤ki H, Chen Z
2018

Analysis of the plasma proteome using iTRAQ and TMT-based Isobaric labeling
Mass Spectrom Rev
Moulder R, Bhosale SD, Goodlett DR, Lahesmaa R
2018

Mass Spectrometry-Based Serum Proteomics for Biomarker Discovery and Validation
Methods Mol Biol
Bhosale SD, Moulder R, Kouvonen P, Lahesmaa R, Goodlett DR
2017

The progress and potential of proteomic biomarkers for type 1 diabetes in children
Expert Rev Proteomics
Moulder R, Bhosale SD, Lahesmaa R, Goodlett DR
2017

Serum proteomes distinguish children developing type 1 diabetes in a cohort with HLA-conferred susceptibility
Diabetes
Moulder R, Bhosale SD, Erkkilä T, Laajala E, Salmi J, Nguyen EV, Kallionpää H, Mykkänen J, Vähä-Mäkilä M, Hyöty H, Veijola R, Ilonen J, Simell T, Toppari J, Knip M, Goodlett DR, Lähdesmäki H, Simell O, Lahesmaa R
2015

Proteome wide reduction in AGE modification in streptozotocin induced diabetic mice by hydralazine mediated transglycation
Sci Rep
Kesavan SK, Bhat S, Golegaonkar SB, Jagadeeshaprasad MG, Deshmukh AB, Patil HS, Bhosale SD, Shaikh ML, Thulasiram HV, Boppana R, Kulkarni MJ
2013

Zoom-In A targeted database search for identification of glycation modifications analyzed by untargeted tandem mass spectrometry
Eur J Mass Spectrom (Chichester)
Bhonsle HS, Korwar AM, Kesavan SK, Bhosale SD, Bansode SB, Kulkarni MJ
2012

Comparative and chemical proteomic approaches reveal gatifloxacin deregulates enzymes involved in glucose metabolism
J Toxicol Sci
Suresh KK, Bhosale SD, Thulasiram HV, Kulkarni MJ
2011

Patent Applications

Means and methods for determining risk of type-1 diabetes by serum protein biomarkers
Europe & USA
Moulder R, Bhosale SD, Goodlett D, Lähdesmäki H, Simell S, Lahesmaa R

References

Riitta Lahesmaa, M.D., Ph. D. *rilahes@utu.fi*

Professor, Director, Turku Bioscience, P.O. Box 123 Biocity, FIN-20520, Turku, Finland

Robert Moulder, Ph.D. *robmou@utu.fi*

Senior Scientist, Turku Bioscience, P.O. Box 123 Biocity, FIN-20520, Turku, Finland

Mahesh J. Kulkarni, Ph.D. *mj.kulkarni@ncl.res.in*

Senior Principal Scientist, Biochemical Sciences Division, CSIR-National Chemical Laboratory, Pune, India

David R. Goodlett, Ph.D. *goodlett@uvic.ca*

Professor of Biochemistry & Microbiology and Director Genome BC Proteome Centre at University of Victoria, Victoria, British Columbia, Canada

Martin R. Larsen, Ph.D. *mrl@bmb.sdu.dk*

Professor, Department of Biochemistry and Molecular Biology, Campusvej 55, Odense M 5230, Denmark

Ole N. Jensen, Ph.D. *jenseno@bmb.sdu.dk*

Professor, Department of Biochemistry and Molecular Biology, Campusvej 55, Odense M 5230, Denmark