

# Michael Ibba

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## POSITIONS AND EMPLOYMENT

- 2013 - *Chair*, Department of Microbiology, Ohio State University, Columbus, Ohio  
2012 - 2013 *Director*, Ohio State Biochemistry Program, Ohio State University, Columbus, Ohio  
2011 - *Co-Director*, Cellular, Molecular, and Biochemical sciences training program  
2010 - *Professor*, Department of Microbiology, Ohio State University, Columbus, Ohio  
2006 – 2010 *Associate Professor*, Department of Microbiology, Ohio State University, Columbus, Ohio  
2001 – 2006 *Assistant Professor*, Department of Microbiology, Ohio State University, Columbus, Ohio  
1999 – 2001 *Associate Research Professor*, Panum Institute, University of Copenhagen, Denmark

## EDUCATION AND TRAINING

- 1995 – 1998 *Associate Research Scientist*, Department of Molecular Biophysics and Biochemistry, Yale University. Adviser Professor Dieter Söll.  
1993 – 1994 *Postdoctoral Research Assistant*, Microbiology Institute, Swiss Federal Institute of Technology, Switzerland. Adviser Professor Hauke Hennecke.  
1990 – 1993 *Postdoctoral Research Fellow*, Department of Biotechnology, Ciba-Geigy AG, Switzerland. Adviser Dr. Martin Küenzi.  
1990 *Doctor of Philosophy*, Department of Biochemistry and Applied Molecular Biology, University of Manchester, United Kingdom. Thesis: "The development of an anaerobic acetogenic continuous fermentation process". Supervisor Dr. G.H. Fynn.  
1986 *Bachelor of Science*, Imperial College, University of London, London, UK. Degree: Biochemistry, B.Sc.(Hons) 2(I), ARCS.

## DISTINCTIONS

- 2013 Fellow, *American Academy of Microbiology*  
2013 *American Society for Microbiology/NSF-LINK Travel Award*  
2012 Fellow, *American Association for the Advancement of Science*  
2012 Chair-elect, *2014 Gordon Research Conference on Microbial Stress Responses*.  
2012 Chair, *24<sup>th</sup> tRNA Conference*. Olmué, Chile.  
2010 Honorary Professor in Gene Expression and Translation, Faculty of Health Sciences, University of Copenhagen.  
2009 Chair, *American Society for Microbiology 109<sup>th</sup> Annual General Meeting* colloquial session "Non-canonical Roles of tRNAs: Protein Biosynthesis and Beyond".  
2008 Co-Chair, *AARS 2008*, Grenoble, France.  
2007 Chair, *American Society for Microbiology 107<sup>th</sup> Annual General Meeting* colloquial session "Quality Control in Microbial Protein Synthesis".  
2006 Scientific Committee member and session chair, *AARS 2006*, San Diego, CA.  
2005 Session co-chair and organizer, *21<sup>st</sup> International tRNA Workshop*. Bangalore, India.  
2005 Co-Chair of the organizing committee, *40 Years of Exploring tRNA*, New Haven, CT.  
2005 College of Biological Sciences Dean's Award for Classroom teaching.

- 2003 Co-chair, *American Society for Microbiology 103<sup>rd</sup> Annual General Meeting* colloquial session "Expanding the Genetic Code".
- 2001 – 2005 Scientist appointment, The State Serum Institute, Copenhagen, Denmark.
- 2001 – 2003 Member and contributor, Journal Club Panel, *Trends in Biochemical Sciences*.
- 2001 – 2005 Editor (with C. Francklyn and S. Cusack), "The Aminoacyl-tRNA Synthetases". Landes Bioscience. Published 2005.
- 1999 – 2001 Alfred Benzon Foundation Investigator. Panum Institute, University of Copenhagen, Denmark. Competitive award (twice renewed) providing full salary support.
- 1998 Member of the Scientific Committee and Session chair, EMBO Workshop on Aminoacyl-tRNA Synthetases, Mittelwihr, France.
- 1994 EMBO Fellow. Center for Protein Engineering, MRC Center, Cambridge, UK. 3 month stay in the Laboratory of Professor Sir Alan Fersht.
- 1990 Awarded a Royal Society Postdoctoral Fellowship and a European Commission Postdoctoral Fellowship (both declined).
- 1986 – 1990 Technology Transfer Fellow. Graduate student fellowship sponsored by the Water Research Council, United Kingdom.

## PROFESSIONAL SERVICE

### Grant reviewing

- 2011 – **Member**, National Science Foundation MCB Genetic Mechanisms Panel.
- 2010 - 2014 **Member**, National Institutes of Health Molecular Genetics A Study Section.
- 2008 – 2009 **Member**, American Heart Association Molecular Biology Peer Review Group (Region 1)
- 2007 Ad hoc reviewer, NASA Astrobiology Program.
- 2006 – 2010 Ad hoc member, NIH IDM-H, MGA, MGC and PCMB Study Sections.
- 2004 – 2010 **Member**, National Science Foundation Prokaryotic Molecular and Cellular Biology Panel.
- 2003 Ad hoc reviewer, Whitehead Fellowship Committee, New York University.
- 2003 Ad hoc reviewer, Israel Science Foundation.
- 2003 – 2004 Ad hoc reviewer, National Institutes of Health.
- 2001 Ad hoc reviewer, National Research Council, COBASE Program.
- 2001 Ad hoc reviewer, John Simon Guggenheim Memorial Foundation.
- 2000 – present Ad hoc reviewer, National Science Foundation.
- 1999 Ad hoc reviewer, Department of Energy, Division of Energy Biosciences.
- 1999 – 2003 Ad hoc reviewer, Department of the Army, Biological Sciences Division.

### Editorships and service as a reviewer for journals

- 2007 – present Guest editor: *Methods* (special issue on Aminoacyl-tRNA), *PNAS*.
- 2005 – Editorial board: *Eurekah Bioscience* (2005 - 6); *FEBS Letters* (2008 - );  
*Journal of Biological Chemistry* (2009 - ); *Archaea* (2009 - )

1999 – present	Reviewer:		
Biochemistry		JACS	Nature Structural and Mol.Biol.
Biochimica et Biophysica Acta		Journal of Bacteriology	Nucleic Acids Research
Biodrugs		Journal of Biological Chemistry	PLoS Biology
BMC Structural Biology		Journal of Molecular Biology	PLoS One
Cell		Journal of Molecular Evolution	PNAS
EMBO Journal		Molecular Cell	Protein Science
EMBO Reports		Molecular Microbiology	RNA
FEBS Journal		Nature	Science
FEBS Letters		Nature Biotechnology	Trends in Biochemical Sciences
Genes & Development		Nature Chemical Biology	Trends in Genetics

## ADMINISTRATIVE SERVICE

### *Departmental*

- 2012 - **Promotion and Tenure Committee**, Chair.
- 2008 **Microbiology Chair Search Committee**.
- 2007 **Unit Review Committee**.
- 2005 – 2007 **Department of Microbiology Annual Symposium**, founder, organizer and chair.
- 2001 – 2011 **Graduate Studies Committee**. *Chair* 2006-2008; 2009-2010.
- 2002, 2009 **Faculty Search Committee**.

### *College and University*

- 2012 - **OSU Center for RNA Biology**, Steering committee member.
- 2011 - **NMS Divisional Promotion and Tenure panel**, College of Arts and Sciences
- 2011 - **Co-Director**, NIH Cellular, molecular, and biochemical sciences training program.
- 2010 - **Program Council**, Life Sciences Steering Committee
- 2010 – 2012 **Chair**, Joint OSBP/MCDB Seminar Committee
- 2009 – 2010 **PHPID** Steering committee.
- 2008 – 2009 **Graduate School Task Force** on the Life Sciences.
- 2007 – 2009 **Council on Academic Affairs**, Faculty Council member.
- 2006 – present **OSU Institute of Mitochondrial Biology Steering Committee**. Provide oversight and annual evaluation of the institute.
- 2004 – 2008 **OSU RNA Group Steering Committee**. Organization of monthly meetings and co-ordination and planning of RNA group activities.
- 2004 – 2007 **OSBP Recruitment Committee**. Planning of, and participation in, OSBP graduate student recruitment events.
- 2004 – 2005 **BioSci Day Participant**. Presented the Microbiology program to prospective students and their parents.
- 2002 – 2009 **OSBP Seminar Committee**. Select external speakers for OSBP seminar series; host seminar speakers.
- 2001 – 2007 **College of Biological Sciences Library Committee**. Discuss issues of library organization and use; provided input from departmental faculty.
- 2001 – 2002 **OSBP Student Seminar Committee**. Attended and graded weekly upper class graduate student seminar.

### *Other service*

- 2013 - *American Society for Microbiology* Committee on Graduate and Postdoctoral education
- 2013 Chair, *RNA Society* Nominating Committee
- 2010 Scientific Advisory Board, CNRS, Strasbourg, France.
- 2009 Co-PI, NSF IGERT proposal.
- 2008 External Review Committee, CNRS, Palaiseau, France.
- 2005 Hayes Graduate Research Forum, Judge.
- 2004 – present Faculty trainer, Chemistry-Biology Interface NIH T32 training grant.
- 2004 – 2005 OSU Honors Day and National Merit Scholar Lunches, Faculty participant.
- 2004 – 2005 Denman Undergraduate Research Forum, Judge.
- 2004 – 2005 University Scholar Maximus Competition, Essay Evaluator.
- 2002 – present Graduate School Representative on graduate exams (1-2 exams/year).
- 2002 – 2004 Department of Microbiology representative for graduate student testing in the OSU Spoken English Program (2 exams/year).
- 2001 – present Member, Ohio State Biochemistry Program.

## **PRESENTATIONS (since joining OSU in 2001)**

### *Invited presentations at scientific meetings*

- 2012 Gordon Research Conference on Microbial Stress Responses, Mt. Holyoke, MA (speaker)
- 2012 Cold Spring Harbor Advanced Bacterial Genetics Course (speaker)
- 2012 Annual Meeting of the RNA Society, Ann Arbor, MI (speaker)
- 2012 Society for General Microbiology Spring Conference, Dublin, Ireland (speaker)
- 2011 AARS 2011, Snowbird, UT (speaker)
- 2011 Cold Spring Harbor Advanced Bacterial Genetics Course (speaker)
- 2011 111<sup>th</sup> American Society for Microbiology General Meeting, New Orleans, LA (speaker)
- 2010 Molecular Genetics of Bacteria and Phages, CSHL, Cold Spring Harbor, NY (speaker)
- 2010 Annual Meeting of the RNA Society, Seattle, WA (plenary lecturer)
- 2010 23<sup>rd</sup> International tRNA Workshop, Aveiro, Portugal (plenary lecturer, session chair)
- 2009 31<sup>st</sup> Chilean Congress of Microbiology, Santa Cruz, Chile (plenary lecturer)
- 2009 Molecular Genetics of Bacteria and Phages, Madison, WI (speaker, session chair)
- 2009 Conference on Gram Positive Microorganisms, San Diego, CA (speaker, session chair)
- 2009 109<sup>th</sup> American Society for Microbiology General Meeting, Philadelphia, PA (speaker, session chair)
- 2009 Ohio Branch ASM, Annual Meeting, Denison University, OH (speaker)
- 2008 AARS 2008, Veyrier du Lac, France (meeting co-chair)
- 2008 Gordon Research Conference on Microbial Stress Responses, Mt. Holyoke, MA (speaker)
- 2007 22<sup>nd</sup> International tRNA Workshop, Uppsala, Sweden (speaker, session chair)
- 2007 Molecular Genetics of Bacteria and Phages, Madison, WI (speaker)
- 2007 107<sup>th</sup> American Society for Microbiology General Meeting, Toronto (speaker, session chair)
- 2006 AARS 2006, San Diego, CA (speaker, session chair)
- 2005 21<sup>st</sup> International tRNA Workshop, Bangalore, India, (speaker, session chair)
- 2005 40 Years of Exploring tRNA, New Haven, CT (speaker, session chair)
- 2005 XIX Annual Meeting of the Croatian Chemical Society, Opatija, Croatia (plenary lecturer)
- 2004 International Conference on Aminoacyl-tRNA Synthetases, Seoul, Korea (speaker)
- 2003 20<sup>th</sup> International tRNA Workshop, Banz, Germany (speaker)
- 2003 Ohio Branch ASM, Annual Meeting, Mason, OH (speaker)
- 2003 103<sup>rd</sup> American Society for Microbiology General Meeting, Washington, D.C. (session co-chair)
- 2002 Asilomar Conference on Aminoacyl-tRNA Synthetases, Asilomar, CA (speaker)
- 2001 Rustbelt RNA Meeting, Deer Creek, OH (speaker)
- 2001 9<sup>th</sup> International Conference on Microbial Genomics, Gatlinburg, TN (speaker)

### *External invited seminars*

- 2013 Department of Biochemistry, School of Medicine, University of Patras, Greece
- 2013 Department of Molecular and Human Genetics, Baylor College of Medicine, TX
- 2012 Department of Microbiology and Immunology, Thomas Jefferson University, PA
- 2012 Department of Biochemistry & Biophysics, University of Rochester, NY
- 2012 Department of Biochemistry, IUPUI, Indianapolis, IN
- 2011 Department of Bacteriology, University of Wisconsin, Madison, WI
- 2011 Department of Biochemistry and Molecular Genetics, University of Illinois-Chicago, IL

2011 Department of Biology, University of California, Merced, CA  
2011 Department of Molecular Genetics and Microbiology, University of Texas, Austin, TX  
2011 Faculty of Health Sciences, University of Copenhagen, Denmark  
2010 IBMC du CNRS, Strasbourg, France  
2010 Departments of Biochemistry and Microbiology, Emory University, Atlanta, GA  
2010 Department of Molecular Genetics, University of Toronto, Canada  
2010 Department of Biochemistry and Molecular Biology, LSU HSC, Shreveport, LA  
2009 Faculty of Medicine, University of Chile, Santiago, Chile  
2009 Department of Biological Sciences, Ohio University, Athens, OH  
2009 Department of Microbiology and Cell Science, University of Florida, Gainesville, FL  
2009 Department of Biochemistry, University of Vermont, Burlington, VT  
2009 Department of Biochemistry, University of Illinois at Urbana Champaign, IL  
2009 Department of Microbiology and Molecular Genetics, UMDNJ, Newark, NJ  
2009 Structure and Chemistry Affinity Group Seminar, Scripps Research, La Jolla, CA  
2009 Department of Biochemistry and Molecular Biophysics, Washington University, St. Louis, MO  
2008 IBMC du CNRS, Strasbourg, France  
2008 Department of Biophysics and Biophysical Chemistry, Johns Hopkins School of Medicine, Baltimore, MD  
2008 Department of Biochemistry, University of Miami School of Medicine, Miami, FL  
2008 Department of Microbiology and Molecular Genetics, Michigan State University, MI  
2007 Chinese Academy of Sciences, Shanghai, China  
2007 Department of Molecular, Cellular & Developmental Biology, U. California, Santa Barbara, CA  
2007 Genetics Seminar Series, University of California, Los Angeles, CA  
2005 CARB, University of Maryland, Bethesda, MD  
2005 Microbiology Institute, ETH Zürich, Zürich, Switzerland  
2004 Department of Molecular Biophysics and Biochemistry, Yale University, New Haven, CT  
2004 Department of Microbiology, University of Georgia, Athens, GA  
2004 Department of Biological Sciences, St. John's University, New York, NY  
2003 Department of Microbiology, Miami University, Oxford, OH  
2003 Department of Chemistry and Biochemistry, Colorado University, Boulder, CO  
2003 Department of Biology, Indiana University, Bloomington, IN  
2002 Department of Chemistry, University of Toledo, Toledo, OH  
2002 Department of Chemistry, University of Buffalo, Buffalo, NY  
2002 Department of Biochemistry and Microbiology, University of Laval, Canada  
2001 Department of Genetics, Trinity College, Dublin, Ireland

## STUDENTS AND TRAINEES

### Doctoral Students (dissertation advisor)

#### *Current*

Medha Raina	2009 – present	Ohio State Biochemistry Program
Sara Elgamal	2011 – present	Department of Microbiology
Adil Moghal	2012 – present	Ohio State Biochemistry Program
Kyle Mohler	2013 – present	Department of Microbiology
Andrei Rajkovic	2012 – present	MCDB Program
Rachel Simari	2013 – present	Ohio State Biochemistry Program

#### *Completed*

Sandro Ataide	2002 – 2006	Assistant Professor, University of Sydney
Jeffrey Levensgood	2002 – 2006	Research Scientist, Case Western Reserve
Corinne Hausmann	2004 – 2008	Deloitte Consulting
Jiqiang Ling	2004 – 2008	Post-doc, Yale University
Noah Reynolds	2006 – 2011	Post-doc, Yale University
Theresa Rogers	2006 – 2010	Assistant Professor, Alma College, Michigan
Samhita Yadavalli	2007 – 2012	Post-doc, University of Pennsylvania
Kiley Dare	2007 – 2012	

### Masters Students (thesis advisor)

Amanda Monthan (Lund University, Sweden), 2000.		Scientist, Swedish Dairy Association
Marla Gilreath	2009 – 2011	Regulatory Specialist, Nexeo Solutions
Mengchi Wang	2011 – 2013	Graduate student, UC San Diego

### Post-doctoral Fellows

Nina Mejlhede	2000 – 2001	Scientist, State Serum Institute, Denmark
Mette Prætorius-Ibba	2001 – 2005	Lecturer, Ohio State University
Hervé Roy	2003 – 2011	Asst. Professor, University of Central Florida
Shiming Wang	2004 – 2006	Assistant Professor, Nanjing University
Rajat Banerjee	2008 – 2010	Assistant Professor, University of Calcutta
Tammy Bullwinkle	2010 – present	
Assaf Katz	2011 – present	
Jennifer Shepherd	2011 – present	

### Doctoral Students (dissertation committee member)

12 Ph.D. current; 7 Ph.D. and 3 M.Sc., completed

### Senior Honors Theses

#### *Completed*

Irnov	(2003–2004; post-doc at Yale University)
Roocha Patel	(2004-2005; MD student at Ohio State University)
Molly Paras	(2004-2006; MD student at the Mayo Clinic)
Caitlin Baiduc	(2008-2009; graduate student at the University of Pennsylvania)
Sara Repasky	(2008-2010)
Bailey Dyer	(2008-2010)
Kayla Humenansky	(2009-2010)
Lindsey Solden	(2011-2013; graduate student at Ohio State University)
Eleftheria Matsa	(2011-2013)

## TEACHING

*Molecular Basis for Microbial Biodiversity* (Micro 720, 4 credit hours), Ohio State University, 2001, lecturer (taught 5% of the class), graduate level.

*Special Topics in Biochemistry* (Biochem 795, 3 credit hours), Ohio State University, 2002 - 2003, supervisor of seminar course (30%), graduate level.

*Seminar in Advanced Biochemistry* (Biochem 796, 1 credit hour), Ohio State University, 2002, supervisor of seminar course (25%), graduate level.

*General Microbiology 2* (Micro 521, 5 credit hours), Ohio State University, 2003 - present, lecturer (100%), undergraduate level.

*Seminar in Microbiology* (Micro 880, 1-2 credit hours), Ohio State University, 2003 - 2007, supervisor of seminar course (50%), graduate level.

*The RNA World* (Micro 850, 3 credit hours), Ohio State University, 2004 - present, lecturer (20%), graduate level.

*Current Topics in Molecular Microbiology* (Micro 760, 3 credit hours), Ohio State University, 2006 - present, lecturer (25%), graduate level.

*Microbiology Research* (Micro 693) and *Honors Undergraduate Research* (Micro 783), Ohio State University, 2003 - present, supervisor (100%), undergraduate level.

## EXTRAMURAL FUNDING

### Completed

- 2000 Danish Natural Science Research Foundation / Novo Nordisk Foundation. Grant. "Development of *in vivo* strategies for site-directed incorporation of non-natural amino acids". P.I., \$25,000.
- 2000 Danish Natural Science Research Foundation. Grant. "Automated chromatographic systems for the purification of proteins and nucleic acids". P.I., \$45,000.
- 2000 Fifth Framework program of the European Commission. Grant QLG2-1999-00660. "A functional genomics study of lysyl-tRNA synthesis as a target for the diagnosis and treatment of microbial infections and mitochondrial myopathies". P.I. (Co-P.I.s, K. Devine, C. Florentz; C. Marsac, M. Schneider), \$1,703,000.
- 2002 **American Heart Association Grant 0265004B.** "*Borrelia burgdorferi* lysyl-tRNA synthetase: a therapeutic target for Lyme disease". (07/2002 – 06 / 2004).
- 2003 National Institutes of Health. "Supplement to GM65183". Supplemental award for purchase of a microvolume stopped-flow reaction analyzer.
- 2004 **National Science Foundation Grant MCB-0344002.** "The role of aminoacyl-tRNA synthesis in translational quality control". P.I. (Co-P.I., A. Wolfson).
- 2005 American Heart Association Pre-doctoral fellowship 0515086B for Sandro Ataide. "Utilization of non-canonical tRNA by lysyl-tRNA synthetases".
- 2006 **US-Israel Binational Science Foundation.** "Structural and functional investigation of cytosolic and mitochondrial phenylalanyl-tRNA synthetase". Co-P.I. (P.I., M. Safro). (09/2006 – 08/2010).
- 2007 American Heart Association Pre-doctoral fellowship 0715172B for J. Ling. "Pathogenic mechanism and functional rescue of a tRNA<sup>Phe</sup> mutation causing MERFF". (07/2007 – 06/2009)

- 2008 **National Science Foundation Grant MCB-0744791**. "The role of quality control in microbial translation". P.I. (Joint P.I.s, B. Lazazzera, A. Wolfson). (03/2008 – 02/2011).
- 2008 **National Science Foundation Grant MCB-0936068**. "Collaborative research: The role of quality control in microbial translation". P.I. (01/2008 – 03/2012).
- 2011 **Amgen Inc. contract #2011566548**. "Error rates in mammalian protein synthesis". P.I. (11/11 – 11/12).

#### *Current*

- 2003 **National Institutes of Health Grant 2R01 GM065183**. "Biochemistry of lysyl-tRNA synthetases". P.I. (01/2003 - 12/2015).
- 2010 **National Science Foundation Grant CHE-1040302**. "MRI: Acquisition of a high-resolution time-of-flight mass spectrometer". Co PI (Green-Church). (10/10 - 09/13)
- 2011 **National Science Foundation Grant MCB-1052344**. "Collaborative research: The role of quality control in microbial translation". P.I. (04/2011 – 03/2014).
- 2011 **National Institutes of Health Grant 1T32 GM086252**. "Cellular, molecular, and biochemical sciences training grant". P.I. (Joint P.I., K. Musier Forsyth). (07/2011 – 06/2016).

## **PUBLICATIONS**

140. Shepherd, J. and **Ibba, M.** (2013) Lipid II-independent trans editing of mischarged tRNAs by the penicillin resistance Ffactor MurM. *J. Biol. Chem.* In Press.
139. Shepherd, J. and **Ibba, M.** (2013) Direction of aminoacylated transfer RNAs into antibiotic synthesis and peptidoglycan-mediated antibiotic resistance. *FEBS Letters*. In Press.
138. **Ibba, M.** (2013) Genetic Code. *Brenner's Encyclopedia of Genetics, Second Edition (Hughes and Malloy eds.)*. Academic Press. 234-235.
137. Hersch, S.J., Wang, M., Zou, S.B., Rajkovic, A., Moon, K.-M., Foster, L.J., **Ibba, M.\*** and Navarre, W.W. (2013) Divergent protein motifs direct EF-P mediated translational regulation in *Salmonella* and *Escherichia coli*. *mBio* **4**, e00180-13>(\*co-corresponding author).
136. Bullwinkle, T.J. and **Ibba, M.** (2013) Emergence and Evolution. *Top. Curr. Chem.* In Press.
135. Bullwinkle, T.J., Zou, S.B., Rajkovic, A., Hersch, S.J., Elgamel, S., Robinson, N., Smil, D., Bolshan, Y., Navarre, W.W. and **Ibba, M.** (2013) (R)- $\beta$ -lysine modified elongation factor P functions in translation elongation. *J. Biol. Chem* **288**, 4416-4423.
134. Yadavalli, S.S. and **Ibba, M.** (2013) Selection of tRNA charging quality control mechanisms that increase mistranslation of the genetic code. *Nucleic Acids Res.* **41**, 1104-1112.
133. Navarre, W.W. and **Ibba, M.** (2012) Elongation factor P: a role in posttranscriptional control of gene expression. *Microbe* **7**, 449-454.
132. Raina, M. and **Ibba, M.** (2012) Taking AIM at the start of translation. *J. Mol. Biol.* **423**, 473-474.
131. Elo, J.M., Yadavalli, S.S., Euro, L., Isohanni, P., Götz, A., Carroll, C., Valanne, L., Alkuraya, F.S., Uusimaa, J., Paetau, A., Caruso, E.M., Pihko, H., **Ibba, M.**, Tyynismaa, H. and Suomalainen, A. (2012) Mitochondrial phenylalanyl-tRNA synthetase mutations underlie fatal infantile Alpers encephalopathy. *Hum. Mol. Genet.* **21**, 4521-4529.
130. Rogers, T.E., Ataide, S.F., Dare, K., Katz, A. Seveau, S., Roy, H. and **Ibba, M.** (2012) A pseudo-tRNA modulates antibiotic resistance in *Bacillus cereus*. *PLoS ONE.* **7**, e41248.



129. Raina, M., Elgamal, S., Santangelo, T. and **Ibba, M.** (2012) Association of a multi-synthetase complex with translating ribosomes in the archaeon *Thermococcus kodakarensis*. *FEBS Letters*. **586**, 2232-2238.
128. Greber, B.J., Boehringer, D., Godinic-Mikulcic, V., Crnkovic, A., **Ibba, M.**, Weygand-Durasevic, I. and Ban, N. (2012) Cryo-EM Structure of the Archaeal 50S Ribosomal Subunit in Complex with Initiation Factor 6 and Implications for Ribosome Evolution. *J. Mol. Biol.* **418**, 145-160.
127. Dare, K. and **Ibba, M.** (2012) Roles of tRNA in cell wall biosynthesis. *Wiley Interdiscip. Rev. RNA*. **3** 247-264
126. Yadavalli, S.S. and **Ibba, M.** (2012) Quality control in aminoacyl-tRNA synthesis: its role in translational fidelity. *Adv. Protein Chem. Struct. Biol.* **86**, 1-43.
125. Zou, S.B., Hersch, S., Roy, H., Wiggers, J.B., Leung, A., Buranyi, S., Xie, J.L., Dare, K., **Ibba, M.** and Navarre, W.W. (2012) Loss of Elongation factor P Disrupts Bacterial Outer-membrane Integrity. *J. Bacteriol.* **194**, 413-425.
124. Gilreath, M.S., Roy, H., Bullwinkle, T.J., Katz, A., Navarre, W.W. and **Ibba M** (2011) Beta-lysine discrimination by lysyl-tRNA synthetase. *FEBS Letters*. **585**, 3284-3288.
123. Roy, H., Zou, S.B., Bullwinkle, T.J., Wolfe, B.S., Gilreath, M.S., Forsyth, C.J., Navarre, W.W. and **Ibba, M.** (2011) The tRNA synthetase paralog PoxA modifies elongation factor-P with (R)- $\beta$ -lysine. *Nature Chem. Biol.* **7**, 667-669.
122. Banerjee, R., Reynolds, N.M., Yadavalli, S.S., Rice, C., Roy, H., Banerjee, P., Alexander, R.W. and **Ibba, M.** (2011) Mitochondrial aminoacyl-tRNA synthetase single nucleotide polymorphisms that lead to defects in refolding but not aminoacylation. *J. Mol. Biol.* **410**, 280-293.
121. Zou, S.B., Roy, H., **Ibba, M.** and Navarre, W.W. (2011) Elongation factor P mediates a novel post-transcriptional regulatory pathway critical for bacterial virulence. *Virulence* **2**, 1-5.
120. Godinic-Mikulcic, V., Jaric, J., Hausmann, C.D., **Ibba, M.** and Weygand-Durasevic, I. (2011) An archaeal tRNA-synthetase complex that enhances aminoacylation under extreme conditions. *J. Biol. Chem.* **286**, 3396-3404.
119. Reynolds, N.M., Lazizzera, B.A. and **Ibba, M.** (2010) Cellular mechanisms that control mistranslation. *Nat. Rev. Microbiol.* **8**, 849-856.
118. Weygand-Durasevic, I. and **Ibba M.** (2010) New roles for codon usage. *Science* **329**, 1473-1474.
117. Roy, H. and **Ibba, M.** (2010) Bridging the gap between ribosomal and non-ribosomal protein synthesis. *Proc. Natl. Acad. Sci. USA* **107**, 14517-14518.
116. Santos, M.A.S., Orellana, O. and **Ibba, M.** (2010) Transfer RNA's latest port of call. *RNA Biology*, **7** 12-15.
115. Katz, A., Banerjee, R., de Armas, M. **Ibba, M.** and Orellana, O. (2010) Redox status affects the catalytic activity of glutamyl-tRNA synthetase. *Biochem. Biophys. Res. Comm.* **398**, 51-55.
114. Navarre, W.W., Zou, S., Roy, H., Xie, J.L., Savchenko, A., Singer, A., Edvokimova, E., Prost, L.R., Kumar, R., **Ibba, M.** Fang, F.C. (2010) PoxA, YjeK and elongation factor P coordinately modulate virulence and drug resistance in *Salmonella enterica*. *Mol. Cell* **39**, 209-221.
113. Goltermann, L., Larsen, M.S.Y., Banerjee, R., Joerger, A.C., **Ibba, M.** and Bentin, T. (2010) Protein evolution via amino acid and codon elimination. *PLoSOne* **5**, e10104.
112. Fredrick, K. and **Ibba, M.** (2010) How the sequence of a gene can tune its translation. *Cell* **141**, 227-229.
111. Reynolds, N.M., Ling, J., Roy, H., Banerjee, R., Repasky, S.E., Hamel, P. and **Ibba, M.** (2010) Cell-specific differences in the requirements for translational quality control. *Proc. Natl. Acad. Sci. USA* **107**, 4063-4068.
110. Banerjee, R., Chen, S., Dare, K., Gilreath, M., Praetorius-Ibba, M., Raina, M., Reynolds, N.M., Rogers, T., Roy, H., Yadavalli, S.S., **Ibba, M.** (2010) tRNAs: cellular barcodes for amino acids. *FEBS Letters* **584**, 387-395.
109. Roy, H. and **Ibba, M.** (2009) Broad range amino acid specificity of RNA-dependent lipid remodelling by multiple peptide resistance factors. *J. Biol. Chem.* **284**, 29677-29683

108. Yadavalli, S.S., Klipcan, L., Zozulya, A., Banerjee, R., Svergun, D. Safro, M. **Ibba, M.** (2009) Large-scale movement of functional domains facilitates aminoacylation by human mitochondrial phenylalanyl-tRNA synthetase. *FEBS Letters* **583**, 3204-3208.
107. Zeng, Y., Roy, H., Patil, P.B., **Ibba, M.** and Chen, S. (2009) Characterization of two seryl-tRNA synthetases in albomycin-producing *Streptomyces* sp. ATCC 700974. *Antimicrob. Agents Chemother.* **53**, 4619-4627.
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