



Santosh Bhosale

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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 (DIA AND DDA BASED), ISOBARIC LABELING, OFF-LINE HIGH PH FRACTIONATION, PTMS ENRICHMENT, IMMUNOPRECIPITATION EXPERIMENTS AND TARGETED PROTEOMICS MEASUREMENTS

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), TIMS TOF PRO (BRUKER), MALDI-TOF-MS (APPLIED BIOSYSTEM)

Mass spectrometry informatics tools

XCALIBUR, PROTEOME DISCOVERER (THERMO SCIENTIFIC), BRUKER TIMS CONTROL 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 ENVIRONMENT, OMICS DATA, CYTOSCAPE AND INGENUITY PATHWAY ANALYSIS

Employment

Associate Biomedical Scientist

CEDARS-SINAI PRECISION BIOMARKER LABORATORIES

Los Angeles - USA

February 2023 -> June 2024

- Applying mass spectrometry based proteomics technology to study the complexity of proteome
- Client facing role

Postdoctoral Researcher

PROTEIN RESEARCH GROUP, DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY, UNIVERSITY OF SOUTHERN DENMARK

Odense - 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

UNIVERSITY OF TURKU - TURKU BIOSCIENCE

Turku - Finland

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 transcription factors of T cells
- Designed and presented practical courses on proteomics data analysis

Project Assistant

NATIONAL CHEMICAL LABORATORY

Pune - India

November 2009 -> December 2011

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

Lecturer

JSPMs JSCOPR AFFILIATED TO UNIVERSITY OF PUNE

Pune - India

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

UNIVERSITY OF TURKU (TURKU BIOSCIENCE)

Turku - Finland

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)

RAJASTHAN UNIVERSITY OF HEALTH SCIENCES (LACHOO MEMORIAL COLLEGE OF SCIENCE & TECHNOLOGY)

Jodhpur - India

2005 -> 2008

Bachelor of Pharmacy

UNIVERSITY OF PUNE (SITABAI THITE COLLEGE OF PHARMACY)

Shirur - Pune

2001 -> 2005

Awards

Doctoral dissertation award

AWARDED WITH EUR 5000 FROM ORION PHARMA

Turku - Finland

2018

Doctoral dissertation award

AWARDED WITH EUR 5000 FROM THE MAUD KUUSTILA MEMORIAL FOUNDATION

Turku - Finland

2018

Travel grant

AWARDED WITH EUR 500 TO ATTEND COMPUTATIONAL PROTEOMICS COURSE AT ETH ZURICH FROM TURKU CENTRE FOR SYSTEM BIOLOGY

Turku - Finland

2015

Research grant

AWARDED WITH EUR 3500 FROM HOSPITAL DISTRICT OF SOUTHWEST FINLAND & TURKU CITY

Turku - Finland

2014

Dr. Ashok B. Vaidya prize

SECURED FIRST POSITION IN AN ORAL SESSION (6 MINUTE COMPETITION) ORGANIZED BY SOUTH ASIAN CHAPTER OF AMERICAN COLLEGE OF CLINICAL PHARMACOLOGY

Mumbai - India

2009

Publications

Serum proteomics of mother-infant dyads carrying HLA-conferred type 1 diabetes risk

BHOSALE SD, MOULDER R, SUOMI T, RUOHTULA T, HONKANEN J, VIRTANEN SV, ILONEN J, ELO LL, KNIP M, LAHESMAA R

iScience

2024

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

ANDRABI SBA, BATKULWAR K, BHOSALE SD, MOULDER R, KHAN MH, BUCHACHER T, KHAN MM, ARNKIL I, RASOOL O, MARSON A, KALIM UU, LAHESMAA R

Immunol Lett

2023

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

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

Sci Rep

2023

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

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

Int J Biol Sci

2023

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

SHETTY A, TRIPATHI SK, JUNTILLA S, BUCHACHER T, BIRADAR R, BHOSALE SD, ENVAL T, LAIHO A, MOULDER R, RASOOL O, GALANDE S, ELO LL AND LAHESMAA R

Nucleic Acids Res

2022

Phosphoproteomics: Methods and Challenges

KANG T, BHOSALE S, EDWARDS A, LARSEN MR

Reference Module in Life Sciences

2022

HDL proteome remodeling associates with COVID-19 severity

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

J Clin Lipidol

2021

Interactome Networks of FOSL1 and FOSL2 in Human Th17 Cells

SHETTY A, BHOSALE SD, TRIPATHI SK, BUCHACHER T, BIRADAR R, RASOOL O, MOULDER R, GALANDE S, LAHESMAA R

ACS Omega

2021

CIP2A Constrains Th17 Differentiation by Modulating STAT3 Signaling

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

iScience

2020

Protein interactome of the Cancerous Inhibitor of protein phosphatase 2A (CIP2A) in Th17 cells

KHAN MM, VÄLIKANGAS T, KHAN MH, MOULDER R, ULLAH U, BHOSALE SD, KOMSI E, BUTT U, QIAO X, WESTERMARCK J, ELO LL & LAHESMAA R

Current Research in Immunology

2020

Quantitative Proteomics Reveals the Dynamic Protein Landscape during Initiation of Human Th17 Cell Polarization

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

iScience

2019

Serum Proteomic Profiling to Identify Biomarkers of Premature Carotid Atherosclerosis

BHOSALE SD, MOULDER R, VENÄLÄINEN MS, KOSKINEN JS, PITKÄNEN N, JUONALA M, KÄHÖNEN M, LEHTIMÄKI T, VIKARI J, ELO LL, GOODLETT DR, LAHESMAA R, RAITAKARI OT

Sci Rep

2018

Quantitative proteomic characterization and comparison of T helper 17 and induced regulatory T cells

MOHAMMAD I, NOUSIAINEN K, BHOSALE SD, STARSKAIA I, MOULDER R, ROKKA A, CHENG F, MOHANASUNDARAM P, ERIKSSON JE, GOODLETT DR, LÄHDESMÄKI H, CHEN Z

PLoS Biol

2018

Analysis of the plasma proteome using iTRAQ and TMT-based Isobaric labeling

MOULDER R, BHOSALE SD, GOODLETT DR, LAHESMAA R

Mass Spectrom Rev

2018

Mass Spectrometry-Based Serum Proteomics for Biomarker Discovery and Validation

BHOSALE SD, MOULDER R, KOUVONEN P, LAHESMAA R, GOODLETT DR

Methods Mol Biol

2017

The progress and potential of proteomic biomarkers for type 1 diabetes in children

MOULDER R, BHOSALE SD, LAHESMAA R, GOODLETT DR

Expert Rev Proteomics

2017

Serum proteomes distinguish children developing type 1 diabetes in a cohort with HLA-conferred susceptibility

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

Diabetes

2015

Proteome wide reduction in AGE modification in streptozotocin induced diabetic mice by hydralazine mediated transglycation

KESAVAN SK, BHAT S, GOLEGAONKAR SB, JAGADEESHAPRASAD MG, DESHMUKH AB, PATIL HS, BHOSALE SD, SHAIKH ML, THULASIRAM HV, BOPANA R, KULKARNI MJ

Sci Rep

2013

Zoom-In A targeted database search for identification of glycation modifications analyzed by untargeted tandem mass spectrometry

BHONSLE HS, KORWAR AM, KESAVAN SK, BHOSALE SD, BANSODE SB, KULKARNI MJ

Eur J Mass Spectrom (Chichester)

2012

Comparative and chemical proteomic approaches reveal gatifloxacin deregulates enzymes involved in glucose metabolism

SURESH KK, BHOSALE SD, THULASIRAM HV, KULKARNI MJ

J Toxicol Sci

2011

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.

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