

## Dr. Malkhey Verma

B-6 Faculty Residence  
Central University of Punjab  
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### Personal Details

Sex: Male

Nationality: Indian

Marital Status: Married

Date of Birth: 2<sup>nd</sup> May 1966

ResearchGate: [http://www.researchgate.net/profile/Malkhey\\_Verma](http://www.researchgate.net/profile/Malkhey_Verma)

Google Scholar: <https://scholar.google.co.uk/citations?user=DDlrKg0AAAAJ&hl=en>

**Specialization:** Cell Biology, Enzymology, Systems Biology & Cancer Therapeutics

### Educational Qualification

- Ph. D. (Biotechnology & Systems Biology), Indian Institute of Technology Bombay, India
- M. Tech. (Biotechnology), Institute of Engineering & Technology Lucknow, India
- B.S., University of Lucknow, India
- Training in Chemical Testing and Analysis, Regional Testing Center (Bureau of Indian Standards Lab) Okhla, New Delhi, India.

### Awards/Recognitions

- R. G. Manudhane Ph.D. Student Excellence Award 2004 for best research in Biotechnology & Systems Biology at Department of Chemical Engineering I.I.T. Bombay, Mumbai, India.
- Selected among 20 Ph.D. students/scientists worldwide for ‘Travel Grant’ by Department of Science & Technology, Government of Japan to attend the “International Workshop for Integrated Yeast Sciences” at Okinawa, Japan from March 14-20, 2004.

## Employment Details

1. Associate Professor (Biochemistry & Microbial Sciences), Central University of Punjab, Bathinda, India from 05 Feb 2016 till date
2. Research Fellow (Synthetic Systems Biology), Manchester Institute of Biotechnology, University of Manchester, UK from Nov 2010- Jan 2016.
3. Postdoctoral Research Associate (Systems Biology & Fermentation Tech.), Manchester Institute of Biotechnology, University of Manchester, UK from Nov 2007-Nov 2010.
4. Assistant Professor (Biotechnology Engineering), KIT's College of Engineering Kolhapur, India from July 2004-Aug 2008.
5. Lecturer (Biotechnology Engineering), KIT's College of Engineering Kolhapur, India from July 2004-Aug 2008.
6. Teaching Assistant (Biotechnology Engineering), I.I.T. Bombay, India from July 1999-June 2004

## Research Interest

1. Cancer therapeutics & Cancer Systems Biology.
2. Designing and Optimization of Fermentation/Bio processes.
3. Optimization of metabolic fluxes through natural and synthetic metabolic networks (Metabolic Engineering).
4. Optimization of recombinant protein expression and purification using microbial strains.
5. Drug development using enzyme kinetics, fragment based ligand-protein interaction using SPR, ITC and protein crystallization.
6. Systems Biology of Microorganisms and higher organisms (modeling of genetic network/switches, metabolic and signaling pathways).

## Research publications in peer reviewed journals

1. Michael Sawaya, **Malkhey Verma**, Vaishnavi Balendiran, Nigam P. Rath, Duilio Cascio, Ganesaratnam K. Balendiran (2016). Characterization of WY 14,643 and its Complex with Aldose Reductase. Scientific Reports 6, Article No. 34394
2. Thierry D.G.A Mondeel, Samrina Rehman, Yanfei Zhang, **Malkhey Verma**, Peter Dürre, Matteo Barberis and Hans V. Westerhoff (2016). Maps for when the living gets tough: Maneuvering through a hostile energy landscape. ScienceDirect IFAC-PapersOnLine 49-26 (2016) 364–370
3. K. Balendiran, Ganesaratnam, Rajendran Pandian, J., Drake, Evin, Vinayak Anubhav, **Verma Malkhey**, Cascio Duilio (2014). B-factor Analysis and Conformational Rearrangement of Aldose Reductase. Current Proteomics 11(3): 151-160.
4. Ettore Murabito, **Malkhey Verma**, Martijn Bekker, Domenico Bellomo, Hans V. Westerhoff, Bas Teusink, Ralf Steuer (2014). Monte-Carlo Modeling of the Central Carbon Metabolism of *Lactococcus lactis*: Insights into Metabolic Regulation. PLoS ONE 9(9): e106453
5. **M Verma**, EG Karimiani, RJ Byers, S Rehman, HV Westerhoff, PJR Day (2013). Mathematical modelling of miRNA mediated BCR-ABL protein regulation in chronic myeloid leukaemia vis-a-vis therapeutic strategies. Integrative Biology 5(3): 543-54.
6. **M Verma**, M Zakhartsev, M Reuss, HV Westerhoff (2012). 'Domino' systems biology and the 'A' of

- ATP. *Biochimica et Biophysica Acta (BBA)-Bioenergetics* 1827(1): 19-29.
7. GK Balendiran, MR Sawaya, FP Schwarz, G Ponniah, R Cuckovich, **M Verma**, D Cascio (2011). The role of Cys-298 in aldose reductase function. *Journal of Biological Chemistry* 286 (8): 6336-6344
  8. D Jameson, **M Verma**, HV Westerhoff (2011). *Methods in systems biology: Preface. Methods in systems biology* 500: xxiii
  9. HV Westerhoff, **M Verma**, M Nardelli, M Adamczyk, K van Eunen, E Simeonidis (2010). *Systems Analysis of Metabolism. Biochemical Society transactions* 38 (part 5): 1189-1196.
  10. HV Westerhoff, C Winder, H Messiha, E Simeonidis, M Adamczyk, **M Verma**, FJ (2009). *Systems biology: the elements and principles of life. FEBS letters* 583 (24): 3882-3890.
  11. **M Verma**, HJ Martin, W Haq, TR O'Connor, E Maser, GK Balendiran (2008). Inhibiting wild-type and C299S mutant AKR1B10; a homologue of aldose reductase upregulated in cancers. *European journal of pharmacology* 584(2): 213-221.
  12. GK Balendiran, **M Verma**, E Perry (2007). Chemistry of fibrates. *Current Chemical Biology* 1(3): 311-316
  13. **M Verma**, S Rawool, PJ Bhat, KV Venkatesh (2006). Biological significance of autoregulation through steady state analysis of genetic networks. *Biosystems* 84(1): 39-48
  14. **M Verma**, PJ Bhat, KV Venkatesh (2005). Steady-state analysis of glucose repression reveals hierarchical expression of proteins under Mig1p control in *Saccharomyces cerevisiae*. *Biochemical Journal* 388 (Pt 3): 843-849.
  15. A Ruhela, **M Verma**, JS Edwards, PJ Bhat, S Bhartiya, KV Venkatesh (2004). Autoregulation of regulatory proteins is key for dynamic operation of *GAL* switch in *Saccharomyces cerevisiae*. *FEBS Letter* 576(1-2): 119-126.
  16. **M Verma**, PJ Bhat, KV Venkatesh (2004). Expression of *GAL* genes in a mutant strain of *Saccharomyces cerevisiae* lacking *GAL80*: quantitative model and experimental verification. *Biotechnology and Applied Biochemistry* 39(1): 89-97.
  17. **M Verma**, PJ Bhat, S Bhartiya, KV Venkatesh (2004). Steady state modeling approach to validate an in vivo mechanism of the *GAL* regulatory network in *Saccharomyces cerevisiae*. *European Journal of Biochemistry* 271 (20): 4064-4074.
  18. **M Verma**, PJ Bhat, KV Venkatesh (2003). Quantitative analysis of *GAL* genetic switch of *Saccharomyces cerevisiae* reveals that nucleocytoplasmic shuttling of Gal80p results in a highly sensitive response to galactose. *Journal of Biological Chemistry* 278 (49): 48764-48769.
  19. Ettore Murabito, Riccardo Colombo, Chengkun Wu, **Malkhey Verma**, Samrina Rehman, Jacky Snoep, Shao-Liang Peng, Naiyang Guan, Hans V. Westerhoff (2015). *SupraBiology 2014: Promoting UK-China collaboration on Systems Biology and High Performance Computing. Quantitative Biology: 2015: eScholarID: 259998. DOI: 10.1007/s4048401500399*
  20. Scott Bragg, **Malkhey Verma**, Russell J. Moser, and Ganesaratnam K. Balendiran (2015). Kinetics of the Solid State Pyrolysis of Gellan Gum and Paper Pulp. *Journal of Biobased Materials and Bioenergy* Vol. 9, 1–8, 2015

## Research Papers in Conference Proceedings

1. **Malkhey Verma**, PJ Bhat and KV Venkatesh (2002). Optimal model to represent growth and enzyme dynamics in *S. cerevisiae* (2002). Indian Institute Chemical Engineers (IIChe), Hyderabad, India.

2. SJ Wilkinson, **M Verma**, K Sharkey, R Steuer, HV Westerhoff (2008). Towards an integrated ATP-centric model of regulation in yeast ICSB 2008. ISBN: 978-1-61567-332-2

## **Books published**

1. Daniel Jameson, **Malkhey Verma**, Hans Westerhoff (2011). Methods in Enzymology Volume 500: Methods in Systems Biology. ISBN: 9780123851185, Published by Elsevier.

## **Book chapters published/contributed**

1. Ganesaratnam K. Balendiran, **Malkhey Verma**, Satish Bharadwaj (2007). Lead Optimization in the Design of Aldose Reductase Inhibitors: Enzymology and molecular biology of carbonyl metabolism 13. Pp 231-241. Purdue University Press. Editors: Henry Weiner, Edmund Maser, Ronald Lindahl and Bryce Plapp ISBN: 978-1-55753-447-7.
2. SM Nilapwar, M Nardelli, HV Westerhoff, **M Verma (2011)**. Absorption spectroscopy: Methods in Systems Biology. ISBN: 9780123851185, Publisher: Elsevier
3. Hans V. Westerhoff, **Malkhey Verma**, Frank J. Bruggeman, Alexey Kolodkin (2011). From Silicon Cell to Silicon Human: BetaSys: Systems Biology of Regulated Exocytosis in Pancreatic [Beta]-Cells. ISBN: 44196956X, 9781441969569, Publisher: Springer
4. Hans V. Westerhoff, Samrina Rehman, Fred Boogred, Nilgun Yilmaz and **Malkhey Verma (2013)**. The Control Analysis of signal transduction: Systems Biology of metabolic and signaling networks. ISBN 978-3-642-38504-9 Publisher: Springer

## **Research Guidance**

### **Ph.D. Thesis Guided**

Oluwafemi Davies (2010-2014). Recombinant protein production in the chloroplast of microalgae: a systems biology approach. Degree awarded in April 2015 by The University of Manchester, UK.

### **Ph.D. Thesis Guiding**

Sonu Gupta (July 2016- Till date). Increased therapeutics index of tyrosine kinase inhibitors in CML through membrane transporter uptake (*Cancer therapeutics & Systems Biology*)

Priyanka Singh (July 2016-Till date) Development of conjunction therapy using miRNA and tyrosine kinases: Modelling and Experiments (*Cancer Therapeutics Strategies & Systems Biology*)

### **M. Phil. Thesis Guided**

Arezoo Shajiei (July 2015- Sep 2016). Enhancing the therapeutic index of tyrosine kinase inhibitors in CML through enhanced cellular uptake via membrane transporters. The University of Manchester, UK.

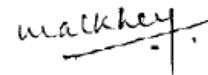
### **DTC & M. Res. Projects Guided**

1. Olusegun Oshota (2008). Quantification of HXT transporters in *Saccharomyces Cerevisiae*: Experimental and modeling analysis. The University of Manchester, UK
2. Venkatesh Kolluru (2009). Protein Stabilization in Aqueous Solution and Frozen State by Hydrophilic Polymer NV10. The University of Manchester, UK
3. David Morgan (2010). The Control by Glucose Transport; Cells Toggling Between Life and Death. The University of Manchester, UK

4. Ke Zhang (2013). Measuring drug resistance and heterogeneity in leukaemic cells pre and post treatment with Gleevec and following the perturbation caused by nanoparticle delivery of miRNAs. The University of Manchester
5. Nadia Iqbal (2013). The role of miRNAs in imatinib resistant chronic myelogenous leukaemia. The University of Manchester
6. Anastassia Kargina (2013). Chronic Myelogenous Leukaemia and Imatinib Resistance. The University of Manchester
7. Maria Ababi (2014). Single cell analyses within heterogeneous populations of cancer cells. The University of Manchester, UK
8. Sabbir Ali (2016-17). Construction of genome-scale metabolic model of *Clostridium carboxidivorans* (*Systems Biology*)
9. Jaswant Singh (2016-17). Construction of genome-scale metabolic model of *Clostridium autoethanogenum* (*Systems Biology*)
10. Dev Madhubala (2016-17). Comparison of Pyruvate Kinase (PK) of Lactic Acid Bacteria (LAB) with Human PK (*Enzymology & Bioinformatics*)
11. Soumya Ranjan (2016-17). Proline biosynthesis in *Bacillus subtilis* under normal condition and osmotic stress. (*Enzymology & Systems Biology*)
12. Prinu Singh (2016-17). Comparison of Lactate dehydrogenase (LDH) of Lactic Acid Bacteria (LAB) (*Enzymology & Systems Biology*)

**Date: 21 Dec 2016**

**Place: Central University of Punjab, India**



**(Malkhey Verma)**