Jason William Chin

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updated: March 1st 2017

Professional

2010-	**Head, Centre for Chemical & Synthetic Biology** (CCSB@LMB) MRC Laboratory of Molecular Biology, Cambridge, UK
2010-	**Professor of Chemistry & Chemical Biology** (0.2 FTE, Director of Research 2010-2012) Department of Chemistry, University of Cambridge, UK
2007-	**Programme Leader (tenured)** MRC Laboratory of Molecular Biology, Cambridge, UK
2007-	**Fellow in Natural Sciences & Director of Studies in Biochemistry** Trinity College, Cambridge University, UK
2003-2007	**Programme Leader (tenure-track)** MRC Laboratory of Molecular Biology, Cambridge, UK
2001-2003	**Postdoctoral Fellow** (with Professor Peter G. Schultz.) The Scripps Research Institute, La Jolla, CA, USA
1996-2001	**PhD** (with Professor Alanna Schepartz.) Yale University, New Haven, CT, USA
1995-1996	**Undergraduate Part II Research** (with Professor John D. Sutherland.) University of Oxford, Oxford Centre for Molecular Sciences, Oxford, UK

Education

Oxford University, Oxford, U.K.	M.A.	1996	Chemistry
Yale University, New Haven, CT, U.S.A.	Ph.D.	2001	Organic Chemistry

Recent Honors & Awards

2016	Elected to Fellowship of the Academy of Medical Sciences (FMedSci)
2013	Elected to European Inventor Hall of Fame (European Patent Office)
2013	Andrew E. Derome Memorial Lectures (Oxford University)
2011	Louis-Jeantet Foundation Young Investigator Career Award
2010	Elected EMBO (European Molecular Biology Organization) Member
2010	The EMBO Gold Medal (European Molecular Biology Organization)
2010	The Corday-Morgan Prize (The Royal Society of Chemistry)
2009	The Royal Society Francis Crick Prize Lecture
2005-2008	EMBO (European Molecular Biology Organization) Young Investigator
2001-2004	Damon Runyon Cancer Research Fund Fellowship
1996-2000	Fulbright Award, The U.S.-U.K. Fulbright Commission
1999	Arthur Wayland Dox Fellowship, Yale University
1998-1999	Sigma Xi-The Consortium for Plasma Science Award

Jason William Chin

Funding

Our research is primarily funded directly by the Medical Research Council through the PNAC division of LMB and through CCSB. In addition we have the following external funds.

2007-2014	ERC (European Research Council) StG Grant (1.8 Million Euros) *(Genetically Encoded Synthesis of Unnatural Biopolymers)*
2009-2012	HFSP (Human Frontiers of Science) Program Grant ($750,000) *(Decoding the Physical & Mechanistic Role of Histone Modifications with Designer Nucleosomes, with John vanNoort, Leiden)*
2011-2015	Louis-Jeantet Foundation (400,00 CHF) Expanding the Genetic Code of an Animal
2012	MRC, Super-resolution microscopy and imaging centre (1.7 Million GBP) with Nick Barry, Simon Bullock, Hugh Pelham, John Walker
2014	Nikon/MRC Case Studentship (with Nick Barry)
2014	BBSRC, Synthetic Biology and DNA synthesis centre (2 Million GBP) with Hugh Pelham and Philipp Holliger
2015-2020	ERC (European Research Council) Advanced Grant (2.5 Million Euros) (*Systematic Genetic Code Reprogramming*)

Recent Invited Presentations

Burton Lecture, Kings College London, March 22nd 2017
Francis Crick Institute, Opening Symposium, March 15th-17th 2017
Synthetic Biology: does industry get it, Royal Society, February 8th 2017
CRI Proteomics symposium, Cambridge, 9th November 2016
MindApp Symposium, Vienna Biocenter, Vienna, 3rd-4th November 2016
ENS Chemical Biology Symposium, Paris, 8th December 2016
Labelling and nanoscopy, keynote lecture, Heidelberg, 31st October- 1st November 2016
Heinrich Wieland Prize symposium, honouring Peter Schultz, Munich 13th-14th October 2016
10th Copenhagen Bioscience Conference on Signalling 2nd -5th October 2016
CIPSM, Munich, September 14th 2016
tRNA, JeJu, Korea, September 8th 2016
Peter Schultz 60th Birthday symposium, Scripps Research Institute, June 30th 2016
Sanders Tri-Institutional Chemical Biology Seminar, Rockefeller University June 5th 2016
RSC Chemical Biology Meeting, London, April 27th 2016
Wageningen Symposium, Organic Chemistry, April 6th 2016
UC Irvine, Bioengineering, December 21st 2015
Cardiff University, Department of Chemistry, October 12th 2015
ECBS,ICBS, Plenary lecture, Berlin, October 9th 2015
Clare Hall, September 10th 2015
Discovery Lecture, University of Dundee, June 26th 2015
Systems and Synthetic Biology lecture, University of Edinburgh, June 25th 2015
Joint Kjledgaard DANDRITE Lecture, Aarhus, May 6th 2015
Swiss Chemical Society Meeting, Basel, April 24th 2015
Institute of Structural and Molecular Biology, London, December 10th 2014
Frontiers in Biology, Institute of Genetics and Development, Rennes, November 28th 2014
Armenise Symposium, Harvard Medical School, November 19th 2014
MIT Biological Chemistry, November 18th 2014
International Student Symposium, MPI Dortmund, November 3rd 2014
EMBL, PhD student symposium, Heidelberg, October 23rd 2014
Horizons in Molecular Biology, PhD student symposium Goettingen, September 18th 2014
Plenary Speaker, 15th Tetrahedron Symposium, London June 26th 2014
International Summer School on Systems and Synthetic Biology, Sicily, June 16-20
Plenary Lecture, EMBO Practical Meeting, Grenoble, June 6th 2014

EMBO Molecular machines (co-organizer and speaker), Heidelberg, May 19th 2014
Keynote lecture, Translational Recoding, Killarney, Ireland, May 16th 2014
Plenary lecture, EU-COST meeting, Cambridge, March 25th 2014
VIB Group Leader retreat, Belgium. March 19th 2014
York, Open Biology lecture, January 15th 2014
NIMR, November 20th 2013
Max Planck Institute of Biochemistry, Martinsried. Distinguished Visitor Lecture, Nov 15th 2013
Solvay Public Lecture, 20th October 2013
23rd Solvay Conference on Chemistry, Brussels, 16th-19th October 2013
Plenary Lecture, Synthetic Biology 6.0, Imperial College London, July 9th-11th
Winton Symposium, Cambridge, September 30th 2013
Andrew E. Derome Memorial Lectures, Oxford University, April 10th & April 11th 2013
Institute of Molecular Medicine, Oxford University, April 9th 2013
UW Madison, Department of Chemistry, March 16th 2013
Keystone meeting, Precision Genome Engineering, March 20th 2013
Stanford University, October 3rd 2012
UC Berkeley, October 4th 2012
UCSF, October 5th 2012
EMBL Chemical Biology Meeting, September 26th-29th 2012, Heidelberg
Protein Society, Chemical Biology Session Chair, August 5th-8th 2012, San Diego
Single Cell Physiology Lecture, Paris, July 22nd-29th 2012.
HFSP Plenary Lecture, S. Korea. July 1st -5th 2012.
Plenary lecture, Challenges in Organic Chemistry & Chemical Biology (ISACS7, Royal Society of Chemistry), Edinburgh, June 12th-15th 2012
Closs Lecture (student invited), University of Chicago, June 1st 2012.
Evnin Lecture in Chemical Biology, Rockefeller University, May 30th 2012.
The Genetics Society meeting, Supermodel Organisms, April 20th 2012.
Pfizer, April 17th 2012
243rd ACS Meeting, Breslow Award Symposium, San Diego, March 28th 2012.
Solvay Discussion meeting, Belgium, February 14-17th 2012.
MIT, Chemistry Department, January 23rd 2012
Science Magazine/AAAS: keynote lecture on Synthetic Biology, Cambridge, October 6th 2011
1st Frontiers between Chemistry & Biology, Peking University, August 19th-24th 2011
25th Anniversary Protein Society Meeting, Boston, July 23rd-27th 2011
46th EUCHEM Conference on Stereochemistry, Burgenstock , May 1st-6th 2011.
Department of Biosystems Science and Engineering (ETH Zurich @ Basel), April 13th 2011
Biochemical Society Lecture, John Innes Centre, March 9th 2011
The Royal College of Art, London, February 18th 2011
The Gurdon Institute, Cambridge, February 15th 2011
Wellcome Trust Centre for Gene Regulation, Dundee, January 24th 2011
Wellcome Trust Centre for Cell Biology, Edinburgh, January 25th 2011
Corday Morgan Lectures. (Open University, Leicester, Leeds) January 12th, 17th, 20th 2011
Babraham Institute, Cambridge, December 7th 2010
California Institute of Technology, November 16th 2010
The EMBO Meeting, Barcelona, September 7th 2010
Plenary lecture, Challenges in Organic Chemistry & Chemical Biology (ISACS1, Royal Society of Chemistry), San Francisco, July 6th-9th 2010
MRC Human Genetics Unit, Edinburgh, June 10th 2010
ETH Zurich, Chemical Biology Symposium, Department of Chemistry, June 1st 2010
Harvard University, Wyss Institute, May 12th 2010
Yale University, Lecture in Chemical Biology, May 11th 2010
Plenary lecture, Imperial College, London, Chemical Biology Symposium, April 19th 2010
Imperial Cancer Research, April 14th 2010
Van Leewenhoek Lecture, Leiden University, March 25th 2010
The Francis Crick Prize Lecture of the Royal Society November 26th 2009
Cambridge University, Organic Chemistry Series, November 23rd 2009
The Mendel Lecture, Brno Czech Republic, October 22nd 2009
Tiselius Symposium, Uppsala University, Sweden, September 6-9th 2009

The Synthetic Biology Symposium of the National Academy of Sciences USA, The Royal Society, & OECD , Washington D.C. July 9th-10th 2009
Princeton University Department of Chemistry, June 15th 2009
American Peptide Symposium, Indianna, June 8-12th
University of Lausanne, BIG lecture, June 2nd 2009
9th Dahlem symposium (Signal Recognition and Tansduction), Berlin 25th-26th February 2009.
DFG, German Synthetic Biology strategy meeting, 27th February 2009.
Imperial College, London, January 14th 2009
Life Under (re) Construction, Vienna Biocenter, Research Institute of Molecular Pathology (IMP), the Institute of Molecular Biotechnology of the Austrian Academy of Science (IMBA), Max F. Perutz Laboratories (MFPL) and the Gregor Mendel Institute (GMI), PhD student symposium, Vienna, November 13-14, 2008
Synthetic Biology Workshop, University of Groningen, November 8, 2008.
Plenary lecture, EMBL/EMBO 9th Science & Society Lecture: Systems & Synthetic Biology, EMBL Heidelberg, November 7th, 2008
Department of Biochemistry, Oxford University, October 20th, 2008
Plenary lecture, European Bioperspectives, DECHEMA, Hannover October 7-9, 2008
Synthetic Biology Symposium, Max Planck Institute for Terrestrial Microbiology, Marburg. October 1, 2008.
Keynote lecture, Chemistry in the New World of Bioengineering & Synthetic Biology (Royal Society of Chemistry), Oxford, September 22-24, 2008
American Chemical Society Meeting, Philadelphia, August 17-21 2008
Royal Society Synthetic Biology Discussion Meeting, London, June 2-3, 2008
47th Tutzing Syposium: Modeling & Engineering of Complex Systems, Tutzing, May 25-28
Plenary lecture, 2nd International Forum on Biosecurity (The National Academies of the United States, The international Academy on International Issues, The Interacademy Medical Panel, The International Union of Microbial Societies, The International Union of Biochemistry and Molecular Biology, the International Union of Biological Sciences, the Hungarian Academy of Sciences), Budapest March 30 - April 2 2008
London Research Institute, Cancer Research UK (Clare Hall), February 28, 2008
Pasteur Institute, Paris, February 21, 2008
John Innes Centre, Norwich, January 28 2008
London Structural Biology Club, Nov 30, 2007
EMBO Young Investigator Meeting, EMBL, Heidelberg, June 13-15, 2007
Synthetic Biology 3.0, ETH, Zurich, June 24-26, 2007
Yale University Chemical Biology Symposium, June 1, 2007
Institute of Molecular Biology & Biotechnology, Crete, May 23-27, 2007
Protein Engineering Summit, Boston, MA, May 14-15, 2007
Louis Pasteur University, Strasbourg, April 23, 2007
Ministry of Defense: Chemical and Biological Technology Forecasting, Porton Down, March 20-21, 2007
BBSRC Workshop on Synthetic Biology: Setting the agenda for Synthetic Biology in the UK, Swindon, February 8-9, 2007
National Institute for Medical Research (NIMR), January 18, 2007
University of York, Department of Biology, October 20, 2006
Bioorganic Chemistry Gordon Conference, Oxford, July 31, 2006
iGEM (International Genetically Engineered Machines) Cambridge University, July 7, 2006
Expert Panel Meeting on Novel Platform Technologies, Cambridge Antibody Technology, March 27-28, 2006
Recombinant DNA Technology in the 21st Century, Biochemical Society, Astra Zeneca, Loughborough, November 21-22, 2005
University of Manchester, School of Chemistry, November 16, 2005
Weizmann Institute, Israel, November 13, 2005
International Protein Engineering Conference, Ein Gedi, Israel, November 10-12, 2005
Boston University, November 2005
Rockefeller University, 2004

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Professional Activities

Reviewer:
Journals: *Nature, Nature Methods, Nature Reviews Molecular Cell Biology, Journal of the American Chemical Society, Angewandte Chemie, Cell, Journal of Biological Chemistry, ACS Chemical Biology, Nature Chemical Biology, P.N.A.S.*
Funding Agencies*: Biotechnology & Biological Sciences Research Council (BBSRC, UK), Engineering & Physical Sciences Research Council (EPSRC, UK), European Molecular Biology Organization (EMBO) fellowships. European Research Council.*

***Committees**: Advisory Member of the Royal Society Synthetic Biology Policy Coordination Group (2008-); LMB Seminar Committee (2004-); International Program Committee for the XXth International Congress of Genetics, Berlin 2008, German Genetics Society; Royal Society Synthetic Biology meeting committee (2008); EMBO Molecular Machines organizing committee (2014); EP Abraham Fund Advisory Board, Oxford University (2014-); MaxSynBio Advisory Board, Max Plank Society (2015-); ETH Biosystems Enginnering Faculty Panel, ETH Zurich (2015).*

Editorial: *Chemical Science* (RSC, Editorial Advisory Board 2010-), *Cell Chemical Biololgy* (Cell Press, Editorial Board, Sept 2009-present)*, Current Opinion in Chemical Biology* (Editorial Board 2011- present, Biopolymers Section Editor 2007, Synthetic Biology Section Editor 2012), *Protein Engineering Design & Selection* (2007-present), *ACS Synthetic Biology* (Editorial Board 2011-present), Faculty 1000 (2011-present), Journal of the Royal Society, Interface (2011-present). Open Biology, Royal Society (Editorial Board, 2012-present)

Scientific consulting: Ambrx (2003), Cambridge Antibody Technology/Astra-Zeneca (2005-2007), Synaffix (SAB, 2015-), Orbit Bioscience (SAB, 2015-)

Teaching & Examination: Option 7 Undergraduate Biochemistry (Cambridge University) . iGEM (International Genetically Engineered Machines) lecturer 2006, 2007 (Cambridge University). Trinity college supervisions (Molecules in Medical Sciences, 2007-2011), Part III Chemistry, Nucleic Acids (Cambridge University 2012-).

Patents & Patent Applications (3 of greater than 10)
Compositions and Methods Relating to Orthogonal Ribosome•mRNA pairs., filed July 15 **2005**, 60/699,693, EP1907545 B1, Oliver Rackham & Jason W. Chin.

An Expanded Eukaryotic Genetic Code, TSRI 0619, filed June 17, **2003**, Chin, J. W., Cropp, T. A. Anderson, J. C., Schultz, P. G. 435006000 (USPTO), C12Q001/68 (Intl Class).

Miniature Proteins for DNA and Protein Binding, Yale University, WO0181375 **2001**, Alanna Schepartz Shrader, Jason W. Chin, Reena Zutshi, Stacey Rutledge, Joanne Kehlbeck Martin, Neal Zondlo.

Publications

(103*) Defining Synonymous Codon Compression Schemes by Genome Recoding. K. Wang, J. Fredens, S. F. Brunner, S. H. Kim, T. Chia, J. W. Chin. *Nature* **2016** 539:59-64 [Highlighted *Nature Methods* **2016** 13:970, *Nature Biotech* **2016** 34: 1439.]

(102*) Genetic code expansion in the mouse brain. R. J. Ernst, T. P. Krogager, E. S. Maywood, R. Zanchi, V. Beranek, T. S. Elliott, N. P. Barry, M. H. Hastings, J. W. Chin. *Nature Chem. Biol*. **2016** 12:776-778

(101) Tagging and enriching proteins enables cell specific proteomics. T. S. Elliott, A. Bianco, F. M. Townsley, S. D. Fried, J. W. Chin. *Cell Chem. Biol*. **2016** 23: 805-815 [Highlighted in *Nature Methods* **2016** 13:714]

(100) Synthesis of isomeric phosphoubiquitin chains reveals that phosphorylation controls deubiquitinase activity and specificity. N. Huguenin-Dezot, V. De Cesare, J. Peltier, A. Kneble, Y. Adi Kristaryanto, D. T. Rogerson, Y. Kulathu, M. Trost, J. W. Chin. *Cell Rep*. **2016** 16:1180-1193

(99) Genetically encoded optical activation of DNA recombination in human cells. J. Luo, E. Arbely, J. Zhang, C. Chou, R. Uprety, J. W. Chin, A. Deiters. *Chem Comm.* **2016** 52:8529-8532

(98) Photoactivation of mutant isocitrate dehydrogenase 2 reveals rapid cancer-associated metabolic and epigenetic changes. O.S. Walker, S. J. Elsaesser, M. Mahesh, M. Bachman, S. Balasubramanian, J.W. Chin. *J. Am. Chem. Soc*. **2016** 138: 718-721

(97) Genetic code expansion in stable cell lines enables encoded chromatin modification. S J. Elsaesser, R. J. Ernst, O. S. Walker, J. W. Chin. *Nature Meths.* **2016** 13:158-164

(96) Structural and mechanistic insight into the regulation of fundamental Rho-regulator RhoGDIα by lysine acetylation. N. Kuhlman, S. Wroblowski, P. Knyphausen, S. deBoor, J. Brenig, A. Y. Zienert, K. Meyer-Teschendorf, G.J.K Praefcke, H. Nolte, M. Krueger, M. Schacherl, U. Baumann, L. C. James, J.W. Chin, M. Lammers. *J. Biol. Chem*. **2015** doi: 10.1074/jbc.M115.707091

(95) EGF-dependent re-routing of vesicular recycling switches spontaneous phosphorylation suppression to EGFR signaling. M. Baumdick, G. Xouri, Y. Bruggemann, L. Davis, M. Schmick, O. Sabet, J. W. Chin, P. Bastiaens. *eLIFE* **2015** doi: 10.7554/eLife.12223

(94*) Ribosome subunit stapling for orthogonal translation in *E. coli*. S. Fried, W. H. Schmied, C. Uttamapiniant, J. W. Chin. *Angew. Chem*. **2015** 54:12791-12794.

(93*) Efficient genetic encoding of phosphoserine and its non-hydrolyzable analog. D. T. Rogerson, A. Sachdeva, K. Wang, T. Haq, N. Huguenin-Dezot, M. M. Muqit, A. Fry, R. Bayliss, J.W. Chin. *Nature Chem Biol* **2015** 11: 496-503 [Highlighted, *Nature Methods* **2015** 12: 702-703.]

(92*) Selective rapid and optically switchable regulation of protein function in live mammalian cells. Y-H. Tsai, S. Essig, J. R. James, K. Lang, J. W. Chin. *Nature Chem* **2015** 7:554-561 [Highlighted, *Nature Methods* **2015** 12: 601. *ACS Chem. Biol*. **2015** 10: 1355. *Chem. Eng. News*. May 22, **2015**]

(91) Genetic code expansion enables live-cell super-resolution imaging of site-specifically labeled cellular protein. C. Uttamapinant, J. D. Howe, K. Lang, V. Beranek, L. Davis, M. Mohan, N. P. Barry, J. W. Chin. *J. Am. Chem. Soc*. **2015** 137: 4602-4605

(90) Ubiqutination of the Dishevelled DIX domain blocks its head-to-tail polymerization. J. Madrzak, M. Fiedler, C. M. Johnson, R. Ewan, A. Knebel, M. Bienz, J. W. Chin. *Nature Comms.* **2015** 6: 6718

(89) Site specific glycoconjugation of protein via a bioorthognal tetrazine cycloaddition with a genetically encoded trans-cyclooctene or bicyclononyne. T. Machida, K. Lang, L. Xue, J.W. Chin, N. Wissinger. *Bioconjug. Chem.* **2015** 26:802-806.

(88) Genetic encoding of unnatural amino acids for labeling proteins. K. Lang, L. Davis, J.W. Chin. *Methods Mol Biol* **2015** 1266: 217-228

(87) Ubiquitin C-terminal hydrolyases cleave isopeptide and peptide-linked ubiquitin from structured proteins but do not edit ubiquitin homopolymers. J. S. Bett, M. S. Ritorto, R. Ewan, E. G. Jaffray, S. Virdee, J. W. Chin, A. Knebel, T. Kurz, M. Trost, M. H. Tatham, R. Hay. *Biochem J.* **2015** 466: 489-98

(86) Host cofactors and pharmagologic ligands share an essential interface in HIV-1 capsid that is lost upon disassembly. A. J. Price, D. A. Jaques, W. A. McEwan, A. J. Fletcher, S. Essig, J. W. Chin, U. D. Hamblage, C. Aiken, L. C. James. *PLoS Pathog*. **2014** 10 e1004459

(85) Efficient multisite unnatural amino acid incorporation in mammalian cells via optimized pyrrolysyl-tRNA synthetase/tRNA expression and engineered eRF1. W. Schmied, S. J. Elsaesser, C. Uttamapinant, J. W. Chin. *J. Am. Chem. Soc*. **2014** 136: 15577-15583

(84) Genetically encoded optochemical probes for simultaneous fluorescence reporting and light activation of protein function with two-photon excitation. J. Luo, R. Uprety, Y. Naro, C. Chou, D. P. Nguyen, J. W. Chin, A. Deiters. *J. Am. Chem. Soc*. **2014** 136: 15551-15558

(83) Genetic code expansion and bioorthogonal labeling enables cell specific proteomics in an animal. T.S. Elliott, A. Bianco, J.W. Chin. *Curr. Opin Chem. Biol*. **2014** 21: 154-160

(82) Conformationally strained trans-cyclooctene with improved stability and excellent reactivity in tetrazine ligation. A. Darko, S. Wallace, O. Dmitrenko, M. M. Machovina, R. A. Mehl, J. W. Chin, J. M. Fox. *Chem. Sci*. **2014** 5: 3770-3776

(81) Concerted, Rapid, Quantitative, and Site-specifc Dual Labeling of Proteins. A. Sachdeva, K. Wang. T. Elliott, J.W. Chin. *J. Am. Chem. Soc*. **2014** 136: 7785-7788

(80*) Optimized orthogonal translation of unnatural amino acids enables spontaneous protein double labeling and FRET. K. Wang, A. Sachdeva, D. J. Cox, N. M. Wilf, K. Lang, S. Wallace, R. A. Mehl, J. W. Chin. *Nature Chem*. **2014** 6: 393-403.
[News & Views *Nature Chem.* **2014** 6: 379-381. Highlight, *Nature Methods*. **2014** 11: 614]

(79*) Proteome Labeling and Protein Identification in Specific Tissues at Specific Developmental Stages in an Animal. T.S. Elliott, F. M. Townsley, A. Bianco, R. J. Ernst, A. Sachdeva, S. J. Elsaesser, L. Davis, K. Lang, R. Pisa, S. Greiss, K. S. Lilley, J.W. Chin. **2014**. *Nature Biotech*. **2014** 32: 465-472
[[News & Views, *Nature Biotech.* **2014** 32: 445-446. Spotlight, *ACS Chem. Biol.* **2014** 9:1068. Highlight, *Nature Methods*. **2014** 11: 614]

(78) Cellular Incorporation of Unnatural Amino Acids and Bioorthogonal Labeling of Proteins. *Chem. Rev.* K. Lang, J.W. Chin **2014** 114: 4764-4806.

(77) Expanding and Reprogramming the Genetic Code of Cells and Animals. J.W. Chin. *Ann. Rev. Biochem*. **2014** 83: 379-408

(76) Strain promoted sydnone bicyclo-[6.1.0]-nonyne cycloaddition. S. Wallace, J.W. Chin. *Chem Sci.* **2014** 5: 1742-1744

(75) Genetic Encoding of Photocaged Cysteine Allows Photoactivation of TEV Protease in Live Mammalian Cells. D.P. Nguyen, M. Mahesh, S.J. Elsaesser, S. M. Hancock, C. Uttamapinant, J.W. Chin. *J. Am. Chem. Soc.* **2014** 136: 2240-2243.

(74) Bioorthogonal reactions for labeling proteins. K. Lang, J.W. Chin. *ACS Chem. Biol*. **2014** 9: 16-20.

(73) Genetically encoded light activated transcription for spatiotemporal control of gene expression and gene silencing in mammalian cells. J. Hempill, C. Chou, J.W. Chin, A. Deiters. *J. Am. Chem. Soc.* **2013** 135: 13433-13439.

(72) Efficient and Rapid *C.elegans* Transgenesis by Bombardment and Hygromycin B selection. I. Radman, S. Greiss, J.W. Chin. *PLOS ONE* **2103** 135: 76019.

(71) Fluorescent imaging: Shining a light into live cells. K. Lang, J.W. Chin. *Nature Chem.* **2013** 5:81-82

(70) The histone chaperone DAXX envelops an H3.3/H4 dimer for H3.3 specific recognition. S.J. Elsaesser, H. Huang, P.W. Lewis, J.W. Chin, C. D. Allis, D. J. Patel *Nature* **2012** 491: 560-565

(69*) Expanding the Genetic Code of *Drosophila melanogaster.* A. Bianco, F.M. Townsley, S. Greiss, K. Lang, J.W. Chin. *Nature Chem. Biol.* **2012** 8:748-750.

(68) CPSF6 Defines a Conserved Capsid Interface that Modulates HIV-1 Replication. A. J Price, A. J. Fletcher, T. Schaller, T. Elliott, K. Lee, V. N. KewalRamani, J. W. Chin, G. J. Towers, L. C. James. *PLoS Pathog*. **2012** 8(8): e1002896.

(67) A Different Life? J.W. Chin, L. You. *Curr. Opin. Chem. Biol.* **2012** 16: 243-244

(66) Photocontrol of Tyrosine Phosphorylation in Mammalian Cells via Genetic Encoding of Photocaged Tyrosine. E. Arbeley, J. Torres-Kolbus, A. Deiters, J.W. Chin. *J. Am. Chem. Soc.* **2012** 134: 11912-11915.

(65*) Genetic Encoding of Bicyclononynes and trans-Cyclooctenes for Rapid Site-Specific Protein Labeling in Vitro and in Live Mammalian Cells via Fluorogenic Diels-Alder Reactions. K. Lang, L. Davis, S. Wallace, M. Mahesh, D. J. Cox, M. L. Blackman, J. M. Fox & J.W. Chin. *J. Am. Chem. Soc.* **2012** 134:10317-10320

(64) Reprogramming the genetic code. J.W. Chin. *Science.* **2012** 336:428-429.

(63*) Genetically encoded norbornene directs site-specific cellular protein labelling via a rapid bioorthogonal cycloaddition. K. Lang, L. Davis, A Deiters, J.W. Chin. *Nature Chem.* **2012** 4:298-304.
[News & Views *Nature Chem*. **2012** 4: 248-250]

(62) Designer Proteins: Applications of Genetic Code Expansion in Cell Biology. L. Davis & J.W. Chin. *Nature Rev. Mol. Cell. Biol*. **2012** 13:168-182

(61) Reprogramming the Genetic Code: From Triplet to Quadruplet Codes. K. Wang, W. Schmeid & J.W. Chin. *Angew Chem*. **2012** 51:2288-2297.

(60) An Ankyrin-repeat ubiquitin-binding domain determines TRABID's specificity for atypical ubiquitin chains. J.D.F. Licchesi, J. Miezczanek, T.E.T. Mevissen, T.J. Rutherford, M. Akutsu, S. Virdee, F.E. Oualid, J.W. Chin, H. Ovaa, M. Bienz, D. Komander. *Nature Struct. Mol. Biol.* **2011** 19:62-71

(59*) Expanding the Genetic Code of an Animal. S. Greiss & J.W. Chin. *J. Am. Chem. Soc.* **2011** 133:1496-14199
[Featured on the BBC (www.**bbc**.co.uk/news/science-environment-14492948*), BBC World Service Radio (http://www.bbc.co.uk/programmes/p00jttd6) Chemistry World*

(http://www.rsc.org/chemistryworld/News/2011/August/17081102.asp), *ChemBiochem*. **2012** DOI: 10.1002/cbic.201100674]

(58) Traceless & Site-Specific Ubiquitination of Recombinant Proteins. S. Virdee, P.B. Kapadnis, T. Elliott, K. Lang, J. Madrzak, D.P. Nguyen, L. Riechmann, & J.W. Chin. *J. Am. Chem. Soc.* **2011** 133:10708-10711

(57) Genetically Encoded 1,2 Aminothiols Facilitate Rapid and Site Specific Protein Labeling via a Bio-orthogonal Cyanobenzothiazole Condensation. D.P. Nguyen, T. Elliott, M. Holt, T.W. Muir, & J.W. Chin. *J. Am. Chem. Soc.* **2011** 133:11418-11421
[Featured in *ACS Chem Biol.* **2011** 8: 768-770]

(56) Reprogramming the Genetic Code. J.W. Chin. *EMBO J*. **2011** 30: 2312-2324

(55) Orthogonal Gene Expression in *Escherichia coli*. W. An, J.W. Chin. *Methods Enzymol*. **2011** 497: 115-1134

(54) A Dual Role of H4K16 Acetylation in the Establishment of Yeast Silent Chromatin. M. Oppikofer, S. Kueng, F. Martino, S. Soeroes, S.M. Hancock, J.W. Chin, W. Fischle, S.M. Gasser. *EMBO J*. **2011** 30:2610-2621

(53) Acetylation of Lysine 120 of p53 endows DNA-binding Specificity at Effective Physiological Salt Concentration. E. Arbely, E. Natan, T. Brandt, M.D. Allen, D.B. Veprintsev, C.V. Robinson, J.W. Chin, A.C. Joerger, A.R. Fersht. *Proc. Natl. Acad. Sci. U.S.A.* **2011** 108:8251-8256

(52) Light Activated Kinases Enable Temporal Dissection of Signaling Networks in Living Cells. A. Gautier, A. Deiters, & J.W. Chin. *J. Am. Chem. Soc.* **2011** 133: 2125-2127
[Featured in *Nature Meths.* **2011** 8:284-285, *Chem. Eng. News* 14 Feb. **2011**]

(51) Molecular Basis for Ubiquitin and ISG15 Cross-reactivity in Viral Ovarian Tumor Domains. M. Akutsu, Y. Ye, S. Virdee, J.W. Chin, D. Komander. *Proc. Natl. Acad. Sci (USA)* **2011** 108: 2228-2233

(50) Genetically Encoding an Aliphatic Diazirine for Protein Photocrosslinking. C. Chou, R. Uprety, L. Davis, J.W. Chin, A. Deiters. *Chem. Sci*. **2011** 2: 480-483

(49*) Engineered Diubiquitin Synthesis Reveals K29 Isopeptide Specificity of an OTU Deubiquitinase. S. Virdee, Y. Ye, D.P. Nguyen, D. Komander & J. W. Chin. *Nature Chem. Biol.* **2010** 6:750-757
[Featured in *Chem. Eng. News.* Oct 11 **2010** , *Chem. Eng. News* (Highlights of the Year) Dec 20 **2011**., *Angew. Chem.* **2011** 49:9042-9044]

(48) Expanding the Genetic Code of Yeast for Incorporation of Diverse Unnatural Amino Acids via a Pyrrolysyl-tRNA synthetase/tRNA Pair. S. M. Hancock, R. Uprety, A. Deiters & J.W. Chin. *J. Am. Chem. Soc.* **2010** 132:14819-14824

(47) Genetically Directing N^{ϵ}, N^{ϵ} dimethyl-L-lysine in Recombinant Histones. D.P. Nguyen, M. M. Garcia-Alai, S. Virdee & J.W. Chin. *Chem. Biol*. **2010** 17:1072-1076

(46*) Genetically Encoded Photo-control of Protein Localization in Mammalian Cells. A Gautier D.P. Nguyen, H. Lusic, W. An, A. Deiters, J.W. Chin. *J. Am. Chem. Soc*. **2010** 132: 4086-4088
[Featured in *Chem. Bio Chem.* **2010** 11:1825-1827]

(45*) Encoding Multiple Unnatural Amino Acids via a Quadruplet Decoding Ribosome. H. Neumann, K. Wang, L. Davis, M. Garcia-Alai, & J.W. Chin. *Nature.* **2010** 468:441-444.

[Featured in *Nature Meths* **2010** 7: 343, *New Scientist* 17 Feb 2010. *Chem. Eng. News* 22 Feb **2010** v88: 8, p9. *National Public Radio (USA) Morning Edition*, 15 Feb **2010**]

(44*) *De Novo* Generation of Mutually Orthogonal Aminoacyl-tRNA synthetase/tRNA pairs. . H. Neumann, A. Slusarczyk, J.W. Chin. *J. Am. Chem. Soc.* **2010**. 132:2142-2144
[Featured in *New Scientist* 17 Feb **2010**. *Chem. Eng. News* 22 Feb **2010** 88: 8, p9]

(43) Regulation of Cellular Metabolism by Protein Lysine Acetylation. *Science*. **2010**. 237:1000-1004, 22 co-authors
[Perspective in *Science* **2010** 237: 964-965]

(42) Acetylation Regulates Cyclophilin A Catalysis, Immunosuppression & HIV Isomerization. M. Lammers, H. Neumann, J.W. Chin, L. C. James. *Nature Chem. Biol*. **2010** 6:331-337
[Featured in *Chem. Eng. News*. 12 April **2010** 88:15 p28]

(41) Evolved Orthogonal Ribosome Purification for in vitro Characterization. O. P. T. Barrett & J. W. Chin. *Nucleic. Acids Res*. **2010** 38:2682-2691

(40) Genetically Encoding N$^{\varepsilon}$-methyl-L-lysine in Recombinant Histones. D. P. Nguyen, M. Garcia Alai, P.B. Kapadnis, H. Neumann, & J.W. Chin. *J. Am. Chem. Soc*. **2009**. 131:14194-14195

(39*) A Method for Genetically Installing Site-specific Acetylation in Recombinant Histones Defines the Effects of H3 K56 Acetylation. H. Neumann, S. Hancock, R. Buning, A. Routh, L. Chapman, J. Sommers, T. Owen-Hughes, J. van Noort, D. Rhodes, & J.W. Chin. *Mol. Cell.* **2009.** 36:153-163
[Featured in *Nature Chem. Biol.* **2009.** 5: 787; *Chem. Biol.* **2009.** 16:1027-1029. *Nature Methods* **2010** 6: 865]

(38) Genetic Encoding and Labeling of Aliphatic Azides and Alkynes in Recombinant Proteins *via* a Pyrrolysyl-tRNA Synthetase/tRNA$_{CUA}$ Pair and Click Chemistry. D. P. Nguyen, H. Lusic, P.B. Kapadnis, A. Deiters & J.W. Chin. *J. Am. Chem. Soc.* **2009**. 131: 8720-8721

(37) Synthesis of Orthogonal Transcription-Translation Networks. W. An & J.W. Chin, *Proc. Natl. Acad. Sci. U.S.A.* **2009.** 106: 8477-8482.
[Featured in *Nature* **2010** 463:288-290]

(36) A Molecular Biologist Gets Excited About Making Designer Proteins in Cells. J.W. Chin. *Nature*. **2009** 457: 239

(35*) Genetically Encoding N$^{\varepsilon}$-acetyllysine in Recombinant Proteins. H. Neumann, S.Y. Peak-Chew & J.W. Chin. *Nature Chem. Biol.* **2008**. 4: 232-234.
[Featured in *Nature* **2008**. 45: 868, *Chemistry & Engineering News (ACS)*. **2008**. Feb 25, p38, *Chemistry World (RSC)*, **2008**. Feb 18]

(34) Genetically Encoding Protein Oxidative Damage. H. Neumann, J.L. Hazen, J. Weinstein, R. A. Mehl & J. W. Chin. *J. Am. Chem. Soc.* **2008**. *130: 4028-33*

(33) Engineering Escherichia coli Heat-Resistance by Synthetic Gene Amplification. D.U. Christ & J.W. Chin. *Prot. Eng. Des. Sel.* **2008**. 21: 121-125.

(32) Current & Future Prospects in Biopolymer Chemistry. J.W. Chin, J.J. Kohler. *Curr. Opin. Chem. Biol.* **2007**. 11:626-627

(31) Reprogramming the Amino-acid Substrate Specificity of Orthogonal Aminoacyl-tRNA Synthetases to Expand the Genetic Code of Eukaryotic Cells. T. Ashton Cropp, J. Christopher Anderson, J. W. Chin. *Nature Prot*. **2007**. 2: 2590-2600.

(30*) Evolved Orthogonal Ribosomes Enhance the Efficiency of Synthetic Genetic Code Expansion. K. Wang, H. Neumann, J. W. Chin. *Nature Biotech.* **2007.** 25: 770-777. [News & Views *Nature Biotech*. **2007.** 25: 745-746.]

(29) Expanding Nucleic Acid Function *in vitro* and *in vivo*. T. A. Cropp, J. W. Chin. *Curr. Opin. Chem. Biol.* **2006.** 10: 601-606.

(28) Programming and Engineering Biological Networks. J. W. Chin. *Curr. Opin. Struct. Biol.* **2006.** 16: 551-556.

(27) Modular Approaches to Expanding the Functions of Living Matter. J. W. Chin. *Nature Chem. Biol.* **2006.** 2: 304-311.

(26) Functional Epitopes at the Ribosome Subunit Interface. O. Rackham, K. Wang & J. W. Chin. *Nature Chem. Biol.* **2006.** 2: 254-258.
[News & Views, *Nature Chem. Biol.* **2006**. 2: 231-232]

(25) Synthesizing Cellular Networks from Evolved Ribosome•mRNA Pairs. O. Rackham & J. W. Chin. *Biochem. Soc. Trans.* **2006.** 34: 328-329.

(24) A Genetically Encoded, Fluorescent Amino Acid. D. Summerer, S. Chen, N. Wu, A. Deiters, J. W. Chin, P. G. Schultz. *Proc. Natl. Acad. Sci. U.S.A.* **2006.** 103: 9785-9789.

(23) Cellular Logic with Orthogonal Ribosomes. O. Rackham & J. W. Chin. *J. Am. Chem. Soc.* **2005**. 127: 17584-17585.
[Featured in *Science* **2005**. 310: 1587]

(22*) A Network of Orthogonal Ribosome•mRNA Pairs. O. Rackham & J. W. Chin. *Nature Chem. Biol.* **2005**. 1: 159-166.
[Featured in *Nature* **2005**. 436: 306-307; *Science* **2005**. 310: 1587; *Chemistry & Engineering News,* **2005**, July 25, p44; *Nature Methods* **2005**. 2: 640]

(21) Photocrosslinking Proteins *in vitro* and in *E .coli* via the Genetic Incorporation of p-benzoyl-L-phenylalanine. I. S. Farrell, R. Toroney, J. L. Hazen, R. A. Mehl & J. W. Chin. *Nature Methods* **2005**. 2: 377-384.

(20) Protein Expression by Expansion of the Genetic Code. J. W. Chin, T. J. Magliery. Encyclopedia of Molecular Cell Biology & Molecular Medicine (2^{nd} edition, Ed. Myers, R. A.), Wiley-VCH **2005.** 11: 45-68.

(19) Substrate Recognition by the AAA+ Chaperone ClpB. C. Schlieker, J. Weibezahn, H. Patzelt, P. Tessarz, C. Strub, K. Zeth, A. Erbse, J. Schneider-Mergener, J. W. Chin, P. G. Schultz, B. Bukau, A. Mogk. *Nature Struct. Mol. Biol.* **2004**. 11: 607-615.

(18) Adding Amino Acids with Novel Reactivity to the Genetic Code of *Saccharomyces cerevisiae*. A. Deiters, T. A. Cropp, M. Mukherji, J. W. Chin, J. C. Anderson, P. G. Schultz. *J. Am. Chem. Soc*. **2003**. 125: 11782-11783.

(17) An Expanded Eukaryotic Genetic Code. J. W. Chin, T. A. Cropp, J. C. Anderson, M. Mukherji, Z. Zhang, and P. G. Schultz. *Science* **2003.** 301: 964-967.
[Featured in *Nature Biotech.* **2003**. 21: 1023; Science News **2003**. 164: 102; *The Scientist*, August 15 **2003**; *Chemistry & Engineering News,* **2003**, August 18, p49; *Scientific American*, **2004**. 290: 74-81; *Bioessays* **2004**. 26: 111-115]

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(16) Progress Toward an Expanded Eukaryotic Genetic Code. J. W. Chin, T. A. Cropp, S. Chu, E. Meggers, and P. G. Schultz. *Chem. Biol.* **2003**. 10: 511-519.
[Featured in *Chem. Biol.* **2003**. 10: 475-476; *Chem. Biol.* **2003**. 10: 586-587]

(15) *In vivo* Photocrosslinking with Unnatural Amino Acid Mutagenesis. J. W. Chin and P. G. Schultz. *ChemBioChem.* **2002**. 11: 1135-1137.

(14) Addition of a Photocrosslinking Amino Acid to the Genetic Code of *Escherichia coli*. J. W. Chin, A. B. Martin, D. S. King, L. Wang and P. G. Schultz. *Proc. Natl. Acad. Sci. U.S.A.* **2002**. 99: 11020-11024.
[Featured in *Trends Microbiol*. **2002**. 10: 552]

(13) Addition of *p*-Azido-**L**-phenylalanine to the Genetic Code of *Escherichia coli*. J. W. Chin, S. W. Santoro, A. B. Martin, D. S. King, L. Wang and P. G. Schultz. *J. Am. Chem. Soc.* **2002**. 124: 9026-9027.

(12) A View to a Kill: Ligands for Bcl-2 Family Proteins. S. E. Rutledge, J. W. Chin and A. Schepartz. *Curr. Opin. Chem. Biol.* **2002**. 6: 479-485.

(11) Design and Evolution of a Miniature Bcl-2 Binding Protein. J. W. Chin and A. Schepartz. *Angew. Chem. Intl. Ed. Engl.* **2001**. 40: 3806-3809.

(10) Concerted Evolution of Structure and Function in a Miniature Protein. J. W. Chin and A. Schepartz. *J. Am. Chem. Soc.* **2001**. 123: 2929-2930.
[Featured in *Science* **2001**. 291: 2049]

(9) Methodology for Optimizing Miniature Proteins based on Avian Pancreatic Polypeptide Using Phage Display. J. W. Chin, R. M. Grotzfeld, M. A. Fabian and A. Schepartz. *Bioorg. Med. Chem. Lett*. **2001**. 11: 1501-1505.

(8) Eukaryotic Gene Regulation. J. W. Chin. *Chem. Biol.* **2000**. 6: R6.

(7) Gene Regulation: Protein Escorts to the Transcription Ball. J. W. Chin, J. J. Kohler, T. L. Schneider and A. Schepartz. *Curr. Biol.* **1999**. 9: R929-932.

(6) *The Vault Reports Guide to Mastering Chemistry*. J. Chin, **1998**, Houghton Mifflin, New York.

(5) Forest Idyll. J. Chin, New Scientist **1996**, *152*, 2051, 42.

(4) Resistance is Useless. J. Chin, New Scientist **1996**, *152*, 2051, 32-35.

(3) Fear and Loathing in the Midbrain. J. Chin, New Scientist **1996**, *151*, 2041, 18.

(2) An Interactive Night at the Opera. J. Chin, New Scientist **1996**, *151*, 2040, 11.

(1) Potassium Gives in Under Pressure. J. Chin, New Scientist **1996**, *151*, 2038, 14.