Curriculum Vitae MATTHIAS BUCK

23229 Shelburne Road
Shaker Heights, Ohio 44122
German/US citizenship
DoB 11/30/1967
Married to Mia Kim, daughter: Gia Arianna

Department of Physiology & Biophysics
Case Western Reserve University Medical School
10900 Euclid Ave., Cleveland, Ohio 44106-4970
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1. Education

1987-1990 **Fitzwilliam College, University of Cambridge, UK**
B.A. (Hons.), M.A., Natural Sciences Tripos with specialization in Biochemistry

1990-1995 **Oxford Centre for Molecular Sciences, University of Oxford, UK**
Doctoral Research (D.Phil.) in Structural Biochemistry
Supervised by Prof. Christopher M. Dobson (now at Dept. of Chemistry, Univ. of Cambridge)
Thesis "*Nuclear Magnetic Resonance (NMR) Studies of the Dynamics and the Folding of Hen Lysozyme*"

1995-1999 **Department of Chemistry and Chemical Biology, Harvard University, USA**
Postdoctoral Research in Computational Biophysics
"*Studies of Protein Motion and Unfolding using Molecular Dynamics Simulation*"
Fellow of the International Human Frontiers Science Program Organization
Sponsored by Prof. Martin Karplus (Nobel Laureate for Chemistry, 2013)

1997-1999 **Laboratoire de Chimie Biophysique, Université Louis Pasteur, Strasbourg, FR**
Postdoctoral Research in Computational Biophysics (continued)
Marie Curie Fellow of the European Commission Biophysics Program
Sponsored by Prof. Martin Karplus

1999-2002 **Cellular Biophysics and Biochemistry Program, Memorial Sloan Kettering Cancer Center, New York City, USA**
Postdoctoral Research in Structural Biochemistry and Biophysics
National Institutes of Health Postdoctoral Fellow
Sponsored by Prof. Michael K. Rosen (now chair of Biophysics Dep., UT. Southwestern Med.Sc.)

2. Professional Appointments

2002- **Department of Physiology & Biophysics, School of Medicine**
Case Western Reserve University (CWRU), Cleveland, OH
2002-2009 Assistant Professor in the Tenure Track
2005- Member: **NCI/Case Comprehensive Cancer Center, CWRU**
2005- Secondary Appointment in the **Department of Neurosciences, CWRU**
2006- Secondary Appointment in the **Department of Pharmacology, CWRU**
2008 Visiting Scientist at the **Structural Genomics Consortium, Univ. of Toronto**
2009- Member: **Center for Proteomics and Bioinformatics, CWRU**
2009-2014 Associate Professor (Tenured), School of Medicine, CWRU
2014- Full Professor (Tenured), Dept. of Physiology & Biophysics, CWRU
2017 Sabbatical at Seoul National University, Department of Chemistry

3. Licensure and board certification: none

4. Membership of Professional Societies

1995-2012	Protein Society
1997-	American Academy for the Advancement of the Sciences
1997-	Biophysical Society
1998-	American Chemical Society
2000-2004	American Society for Cell Biology
2000-	American Heart Association
2003-2013	Society for Neuroscience
2002-	American Society for Biochemistry and Molecular Biology

5. Honors and Awards

1987	Valedictorian George Watson's College, Edinburgh, Scotland
1987-1990	European Community ERASMUS Program Scholar
1990-1995	Graduate scholarship at the Oxford Center for Molecular Sciences
1994	Awarded but declined fellowships of the Jane Coffin Childs Memorial Fund and of the Damon Runyon-Walter Winchell Trust for Cancer Research
1995-1996	Fellow of the International Human Frontiers Science Program Organization
1997-1999	Marie Curie Fellow of the European Commission Biophysics Program
2000-2002	National Institutes of Health Postdoctoral Fellow (NRSA / F32)
2001-	Biomedical Research Scholar of the Mt. Sinai Health Care Foundation, Cleveland
2003,2005	CWRU Nominee for Career Award from the PEW Foundation
2003-2005	American Heart Association Scientist Development Award
2005-2007	March of Dimes Foundation Basil O'Connor Award
2005-2009	Presidential Research Initiative/Ohio Board of Regents Award (with J. Shan of Physics)
2006	UCITE Teaching Fellowship at Case W. R. Univ.
2006-2011	National Heart, Lung and Blood Institute Career Award (K02)
2017	Brainpool Award from the Korean Government for Sabbatical Research

6. Professional Service

Reviewing and Consulting

1996-7 Consultant for Course "Principles of Protein Structure using the Internet", Birkbeck College
1996- Reviewer for Journals: Proteins: Struct.Funct. & Genetics; Protein Science; Biochemistry. J.Mol.Biol.

Since 2002 Reviewer for Journals: Angew. Chemie Int., Biochemistry, Biophys.J., Biopolymers, Cell, EMBO J., FEBS J., FEBS Lett., J.Am.Chem.Soc., J.Biol.Chem., J.BioMol.NMR, J. Chem. Theory Comp., J. Comp. Chem., J. Mol. Biol., J. Phys. Chem., Mol.Neurobiol., Nature, Nature Struct. Mol.Biol., PLoSONE, PLosComp. Biology, Proc. Natl. Acad. Sci., Science, Science Signaling, Small GTPases, Structure
2005,07 Protein Society Annual Meeting Poster Judge
Since 2009 Interviewer of Applicants for Admission to Harvard College, Harvard Alumni Network NE Ohio
2012 Judge at Intel International Science and Engineering Fair, Pittsburgh
2013-15 Advisory Board for GTCBio Protein-Protein Interactions conferences (2nd, 3rd and 4th.)

Editorial Boards, Peer Review Committees and Conference Organization

2005-11 Editorial Board Member, Archives in Biochemistry and Biophysics
2008- Member of Faculty of 1000, Protein Chemistry and Chemical Biology Section
2011- Associate Editor for BMC Structural Biology
2012 Guest Editor PLoS Computational Biology (May 12)
2012- Editorial Board Member, the Journal of Biological Chemistry
2015- Associate Editor, Frontiers in Molecular Biosciences

2007 American Heart Association, Florida/Ohio Valley Review Panel 5B (Apr. 07)
2008-09 American Heart Association, Region I, Basic Cell Science Review Panel 1 (Apr. 08, Apr. 09)

2011- American Heart Association, Great Rivers Affiliate, Basic Cell Science Panel 2 (Apr.11, 12, 13, 14, 15)

2006- Ad hoc reviewer in NIH study section Molecular Structure & Function-C (Feb.06, 07, 08, Oct.09, Jun.15)
2008 Reviewer of an NIH-P01 and North Carolina Biotechnology Center Multidisciplinary Res. Grant
2009,11 NIH Program Project BCMB-N(40) (Nov. 11) NIH Project Grant NIH ZRG1 BCMB (Mar.09)
2010-14 Regular member for 4 year term on NIH study section, Molecular Structure & Function-C;
2010- Ad hoc reviewer for NIH study section Molecular Structure & Function--D (Jun.10, Oct.14, Feb.16, Jun.18)
2015 NIH Center Project, P41 site visit and review (BCMB-S (40))
2015- Ad hoc reviewer for Natl. Cancer Institute study section NCI-I (K99 panel; Oct.15, Jun.16, Feb.18)
2016- Ad hoc reviewer for NIH study section Molecular Structure & Function-B (Jun.16)

2008 Reviewer Israeli Science Foundation and Cancer Research UK Program Project grants
2009- Reviewer of Research Grants for Medical Research Council, UK (Sep.09, 10, 11, Nov.13)
2009- Reviewer of Qatar Science Foundation (Mar.09, 10, 11, 14, 18)
2012- Reviewer for DoD/CDMRP grants (Jun.12, Nov.12, Jun.13, Jul.13)

2012- Letters for Promotion / Tenure for Investigators at Univ. of Arkansas; Univ. of Toronto, CA; Univ. of Cambridge, UK; UT Health Science Center at Houston; Nanyang Technological University, Singapore; KIAST, S. Korea; Univ. of Massachusetts, Worchester

2005-6 Chair of Cleveland Center for Structural Biology NMR Symposium Organizational Committee
170 attendees with 14 speakers/leaders in the Biomolecular NMR, field,
incl. the 2002 Nobel Laureate, K Wüthrich (May 12-14, 2006 in Cleveland)

2005 19th. Annual Meeting of the Protein Society, Boston, Chair for Protein Engineering Session
2008 Pittsburgh NMR Symposium, Session Chair
2010 XXIVth Int. Conf. Magn. Resonance in Biol. Systems, Session co-Chair, Cairns, Australia
2011 Discussion leader for Structural Biology Session at Gordon Conference, Mechanism of Cell Signaling
2012 Biophysical Society Meeting, Session co-Chair for “New Protein Structures”, San Diego
2013-14 Co-organizer of ASBMB Special Meeting “Translating the Biophysics of Molecular Switches: Signaling Mechanisms and Inhibition of Ras and Rho GTPases ”, 78 attendees and 18 speakers (May 14-18, 2014 in Virginia).
2015 Co-organizer of Great Lakes NMR Symposium, CCMSB Sep. 11; 50+ attendees and 8 speakers
2016 XXVIIth Int. Conf. Magn. Resonance in Biol. Systems, Session co-Chair, Kyoto, Japan
2018 Biophysical Society Annual Meeting, Session co-Chair, San Francisco

7. Service to Department, School, University

Departmental

2002 Steering Committee for Biophysics- Biomedical Engineering joint Graduate Program
2002 Faculty Search Committee for Molecular Biophysics Program (hired P. Wintrode)
2004 Development of a Departmental Brochure outlining Faculty Profiles for Recruitment & Marketing
2005- Course Director for new course: Advanced Protein Biophysics (Phol475)
2006- Member of the Education Committee, Department of Physiology and Biophysics
2006- Co-director of Undergraduate Research Programs, Department of Physiology and Biophysics
2007 Chair of the Department of Physiology and Biophysics Retreat Organizing Committee
2007-11 Faculty Search Committee, Department of Physiology & Biophysics (hired 7 junior and 1 senior professor)
2010- Member of Departmental Committee for Promotion and Tenure
2010-14 Departmental Website Committee
2011- Course Director for Phol456 “Conversations on Protein Structure, Dynamics and Function”
2013-14 Chair of Marketing Committee and Member of taskforce to redevelop departmental PhD program
2011-17 Chair of Faculty Mentoring Committee for junior faculty member R. Ramachandran
2012-14 Member Faculty Mentoring Committee for junior faculty member Tomasz Religa
2015- Chair of Departmental Infrastructure Committee
2015-18 Biophysics/Structural Biology, Faculty Search Committee, Department of Physiology & Biophysics
2016- Admissions Committee for Graduate Students to the Department of Pharmacology

School/University

2003 Search Committee for NMR facilities manager (hired X. Mao)
2004-10 Co-Organizer of Cleveland Center for Structural Biology Seminar Series
2005- Interviewer for MSTP (MD/PhD) applicants to CWRU School of Medicine
2005-6 Chair of CCSB NMR Symposium Organizational Committee (May 12-14, 2006), 170 attendees
14 speakers who are leaders in the Protein NMR, field, incl. the 2002 Nobel Laureate, K Wüthrich
2007-11 Committee on Students, Case Western Reserve University Medical School
2007- Co-Organizer of Interdepartmental Journal Club in Structural Biology/Protein Biophysics
2007-8 Committee for Strategic Planning for Infrastructure in the Medical School
2008 Member of Faculty Council (to replace Corey Smith)
2009-18 Technical consultant for the Cleveland Center for Membrane and Struct.Biol. NMR facility
2009- Director of Interdepartmental Structural Biology/Protein Biophysics Graduate Program (SBB-TP)
2011 Co-Organizer of ACES+ visit/Distinguished University Lectureship of A. Gronenborn
2011-15 Advisory Committee on High Performance Computing at Case Western Reserve University
2011-14 Elected Member of the Faculty Senate, Case Western Reserve University
2012 Elected Member to Dean's School of Medicine Climate Survey Taskforce
2013-15 Elected Member to Dean's School of Medicine Research Strategy Advisory Committee
2015- Elected Member to Dean's School of Medicine Biomedical Workforce Committee
2016 Graduate Education C3MB Curriculum and PhD recruitment Committee of the School of Medicine
2016- Elected Member of the Faculty Senate, Case Western Reserve University
2016- University Senate Ad Hoc Committee on International Rankings
2018- Elected Member, School of Medicine Lectureship Committee
2018- Elected Member, School of Medicine Finance Committee

8. Teaching (# of sessions ~ 1.5 hrs each)

1991-3 Tutor for freshman classes in Biological Chemistry, University of Oxford
1999 Teaching fellow for laboratory classes in Biological Sciences, Harvard University
2003 Lectures in Phol523 "Advanced NMR spectroscopy" (3 in '03)
2004-06 Lectures in Phol466 "Cell Signaling" (4 in '05 & '05, 2 in '06 & '07)
2004-12 Lectures in Phol456 "Proteins & Nucleic Acids" (3 in '04, '05, '06, 4 in '07, 2 in '09, '10, '12)
2005- Course Director & Lectures for New Course Phol475 "Advanced Protein Biophysics"
(5 in '05, '06, '07, 7 in '08, 6 in '10, '11, '12, '13, 8 in '16, 7 in '17)
2005-09 Lectures in Bioc431 "Advanced Techniques in Structural Biology" (3 in '05, '07, 5 in '09)
2005 2 Lectures in Chem.410 "Instrumentation for Analytical Chemistry"
2006,07 Small group facilitator to 1st year Med. Students (Homeostasis I) Session "Cystic fibrosis"
2006 UCITE Teaching Fellow
2006,07 Small group facilitator 2 sessions "Signal Transduction/Receptors" & "Muscle Physiology"
2007 Small group facilitator to Med. Students 2 sessions "Signal Transduction/Receptors"
2008-13 Lectures in Phol530 "Biophysical Instrumentation" (3 in '08, '09, '10, '11, 4 in '12, '13)
2008 Small group facilitator to Med. Students 2 sessions Block 4 (1 & 2) "Cardiac Muscle"
& "Membrane Transport"
2009-11 MBio526 "Cell Biology and Human Disease" (2 in '09, '10, '11)
2010- Small group facilitator to Med. Students sessions Block 4 "Cardiac Muscle"
& "Membrane action potentials (practical)", "Membrane Transport", "Integrated Cardiac Signaling"
(4 sessions in '10, 3 in '11, 5 in '12, '13, '14, '15, '16, 2 in '17)
2011- Director of NMR module & Lectures Bioc430 "Advanced Techniques in Structural Biol." (5 in '11,'13,'15)
2011-14 Lectures in Bioc430 "Drug Discovery & Development (2 in '11, '12, '13, '14)
2013- Course Director Phol456 "Conversations on Protein Structure and Function" (3 in '13, 5 in '14, 7 in '16)
2013- Course Director Phol497 "Interdepartmental Journal Club in Structural Biology and Biophysics" (8-12 p.a.)
2014- Lectures in Phol401 "Integrated course in Physiology and Biophysics" (5 in '14, 6 in '15, 7 in '16, '17, '18)
2015- Member of SOM Medical Student Theses Review Committee (3 in '15, 2 in '16, '17, '18)

Membership of Training Grants in Cleveland Area

2006-	Medical Scientist Training Program (MSTP) (Program Director: Harding)
2006-2009	Dept. of Physiology and Biophysics, Cleveland Cardiovascular TP (Scarpa/Dubyak)
2009-	Department of Pharmacology, Predoc. TP in Molecular Therapeutics (Mieyal)
2009-	Department of Neuroscience, Predoc. Training in Neuroscience (Landmesser)
2011-2014	Cleveland Clinic T32 Molecular Medicine Ph.D. Training Program (Cathcart)
2012-17	Case Western Reserve Univ. T32 Nephrology Training Program (Sedor)

2012- Case Western Reserve Univ. T32 Musculoskeletal Training Program (Greenfield)
2015- Visual Sciences Training Grant, T32 (Palczewski)
2015- Cancer Biology, T32 Training in the NCI Comprehensive Cancer Center (Beno)

Training, Mentoring & Supervision of Scientists

Undergraduate Students

Name / Status in lab.	Origin	Time in Lab.	Last known Destination
Johanna Bush, Sum.UG	UPenn, BSc	7.03 - 9.03	Grad. study in Mol.Biol. at NCI
Nimisha Jain, UG	Case Western R.Univ.	2.04 – 5.04	Med. student Univ. of Minnesota
Sarita Zaleha, UG	Case Western R.Univ.	3.04 – 5.04	Grad. study Comp. Sci, CWRU
Kathleen Salerno, SumUG	Oberlin College	7.04 – 8.04	Grad. study Neurosc. Pittsburgh
Neal George, UG*	Case Western R.Univ.	11.04 – 6.05	Grad. study at NIH/Georgetown
Nicholas Detore, Sum.UG	John Carol Univ.,	7.04 – 9.04	Grad. study N.E. Ohio Univ. Med.
David Slochower, Sum.UG	Kenyon College	7.05 – 9.05	Grad. study BioPhysics U.Penn
Julie Dang, UG, Sum.UG	Case Western R.Univ.	11.05 – 3.07	MD program Univ. of Michigan
Kellie Jaremko, Sum.UG	Ohio Wesleyan College	7.06 – 9.06	MD/PhD program Jefferson Univ.
Peter Hedman, Sum.High	Hawken High School	6.06 – 7.06	UG at Harvard College (Physics)
Joyce Oh, UG	Case Western R.Univ.	6.06 – 5.09	Med. at OU Osteopathic Medicine
Mark Colvin, Sum.UG*	Lincoln Univ. ,	6.07 – 7.07	Medical training at NEO Med. Sc.
Lucas Stetzik, Sum.UG	Wooster College,	6.07 – 7.07	Lab. manager, Univ. of Akron
Sarah Bell, Sum.UG	Wesleyan Univ., Conn.	6.08 - 7.08	Med. student at Univ. of Michigan
Kofi Quaye, Sum.UG*	Ohio Wesleyan Univ.	6.08 - 7.08	Med.student at Albany Med. Sc..
Amy Baumann, UG	Case Western R.Univ.	6.09 - 7.09	Med. student at Univ. of Cincinnati
Manuele Colon, Sum.UG*	Univ. of Puerto Rico,	6.10 – 7.10, & 6.11 - 7.11	Grad. study at NCI
Derek Clay, Sum. UG	Cornell Univ.,	6.10 – 7.10	Grad. study at Princeton Univ.
Nan Jiang, UG	Case Western R. Univ.	9.10 – 12.11	Med.student at Wright State, Ohio
Ismail Ahmed, PREP*	City College of NYC	9.11 - 5.12	Grad. study Biophysics U.Penn
Alexandra Zagorski, UG	Case Western R. Univ.	1.12 - 1.13	Res. Scientist at Lobrizol, Ohio
Anna Elleman, Sum. UG	UC Berkley	6.12 - 8.12	Grad. study at Stanford
Tomas Centa, Sum. UG	Univ. of Cincinnati	6.13 - 7.13 & 6.14 - 7.14	UG at Univ. of Cincinnati
Rocio Medelin, Sum. UG*	Pont. Catholic Univ. P.R.	6.13 – 8.13	Grad. at Ponce Health Sci. Univ.
Marvin Thomas, Sum. UG*	Morgan State Univ.	6.14 - 7.14	Dental Student at UPenn
Juan Irzarri, Sum. UG*	Univ. of Puerto Rico	6.15 – 7.15	UG at Univ. of Puerto Rico
Linus Lee, Sum. UG	Vanderbilt Univ.	6.15 – 7.15	UG at Vanderbilt Univ.
Jarden Shirkey, Sum. UG	Ferris State Univ.,	5.16 – 8.16	UG at Ferris State Univ. Michigan
Lorina Haziri, Sum. Med.	Yeditepe Univ. Sc. of Med. Istanbul, Turkey	7.16 – 7.16	Med. Student in Turkey
Deonna Bowman,Sum.UG	Univ. of Akron, Ohio	7.17 - 8.17	UG at Univ. of Akron
Berfin Akbulut,Sum. Med.	Yeditepe Univ. Sc. of Med. Istanbul, Turkey	7.18 - 8.18	Med. Student in Turkey

*minority student (8 of 29)

Graduate Students (Physiology & Biophysics, unless indicated)

2003-4 S. Hong (long Rotation)
2004-5 S. He (long Rotation)
2005 N. Balanis (short Rotation)
2005-6 S. Zilka (long Rotation)
2007-8 R. Anderson (long Rotation)
2008 E. Hamburg (short rotation, MSTP student)
2009-11 S. Cao (visiting graduate student)
2010 J. Bernado (CCF Medical Student)
2011 Y. Huang (SBB-TP student, short Rotation)
2012-3 S. Chatterjee (long Rotation)
2013 R. Clinton (Pharm. Student, short Rotation), S. Gulati (SBB-TP Student, short Rotation)
2014 Y. Gicheru (SBB-TP student, short Rotation)
2017-8 F. Raezelle-Javier (MS Medical Physiology, plan A research thesis student)
2018-9 Z. Meng (MS Biochemistry, plan A research thesis student)

Thesis and Mentoring Committees (all in PhD students in Physiology and Biophysics Dept. unless noted)

2002 K. Choowongkomon , J. Conway and K. Oxenoid
2003 D. Bown , K. Choowongkomon and J. Conway
2004 D. Bown , K. Choowongkomon, J. Conway and Y. Tsutsui
2005 J. Conway, E. Morgan, Y. Tsutsui and M. Zafiropulos
2006 M. Bagheri-Hamaneh (Physics), A. Blum , J. Conway and Y. Tsutsui
2007 A. Blum, Y. Tsutsui, C. Venezia, and M. Zhang (CCF Graduate Program at Case, Basic Science mentor)
2008 A. Blum, C. Venezia, Y-L. Weng (Neurosicence), S. Zilka and M. Zhang (CCF)
2009 A. Blum, S-K. Lee, R. Mecklemburg, Y-L. Weng (Neuroscience), S. Zilka and M. Zhang (CCF)
2010 S-K. Lee, R. Mecklemburg, Y-L. Weng (Neuroscience), S. Zilka,
2011 S-K. Lee, S. Zilka, V. Pandyarajan (Biochemistry), R. Ramachandran (junior faculty), X. Sui (sbb-tp)
2012 S-K. Lee, R. Mecklemburg (Biology), V. Pandyarajan (Biochemistry), R. Ramachandran (junior faculty), T. Religa (junior faculty). S. Madavan (physician, Metrohealth, K08 co-mentor), N. Gulati (sbb-tp)
2013 V. Pandyarajan (Biochemistry), R. Ramachandran (junior faculty), T. Religa (junior faculty), S. Madavan (physician, Metrohealth, K08 co-mentor), M. Kaufman & B. Lee (Medical Physiology Masters) M. Sandoval (Medical Master Thesis), Alex Gileski (Medical Master Thesis, Committee chair), S. Gulati & M. Xu (sbb-tp students)
2014 V. Pandyarajan (Biochemistry), R. Ramachandran (junior faculty), T. Religa (junior faculty), S. Madavan (physician, Metrohealth, K08 co-mentor), M. Kaufman & B. Lee (Medical Physiology Masters) M. Sandoval (Medical Master Thesis), Alex Gileski (Medical Master Thesis, Committee chair), Y. Gicheru & X. Han (sbb-tp students)
2015 M. Glidden, (MSTP in Physiology, Committee chair), R. Ramachandran & S. Yang (junior faculty), S. Madavan (physician, Metrohealth, K08 co-mentor), B. Lee, K. Petrella, G. Spears, C. Liu, M. Kizziah, D. Tung, N. Genco [class of 16], O. Bakhter, D. Bassily, M. Benenati, S. Dharmaiah, B. Jerew, C. Klook, S. Medicherla, S. Paulovich, R. Venna, [class of 17] (Medical Physiology Masters), C. Sander (sbb-tp student), P. Taheri [Master in Biology, Plan B]
2016 M. Glidden, (MSTP, Committee chair), Y. Gicheru (PhD, Committee Chair), Qiuye Li, (PhD), J. Yang and X. Sui (PhD Pharmacology), R. Ramachandran, S. Yang (both junior faculty), S. Madavan (physician, Metrohealth, K08 co-mentor), B. Lee, K. Petrella, G. Spears, C. Liu, M. Kizziah, D. Tung, N. Genco [class of 16], O. Bakhter, D. Bassily, M. Benenati, S. Dharmaiah, B. Jerew, C. Klook, S. Medicherla, S. Paulovich, R. Venna [class of '17]; A. Alireza, A. Chatuvedi, A. Gosh, G. Gill, E. Hlosek, C. Nwoaha, M. Kushner, V. Pallotta, B. Schmid [class of '18] (Medical Physiology Masters) L.Thomas & A. Daruwalla (sbb-tp students)
2017 M. Glidden, (MSTP, Committee chair), Y. Gicheru (PhD, Committee Chair), Qiuye Li, (PhD), J. Yang X. Sui (PhD Pharmacology), R. Ramachandran, S. Yang (both junior faculty), S. Madavan (physician, Metrohealth, K08 co-mentor), O. Bakhter, D. Bassily, M. Benenati, S. Dharmaiah, B. Jerew, C. Klook, S. Medicherla, S. Paulovich, R. Venna [class of '17]; A. Alireza, A. Chatuvedi, A. Gosh, G. Gill, E. Hlosek, C. Nwoaha, M. Kushner, V. Pallotta, B. Schmid [class of '18] (Medical Physiology Masters); M. Benson, C. Binghay, B. Jackson, N. Mahmood, M. McGregor, P. Patel, F. Rivera, C. Schertzinger, D. Schneider, A. Syed [class of '19]
2018 Y. Gicheru (PhD, Committee Chair), Qiuye Li, (PhD), J. Yang and (PhD Pathology), S. Madavan (physician-scientist, co-mentor), A. Alireza, A. Chatuvedi, A. Gosh, G. Gill, E. Hlosek, C. Nwoaha, M. Kushner, V. Pallotta, B. Schmid [class of '18] (Medical Physiology Masters); M. Benson, C. Binghay, B. Jackson, N. Mahmood, M. McGregor, P. Patel, F. Rivera, C. Schertzinger, D. Schneider, A. Syed [class of '19]; K. Ghandi, D. Malaker, J. Payyapilly, B. Philbert, A. Stynuchula, [class of '20]; B. Jin [sbb-tp student]

Research Assistants

2000-2 W. Xu (Research Assistant, Sloan-Kettering CC, now RA at U.Penn)
2002-3 L. Placanica (Research Assistant, then PhD Cornell Med. School, NYC, now Grants Officer, SloanKCC)
2003-4 D. Hughes (Research Assistant, then PhD UTSouthwestern, Dallas., now Postdoc Univ. of Miami)
2005-6 M. Li (Research Assistant, now graduate student at Rochester Dental School)
2006-8 R. Alviani (Research Assistant, now RA at Henry-Ford Clinic, Detroit)
2007-* S. Kim (Research Assistant) [*on leave]
2012 J. Rose (temp. Research Assistant, then lab. manager Ruschak Lab., CWRU)
2013- J. Mueller-Greven (Research Assistant)

Research Associates

2003-6 Y. Tong (Postdoc., PhD from Chinese Acad. Sciences, Biophysics Inst./Tsinghua Univ.); now Group Leader at Structural Genomics Consortium, Assistant Prof., Univ. Toronto
2004-6 S. Bouguet-Bonnet (Postdoc., PhD from Univ. H. Poincare, Nancy, Fr.); now Lecturer at Univ. Lorraine
2006-8 P. Chugha (Postdoc., PhD from Duke Univ.); then Res. Associate and project manager at UC San Francisco, now project manager for clinical trials at Duke Univ.
2006-9 M. Bagheri-Hamaneh (Postdoc, PhD from CWRU Physics); then Assist. Prof, Eng. Dept, CWRU now staff scientist at NIH
2006-11 P. K. Hota (Postdoc, PhD from IIT Bombay); now Associate Prof. HNBG Univ. Srinagar, India
2008-11 H.-J. Lee (Postdoc, PhD from POSTECH, S. Korea); entered Clergy in S. Korea
2009-15 L. Zhang (Postdoc, PhD from Univ. of Rhode Island); now Assistant Prof. at Tennessee Tech. Univ.
2011-16 S. Borthakur (Postdoc, DPhil from Univ. of Oxford); group leader Acceleron Pharma. Inc. Boston
2013-14 R. Mahalingam (Postdoc, PhD from Academia Sinica, Taiwan); now postdoc Univ. of Houston
2013- S. Cao (Postdoc, PhD Central China Normal Univ., and 2 yr visitor in Buck lab.)
2015-7 P. Rodriguez-Gil (Postdoc, PhD Universidad Autónoma del Estad de Morelos, Mexico); at home with baby
2015-6 M. Mahajan (Postdoc, PhD from Nanyang Tech. Univ., Singapore); now postdoc Univ. of Michigan
2015- Z. Li (Postdoc, PhD from Nanjing Univ., China)

Visitors to the Laboratory

2006-7 J. Gatherwright (M.D. Student, CWRU, now surgery resident, Univ. Hospitals, Cleveland)
2009-10 M. Zerbetto (Postdoc, PhD Univ. of Padua, Italy, now tenure track/junior group leader)
2009-11 S. Cao (Graduate Student, M.Sc., Central China Normal Univ., now postdoc)
2012-18 S. Madhavan, (Physician, M.D., Metrohealth, Cleveland)
2016 M. Zerbetto (junior group leader Univ, of Padua, Italy).

Recent and Current Collaborators

Plexin Receptors: Yufeng Tong (Structure Genomics Consortium, Univ. of Toronto, Canada), Luca Tamagnone (Cancer Center, Univ. of Torino, Italy), Alexander MacKerell (Univ. of Maryland), Sudha Chakrapani (Case Western RU), Dominique Bagnard (Univ. of Strasbourg, France), Adam Smith (Univ. of Akron), Suzanne Paradis (Brandeis Univ.), Roland Friedel (Mt. Sinai, NYC)

Eph Receptors: Bing-Cheng Wang (MetroHealth Cleveland, USA), Adam Smith (Univ. Of Akron) Rajesh Ramachandran (Case Western RU), Daniel Liebl (Miami Univ.), Dimitar Nikolov & Juha Himanen (Mem. Sloan-Kettering Cancer Center)

Small GTPase Phosphorylation and Lipid Binding: Danny Manor (Case Western Res. Univ.), Daniel Altschuler (Univ. of Pittsburgh); Carla Mattos (Northestern Univ.)

Protein Dynamics (computational / NMR): Richard Pastor (NHLBI Washington, USA), Benoit Roux (Univ. of Chicago, USA), Eva Meirovitch (Bar-Ilan Univ. Israel); Craig Cameron (Penn State Univ.); Sichun Yang (Case Western RU); Rajesh Ramachandran (Case Western RU); Ho Min Kim (KAIST, S. Korea), Chaok Seok (Seoul Natl. Univ., S. Korea), Gyu-Rie Lee (Univ. of Washington, Seattle)

Conference Talks & Invited Seminars (1998- to date)

1998-2001

Jan.98 Departmental Seminar, Department of Structural Biology at the Biozentrum, University of Basel
Mar.98 Departmental Seminar at NIH/Comp.Biophysics Section (LBC/CBER), Bethesda
Aug.98 XVIIIth. Int. Conference on Magnetic Resonance in Biological Systems, Tokyo
Oct.98 Seminar to Wüthrich Group, ETH, Zürich
Nov.98 Seminar to NMR/modeling groups at University College London
Mar.99 Seminar to NMR/modeling groups at Rockefeller University, New York

Nov.99 Seminar to Structural Biology groups, Department of Biophysics, Columbia University
Dec.00 Ann.Meeting American Society for Cell Biology, Cytoskeleton Signaling Satellite, San Francisco
Aug.01 Departmental Seminar, Department of Biochemistry, UT Southwestern Medical Center

2002

Jan Local and Nanoscale Structure in Complex Systems, Los Alamos Natl. Lab., Santa Fe
Jan Job-Talks at Univ. of Florida, Wash. U., U. Vermont, U.C. Santa Barbara, U. Mass, McMaster,
Feb MRC/LMB Cambridge, Case Western Reserve University
Sep Cold Spring Harbor Meeting, Axon Guidance and Neural Plasticity, NY

2003

Feb Seminar to NMR groups, Chinese Academy of Sciences, Beijing
Apr Departmental Seminar, Department of Biochemistry, Univ. of Leeds, Leeds
May Seminar to the Department of Neurosciences, Case, Cleveland
May Seminar to the Department of Pharmacology, Case, Cleveland

2004

Apr Seminar to Ikeda-Saido group, Tohoku Univ., Sendai, Japan

2005

Mar Seminar at Rammelkamp Research Conference, MetroHealth Medical Center, Cleveland
Apr Seminar in Cleveland Structural Biology Center Seminar Series, Cleveland
Sep Seminar to the Physics Department at Case Western, Cleveland
Oct Speaker at Bruker's Northwest Users Meeting, Cleveland

2006

Jan Seminar to the Departments of Chemistry and Biochemistry, Ohio State Univ., Columbus
May Seminar at Cleveland Center for Structural Biology NMR International Symposium
Aug Seminar to the Biophysics Department at the University of Bayreuth, Germany

2007

Sep Seminar to the Cancer Center at Torino Univ., Italy
Sep Seminar to Molecular Medicine Graduate Training Program, Cleveland Clinic Foundation

2008

Feb 52nd Annual Meeting of the Biophysical Society, Long Beach (P. Chugha, platform presentation)
Apr Seminar to Structural Biology Groups, University of Buffalo, NY
May Seminar to Prostate Cancer Center & Physiology Department, University College London
May Seminar to NMR groups at the University of Nancy, France
May EMBO Meeting on "Sema Function & Mechanisms of Action", Abbaye d.v. Cernay, France
May Gordon Conference "Computational Aspects of Biomol. NMR spectroscopy", Pisa
Jul. Presentation at Case Comprehensive Cancer Center Retreat with D. Manor (pilot grant awardees)
Aug Seminar to NMR groups at Pohang University of Science and Technology (POSTECH), Korea
Aug Seminar to NMR groups at Korean Institute of Science and Technology (KIST), Seoul
Aug XXIIIrd. Int. Conference on Magnetic Resonance in Biological Systems, San Diego

2009

Jan Seminar to the Department of Neuroscience, Case Western Reserve University, Cleveland
Jan Seminar to Case Cardiovascular Research Institute, CWRU/UH/CCF, Cleveland
May Seminar to Case Center for Proteomics and Bioinformatics, CWRU, Cleveland
Jun Keystone Meeting on Protein Dynamics, Allostery and Function, Keystone, Colorado
Aug Am. Chem. Soc. National Meeting, Computational Chem. Section Plenary, Washington, DC
Aug Gordon Research Conference on "Cell Signaling", Oxford
Aug Seminar to Structural Biology Groups (Yvonne Jones), Oxford
Sep Seminar to Offermanns Group, Max Plank Institute for Heart and Lung Res., Bad Nauheim

2010

Jan Seminar to Cleveland Center for Membrane and Structural Biology, Cleveland
Jan Seminar to the Dept. of Pharmacology & Chem. Biol., Univ. of Pittsburgh Med. School
Feb Seminar to the Dept. of Biochemistry, CWRU, Cleveland
Apr Seminar to the NMR groups in the Dept. of Biochemistry, Univ. of Cambridge, UK
Apr Symposium on Protein Folding and Dynamics at Ashbury Center for Structural Biology, Univ. of Leeds
May EMBO Workshop, Cell Guidance Signals in Cancer, Portofino, Italy
May Workshop Computational Biophys. to Systems Biology (CBSB10) Michigan State Univ. (L. Zhang)
Jun Seminar to Molecular Cardiology Department, Lerner Res. Institute, CCF
Jul Talk at CHARMM Developers Workshop, Harvard Univ.

Aug Am. Chem. Soc. National Meeting, Computational Chem. Section, Boston (L. Zhang)
Aug Session Chair XXIVth. Int. Conference on Magnetic Resonance in Biological Systems, Cairns, Australia
Dec Am. Chem. Soc. National Meeting, Computational Chem. & Adv. In NMR Sections, Hawaii

2011
Feb Seminar to Computational Biophysics Groups, NHLBI, Maryland (L. Zhang)
Mar Seminar to Chemistry Department, Hanyang University, Seoul, S. Korea
Aug Chair for Struc. Biology Session, Gordon Conference, Mechanism of Cell Signaling, Bates Col, NH
Dec Seminar to Biochemistry Department, University of Iowa
Dec Seminar to Structural Biology Department, Weizmann Institute, Revohot, Israel
Dec Seminar to Life Sci. Dept. Bar-Ilan University, Israel

2012
Feb Seminar to Computational Biophysics groups at NHLBI / NIH, Washington DC
Feb Biophysical Society Annual Meeting, Platform presentation & Session co-chair, San Diego
Mar Seminar to Department of Chemistry, University of Akron
Apr Seminar to Biochemistry Department, Georgia State Univ.
Apr Seminar to Department of Biochemistry and Molecular Biology, Michigan State University
Jul. CHARMM Developers Workshop, NIH, Washington DC
Jul Computer Aided Drug Design Symposium, Univ. of Maryland
Aug XXVth. Int. Conference on Magnetic Resonance in Biological Systems, Lyon, France
Oct 12th. KIAS conference on Protein Structure and Function, Seoul, S. Korea
Oct Biophysical Society Meeting, Weak Protein-Ligand Interactions, Beijing
Oct Seminar to NMR groups at Univ. of Science and Technology (USTC), Hefei
Nov Seminar to Biochemistry Department, University of Oxford, U.K.
Dec Seminar to Department of Chemistry and Biochemistry, University of Arkansas

2013
Feb Biophysical Society Annual Meeting, Platform presentation, Philadelphia (L. Zhang)
Mar Seminar to Dept. of Bioengineering and Pharmaceutical Sciences, UCSF, San Francisco
May ESF/EMBO Symposium “Molecular perspectives of protein interactions” Pultusk, Poland
Jul Seminar in Symposium “Atomic View of Biomolecular Function” University of Michigan
Aug Am. Chem. Soc. National Meeting, Computational Chem. Section, Indianapolis
Oct GTC conference “Protein-protein interaction”, San Diego
Oct EMBO workshop “Semaphorin function and Mechanism of Action”, Paris

2014
Apr Seminar to Biochemistry Department, University of Houston Health Science
Apr Seminar to Structural Biology Department, Mem. Sloan-Kettering Cancer Center, NYC
Apr Am. Chem. Soc. National Meeting, Computational Chem. Section, Dallas (L. Zhang)
May Seminar to Structural Biology Department, Osaka Univ., Japan
May Asian Pacific Protein Association Meeting, Jeju Island, Korea
Jul Co-organizer of ASBMB Special Meeting “Translating the Biophysics of Molecular Switches: Signaling Mechanisms and Inhibition of Ras and Rho GTPases ” Ashville, North Carolina
Presenter & Chair of Panel Discussion, Organizer of junior scientist mentoring and networking event
Oct Martin Karplus, Nobel Prize Symposium, San Francisco

2015
Feb Seminar to Biochemistry Dept, University of Kentucky, Louisville
Feb Biophysical Society Annual Meeting, Baltimore (talks by S.Cao and L. Zhang)
Apr Seminar to Biochemistry Dept,, University of Bristol, U.K.
May Seminar to Structural Genomics Consortium at the University of Toronto, Canada
Jun 5th. Intl. conference “Molecular perspectives of protein interactions”, Niagara on the Lake, Canada
Jun Inaugural Gordon conference “Mechanism of Membrane Protein Folding”, Bentley Univ., Waltham
Sep Great Lakes NMR Symposium, Cleveland Center for Membrane and Structural Biology
Sep Seminar to Structural Biology Department at KIAST, Daejon, S. Korea
Sep 15th. KIAS conference on Protein Structure and Function, Seoul, S. Korea
Oct Inaugural/2nd. Gateway NMR Symposium, Ohio State Univ., Columbus
Oct 3rd GTC conference “Protein-protein interactions”, Boston
Dec Am. Chem. Soc. National Meeting, section Advances in solution NMR , Hawaii

2016
May Max Plank Institute Biophysics, Frankfurt a.Main, Germany
May University of Hamburg Dept. of Chemistry, Germany
Jun Chianti Meeting on NMR Relaxonomy, Grosseto, Italy
Jul CHARMM Developers Workshop, Univ. of Michigan, Ann Arbor
Jul Telluride workshop, Protein and Peptide Interactions in Cellular Environments, Colorado
Aug Am. Chem. Soc. National Meeting, Computational Chem. Section, Philadelphia (talk by Z. Li)
Aug XXVIIth. Int. Conference on Magn. Reson. in Biological Systems, Kyoto, Japan (session co-chair)
Aug Department of Chemistry, Seoul National University, S. Korea

2017
Feb Biophysical Society Annual Meeting, New Orleans (Z. Li)
Apr Department of Chemistry, Seoul National University, S. Korea
Jun FASEB conference "Regulation and Function of small GTPases" W. Palm Beach, Florida (S. Cao)
Jun Gordon Conference "Mechanism of Membrane Protein Folding", Stonehill College, MA
Jun Gordon Conference "Biomol. NMR – Computational Aspects", Sunday River, ME
Jun Korean Society of Magnetic Resonance spectroscopy, Pusan, S. Korea
July Korean Structural Biology Society Annual Summer Meeting, Sol Beach, S. Korea
Sep 9th International Conference on Structural Biology, Zurich, Switzerland (organizing committee)

2018
Feb Biophysical Society Annual Meeting, San Francisco, CA (talk by Z. Li, M. Buck platform chair)
Apr Dept. Chem. Eng., Tennessee Technological Univ., Cookeville, TN
Jul UK Biochem. Soc. "Small G proteins in Cellular Signaling and Disease", Cambridge, UK
Jul CHARMM Developers Workshop, Univ. of Chicago, Chicago
Aug ACS National Meeting, Benoit Roux 60th. Celebration workshop (Z. Li)
Aug XXVIIIth. Int. Conference on Magn. Reson. in Biological Systems, Dublin, Ireland (session chair)
Oct Department of Chemistry, Sookmyung Womens' University, Seoul, S. Korea
Nov 3rd Gateway (MidWest) NMR symposium, Pittsburgh
Nov Department of Pharmacology, Case Western Reserve Univ.

2019
Feb Biophysical Society Annual Meeting, Baltimore
Apr ACS National Meeting, Co-organizer of COMP DIV. "Sim. of Protein-lipid interactions", Orlando and talk in PHYS DIV. "Advances in Data Collection and Analysis of Biomolecular Structures"
May EMBO Workshop Neural Guidance Molecules in Development And Disease, Baveno, Italy
Jul 8th. Asia Pacific NMR conference, Singapore

Conference & Workshop Presentations (since 1998)

[for all M. Buck was either first or last author, presentation by group members in ()]

1991-2001
Apr.91 20th. Annual Keystone Symposia on Mol. & Cell. Biology, Keystone, CO
Aug.92 EMBO Protein Folding Conference, Karolinska Institute, Sweden
Mar.93 Italian Biochem. Soc. "Proteine'93", Parma, Italy
Aug.93 NATO-EMBO-FEBS Int. Sum. School on Protein Structure Function & Design, Spetsai, Greece
Aug.94 EMBO Protein Folding Conference, Karolinska Institute, Sweden
Aug.94 XVIIth. Int. Conference on Magnetic Resonance in Biological Systems, Veldhoven, Netherlands
Jul. 95 9th. Symposium of the Protein Society, Boston, MA
Apr.96 NIH Intern. Conference on Protein Folding and Design, Bethesda, MD
Aug.96 XVIIth. Int. Conference on Magnetic Resonance in Biological Systems, Keystone, CO
Aug.96 10th. Symposium of the Protein Society, San Jose, CA
Feb.97 Miami Nature Biotech. Winter Symp. Biomol. Design, Form & Function, Fort Lauderdale, Fl
Aug.97 ESF meeting NMR in Molecular Biology, Oxford, UK
Mar.98 3rd John's Hopkins Protein Folding Meeting, Baltimore, MD
Dec.98 Instituto Juan March Workshop on Protein Folding, Barcelona, Spain
Jun.99 Gordon Conference "Computational Aspects of NMR spectroscopy", Pisa

July 99 13th. Annual Meeting of the Protein Society, Boston, MA
Dec.99 39th. Annual Meeting of the Am. Society for Cell Biology, Washington, D.C.
Aug.00 XIXth. Int. Conference on Magnetic Resonance in Biological Systems, Florence, Italy
Jun.01 Gordon Conference. Computational Aspects of NMR spectroscopy, Pisa, Italy
July 01 15th. Annual Meeting of the Protein Society, Philadelphia, PA

2002

Jun 16th. Europ. Exptl. Nuclear Magn. Reson. Conference., Prague, Czech Rep.
Aug 16th. Annual Meeting of the Protein Society, San Diego, CA
Aug XXth. Int. Conference on Magnetic Resonance in Biological Systems, Toronto, Canada

2003

Apr 5th. European Symposium of the Protein Society, Florence, Italy (L. Placanica)
Aug 17th. Annual Meeting of the Protein Society, Boston, MA
Sep EMBO Workshop, Assembly of Neural Circuits, Varenna, Itlay
Nov 33rd Annual Meeting of the Neurosciences Society, New Orleans, LA

2004

Feb 48th. Annual Meeting of the Biophysical Society, Baltimore, MD
Apr Keystone Symposium on Structural Genomics, Keystone, CO (Y. Tong)
Apr ShowCase, poster CWRU Symposium (D. Hughes), Cleveland, OH
Apr 1st Pacific-Rim Int. Conference on Protein Science, Yokohama, Japan
Sep. Cold Spring Harbor Meeting, Axon Guidance and Neural Plasticity, NY

2005

Jan XXIst. Int. Conference on Magnetic Resonance in Biological Systems, Hyderabad, India
Apr Keystone Meeting, Axonal Connections, Breckenridge, CO
Apr 46th. Exptl. Nuclear Magn. Resonance Conf, Rhode Island (Y. Tong & S. Bonnet)
Apr Martin Karplus 75th. Birthday Symposium, Bethesda, MD
May 6th. European Symposium of the Protein Society, Barcelona, Spain
Jul 2nd. Annual Meeting of the Protein Society, Boston, MA
Aug ESF Conference “NMR in Molecular Biology”, Malmö, Sweden

2006

Apr Poster at ShowCase at CWRU, Cleveland, OH (Y. Dang)
Aug XXIInd. Int. Conference on Magnetic Resonance in Biological Systems, Göttingen, Germany (S. Bonnet)
Sep Cold Spring Harbor Meeting, Axon Guidance and Neural Plasticity, NY
Oct Poster at Medical Student Research Symposium at CWRU, Cleveland, OH (J. Gatherwright)

2007

Feb 51st. Annual Meeting of the Biophysical Society, Baltimore, MA (M. Hamaneh)
Apr Poster at ShowCase at CWRU (computational work of students of PHOL475), Cleveland, OH
Apr 3rd CAPRI Meeting on prediction of protein docking, Toronto, Canada
Jul 21st. Annual Meeting of the Protein Society, Boston, MA (P. Hota)
Sep Gordon Conference Mechanisms of Cell Signaling, Oxford, UK
Sep EMBO conference Assembly of Neuronal Circuits, Ascona, Italy

2008

Feb 52nd Annual Meeting of the Biophysical Society, Long Beach, CA (M. Hamaneh)
Apr Digital Poster at ShowCase at CWRU, Cleveland, OH (computational work of students of PHOL475)
Aug XXIIIrd. Int. Conference Magnetic Resonance in Biolog. Systems, San Diego, CA (P. Hota & M. Hamaneh)
Sep Cold Spring Harbor Meeting, Axon Guidance and Neural Plasticity, NY.

2009

Feb 53rd Annual Meeting of the Biophysical Society, Boston, MA (M. Hamaneh)
Dec 4th. CAPRI Meeting on prediction of protein docking, Barcelona, Spain

2010

Feb 54th. Annual Meeting of the Biophysical Society, Boston, MA (P. Hota, H. Lee)
Aug XXIVth. Int. Conference Magnetic Resonance in Biological Systems, Cairns, Australia
Sep Cold Spring Harbor Meeting, Axon Guidance and Neural Plasticity, NY.

2011

May Gordon Conference "Computational Aspects of Biomol. NMR spectroscopy", Pisa, Italy
Aug Gordon Conference “Mechanism of Cell Signaling”, Bates College, MA

2012

Feb 56th. Biophysical Society Annual Meeting, San Diego, CA (L. Zhang)
Aug XXVth. Int. Conference Magnetic Resonance in Biological Systems, Lyon, France (S. Borthakur)

2013

Feb 57th. Biophysical Society Annual Meeting, San Diego, CA (S. Borthakur)

2014
Feb 58th. Biophysical Society Annual Meeting, San Francisco, CA (L. Zhang) – awarded travel grant
Jul ASBMB Special Meeting "Ras and Rho GTPases" Ashville, NC (J. Muller-Greven, S-J. Kim).
Aug 2014 Fall National meeting of Am. Chem. Society, San Francisco, CA (S. Cao)
Sep Cold Spring Harbor Meeting, Axon Guidance and Neural Plasticity, NY.
2015
Jun Gordon Conference "Mechanism of Protein Folding", Bentley Univ., Waltham, MA (S. Borthakur)
Dec PacifiChem, poster in Computational section – macromolecular-solvent interactions, Hawaii
Dec NCI Ras Initiative meeting, Federick, VA (S. Cao)
2016
Feb 60th. Biophysical Society Annual Meeting, Los Angles, CA (S. Borthakur & P. Rodriquez-Gill)
Aug XXVIIth. Int. Conference on Magn. Reson. in Biological Systems, Kyoto, Japan (M. Buck, S. Cao)
Sep Cold Spring Harbor Meeting, Axon Guidance and Neural Plasticity, NY. (poster of S. Paradis)
Oct XXXI Biochemistry National Conference of the Biochemical Soc. of Mexico (P. Rodriguez-Gil)
2017
Feb 61st. Biophysical Society Annual Meeting, New Orleans, LA (S. Cao, Z.L. Li)
Aug Biophysical Society Them. Symp. "Conform. Ensembles from Expt.&Simulation", Berlin, Germany (G. Lee)
Oct Samsung Global Res. Initiative Conf., Sookmgyung Women's Univ., Seoul, S.Korea (Chair for Session 2)
Dec NCI Ras Initiative meeting, Frederick, VA (S. Cao)
2018
Feb 62nd. Biophysical Society Annual Meeting, San Francisco, CA
Aug XXVIIIth. Int. Conference on Magn. Reson. in Biological Systems, Dublin, Ireland (poster judge)
Sep ASBMB Special Symp. Ras Pathobiology and Drug Discovery, Stratton, VT (S. Cao)

9. Research Support (as independent faculty)

Current

($ direct/per annum)

R01 Grant: National Institutes of Health, NIGMS, R01GM121583, 4% effort
Rajesh Ramachandran, PI; Matthias Buck, Co-PI 9/18/17 – 8/31/22
Project Title: "Mechanisms of Dynamin-Related Protein 1-Mediated Mitochondrial Fission" $ 7,300

R01 Grant: National Institutes of Health, NEI, R01EY029169 23% effort 9/23/18 – 8/31/22
Matthias Buck, PI, Adam Smith (Univ. of Akron), Suzanne Paradis (Brandeis) $ 164,000 to Buck lab.
Project Title: "Plexin & Neuropilin in and at the membrane"

Submitted

MIRA Grant: National Institutes of Health, NIGMS, R35GM131878, 51% effort
Matthias Buck, PI 03/01/19 – 02/28/23
Project Title: "Configurational and Internal Dynamics of Protein-Protein and Protein-Membrane Complexes
$ 249,000

Completed

(total direct funding over duration)

R01 Grant: National Institutes of Health, NIGMS, R01GM112491, 23% effort
Matthias Buck, PI; Rajesh Ramachandran & Bing-Cheng Wang, Co-PI 9/15/14 – 8/30/18
Project Title: "Configurational and internal dynamics of protein-protein complexes" ($ 580,000)

R01 supplement R01GM112491-02S upgrade of 600 MHz console, 19F probe ($ 75,000)
R01 supplement R01GM112491-03S purchase of HPLC ($ 50,000)

R01 Grant: National Institutes of Health, NIGMS, 1R01GM099775
Daniel Altschuler (Univ. Pittsburgh), PI, Matthias Buck, Collab. 7/1/13 – 6/30/16
Project title: "Transduction of the cAMP signal by Rap1" ($ 262,000)

Pilot grant with Jeongwu Lee of CCF from the Case Comprehensive Cancer Center 4/1/16- 3/31/17
($6,000)

Mexican Government, Postdoctoral Fellowship for Paloma Rodriguez-Gill 8/1/15 – 7/31/17
($ 72,000)

R21 Grant: National Institutes of Health, NEI, R21EY022839
Matthias Buck, PI 1/1/14 – 12/31/15
Project Title: "Mechanism of Neuropilin and TM inhibitor peptides in AMD/angiogenesis" ($ 275,000)

R01 Grant: National Institutes of Health, NIGMS, 1R01GM092851
Matthias Buck, PI 9/25/10 – 8/30/14
Project Title: "Structure - Dynamics relationships: A multi-faceted characterization" ($ 720,000)

NIH postdoctoral training fellowship T32 NINDK (training grant)
Liqun Zhang, PI (M. Buck, mentor) 9/1/12 - 8/30/14
Project Title: "Computer simulations of transmembrane receptors" ($ 104,000)

AHA Postdoctoral Fellowship 7/1/12 – 6/30/14
Susmita Borthakur, PI (M. Buck, mentor) ($ 85,000)
Project Title: "Mechanism of Neuropilin and TM inhibitor peptides in angiogenesis"

R01 Grant: National Institutes of Health, NCI, 1R01CA152371
Bing-Cheng Wang (Metrohealth), PI, Matthias Buck, Collab. 6/7/10 – 4/30/15
Project Title: "Akt-EphA2 crosstalk in Glioma Invasion" (Buck lab. $ 98,000)

NSF REU site – Research Program for Summer Undergraduate Students
Matthias Buck, Co-director, NSF proposal 0851591 7/1/10 – 6/30/13
Project Title: "Undergraduate Research Training Program in Protein Dynamics: A multifaceted approach to understand protein function in vitro and in vivo" (Buck lab. $ 18,000)

R01 Grant: National Institutes of Health, NIGMS
Benoit Roux (Univ. Chicago), PI, Matthias Buck, Collab. 5R01GM072558-06 8/1/09 – 7/30/11
Project Title: "Polarizable Force Field for Proteins and Lipids" (Buck lab. $ 34,000)

R01 Grant: National Institutes of Health, NIGMS
Matthias Buck, PI 1R01GM73071-01 2/1/05 – 1/31/12
Project Title: "Signaling Biophysics of Protein-GTPase Interactions." ($ 835,000)
NIGMS ARRA Admin Supplement
Matthias Buck, PI 1R01GM73071-05S1 7/15/09 – 1/31/11
($ 64,000)

K02 Independent Scientist/Career Award NHLBI
Matthias Buck, PI 1K02HL084384-01 4/6/06 – 3/31/11
Project Title: "Molecular Mechanisms of Plexin Signaling in the Heart and Vascular System."
($ 465,000)
American Heart Association Postdoctoral Fellowship (Great Rivers Affiliate)
Prasanta K. Hota, PI (M. Buck, Mentor) 7/1/08 - 6/30/10
Project Title: "Plexins in cardiovascular development: Mechanisms involving the transmembrane and juxtamembrane region." ($ 84,000)

Ohio Cancer Research Associates
Matthias Buck, PI 7/1/08 – 6/30/10
Project title: "Eph and cMet phosphorylation of small GTPases and their role in Cancer"
($ 49,600)

Case Comprehensive Cancer Center, Pilot Project
Matthias Buck and Danny Manor (Nutrition) Co-PIs 7/1/08 – 6/30/10
Project title: "Phosphorylation of small GTPases Rac1 and R-Ras" ($ 50,000)

American Heart Association Postdoctoral Fellowship (Ohio Valley)
Mehdi Bagheri-Hamaneh, PI (M. Buck, Mentor) 7/1/07 - 6/30/09
Project Title: "Molecular dynamics simulation of the plexin and small GTPases." ($ 82,000)

Case Western Reserve University Presidential Research Initiative Award 6/1/05 – 6/30/09
Matthias Buck & Jie Shan (Physics), Co-PIs ($ 60,000)
Project Title: "Sensing Proteins and their Conformations by Terahertz Spectroscopy."

NIH postdoctoral training fellowship T32 NHLBI (training grant)
Preeti Chugha, PI (M. Buck, mentor) 7/1/06 - 6/30/08
Project Title: "NMR studies of protein-protein interactions and protein complexes." ($ 86,000)

Basil O'Connor Grant , March of Dimes Birth Defects Foundation
Matthias Buck, PI #5-FY04-207 2/1/05 – 1/30/07
Project Title:"Protein-protein interactions in neuronal axon guidance and in vascular system development"
($ 150,000)
American Heart Association Postdoctoral Fellowship (Ohio Valley)
Yufeng Tong, PI (M. Buck, Mentor) 7/1/04 - 6/30/06
Project Title: "Structural characterization of the interactions of the transmembrane receptor plexin-B1 with small Rho family GTPases and neurophilin-2.' ($ 82,000)

American Heart Association Scientist Development Award (National Center)
Matthias Buck, PI {relinquished upon RO-1 award} 7/1/03 - 2/1/05
Project Title: "The plexin A family of transmembrane receptors in cardiac neural crest development: Interactions with small GTPases and signaling mechanism." ($ 132,000)

Young Faculty Award from the Am. Cancer Soc. /Case Cancer Center
Matthias Buck, PI 1/1/03 - 12/31/03
Project Title: "A pilot study into the biophysics and function of the Rin Family of GTPases: A novel link between GTPase and calcium mediated signaling." ($ 20,000)

Total direct costs of grants since inception of lab. 9/02 approx. $ 5,53M
(excluding start-up and project bridge funding)

10. Publications (all publications numbered chronologically)

[google-scholar h-index 29; 4345 citations: as of 11/18]

Peer Reviewed - ***** most important recent papers *with brief notes*

1) Radford, S.E., Buck, M., Topping, K.D., Dobson, C.M. & Evans, P.A. (1992) "Hydrogen exchange in native and denatured states of hen egg-white lysozyme" ***Proteins: Struct.Funct. & Genetics*** **14, 237-248.**

2) Buck, M., Radford, S.E. & Dobson, C.M. (1993) "A partially folded state of hen egg-white lysozyme in trifluoroethanol: Structural characterisation and implications for protein folding" ***Biochemistry*** **32, 669-678.**

3) Buck, M., Radford, S.E. & Dobson, C.M. (1994) "Amide hydrogen exchange in a highly denatured state: hen egg-white lysozyme in urea" ***J.Mol.Biol.*** **237, 247-254.**

4) Taddei, N., Buck, M., Broadhurst, R.W., Stefani, M., Ramponi, G. & Dobson, C.M. (1994) "Equilibrium unfolding studies of horse muscle acylphosphatase" ***Eur.J.Biochemistry*** **225, 811-817.**

5) Yang, J.J., Buck, M., Pitkeathly, M., Kotik, M., Haynie, D.T., Dobson, C.M. & Radford, S.E. (1995) "Conformational preferences of four peptides spanning the sequence of hen lysozyme" ***J.Mol.Biol.*** **252, 483-491.**

6) Buck, M., Boyd, J., Redfield, C., MacKenzie, D.A., Jeenes, D.J., Archer, D.B. & Dobson, C.M. (1995) "Structural determinants of protein dynamics: Analysis of 15N relaxation measurements for maichain and sidechain nuclei of hen egg-white lysozyme" ***Biochemistry*** **34, 4041-4055.**

7) Buck, M., Schwalbe, H. & Dobson, C.M. (1995) "Characterisation of conformational preferences in a partly folded protein by heteronuclear NMR spectroscopy: Assignment and secondary structure analysis of hen egg-white lysozyme in trifluoroethanol" ***Biochemistry*** **34, 13219-13232.**

8) Buck, M., Schwalbe., H. & Dobson, C.M. (1996) “Mainchain dynamics in a partially folded protein: 15N relaxation measurements of hen egg-white lysozyme denatured in trifluoroethanol” ***J.Mol.Biol.*** **257, 669-683.**

9) Fiebig, K.M., Schwalbe, H., Buck, M., Smith, L.J. & Dobson, C.M. (1996) "Towards a description of the conformation of denatured states of proteins: Comparison of a random coil model with NMR measurements" ***J.Phys.Chem.*** **100, 2664-2669.**

10) Lu, H., Buck, M., Radford, S.E. & Dobson, C.M. (1997) “Acceleration of the folding of lysozyme by trifluoroethanol” ***J.Mol.Biol.*** **265, 112-120.**

11) Schwalbe, H., Fiebig, K.M., Buck, M., Jones, A.J., Grimshaw, S.B., Smith, L.J., Spencer, A., Steffen, J.G. & Dobson, C.M. (1997) "Structural and dynamical properties of a denatured protein: Heteronuclear 3D NMR experiments and theoretical simulations of lysozyme in 8M urea" ***Biochemistry*** **36, 8977-8991**.

12) Buck, M. (1998) “Trifluoroethanol & Colleagues: Cosolvents come of age. Recent studies with peptides and proteins” ***Quarterly Reviews of Biophysics*** **31, 297-355.**

13) Buck, M. & Karplus, M. (1999) “Internal and overall peptide group motion in proteins. Molecular simulations for lysozyme compared with results from x-ray and NMR spectroscopy” ***J.Am.Chem.Soc.*** **121, 9645-9658.**

14) Buck, M. & Karplus, M. (2001) "Hydrogen bond energetics: A simulation and statistical analysis of N-methyl acetamide (NMA), water, and human lysozyme". ***J.Phys.Chem. B*** **105, 11000-11015.**

15) Buck, M., Xu, W., & Rosen, M.K. (2001) "Global disruption of the Wiskott-Aldrich Syndrome protein (WASP) autoinhibited structure on Cdc42 binding. Ligand displacement as a novel method to monitor amide hydrogen exchange" ***Accelerated Publication in Biochemistry*** **40, 14115-14122.**

16) Schwalbe, H., Grimshaw, S.B., Andrew Spencer, A., Buck, M., Boyd, J., Dobson, C.M., Redfield, C. & Smith, L.J. (2001) "A refined solution structure of hen lysozyme determined using residual dipolar coupling data" ***Protein Science*** **10, 677-688.**

Papers since arrival at Case Western Reserve University

18) Pang, Y., Buck, M., & Zuiderweg, R.P. (2002) "Backbone dynamics of the Ribonuclease Binase using multi-nuclear (15N and 13CO) NMR Relaxation and Computational Molecular Dynamics " ***Biochemistry*** **41, 2655-2666.**

20) Buck, M*., Xu, W. & Rosen, M.K*. (2004) "A two state allosteric model for autoinhibition in WASP" ***J.Mol.Biol.*** **338, 271-285.** * = joint corresponding authors; **cover article**

21) Tong, Y., Hughes, D., Placanica, L. & Buck, M (2005) "When monomers are preferred: A strategy for the identification and disruption of weakly oligomerized proteins " ***Structure (Cell Press, Camb.)*** **13, 5-17.**

22) Tong, Y.*, & Buck, M (2005) "1H, 15N, 13C assignments and secondary structure characterization reveal that the Rac1 binding domain of plexin-B1 has an ubiqiutin fold" ***J.BioMol.NMR*** **31, 369-370.**

23) Li, X., Hümmer, A., Han, J., Xie, Y., Melnik-Martinez, K., Moreno, R.L., Buck, M., Mark, M.D., & Herlitze, S.G. (2005) "Protein beta 2 subunit derived peptides for inhibition and induction of G protein pathways: Examination on voltage gated Ca2+ and G protein inward rectifying K+ channels". ***J.Biol.Chem.*** **280, 23945-23959.**

24) Buck, M*, Bouguet-Bonnet, S., Pastor, R.W., & MacKerell, A.D. (2006) "Importance of the CMAP correction to the CHARMM22 protein force field: Dynamics of Hen Lysozyme" ***Biophys.J.*** **90, L36-L39.**

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62)** Li, Z., Prakash, P., & Buck, M. (2018) **"**A "Tug of War" Maintains a Dynamic Protein Membrane Complex: Molecular Dynamics Simulations of C-Raf RBD-CRD Bound to K-Ras4B at an Anionic Membrane".*** ***ACS Central Science*** **4 ,** ***298−305.*** doi: 10.1021/acscentsci.7b00593 [PCMID in progress]
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Invited Reviews & Commentary

17) Buck, M. & Rosen, M.K. (2001) "Flipping a switch". Perspective in ***Science* 291, 2329-2330.**

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Invitation & Hosting of Seminar / Symposium Speakers at Case Western Reserve University

One of the pleasures of being an academic is to have friends and acquaintances from around the world and inviting them to visit. Over the years I have organized visits / hosted the following:

Mark Foster, Ohio State Univ. (Jan.04, Biophysics)
Michael Rosen, UT Southwestern (Apr.04, Biophysics)
Sheena Radford, Leeds Univ., UK (Apr.04, Biophysics)
Dorothee Kern, Brandeis Univ. (May 04, Biophysics)
Daniel Raleigh, CUNY Stony Brook (Nov.05, Biophysics)
George Makhatadze, Penn State Univ. (Jan.06, Biophysics)
Benoit Roux, Univ. of Chicago (Apr.06, Pharm)

K Wüthrich, ETH, Switzerland (May 06, Frontiers Science Talk in Biophysics)
Kevin Gardner, UT Southwestern (May'07, Biophysics)
John Bushweller, Univ. of Virginia (Dec.07, Pharm)
Michael Kennedy, Oxford Univ. Miami (Feb.08, CCSB)
Liela Gierasch, UMass (May.08, Biophysics)
Hee-Won Park, Univ. of Toronto, SGC (Nov.08, Biophysics)
Martin Karplus, Harvard Univ. (Apr.09, National Physiology Symposium in Biophysics)
Erik Zuiderweg, Univ. of Michigan (Nov.09, Biophysics)
Charles Brooks, Univ. of Michigan (Jan.10, co-host with Biochem)
James Chou, Harvard Univ. (May.10, Pharm)
Alexander MacKerell, Univ. of Maryland (Nov.10, Pharm)
Angela Gronenborn, Univ. of Pittsburgh (Jun.11, ACES Univ. Lectureship)
Adrian Elcock, Univ. of Iowa (Apr.11, Proteomics)
Jeffrey Peng, Notre Dame Univ. (Dec.11, Pharm)
Lukas Tamm, Univ. of Virginia (Mar.12, Biophysics)
Charles Sanders, Vanderbilt Univ. (Apr.12, Pharm.)
James Bowie, UC Los Angles (Mar.13, Biophysics)
Tanja Kortemme, UC San Francisco (Apr.13, Proteomics)
Harald Schwalbe, Frankfurt Univ., Germany (Oct.13, Pharm.)
Mark Lemmon, U. Penn (Feb.14, Biophysics)
Kyou-Hoon Han, Korean Res. Inst. Bioscience & Biotechnology (kribb) (Apr. 14, Proteomics)
Jonathan Termann, UT Southwestern (Apr.14, Neuroscience)
Christopher Dobson, Univ. of Cambridge, UK (Apr.14, Frontiers Science talk in Biophysics)
Yvonne Jones, Univ. of Oxford, UK (Sep.14, Biophysics)
Daniel Leahy, John's Hopkins (Dec.14, Biophysics)
Andrew Hinck, UT San Antonio (Dec.14, Biophysics)
Wolfgang Peti, Brown Univ.; (Feb.15, Biophysics)
Michael Feig, Michigan State Univ. (Oct.15, Proteomics/CCMSB)
Alemanehu Gorfe, Univ. of Houston, Health Science (Nov.15, Biophysics)
Dimitar Nikolov, Mem. Sloan-Kettering Cancer Center (Apr.16, Biophysics)
Craig van der Koi, Univ. of Kentucky (Apr.16, Biophysics)
Shohei Koide , Univ. of Chicago (May 16, Pharm)
Themis Lazaridis, City College, CUNY (Oct.16, Biophysics)
Xuewu Zhang, UT Southwestern (Apr.17, Pharmacology)
Adam Smith, Univ. of Akron (Apr.17, Biophysics)
Mark Sansom, Univ of Oxford (Feb.18, CCMSB & Biophysics)
Wonpil Im, Lehigh Univ., (Apr.18, Biophysics)
Kevin Plaxco, UC Santa Barbara (Apr.18, Proteomics/Nutrition/Biophysics)
Donghan Lee, Univ. of Kentucky (Sep.18, Biophysics)
Michael Rosen, UT Southwestern (Dec.18, Biophysics)
Carla Mattos, Northeastern Univ. (Jan.19, Pharmacology)
Gerhard Hummer, Max Plank for Biophys., Frankfurt (Apr.19, Biophysics)
Richard Pastor, NIH NHLBI (May 19, Biophysics)