

## PERSONAL INFORMATION

NAME	<b>Nishith Gupta</b>
ADDRESS	Department of Molecular Parasitology, Humboldt University (HU), Philippstraße 13, House 14, Berlin, 10115
CONTACT	T: 49-30-20936404, F: 49-30-20936051, <a href="mailto:Gupta.Nishith@staff.hu-berlin.de">Gupta.Nishith@staff.hu-berlin.de</a>
DATE OF BIRTH	3 <sup>rd</sup> January 1977 (38 years)
LANGUAGE SKILLS	Hindi (Fluent)                      English (Fluent)                      German (Good)
CITIZENSHIP	German
FAMILY STATUS	Married (3 kids)

## WORK EXPERIENCE

POSITION	Research Group Leader (2009 – Present)
EMPLOYER	Department of Molecular Parasitology, Humboldt University, Berlin
DISCIPLINE	Biochemistry, Genetics and Cell Biology of Intracellular Parasites
RESEARCH INTERESTS	Parasite-Host Metabolic Interactions ( <i>Toxoplasma</i> , <i>Eimeria</i> & <i>Plasmodium</i> )
RESPONSIBILITIES	Laboratory Research, Grant/Publication Writing, Scientific Presentations, Student Teaching and Supervision, Organization of International Meetings

POSITION	Research Associate (2006 – 2009)
SCIENTIFIC ADVISOR	Prof. Dr. Richard Lucius
DISCIPLINE	Department of Molecular Parasitology, Humboldt University, Berlin Biochemistry, Genetics and Cell Biology of Intracellular Parasites
RESEARCH INTERESTS	Parasite-Host Metabolic Interactions ( <i>Toxoplasma</i> & <i>Plasmodium</i> )
RESPONSIBILITIES	Laboratory Research, Grant/Publication Writing, Scientific Presentations, Student Teaching and Supervision, Organization of International Courses

POSITION	Postdoctoral Fellow (2003 – 2006)
SCIENTIFIC MENTOR	Prof. Dr. Dennis R. Voelker
DISCIPLINE	Department of Medicine, National Jewish Medical Center, Denver, USA Biochemistry and Genetics of Intracellular Parasites
RESEARCH INTERESTS	Phospholipid Biogenesis in <i>Toxoplasma gondii</i>
RESPONSIBILITIES	Basic Research, Grant and Publication Writings, Scientific Presentations

## EDUCATION

DEGREE	PhD in Biochemistry (1999 – 2003)
SCIENTIFIC SUPERVISOR	PD Dr. Otmar Asperger
DISSERTATION	Department of Biochemistry, University of Leipzig, Germany P450-Dependent Alkane Monooxygenase from <i>Acinetobacter</i> sp. EB104
GRADE	Magna cum laude

DEGREE	Master of Science in Biotechnology (1997 – 1999)
INSTITUTION	School of Biotechnology, Banaras Hindu University, India
SUBJECTS	Immunology, Molecular Genetics, Biochemistry, Microbiology, Animal & Plant Cell Culture, Environmental Biotech, Bioinformatics, Biostatistics (Thesis Report: Methods for the Development of the T-cell Vaccines)
GRADE	First (Grade: 1)

DEGREE	Bachelor of Science in Biology (1994 – 1997)
INSTITUTION	Rohilkhand University, Bareilly, India
SUBJECTS	Zoology, Botany and Chemistry
GRADE	First (Grade: 1)

## **AWARDS & HONORS**

Nov 2015 ( <i>due</i> )	Postdoctoral Prize for Young Scientists by Robert Koch Foundation, Germany
Feb 2015	International fellow of the Indian National Science Academy (INSA) at the University of Delhi, Host: Suneel Kateriya
July 2014	Carl Asmund Rudolphi Medal by the German Society of Parasitology (DGP)
August 2009	International fellow of Chinese Academy of Science at the Peking University Medical College, Host: Yongsheng Chang

## **FELLOWSHIPS & GRANTS**

2006 – 2008	Postdoctoral Fellowship from German Research Foundation (DFG)
2003 – 2006	Postdoctoral Fellowship from National Institute of Health (NIH), USA
1999 – 2003	PhD Fellowship from German Research Foundation (DFG)
1997 – 1999	MS-Biotech Stipend from Ministry of Science, Government of India
2000 – Present	Travel awards/grants from EMBO, FEBS, ESCMID, IUBMB, WAAVP, COST857, DAAD, DFG, GSK, ASM, GRC, ASBMB, SLAS, BS-UK and GBM foundations

## **EXTRAMURAL FUNDING**

2015 – 2018	Optogenetic dissection of cyclic NMP signaling <i>T. gondii</i> : GU 1100/7-1 from German Research Foundation; Collaboration: Peter Hegemann, 197.550€
2015 – 2019	Cyclic NMP signaling and metabolic regulation in <i>T. gondii</i> : GRK2046/A2 from German Research Foundation, 138.572€
2014 – 2017	Synthesis vs. import of host lipids by <i>T. gondii</i> : GU1100/4-1 from German Research Foundation; co-PI: Maik Lehmann, 319.900€
2013 – 2016	Carbon metabolisms of acute and chronic stages of <i>Toxoplasma gondii</i> GU1100/3-1 from German Research Foundation, 159.150€
2010 – 2012	<i>De novo</i> phosphatidylcholine synthesis as a drug target against <i>T. gondii</i> Young scientist research grant from European Society of Infectious Diseases and Microbiology (ESCMID), 20.000€
2009 – 2014	Biogenesis of inositol-glycolipids in <i>Toxoplasma gondii</i> GRK1121/A7 from German Research Foundation, co-PI: Andreas Herrmann (HU, Berlin), 181.000€
2009 – 2013	Modeling of lipid biogenesis in <i>Toxoplasma gondii</i> -infected human cell SBF618/C7 from German Research Foundation, co-PI: Herrmann Holzhütter (Charité, Berlin) and Richard Lucius (HU, Berlin), 410.700€
2009 – 2011	High-throughput anti-coccidian drug screening using YFP-parasite Novartis Animal Healthcare, co-PI: Richard Lucius (HU, Berlin), 32.725€
2009 – 2011	<i>In vivo</i> parasite-host interactions in the <i>Eimeria</i> -mouse model Awarded to Manuela Schmid and Nishith Gupta/Richard Lucius (Host labs at HU, Berlin) by Helmholtz Foundation, Germany, ~120.000€
2008 – 2010	Central carbon metabolism of <i>Toxoplasma gondii</i> Awarded to Martin Blume and Nishith Gupta/Richard Lucius (Host labs at HU, Berlin) by Helmholtz Foundation, Germany, ~120.000€

## **SELECT PRESENTATIONS**

June 2015	Phosphatidylthreonine and lipid-mediated control of parasite virulence Toxoplasmosis Conference, Gettysburg, USA
Jan/Feb 2015	A lethal intimacy – Metabolic basis of parasite-host interplay and infidelity IIS and NCBS (Bangalore), CDRI (Lucknow), JNU (New Delhi), India
Nov 2014	Optogenetic regulation of parasite signaling in <i>T. gondii</i> International Workshop on Opportunistic Protists, Seville, Spain
Nov 2014	Metabolic basis of parasite-host interplay and infidelity Veterinary University of Madrid, Spain
May 2014	Metabolic basis of obligate intracellular parasitism University of Edinburgh, Scotland, UK
April 2014	Opposing functions of the mouse IFN $\gamma$ signaling during <i>Eimeria</i> infection International Congress on Infectious Diseases, Cape Town, South Africa
November 2013	Make it or take it – Lipid biogenesis in <i>Toxoplasma gondii</i> University of Utrecht, The Netherlands
November 2013	Opposing roles of IFN $\gamma$ signaling during <i>Eimeria</i> infection Apicomplexa Meeting, Kusadasi, Turkey
September 2012	Optogenetic control of cytosolic cAMP in <i>Toxoplasma gondii</i> EMBO Meeting, Nice, France
December 2010	<i>Toxoplasma gondii</i> : A model organism to explore pathogen-host interactions University of Veterinary Medicine, Vienna, Austria
August 2010	Phospholipid biogenesis in <i>Toxoplasma gondii</i> International Congress of Parasitology (ICOPA), Melbourne, Australia
September 2009	<i>Toxoplasma gondii</i> : A model organism to explore pathogen-host interactions Peking University Medical College, Beijing, China
August 2009	<i>Toxoplasma gondii</i> secretes a PtdSer decarboxylase World Association for Veterinary Parasitology (WAVP), Calgary, Canada
June 2008	Membrane biogenesis in <i>Toxoplasma gondii</i> COST857 Workshop on Apicomplexan Parasites, Crete, Greece
August 2007	Biology of intracellular parasitism Birla Institute of Technology and Sciences, Goa, India
December 2006	Membrane biogenesis in <i>Toxoplasma gondii</i> EMBO Course on RNAi in <i>Trypanosoma brucei</i> , Nairobi, Kenya
April 2005	Phospholipid synthesis as a chemotherapeutic target in <i>Toxoplasma gondii</i> American Society of Biochemistry and Molecular Biology, San Diego, USA
October 2003	Phosphatidylcholine synthesis as a drug target in <i>Toxoplasma gondii</i> European Conference on Chemotherapy and Infection, Rhodes, Greece

## **STUDENT TEACHING**

2009 – Present	MS Module: Biochemistry and Cell Biology of Parasites – 14 lectures, 2 weeks practical and journal club (Humboldt University, Berlin), Organized jointly with Kai Matuschewski (Max-Planck Institute for Infection Biology, Berlin)
2010 – Present	WS Course: ‘Molecular Manipulation of <i>Trypanosoma brucei</i> ’ 2-weeks practical for MS students, Institute of Biology, Humboldt University

## RESEARCH SUPERVISION

### PhD students

2015 – Present	Bingjian Ren: CRISPR/Cas9-mediated reverse genetics of <i>Eimeria</i>
2015 – Present	Laura Radtke: Stage-specific rewiring of metabolism in <i>T. gondii</i>
2015 – Present	Ozlem Gunayy: Application of optogenetics in <i>Plasmodium falciparum</i>
2014 – Present	Matthias Noll: Optogenetic dissection of cAMP/cGMP signaling in <i>T. gondii</i>
2014 – Present	Arunakar Kuchipudi: Lipid-mediated control of calcium signaling in <i>T. gondii</i>
2012 – Present	Richard Nitzsche: Dissection of glucose/glutamine cooperativity in <i>T. gondii</i>
2012 – Present	Pengfei Kong: Synthesis and roles of inositol-containing lipids in <i>T. gondii</i>
2010 – 2014	Anne Hartmann: Phosphatidylethanolamine biogenesis in <i>T. gondii</i>
2009 – 2014	Ruben Dario Arroyo-Olarte: Phosphatidylthreonine biogenesis in <i>T. gondii</i>
2009 – 2012	Manuela Schmid: Host determinants of <i>Eimeria</i> development in mouse model
2009 – 2011	Vera Sampels: Phosphatidylcholine biogenesis in <i>T. gondii</i>
2008 – 2010	Martin Blume: Sugar metabolism of <i>T. gondii</i> and <i>Plasmodium berghei</i>

### MS & BS students

2006 – Present	Mareen Lüthen, Julieta Cuellar, Stefanie Brandt, Theresa Ring, Laura Radtke, Julian Kreibich, Aline Hössler, Leska Balken, Fatima Hedar, Lucas Niedersen, Ludmila Lobkowitz, Maximilian Tischer, Ulrich Sternberg, Heidy Narvaez, Tobias Kletter, Christoph Uffermann, Stefania Chiocchetti, Maria Hellmund, Nicola Schaltenberg, Friederike Hoffmann, Katharina Imkeller, Bilal Qureshi, Natalie Hofmann, Bernadette Nickl, Clemens Falker, Stephan Marquardt, Ines Heyn, Christina Wangen, Jennifer Oduro, Marjorie Linares, Kathrin Frenzel, Manuela Schmid, Isabelle Dietrich, Annabell Bachem, Martin Blume
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## ORGANIZATIONAL SKILLS

2008	Pathogen-Host-Interplay, International Summer School (Berlin) Funding: FEBS, DAAD and ESCMID, Co-organizer: Martina Sick Volume: 52.000 Euros plus 15 International Travel Fellowships
2007	Pathogen-Host-Interplay, International Summer School (Berlin) Funding: Center of Infection and Immunity (ZIBI), Co-organizer: Martina Sick
2006 – 2008	International Colloquiums in Infection Biology for PhD students (Berlin) Funding: Center of Infection and Immunity (ZIBI)

## SCIENTIFIC MEMBERSHIPS

2014 – Present	German Society of Parasitology (DGP), Germany
2001 – Present	Biochemical Society (BS-FEBS constituent), United Kingdom
2007 – Present	European Society of Microbiology and Infectious Diseases (ESCMID)
2007 – Present	International Society of Infectious Diseases (ISID)
2000 – 2008	Society of Biochemistry and Molecular Biology (GBM-FEBS), Germany

## OTHER INFORMATION

5-yrs Citations	527 (Source: Google Scholar)
Reviewer	Elsevier, FEBS, FEMS, ASBMB, PLoS Journals, WILEY, Wellcome Trust – DBT
Feature Article	Exploiting the Host: <i>International Innovation Magazine</i> Sept 2013
Patent	European patent filing on genetically attenuated <i>Toxoplasma</i> vaccine and commercial usage of an exclusive lipid (EP20846-Ro/td, <i>in review</i> )

## PUBLICATIONS

Arroyo-Olarte RD, Burrowers JF, Kuchipudi A, Helms JB, Biswas A, Dunay IR, Lucius R, **Gupta N**; Phosphatidylthreonine and lipid-mediated control of parasite virulence. *PLoS Biology* (*in press*)

Blume M, Nitzsche R, Sternberg U, Gerlic M, Masters SL, **Gupta N**, McConville MJ (2015); A *Toxoplasma gondii* gluconeogenic enzyme contributes to robust central carbon metabolism and is essential for replication and virulence. *Cell Host & Microbe*, 18: 210-20

Hartmann A, Hellmund M, Lucius R, Voelker DR, **Gupta N** (2014); Phosphatidylethanolamine synthesis in the parasite mitochondrion is required for efficient growth but dispensable for survival of *Toxoplasma gondii*. *Journal of Biological Chemistry*, 289: 6809-24

Schmid M, Heitlinger E, Spork S, Mollenkopf HP, Lucius R, **Gupta N** (2014); *Eimeria falciformis* infection of the mouse caecum identifies opposing roles of IFN $\gamma$ -regulated host pathways for the parasite development. *Mucosal Immunology*, 7: 969-82

Hartmann A, Arroyo-Olarte RD, Imkeller K, Hegemann P, Lucius R, **Gupta N** (2013); Optogenetic modulation of an adenylate cyclase in *Toxoplasma gondii* demonstrates a requirement of parasite cAMP for host-cell invasion and stage differentiation. *Journal of Biological Chemistry*, 288: 13705-17

Qureshi B, Hoffmann N, Arroyo-Olarte RD, Nickl B, Höhne W, Jungblut P, Lucius R, Scheerer P, **Gupta N** (2013); Dynein Light Chain 8a of *Toxoplasma gondii*, a unique conoid-localized  $\beta$ -strand-swapped homodimer, is required for an efficient parasite growth. *FASEB J*, 27: 1034-47

**Gupta N**, Hartmann A, Lucius R, Voelker DR (2012) The obligate intracellular parasite *Toxoplasma gondii* secretes a soluble phosphatidylserine decarboxylase. *Journal of Biological Chemistry*, 287: 22938-47

Schmid M, Lehmann MJ, Lucius R, **Gupta N** (2012) Apicomplexan parasite, *Eimeria falciformis*, co-opts host tryptophan catabolism for life cycle progression in the mouse. *Journal of Biological Chemistry*, 287: 20197-207

Sampels V, Hartmann A, Dietrich I, Coppens I, Sheiner L, Striepen B, Herrmann A, Lucius R, **Gupta N** (2012) Conditional mutagenesis of a novel choline kinase demonstrates the plasticity of PtdCho biogenesis and gene expression in *Toxoplasma gondii*. *Journal of Biological Chemistry*, 287: 16289-99

Blume M, Hliscs M, Contreras D, Sanchez M, Landfear S, Lucius R, Matuschewski K, **Gupta N** (2011) A constitutive pan-hexose permease in *Plasmodium* and models for high-throughput screening of anti-malarial sugar analogs. *FASEB J*, 25: 1218-29

Shao D, Liu Y, Liu X, Zhu L, Cui Y, Cui A, Qiao A, Kong X, Liu Y, Chen Q, **Gupta N**, Fang F, Chang Y (2010) PGC-1 $\beta$ -regulated mitochondrial biogenesis and function in myotubes is mediated by NRF-1 and ERR $\alpha$ . *Mitochondrion*, 10: 516-27

Zhu LL, Liu Y, Cui AF, Shao D, Liang JC, Liu XJ, Chen Y, **Gupta N**, Fang FD, Chang Y (2010) PGC-1 $\alpha$  coactivates estrogen receptor  $\alpha$  to induce the expression of glucokinase. *American Journal of Physiology*, 298: E1210-8

Blume M, Contreras DR, Landfear S, Fleige T, Soldati DF, Lucius R, **Gupta N** (2009) Host-derived glucose and its transporter in the obligate intracellular pathogen *Toxoplasma gondii* are dispensable by glutaminolysis. *Proceedings of National Academy of Sciences USA*, 106: 12998-3003

Kong X, Fan H, Liu X, Wang R, Liang J, **Gupta N**, Chen Y, Fang F, Chang Y (2009) Peroxisome proliferator-activated receptor gamma coactivator-1alpha enhances antiproliferative activity of 5'-

deoxy-5-fluorouridine in cancer cells through induction of uridine phosphorylase. *Molecular Pharmacology*, 76: 854-60

Liu X, Feng Q, Chen Y, Zuo J, **Gupta N**, Chang Y, Fang F (2009) Proteomics-based identification of differentially-expressed proteins including galectin-1 in the blood plasma of type 2 diabetic patients. *Journal of Proteome Research*, 8: 1255-62

Jiang ZB, Song HT, **Gupta N**, Ma LX, Wu ZB (2007) Cell surface display of functionally active lipases from *Yarrowia lipolytica* in *Pichia pastoris*. *Protein Expression Purification*, 56: 35-9

Yang C, Yang Y, **Gupta N**, Liu X, He A, Liu L, Zuo J, Chang Y, Fang F (2007) Pentaspan membrane glycoprotein, prominin-1, is involved in glucose metabolism and cytoskeleton alteration. *Biochemistry (M)*, 72: 854-62

He A, Zhu L, **Gupta N**, Chang Y, Fang F (2007) Overexpression of miR-29, highly up-regulated in diabetic rats, leads to insulin resistance in 3T3-L1 adipocytes. *Molecular Endocrinology*, 21: 2785-94

Liu XJ, Yang C, **Gupta N**, Zuo J, Chang YS, Fang FD (2007) Protein kinase C- $\zeta$  regulation of GLUT4 translocation by actin remodeling in CHO cells. *Journal of Molecular Medicine*, 85: 851-61

**Gupta N**, Zahn MM, Coppens I, Joiner KA, Voelker DR (2005) Selective disruption of phosphatidylcholine metabolism of the intracellular parasite *Toxoplasma gondii* arrests its growth. *Journal of Biological Chemistry*, 280: 16345-53

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#### **MANUSCRIPTS IN REVIEW**

Nitzsche R, Zagoriy V, Lucius R, **Gupta N**; Metabolic cooperation of glucose and glutamine is essential for the lytic cycle of intracellular parasite *T. gondii* (*under minor revision, JBC*)