CURRICULUM VITAE

Lewis Edward Kay, OC, FRS, FRSC

Department of Molecular Genetics,
Department of Biochemistry
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Toronto, Ontario, Canada, M5S 1A8

Academic Degrees

1988 PhD in Molecular Biophysics, Yale University, New Haven, Connecticut, USA. Supervisor: Dr. J.H. Prestegard; Thesis: "NMR Methods for Studying Motional and Structural Properties of Molecules in Solution"

1983 BSc in Biochemistry (first class honours), University of Alberta, Edmonton, Alberta, Canada

Employment

1995 - Professor of Molecular Genetics (previously Medical Genetics), Biochemistry and Chemistry, University of Toronto, Toronto, Ontario, Canada
Phone: 416-978-0741, Fax: 416-978-8548, E-mail: kay@bloch.med.utoronto.ca

1992 - 1995 Assistant Professor of Molecular Genetics (previously Medical Genetics), Biochemistry and Chemistry, University of Toronto, Toronto, Ontario, Canada

1988 - 1991 Alberta Heritage and Medical Research Council of Canada Post-Doctoral Fellow, Laboratory of Dr. Adrian Bax, Laboratory of Chemical Physics, National Institutes of Health, Bethesda, Maryland, USA

Endowed Lectures (plenary lectures not listed here)

Birss Lecturer, Department of Chemistry, University of Alberta, Edmonton, October 1999.

NIH Director's Wednesday Afternoon Lecture Series, May, 2006.

Wilbur Cross Medal Lecture, Yale University, Oct, 2006.

The Gitte Vold Memorial Lecture, University of California, San Diego, March 2007.

Proctor and Gamble Lecture, Department of Chemistry, UMass Amherst, October 2007

Hartek Lecturer, Department of Chemistry, RPI, October 2007

McDowell Lecture, Department of Chemistry, UBC, October 2009.

Colter Lecture, Department of Biochemistry, University of Alberta, Fall 2011.

Aline U. and James M. Orten Memorial Lecturer, Department of Biochemistry and Molecular Biology, Wayne State University, April 2012.

Sackler Lecturer, Tel Aviv University, 2013-2014.

Sir Rex Richards Lecture, Dept of Chemistry, Oxford, April 2016.

National Lecturer, Biophysical Society of Canada, Winnipeg, Manitoba, June, 2016.

2016 Distinguished Lecturer, Scripps Research Institute, La Jolla, CA, Sept. 2016.

Peng Memorial Lecture, Biophysics, University of Connecticut Health Center, Oct. 2016.

Robert Olson Lecture, Washington University & University of St. Louis, Dec, 2017.

2018 Lemieux Lecture, Dept. of Chemistry, University of Ottawa, May 2018.

Krimm Lecture, Dept. of Biophysics, University of Michigan, April 2019.

John T. Edsall Lecture, Molecular and Cellular Biology, Harvard University, May 2019.

2019 Garner King Lecture, Faculty of Medicine, University of Alberta, June 2019.

Maude Menten Lecture, Western University, October 2019. (Postponed)

Silvestri Lecture, Villanova, December 2020.

Nordin Lecture, U. Mass, Amherst, May 2023.

Ann Oakes Lecture, U. Guelph, May 2025.

Honors and Awards

2026 National Lecturer, Biophysical Society of the United States, San Francisco, USA

2025 Alexander Hollaender Award in Biophysics for Outstanding Contributions to Biophysics from the National Academy of Sciences, Washington, DC, USA

2025 Eastern Analytical Symposium Award for Outstanding Achievements in Magnetic Resonance, New Jersey, USA

2025 Legacy Wall, Ross Sheppard Composite High School

2023 Akutsu Prize, Korean Magnetic Resonance Society, Seoul, Korea

2023 Honorary Doctorate of Science, University of Ottawa

2020 Ranked #2 in biophysics category of 2020 Stanford List of the world's top scientists

2020 Elected International Member of the National Academy of Sciences, USA

2019 Honorary Doctorate of Science, University of British Columbia

2018 Nakanishi Prize, American Chemical Society

2018 Gerhard Herzberg Canada Gold Medal for Science and Engineering

2017 Protein Society Christian B Anfinson Award

2017 Canada Gairdner Foundation International Award

2017 Fellow of the Biophysical Society Award

2016 Appointed Officer of the Order of Canada

2016 Fellow of the Biophysical Society of Canada

2013 E. W. R. Steacie Award, Canadian Society for Chemistry

2012 University Professor, University of Toronto

2012 Khorana Prize, Royal Society of Chemistry, UK

2010 Election to the Royal Society of London

2009 Distinguished Alumni Award, University of Alberta

2008 Premier's Discovery Award, Province of Ontario

2008 Elected as one of the initial fellows of the International Society of

	Magnetic Resonance
2007	Dales Prize, Faculty of Medicine, University of Toronto
2006	Election to the Royal Society of Canada
2006	Wilbur Cross Medal of the Yale University Graduate School.
2005	Listed in ISI's database of Highly Cited Researchers; top 0.5% of most cited chemists in the world.
2004	Gunther Laukien Prize, Experimental NMR Conference.
2002	Founders Medal from the International Society of Magnetic Resonance in Biological Systems
2002	Flavelle Medal from the Royal Society of Canada
2000	Canada Research Chair, Tier 1
1999	Premier's Research Excellence Award, Province of Ontario
1999	Steacie Prize from the National Research Council of Canada
1999	Medical Research Council of Canada Scientist Award (1999-2000)
1998	University of Toronto McLean Award
1998	Canada's Top 40 Under 40 Award
1997	Member Editorial Board of Journal of Biomolecular NMR (- current)
1997 2002)	International Research Scholar of the Howard Hughes Medical Institute (1997-
1996	Member Editorial Advisory Board of Biochemistry (-current)
1996	Merck Frosst Award
1995	Alfred P. Sloan Research Fellow (1995-1997)
1994 - 1999	MRC (Medical Research Council of Canada) Scholarship
1994	Editorial Board of Concepts in Magnetic Resonance (1994-1999)
1994	Appointed to the Faculty of NMR Concepts, Rhode Island, USA (1994-1999)

1993 - Editorial Board of the Journal of Magnetic Resonance (-current)

1990 - 1992 MRC (Medical Research Council of Canada) Centennial Fellowship

1988 - 1991 Alberta Heritage Post-Doctoral Fellowship

1988 - 1989 MRC (Medical Research Council of Canada) Post-Doctoral Fellowship

1983 - 1987 NSERC (Natural Science and Engineering Council of Canada) 1967 Science and Engineering Scholarship for Graduate Education

1983 - 1985 Sir James Lougheed Award of Distinction

1982 - 1983 Society of Chemical Industry Merit Award

1982 - 1983 Lieutenant Governor's Gold Medal - Highest Academic Achievement in graduating class of the Faculty of Science (fix tabs)

1978 - 1979 Highest Honors Standing in Grade XII in the Edmonton Public School System

Outreach and Mentoring of High School Students and Undergraduates

Through the Canada Gairdner Foundation I have travelled extensively throughout Canada giving science lectures to high school students and meeting with them to discuss why science is something that they may wish to consider career-wise. The lectures describe simple concepts of biophysics and how physics can inform on how biomolecules function. Independently I mentor a series of high school students and undergraduates that I have met through these lectures, keeping in touch electronically. I discuss careers in science with them and assist with selection of courses that would best meet their needs and satisfy their interests. A sampling of cities where I have met with high school students includes: Lethbridge, Edmonton, Calgary, Winnipeg, Montreal, St. John’s, Toronto, Ottawa, Thunder Bay, Charlottetown, Halifax, Fredricton.

In the past 12 months I have been a speaker at:

(1) StAR (Student Advancement Research), which is a paid 6-week internship program for Black, Indigenous, and Filipino students to get some lab experience.
(2) SSuRe (SickKids Summer Undergraduate Research), which is a paid 3-month internship for students to gain research insights.
(3) Toronto local high schools
(4) Exploring by the Seat of your Pants, “Unlocking the Mysteries of Life with Dr. Lewis Kay”

Publications (H index 144, Google)

1. J. Gariépy, Lewis E. Kay, I.D. Kuntz, B.D. Sykes and R.S. Hodges. Nuclear Magnetic Resonance Determination of Metal-Proton Distances in a Synthetic Calcium Binding Site of Rabbit Skeletal Troponin-C. *Biochemistry* **24**, 544-550 (1985). doi:10.1021/bi00323a045.

2. D.C. Corson, T.C. Williams, Lewis E. Kay and B.D. Sykes. ^{1}H NMR Spectroscopic Studies of Calcium Binding Proteins: 1: Stepwise Proteolysis of the C-Terminal α-Helix of a Helix-Loop-Helix Metal-Ion-Binding Domain. *Biochemistry* **25**, 1817-1826 (1986). doi:10.1021/bi00355a055.

3. Lewis E. Kay and J.H. Prestegard. An Application of Pulse-Gradient Double Quantum Spin Echoes to Diffusion Measurements on Molecules with Scalar-Coupled Spins. *J. Magn. Reson.* **67**, 103-113 (1986). doi:10.1016/0022-2364(86)90413-0.

4. Lewis E. Kay, J.N. Scarsdale, D.R. Hare and J.H. Prestegard. Simulation of Two-Dimensional Cross-Relaxation Spectra in Strongly Coupled Spin Systems. *J. Magn. Reson.* **68**, 515-525 (1986). doi:10.1016/0022-2364(86)90340-9.

5. Lewis E. Kay, T.A. Holak, B.A. Johnson, I.M. Armitage and J.H. Prestegard. Second-Order Effects in Two-Dimensional Cross-Relaxation Spectra of Proteins: Investigation of Glycine Spin Systems. *J. Am. Chem. Soc.* **108**, 4242-4244 (1986). doi:10.1021/ja00274a076.

6. Lewis E. Kay, M. Pascone, B.D. Sykes and J.W. Shriver. ^{19}F Nuclear Magnetic Resonance as a Probe of Structural Transitions and Cooperative Interactions in Heavy Meromyosin. *J. Biol. Chem.* **262**, 1984-1988 (1987). doi:10.1016/S0021-9258(18)61608-4.

7. Lewis E. Kay and J.H. Prestegard. Methyl Group Dynamics from Relaxation of Double Quantum Filtered NMR Signals: Application to Deoxycholate. *J. Am. Chem. Soc.* **109**, 3829-3835 (1987). doi:10.1021/ja00247a002.

8. Lewis E. Kay, P.-J. Jones and J.H. Prestegard. Strong Coupling Effects in the Homonuclear RELAY Experiment, with Applications to Leucine Spin Systems of Octanoyl-Acyl Carrier Protein. *J. Magn. Reson.* **72**, 392-396 (1987). doi:10.1016/0022-2364(87)90307-6.

9. Lewis E. Kay, T.L. Jue, B. Bangerter and P.C. Demou. Sensitivity Enhancement of ^{13}C T_1 Measurements Via Polarization Transfer. *J. Magn. Reson.* **73**, 558-564 (1987). doi:10.1016/0022-2364(87)90024-2.

10. Lewis E. Kay and R.E.D. McClung. A Product Operator Description of AB and ABX Spin Systems. *J. Magn. Reson.* **77**, 258-273 (1988). doi:10.1016/0022-2364(88)90177-1.

11. Lewis E. Kay, T.A. Holak and J.H. Prestegard. AX_3 Spin System Dynamics from Forbidden Cross Peak Intensities in Double Quantum Spectra, with Application to Acyl Carrier Protein. *J. Magn. Reson.* **76**, 30-40 (1988). doi:10.1016/0022-2364(88)90198-9.

12. Lewis E. Kay and J.H. Prestegard. Spin-Lattice Relaxation Rates of Coupled Spins from 2D Accordion Spectroscopy. *J. Magn. Reson.* **77**, 599-605 (1988). doi:10.1016/0022-2364(88)90021-2.

13. Lewis E. Kay and J.H. Prestegard. Simultaneous Measurement of ^{13}C Multiplicities and ^{1}H and ^{13}C Chemical Shifts. *J. Magn. Reson.* **78**, 172-177 (1988). doi:10.1016/0022-2364(88)90170-9.

14. A.F. Frederick, Lewis E. Kay and J.H. Prestegard. Location of Divalent Ion Sites in Acyl Carrier Protein Using Relaxation Perturbed 2D NMR. *FEBS Lett.* **238**, 43-48 (1988). doi:10.1016/0014-5793(88)80222-9.

15. D.M. LeMaster, Lewis E. Kay, A.T. Brünger and J.H. Prestegard. Protein Dynamics and Distance Determination by NOE Measurements. *FEBS Lett.* **236**, 71-76 (1988). doi:10.1016/0014-5793(88)80287-4.

16. Lewis E. Kay, D.S. Thomson and J.H. Prestegard. Extraction of ^{1}H-^{1}H and ^{1}H-^{13}C Dipolar Couplings from Spectra Acquired in Inhomogeneous Magnetic Fields. *Magn. Reson. Chem.* **26**, 860-866 (1988). doi:10.1002/mrc.1260261010.

17. A. Bax, Lewis E. Kay, S.W. Sparks and D.A. Torchia. Line Narrowing of Amide Proton Resonances in 2D NMR Spectra of Proteins. *J. Am. Chem. Soc.* **111**, 408-409 (1989). doi:10.1021/ja00183a082.

18. D. Marion, Lewis E. Kay, S.W. Sparks, D.A. Torchia and A. Bax. Three-Dimensional Heteronuclear NMR of ^{15}N Labeled Proteins. *J. Am. Chem. Soc.* **111**, 1515-1517 (1989). doi:10.1021/ja00186a066.

19. Lewis E. Kay, D. Marion and A. Bax. Practical Aspects of 3D Heteronuclear NMR of Proteins. *J. Magn. Reson.* **84**, 72-84 (1989). doi:10.1016/0022-2364(89)90006-1.

20. Lewis E. Kay and A. Bax. Separation of NH and NH_2 Resonances in ^{1}H-Detected Heteronuclear Multiple-Quantum Correlation Spectra. *J. Magn. Reson.* **84**, 598-603 (1989). doi:10.1016/0022-2364(89)90125-X.

21. Lewis E. Kay, B. Brooks, S.W. Sparks, D.A. Torchia and A. Bax. Measurement of NH-CαH Coupling Constants in Staphylococcal Nuclease by Two-Dimensional NMR and Comparison with X-ray Crystallographic Results. *J. Am. Chem. Soc.* **111**, 5488-5490 (1989). doi:10.1021/ja00196a078.

22. D. Marion, P.C. Driscoll, Lewis E. Kay, P.T. Wingfield, A. Bax, A.M. Gronenborn and G.M. Clore. Overcoming the Overlap Problem in the Assignment of ^{1}H NMR Spectra of Larger Proteins by Use of Three-Dimensional Heteronuclear ^{1}H-^{15}N Hartmann-Hahn-Multiple Quantum Coherence and Nuclear Overhauser-Multiple Quantum Coherence Spectroscopy: Application to Interleukin 1ß. Biochemistry **28**, 6150-6156 (1989). doi:10.1021/bi00441a004.

23. Lewis E. Kay, D.A. Torchia and A. Bax. Backbone Dynamics of Proteins as Studied by ^{15}N Inverse Detected Heteronuclear NMR Spectroscopy: Application to Staphylococcal Nuclease. Biochemistry 28, 8972-8979 (1989). doi:10.1021/bi00449a003.

24. Lewis E. Kay and A. Bax. New Methods for the Measurement of NH-CαH Coupling Constants of ^{15}N-Labeled Proteins. *J. Magn. Reson.* **86**, 110-126 (1990). doi:10.1016/0022-2364(90)90215-U.

25. J.D. Forman-Kay, A.M. Gronenborn, Lewis E. Kay, P.T. Wingfield and G.M. Clore. Studies on the Solution Conformation of Human Thioredoxin using Heteronuclear ^{15}N-^{1}H Nuclear Magnetic Resonance Spectroscopy. *Biochemistry* **29**, 1566-1572 (1990). doi:10.1021/bi00458a030.

26. A. Bax, M. Ikura, Lewis E. Kay, D.A. Torchia and R. Tschudin. Comparison of Different Modes of Two-Dimensional Reverse-Correlation NMR for the Study of Proteins. *J. Magn. Reson.* **86**, 304-318 (1990). doi:10.1016/0022-2364(90)90262-8.

27. M. Ikura, Lewis E. Kay, R. Tschudin and A. Bax. Three-Dimensional NOESY-HMQC Spectroscopy of a ^{13}C-Labeled Protein. *J. Magn. Reson.* **86**, 204-209 (1990). doi:10.1016/0022-2364(90)90227-Z.

28. Lewis E. Kay, M. Ikura and A. Bax. Proton-Proton Correlation via Carbon-Carbon Couplings: A Three-Dimensional NMR Approach for the Assignment of Aliphatic Resonances in Proteins Labeled with Carbon-13. *J. Am. Chem. Soc.* **112**, 888-889 (1990). doi:10.1021/ja00158a070.

29. D.A. Torchia, S.W. Sparks, H.B.R. Cole, D.M. Baldisseri, Lewis E. Kay, D. Marion and A. Bax. Assignments, Structure and Dynamics of Staphylococcal Nuclease. *Polymer Preprints* **91**, 2618-2619 (1990).

30. M. Ikura, Lewis E. Kay, D.A. Torchia, C. Klee and A. Bax. Novel Approaches for Obtaining Resonance Assignments of Larger Proteins. *Polymer Preprints* **91**, (1990).

31. M. Ikura, D. Marion, Lewis E. Kay, H. Shih, M. Krinks, C.B. Klee and A. Bax. Heteronuclear 3D NMR and Isotopic Labeling of Calmodulin: Towards the Complete Assignment of the ^{1}H NMR Spectrum. *Biochem. Pharmacol.* **40**, 153-160 (1990). doi:10.1016/0006-2952(90)90190-V.

32. M. Ikura, Lewis E. Kay and A. Bax. A Novel Approach for Sequential Assignment of ^{1}H, ^{13}C, and ^{15}N Spectra of Larger Proteins: Heteronuclear Triple Resonance 3D NMR Spectroscopy. Application to Calmodulin. *Biochemistry* **29**, 4659-4667 (1990). doi:10.1021/bi00471a022.

33. A. Bax, G.M. Clore, P.C. Driscoll, A.M. Gronenborn, P.C. Driscoll, M. Ikura and Lewis E. Kay. Practical Aspects of Proton-Carbon-Carbon-Proton Three-Dimensional Correlation Spectroscopy of ^{13}C Labeled Proteins. *J. Magn. Reson.* **87**, 620-627 (1990). doi.org:10.1016/0022-2364(90)90320-9.

34. G.M. Clore, A. Szabo, A. Bax, Lewis E. Kay, P.C. Driscoll and A.M. Gronenborn. Deviations from the Simple Two Parameter Model-Free Approach to the Interpretation of Nitrogen-15 Nuclear Magnetic Relaxation of Proteins. *J. Am. Chem. Soc.* **112**, 4989-4991 (1990). doi:10.1021/ja00168a070.

35. Lewis E. Kay, M. Ikura, R. Tschudin and A. Bax. Three-Dimensional Triple-Resonance NMR Spectroscopy of Isotopically Labelled Proteins. *J. Magn. Reson.* **89**, 496-514 (1990). doi:10.1016/j.jmr.2011.09.004.

36. Lewis E. Kay, G.M. Clore, A. Bax and A.M. Gronenborn. Four-Dimensional Heteronuclear Triple-Resonance Spectroscopy of a Protein in Solution. Application to Interleukin-1β in Solution. *Science* **249**, 411-414 (1990). doi:10.1126/science.2377896.

37. G.M. Clore, Lewis E. Kay, A. Bax and A.M. Gronenborn. Four-Dimensional $^{13}C/^{13}C$-Edited Nuclear Overhauser Enhancement Spectroscopy of a Protein in Solution: Application to Interleukin-1β. *Biochemistry* **30**, 12-18 (1991). doi.org:10.1021/bi00215a002.

38. A. Bax, M. Ikura, Lewis E. Kay and G. Zhu. Removal of F_1 Baseline Distortion and Optimization of Folding in Multidimensional NMR Spectra. *J. Magn. Reson.* **91**, 174-178 (1991). doi:10.1016/0022-2364(91)90422-P.

39. Lewis E. Kay, M. Ikura and A. Bax. The Design and Optimization of Complex NMR Experiments: Application to a Triple-Resonance Pulse Scheme Correlating Hα, NH and ^{15}N Chemical Shifts in ^{15}N-^{13}C Labeled Proteins. *J. Magn. Reson.* **91**, 84-92 (1991). doi:10.1016/0022-2364(91)90410-U.

40. Lewis E. Kay, M. Ikura, G. Zhu and A. Bax. Four-Dimensional Heteronuclear Triple-Resonance NMR of Isotopically Enriched Proteins for Sequential Assignment of Backbone Atoms. *J. Magn. Reson.* **91**, 422-428 (1991). doi:10.1016/0022-2364(91)90208-B.

41. R. Boelens, C. Griesinger, Lewis E. Kay, D. Marion and E.R.P. Zuiderweg. Applicability and Limitations of Three-Dimensional NMR Spectroscopy for the Study of Proteins in Solution. In "Computational Aspects of the Study of Biological Macromolecules." Vol 225, pp 127-150, NATO ASI Series, Eds. J.C. Hoch, F.M. Poulsen, C. Redfield; Springer, Boston, MA (1991). doi:10.1007/978-1-4757-9794-7_9.

42. Lewis E. Kay, J.D. Forman-Kay, W.D. McCubbin and C.M. Kay. Solution Structure of a Polypeptide Dimer Comprising the Fourth Ca^{2+}-Binding Site of Troponin C by Nuclear Magnetic Resonance Spectroscopy. *Biochemistry* **30**, 4323-4333 (1991). doi:10.1021/bi00231a031.

43. M. Ikura, Lewis E. Kay, M. Krinks and A. Bax. A Triple-Resonance Multidimensional NMR Study of Calmodulin Complexed with the Binding Domain of Myosin Light-Chain Kinase: Indication of a Conformational Change in the Central Helix. *Biochemistry* **30**, 5498-5504 (1991). doi:10.1021/bi00236a024.

44. Lewis E. Kay and D.A. Torchia. The Effects of Dipolar Cross Correlation on ^{13}C Methyl-Carbon T_1, T_2 and NOE Measurements in Macromolecules. *J. Magn. Reson.* **95**, 536-547 (1991). doi:10.1016/0022-2364(91)90167-R.

45. M. Ikura, S. Spera, G. Barbato, Lewis E. Kay, M. Krinks and A. Bax. Secondary Structure and Side-Chain ^{1}H and ^{13}C Resonance Assignments of Calmodulin by Heteronuclear Multidimensional NMR Spectroscopy. *Biochemistry* **30**, 9216-9228 (1991). doi.org:10.1021/bi00102a013.

46. M. Ikura, Lewis E. Kay and A. Bax. Improved Three-Dimensional ^{1}H-^{13}C-^{1}H Correlation Spectroscopy of a ^{13}C Labeled Protein Using Constant-Time Evolution. *J. Biomol. NMR.* **1**, 299-304, (1991). doi.org:10.1007/bf01875522.

47. A. Bax, M. Ikura, Lewis E. Kay, G. Barbato and S. Spera. Multidimensional Triple Resonance NMR Spectroscopy of Isotopically Uniformly Enriched Proteins: A Powerful New Strategy for Structure Determination. In "Protein Conformation." pp 108-134, Ciba Foundation Symposium 161, Eds. D.J. Chadwick, K. Widdows, Wiley, Chichester (1991). doi:10.1002/9780470514146.ch8.

48. L.K. Nicholson, Lewis E. Kay, D.M. Baldisseri, J. Arango, P.E. Young, A. Bax and D.A. Torchia. Dynamics of Methyl Groups in Proteins as Studied by Proton-Detected ^{13}C NMR Spectroscopy. Application to the Leucine Residues of Staphylococcal Nuclease. *Biochemistry* **31**, 5253-5263 (1992). doi:10.1021/bi00138a003.

49. Lewis E. Kay, L.K. Nicholson, F. Delaglio, A. Bax and D.A. Torchia. Pulse Sequences for Removal of the Effects of Cross Correlation Between Dipolar and Chemical-Shift Anisotropy Relaxation Mechanisms on the Measurement of Heteronuclear T_1 and T_2 Values in Proteins. *J. Magn. Reson.* **97**, 359-375 (1992). doi:10.1016/0022-2364(92)90320-7.

50. G. Barbato, M. Ikura, Lewis E. Kay, R.W. Pastor and A. Bax. Backbone Dynamics of Calmodulin Studied by ^{15}N Relaxation Using Inverse Detected Two-Dimensional NMR Spectroscopy: The Central Helix is Flexible. *Biochemistry* **31**, 5269-5278 (1992). doi:10.1021/bi00138a005.

51. Lewis E. Kay, T.E. Bull, L.K. Nicholson, C. Griesinger, H. Scwalbe, A. Bax and D.A. Torchia. The Measurement of Heteronuclear Transverse Relaxation Times in AX_3 Spin Systems via Polarization Transfer Techniques. *J. Magn. Reson.* **100**, 538-558 (1992). doi:10.1016/0022-2364(92)90058-F.

52. Lewis E. Kay and T.E. Bull. Heteronuclear Transverse Relaxation in AMX, AX_2 and AX_3 Spin Systems. *J. Magn. Reson.* **99**, 615-622 (1992). doi:10.1016/0022-2364(92)90218-V.

53. Lewis E. Kay, M. Wittekind, M.A. McCoy, M.S. Friedrichs and L. Mueller. 4D Triple-Resonance Experiments for Assignment of Protein Backbone Nuclei Using Constant-Time Evolution Periods. *J. Magn. Reson.* **98**, 443-450 (1992). doi:10.1016/0022-2364(92)90146-X.

54. Lewis E. Kay, M. Ikura, A.A. Grey and D.R. Muhandiram. Three-Dimensional NMR Experiments for the Separation of Side-Chain Correlations in Proteins via the Carbonyl Chemical Shift. *J. Magn. Reson.* **99**, 652-659 (1992). doi:10.1016/0022-2364(92)90223-T.

55. Lewis E. Kay. A Three-Dimensional NMR Experiment for the Separation of Aliphatic Carbon Chemical Shifts via the Carbonyl Chemical Shift in ^{15}N, ^{13}C Labeled Proteins. *J. Magn. Reson. Series B* **101**, 110-113 (1993). doi:10.1006/jmrb.1993.1018.

56. M. Görlach, M. Wittekind, B.T. Farmer II, Lewis E. Kay and L. Mueller. Measurement of $^{3}J_{HN\alpha}$ Vicinal Coupling Constants in Proteins. *J. Magn. Reson. Series B* **101**, 194-197 (1993). doi:10.1006/jmrb.1993.1031.

57. Lewis E. Kay, P. Keifer and T. Saarinen. Pure Absorption Gradient Enhanced Heteronuclear Single Quantum Correlation Spectroscopy with Improved Sensitivity. *J. Am. Chem. Soc.* **114**, 10663-10665 (1992). doi:10.1021/ja00052a088.

58. D.A. Torchia, L.K. Nicholson, H.B.R. Cole and Lewis E. Kay. Heteronuclear NMR Studies of the Molecular Dynamics of Staphylococcal Nuclease. In "Topics in Molecular and Structural Biology Series: NMR of Proteins." pp 190-219, Eds. G.M. Clore and A.M. Gronenborn; The Macmillan Press Ltd (1993). doi.org:10.1007/978-1-349-12749-8_7.

59. Lewis E. Kay. A Pulsed-Field Gradient-Enhanced Three-Dimensional NMR Experiment for Correlating ^{13}Cα/^{13}Cβ, ^{13}C', ^{1}Hα Chemical Shifts in Uniformly ^{13}C-Labeled Proteins Dissolved in H_2O. *J. Am. Chem. Soc.* **115**, 2055-2057 (1993). doi:10.1021/ja00058a072.

60. Lewis E. Kay, G.-Y. Xu, A.U. Singer, D.R. Muhandiram and J.D. Forman-Kay. A Gradient-Enhanced HCCH-TOCSY Experiment for Recording Side-Chain ^{1}H and ^{13}C Correlations in H_2O Samples of Proteins. *J. Magn. Reson. Series B* **101**, 333-337 (1993). doi:10.1006/jmrb.1993.1053.

61. D.R. Muhandiram, G.Y. Xu and Lewis E. Kay. An Enhanced-Sensitivity Pure Absorption Gradient 4D ^{15}N-,^{13}C-Edited NOESY Experiment. *J. Biol. NMR* **3**, 463-470 (1993). doi:10.1007/BF00176011.

62. D.R. Muhandiram, N.A. Farrow, G.-Y. Xu, S. H. Smallcombe and Lewis E. Kay. A Gradient ^{13}C NOESY-HSQC Experiment for Recording NOESY Spectra of ^{13}C-Labeled Proteins Dissolved in H_2O. *J. Magn. Reson. Series B* **102**, 317-321 (1993). doi:10.1006/jmrb.1993.1102.

63. T. Yamazaki, J.D. Forman-Kay and Lewis E. Kay. Two-Dimensional NMR Experiments for Correlating ^{13}Cβ-^{1}Hδ/ε Chemical Shifts of Aromatic Residues in ^{13}C Labeled Proteins via Scalar Couplings. *J. Am. Chem. Soc.* **115**, 11054-11055 (1993). doi:10.1021/ja00076a099.

64. D.R. Muhandiram and Lewis E. Kay. Gradient-Enhanced Triple-Resonance Three-Dimensional NMR Experiments with Improved Sensitivity. *J. Magn. Reson. Series B* **103**, 203-216 (1994). doi:10.1006/jmrb.1994.1032.

65. S.M. Pascal, D.R. Muhandiram, T. Yamazaki, J.D. Forman-Kay and Lewis E. Kay. Simultaneous Acquisition of ^{15}N- and ^{13}C-Edited NOE Spectra of Proteins Dissolved in H_2O. *J. Magn. Reson.Series B* **103**, 197-201 (1994). doi:10.1006/jmrb.1994.1031.

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480. Y. Toyama, A.K. Rangadurai, J.D. Forman-Kay and Lewis E. Kay. Mapping the Per-Residue Surface Electrostatic Potential of CAPRIN1 During its Phase-Separation Trajectory. *Proc. Natl. Acad. Sci. USA* **119**, e2210492119 (2022). Epub 30 Aug 2022. doi:10.1073/pnas.2210492119.

481. Lewis E. Kay and T. Carlomagno. Editorial for Kurt Wuthrich JMR Celebratory Issue. *J. Magn Reson.* **343**, 107296. Epub 5 Sep 2022. doi:10.1016/j.jmr.2022.107296.

482. N. Bolik-Coulon, A.I.M. Sever, R.W. Harkness, J.M. Aramini, Y. Toyama, D.F. Hansen and Lewis E. Kay. Less is more: A Simple Methyl-TROSY Based Pulse Scheme Offers Improved Sensitivity in Applications to High Molecular Weight Complexes. *J. Magn. Reson.* **349**, 107400. Epub 9 Nov 2022. doi:10.1016/j.jmr.2022.107326.

483. Y. Toyama, A.K. Rangadurai, J.D. Forman-Kay and Lewis E. Kay. Surface Electrostatics Dictate RNA-Binding CAPRIN1 Condensate Concentration and Hydrodynamic Properties. *J. Biol. Chem.* **299**, 107326 (2023). Epub 7 Dec 2022. doi:10.1016/j.jbc.2022.102776.

484. A.K. Rangadurai, Y. Toyama, and Lewis E. Kay. Practical Considerations for the Measurement of Near-Surface Electrostatics based on Solvent Paramagnetic Relaxation Enhancements. *J. Magn. Reson.* **349**, 107400 (2023). Epub 9 Feb 2023. doi:10.1016/j.jmr.2023.107400.

485. A.K. Rangadurai, Y. Toyama, and Lewis E. Kay. Sometimes Pulses Just Have to be Perfect – An Example Based on the Measurement of Amide Proton Transverse Relaxation Rates in Proteins. *J. Magn. Reson.* **349**, 107412 (2023). Epub 2 Mar 2023. doi:10.1016/j.jmr.2023.107412.

486. S. Nim, D.M. O'Hara, C. Corbi-Verge, A. Perez-Riba, K. Fujisawa, M. Kapadia, H. Chau, F. Albanese, G. Pawar, M.L. De Snoo, S.G. Ngana, J. Kim, O.M.A. El-Agnaf, E. Rennella, Lewis E. Kay, S.K. Kalia, L.V. Kalia and P. Kim. Disrupting the α-synuclein-ESCRT Interaction with a Peptide Inhibitor Mitigates Neurodegeneration in Preclinical Models of Parkinson's Disease. *Nat. Commun.* 14, 2150 (2023). Epub 19 Apr 2023. doi:10.1038/s41467-023-37464-2.

487. R. W. Harkness, Z. A. Ripstein, J. M. D. Trani and Lewis E Kay. Flexible Client-Dependent Cages in the Assembly Landscape of the Periplasmic Protease-Chaperone DegP. *J. Am. Chem. Soc.* 145, 13015-13026 (2023).

488. T.H. Kim, M.L. Nosella, N. Bolik-Coulon, R.W. Harkness, S.K. Huang and Lewis E. Kay. Correlating Histone Acetylation with Nucleosome Core Particle Dynamics and Function. *Proc. Natl Acad Sci USA* **120**, e2301063120 (2023). Epub 3 Apr 2023. doi:10.1073/pnas.2301063120.

489. D. D. Sahtoe, E. A. Andrzejewska, H. L. Han, E. Rennella, M. M. Schneider, G. Meisl, H. Choi, M. Ahlrichs, J. Decarreau, H. Nguyen, X. Li, A. K. Bera, Lewis E. Kay, T. P.J. Knowles, D. Baker. Design of Amyloidogenic Peptide Traps. *Nat. Chem. Biol*. 2024 Aug;20(8):981-990. doi: 10.1038/s41589-024-01578-5. Epub 2024 Mar 19.

490. E. Rennella, D. D. Sahtoe, D. Baker and Lewis E. Kay. Exploiting Conformation Dynamics to Modulate the Function of Designed Proteins. *Proc. Natl. Acad. Sci. USA*. 2023 May 2;120(18):e2303149120. doi: 10.1073/pnas.2303149120. Epub 2023

491. A. I. M. Sever, T. R. Alderson, E. Rennella, J. M. Aramini, Z. H. Liu, R. W. Harkness, and Lewis E. Kay. Activation of caspase-9 on the apoptosome as studied by methyl-TROSY NMR. *Proc Natl Acad Sci USA*. 2023 Dec 19;120(51):e2310944120. doi: 10.1073/pnas.231094412

492. V. P. Tiwari, D. De, N. Thapliyal, Lewis E. Kay, and P. Vallurupalli. Beyond Slow Two-Site Protein Conformational Exchange using CEST: Applications to Three-State Protein Interconversion on the Millisecond Timescale. *J Biomol NMR*. 2024 Jan 3. doi: 10.1007/s10858-023-00431-6.

493. M. L. Nosella, T. H. Kim, S. K. Huang, R. W. Harkness, M. Goncalves, A. Pan, M. Tereshchenko, S. Vahidi, J. L. Rubinstein, H. O. Lee, J. D. Forman-Kay, and Lewis E. Kay. Poly(ADP-ribosyl)ation Enhances Nucleosome Dynamics and Organizes DNA Damage Repair Components within Biomolecular Condensates. *Mol Cell.* 2024 Feb 1;84(3):429-446.e17. doi: 10.1016/j.molcel.2023.12.019. Epub 2024 Jan 11.PMID: 38215753.

494. Y. Jin, Y. Cui, Lewis E. Kay, and T. Yuwen. Optimization of TROSY and anti-TROSY-based ^{15}N CPMG Relaxation Dispersion Experiments through Phase Cycling. *J. Magn. Reson*. 2024 Apr;361:107629. doi: 10.1016/j.jmr.2024.107629. Epub 2024 Feb 2.

495. R. W. Harkness, H. Zhao, Y. Toyama, P. Schuck, and Lewis E. Kay. Exploring Host-Guest Interactions Within a 600 kDa DegP Protease Cage Complex Using Hydrodynamics Measurements and Methyl-TROSY NMR. *J. Am. Chem. Soc*. 2024, Mar 27;146(12):8242-8259. doi: 10.1021/jacs.3c13247. Epub 2024 Mar 13.

496. S. K. Huang, J. L. Rubinstein, and Lewis E. Kay. Cryo-EM of the Nucleosome Core Particle Bound to Ran-RCC1 Reveals a Dynamic Complex. *Biochemistry*. 2024 Apr 2;63(7):880-892. doi: 10.1021/acs.biochem.3c00724. Epub 2024 Mar 19

497. Y. Dong, J. P. Bonin, P. Devant, Z. Liang, A. I. M Sever, J. Mintseris, J. M. Aramini, S. P. Gygi, J. Kagan, Lewis E. Kay, and H. Wu. Structural Transitions Enable Il-18 Maturation and Signaling. *Immunity*. 2024 Jul 9;57(7):1533-1548.e10. doi: 10.1016/j.immuni.2024.04.015. Epub 2024 May 10.

498. Y. H. Lin, T. H. Kim, S. Das, T. Pal, J. Wessen, A. K. Rangadurai, Lewis E. Kay, J. D. Forman-Kay, and H. S. Chan. Electrostatics of Salt-Dependent Reentrant Phase Behaviors Highlights Diverse Roles of ATP in Biomolecular Condensates. *eLife*, 2025 Mar 3;13:RP100284. doi: 10.7554/eLife.100284.

499. J. P. Bonin, J. M. Aramini, Y. Dong, H. Wu, and Lewis E. Kay. AlphaFold2 as a Replacement for Solution NMR Structure Determination of Small Proteins: Not So Fast! J Magn Reson. 2024 Jul;364:107725. doi: 10.1016/j.jmr.2024.107725. Epub 2024 Jun 19.

500. R. Ahmed, A. K. Rangadurai, L. Ruetz, M. Tollinger, C. Kreutz, and Lewis E. Kay. A Delayed Decoupling Methyl-TROSY Pulse Sequence for Atomic Resolution Studies of Folded Proteins and RNA in Condensates. *J Magn Reson.* 2024 May;362:107667. doi: 10.1016/j.jmr.2024.107667. Epub 2024 Mar 28.

501. A. K. Rangadurai, L. Ruetz, R. Ahmed, K. Lo, M. Tollinger, J. D. Forman-Kay, C. Kreutz and Lewis E. Kay. Phase Separation Modulates the Thermodynamics and Kinetics of RNA Hybridization. *J Am Chem Soc*. 2024 Jul 24;146(29):19686-19689. doi: 10.1021/jacs.4c06530. Epub 2024 Jul 11.

502. B. Yu, N. Bolik-Coulon, A. K. Rangadurai, Lewis E. Kay, J. Iwahara. Gadolinium-Based Spin Relaxation Measurements of Near-Surface Electrostatic Potentials of Biomolecules. *J Am Chem Soc*. 2024 2024 Jul 31;146(30):20788-20801.

503. R. Ahmed, M. Liang, R. P. Hudson, A. T. Rangadurai, S. K. Huang, J. D. Forman-Kay and Lewis E. Kay. Atomic Resolution Map of the Solvent Interactions Driving SOD1 Unfolding in CAPRIN1 Condensates. *Proc. Natl. Acad. Sci. USA*. 2024 Aug 27;121(35):e2408554121. doi: 10.1073/pnas.2408554121.

504. J. P. Bonin, J. M. Aramini, and Lewis E Kay. Structural Plasticity as a Driver of the Maturation of Pro-Interleukin-18. *J. Am. Chem. Soc*. 2024, Nov 6;146(44):30281-30293. doi: 10.1021/jacs.4c09805. Epub 2024 Oct 24.

505. N. Thapliyal, V. P. Tiwari, Y. Toyama, D. F. Hansen, Lewis E. Kay, and P. Vallurupalli. Mapping the FF domain folding pathway via structures of transiently populated folding intermediates. *Proc. Natl. Acad. Sci. USA*. Dec 10;121(50):e2416682121. doi: 10.1073/pnas.2416682121. Epub 2024 Dec 4.

506. E. Rennella, C. Henry, C. J. Dickson, G. Georgescauld, T. E. Wales, D. Erdmann, S. Cotesta, M Maria. R. Sedrani, S. M. Brachmann, N. Ostermann, J. R. Engen, Lewis E. Kay, K. S. Beyers, R. Wilcken, W. Jahnke. Dynamic Conformational Equilibria in the Active States of KRAS and NRAS. RSC Chem Biol. 2024 Nov 25. doi: 10.1039/d4cb00233d. Online ahead of print.PMID: 39664928

507. A. I. M. Sever, R. Ahmed, R. Rößler, and Lewis E. Kay. Solution NMR goes big: Atomic resolution studies of protein components of molecular machines and phase-separated condensates. *Current Opinion in Structural Biology*. 2025 Jan 20;90:102976. doi: 10.1016/j.sbi.2024.102976. PMID: 39837113

508. N. Bolik-Coulon, P. Roessler, and Lewis E. Kay. NMR-based measurements of site-specific electrostatic potentials of histone tails in nucleosome core particles. *J. Am. Chem. Soc*. 2025, doi: 10.1021/jacs.5c01567.

509. R. Ahmed, R. P. Hudson, J. D. Forman-Kay, and Lewis E. Kay. Client-scaffold interactions suppress aggregation of a client protein in model condensates. PNAS, In Press.

510. N. Bolik-Coulon, P. Roessler, M. L. Nosella, T. H. Kim, and Lewis E. Kay. Modulation of histone tail electrostatic potentials in nucleosome core particles by acetylation and PARylation. *Proc. Natl. Acad. Sci. USA*. 2025 Jul 29;122(30):e2511507122. doi: 10.1073/pnas.2511507122.

511. R. Ahmed, J. P. Bonin, J. D. Forman-Kay, and Lewis E. Kay. Atomic Resolution Interactions Regulating Partitioning of a FUS Folded RRM Domain into Model CAPRIN1 Condensates. *J. Am. Chem. Soc*. In Press.

INVITED LECTURES (Since 1990) See above for Named Lectures.

1) Computational Aspects of the Study of Biological Macromolecules by NMR, NATO Conference, Il Ciocco, Italy, June 1990.

2) XIV International Conference on Magnetic Resonance in Biological Systems, Warwick, England, September 1990.

3) Department of Chemistry, University of Southern Illinois, October 1990.

4) Departments of Chemistry and Biochemistry, University of British Columbia, January 1991.

5) Department of Chemistry, University of Alberta, January 1991.

6) American Chemical Society, Atlanta, April 1991.

7) Department of Biophysical Chemistry, Johns Hopkins University, May 1991.

8) Peptide Protein Bridge Conference, Toronto, June 1991.

9) Harvard Medical School, June 1991.

10) Department of Biology, Carnegie Mellon University, July 1991.

11) Department of Chemistry, Cornell University, October 1991.

12) American Cyanamid Company, October 1991.

13) Department of Chemistry, Yale University, October 1991.

14) Experimental NMR Conference (ENC), Asilomar, CA, April 1992.

15) American Chemical Society, Syracuse, June 1992.

16) Canadian Chemical Society, Edmonton, June 1992.

17) Varian NMR Mini-Symposium, New Jersey, September 1992.

18) Monsanto Chemical Company, St. Louis, November 1992.

19) Biotechnology Research Institute, Montreal, January 1993.

20) Simon Fraser University, Vancouver, January 1993.

21) Varian NMR Mini-Symposium, San Diego, November 1993.

22) Monsanto Chemical Company, St. Louis, December 1993.

23) NMR Community in Montreal, McGill, January 1994.

24) Experimental NMR Conference (ENC), Asilomar, CA, April 1994.

25) Gordon Conference, New Hampshire, July 1994.

26) Summer school "Understanding Protein Motions" Karolinska Institute, Sweden, August 1994.

27) Mexican Chemical Society, Mexico, October 1994.

28) Rutgers University, Chemistry Department, November 1994.

29) Japanese Experimental NMR Conference, Kobe, Japan, November 1994. (Declined)

30) Keystone Symposium, Frontiers of NMR in Molecular Biology IV, April 1995.

31) ESF Meeting Wildbad-Kreuth, "NMR in Molecular Biology", June 1995.

32) Twelfth Conference of the International Society of Magnetic Resonance, Australia, July 1995.

33) EMBO Course on "Multidimensional NMR in Structural Biology", Turin, Italy, August 1995.

34) Tskuba NMR, 1995. Japan, September 1995.

35) Department of Biochemistry, Michigan State University, November 1995.

36) European Conference of Stable Isotope Aided NMR Studies of Biological Macromolecules, March 1996. (Declined).

37) Experimental NMR Conference (ENC), Asilomar, CA, March 1996.

38) Merck Frosst Lecture - Concordia University, Montreal, March 1996.

39) NATO Advanced Work Shop on Techniques to Study Macromolecular Interactions, Alberta, June 1996.

40) Pharmacy and Pharmaceutical Sciences, University of Alberta, July 1996.

41) ICMBRS, Keystone, Colorado, August 1996.

42) Physiology and Medical Physics, University of Virginia, October 1996.

43) Biochemistry, Cornell University, October 1996.

44) Biochemistry, University of Texas, Southwestern Medical Center, October 1996.

45) Chemistry, Johns Hopkins, November 1996.

46) Molecular and Cell Biology, Berkeley, CA, December 1996.

47) Keystone NMR Meeting, Taos, New Mexico, February 1997.

48) National Magnet Laboratory, Tallahassee, Florida, March 1997.

49) Johns Hopkins Folding Meeting, West Virginia, March 1997.

50) Department of Biology, Caltech., May 1997.

51) Department of Chemistry, Yale University, May 1997.

52) European Science Foundation Meeting, "NMR in Molecular Biology", Oxford, August 1997 .

53) Department of Chemistry, University of Innsbruck, August 1997.

54) Department of Chemistry, MIT, September 1997.

55) Deuteration of Biological Molecules for Structural and Dynamic Studies. Applications for Neutron Scattering and NMR, Dubna, Moscow Region, USSR.

56) NMR Symposia, University of Cinncinati, April 1998.

57) ICBMRS, Japan, August 1998.

58) Laval University, Department of Chemistry, December 1998.

59) Keystone NMR Meeting, January 1999.

60) Spin Choreography, Cambridge, England, April 1999.

61) Department of Biochemistry, University of Michigan, April 1999.

62) Department of Structural Biology, Stanford University, May 1999.

63) Gordon Research Conference, Barga, Italy, June 1999.

64) Chianti Workshop on Magnetic Resonance, Toscana, Italy, June 1999.

65) European Research Conferences, NMR in Molecular Biology, Granada, Spain, July 1999.

66) The Protein Society, Third European Symposium, Garmisch-Partenkirchen, Germany, September 1999.

67) Birss Lecturer, Department of Chemistry, University of Alberta, Edmonton, October 1999.

68) University of North Carolina, Biophysics Program, Chosen by Students, October 1999.

69) Johns Hopkins Folding Meeting, West Virginia, March 2000 (Declined).

70) Bijvoet Center for Biomolecular Research, Holland, March 2000 (Declined).

71) American Chemical Society, San Francisco, March 2000.

72) Experimental NMR Conference, Asilomar, CA, April 2000.

73) Guelph University, Department of Chemistry, April 2000.

74) University of Western Ontario, Department of Biochemistry, May 2000.

75) NMR Workshop, University of Montana, Department of Chemistry, July 2000 (Declined).

76) NMR Symposium, Department of Biophysical Chemistry, University of Nijmegan, The Netherlands, October 2000 (Declined).

77) ICBMRS, Florence, Italy, August 2000.

78) Institut de Recherces Cliniques De Montreal, New Therapies and the Genome, November 2000.

79) Keystone Symposium, January 2001 (Declined).

80) Department of Biochemistry, Washington University, St. Louis, April 2001.

81) Danish NMR Symposium, May 2001 (Declined).

82) Chianti Worship on Magnetic Resonance, Italy, June 2001 (Declined).

83) Gordon Research Conference, Italy, May 2001.

84) Baxter Pharmaceuticals, Chicago, May 2001.

85) Center for Research in Biopharmaceuticals, University of Ottawa, May 2001.

86) NANUC NMR Symposium, Aliston, Ontario, May 2001.

87) European Science Foundation NMR Conference, Copenhagen, June 2001.

88) Swedish Structural Biology Conference, June 2001 (Declined)

89) Fourteenth Conference of the International Society of Magnetic Resonance, Greece, Aug. 2001.

90) Weizmann Institute of Science, Rehovot, Israel, Aug. 2001.

91) Upstate NY NMR Symposium, October, 2001

92) South Eastern Magnetic Resonance Conference at the University of Florida, October, 2001.

93) National Magnetic Resonance Society of India, Lucknow, India, Feb. 2002 (declined).

94) Genomics and Structural Biology for Medicine, Miami 2002 Winter Symposium, Feb. 2002.

95) Biophysical Society, San Francisco, CA. Feb. 2002.

96) Department of Biochemistry, U.T. Southwestern Medical School, April 2002.

97) Structural Biology Seminar Series, Cornell and Sloan Kettering, New York, May 2002.

98) Department of Pharmaceutical Chemistry, UCSF, San-Francisco, May 2002.

99) European Experimental NMR Conference, Prague, June 2002.

100) Protein Engineering Center of Excellence Meeting, Edmonton, June 2002.

101) International Conference on Biological Magnetic Resonance, Toronto, August 2002.

102) Department of Biochemistry. University of Washington, Seattle, October 2002.

103) Department of Biochemistry. University of Kentucky, October 2002.

104) American Associated of Pharmaceutical Scientists, Toronto, November 2002.

105) Keystone NMR Conference, Feb. 2003 (declined).

106) Dept. of Biochemistry, University of Arizona, Feb. 2003.

107) Experimental NMR Conference, Georgia, March 2003.

108) Israel NMR Conference, Israel, April 2003 (declined).

109) Department of Chemistry, University of Buffalo, April 2003.

110) Canadian Proteomics Meeting, Vancouver, B.C., May 2003.

111) Chianti Spin Relaxation Meeting, Italy, May 2003 (declined).

112) Swedish Structural Biology Meeting, Sweden, June 2003 (declined).

113) Schering-Plough, New Jersey, June 2003.

114) Department of Chemistry, Clark University, July 2003.

115) Department of Chemistry, University of Cambridge, UK, August 2003.

116) CCPN Meeting, UK, August 2003.

117) Chicago Area NMR Discussion Group, Keynote speaker, October, 2003

118) Magnetic Resonance in Chemistry, Biology and Medicine, 2003 Seaborg Symposium, UCLA, Dec, 2003

119) Membranes: A challenge for Protein Magnetic Resonance, January, 2004, Tallahassee, Florida

120) Department of Biochemistry, University of Miami, February 2004.

121) Aventis NMR Symposium, Frankfurt, Germany, March 2004.

122) Department of Chemistry, Washington University, St. Louis, March 2004.

123) Experimental NMR Conference, California, April 2004.

124) Department of Chemistry, Dalhousie University, Halifax, May 2004.

125) Department of Biochemistry, Univ. of Penn., May 2004.

126) American Society for Biochemistry and Molecular Biology Annual Meeting, Boston MA., June 2004.

127) Department of Harvard Division of Applied Sciences, Harvard University, June 2004.

128) Lorne Protein Meeting, Australia, 2005. Declined

129) Lorne Protein Meeting, Australia, 2006. Declined.

130) ANZMAG2006, Biannual meeting of Australian and New Zeeland NMR, 2006. Declined.

131) New England Structure Symposium, Plenary Lecture, Oct. 2004 (declined).

132) ISMAR Meeting, Florida, Oct. 2004.

133) Eastern Analytical Symposium honoring Gerhard Wagner, Speaker, NJ, Nov. 2004.

134) Magnets, Macromolecules and Medicine in the New Century, University of Birmingham, UK, Nov. 2004 (declined). (in honor of the installation of 800 and 900 MHz spectrometers).

135) Keystone NMR Meeting. Banff, Feb. 2005

136) Flexiblity in Biomolecules, May 2005, Tempe Arizona

137) Annual Danish NMR Symposium, May 2005 (Declined)

138) Swedish Structural Biology Symposium, June 2005 (Declined).

139) Gordon Research Conference on Proteins, June 2005 (Declined).

140) St. Jude's Research Hospital, Danny Thomas Lecture Series, Memphis, June 2005.

141) Finnish NMR Symposium, June 2005 (Declined).

142) EUROMAR 2005, Netherlands, July 2005 (Declined).

143) Weizmann Institute of Science, Israel, August 2005.

144) Functional Membrane Proteomics, Frankfurt, Oct. 2005.

145) NMR Opening, McMaster University, Oct. 2005.

146) Gentner Symposium on Magnetic Resonance, Israel, Dec. 2005.

147) Gordon Research Conference on Reversible Associations in Structural Molecular Biology, January, 2006 (Declined).

148) Keystone Symposium in Structural Biology, January 2006.

149) Department of Chemistry, Florida State University, February 2006.

150) International NMR conference in February, 2006, in Daejeon, South Korea, to celebrate the installation of a 900MHz and an 800MHz NMRs in KBSI. Declined

151) Keynote address for new NMR Center, Rensselaer (RPI), New York (declined).

152) Bijvoet Symposium for the Bijvoet Graduate School for Biomolecular Chemistry, Netherlands, April 2006. Declined.

153) Experimental NMR Conference. California, April 2006.

154) International School on High Field NMR Spectroscopy for Solids and Liquids, France, May 2006. (Declined)

155) NIH Director's Wednesday Afternoon Lecture Series, NIH, Bethesda, May, 2006.

156) Department of Biochemistry, Duke University, May 2006.

157) Scientific Symposium Honoring Prof. Ephriam Katzir, May, 2006 (Israel).

158) Cleveland Center for Structural Biology, Frontiers of NMR Spectroscopy, May 2006, Plenary lecture (declined).

159) Canadian Institute of Chemistry, Halifax, Nova Scotia, May 2006.

160) Departments of Chemistry and Biophysics, University of Michigan, May 2006.

161) Department of Physical Chemistry, ETH, Zurich, June 2006.

162) 2006 FASEB Summer Conference: Protein Folding in the Cell, Vermont, July 2006.

163) ICMRBS, Germany, August 2006.

164) Gordon Research Conference on Computational Biology, Sept. 2006, France (declined).

165) Department of Molecular Biophysics and Biochemistry, Yale University, Wilbur Cross Lecture, Oct. 2006.

166) Keynote address at Upstate New York NMR Conference, Oct. 2006 (declined).

167) Department of Chemistry, University of California at Berkeley, Dec. 2006.

168) Keystone Meeting, Utah, January 2006.

169) Perspectives on Stable Isotope Aided NMR Methods for Protein Structure Analysis, March 30-31, 2007, Senri Bioscience Center, Osaka, Japan (declined).

170) Depts of Chemistry and Biochemisty, UCSD, March 2007. The Gitte Vold Memorial Lecture.

171) Amgen Institute, Thousand Oaks, CA, March 2007.

172) American Society for Biochemistry and Molecular Biology, Washington, DC, April 2007.

173) Department of Chemistry, McGill, May 2007.

174) Department of Chemistry, Ohio State, May 2007.

175) Department of Biochemistry, University of Western Ontario, June 2007.

176) Gordon Research Conference on Magnetic Resonance. June 2007 (declined).

177) Chianti Conference on NMR Spin Relaxation, Italy. June 2007. (declined).

178) European Experimental NMR Conference. Spain. July 2007.

179) Protein Society, San Diego, CA, July 2007 (declined).

180) Department of Structural Biology, Weizmann Institute of Science, Israel. July 2007.

181) Department of Chemistry, Weizmann Institute of Science, Israel, July 2007.

182) Department of Chemistry, Tel Aviv University, Israel, July 2007.

183) Department of Chemistry, Technion University, Haifa, Israel, July 2007.

184) Department of Chemistry, Hebrew University, Jerusalem, July 2007.

185) CCPN (A Collaborative Computing Project for the NMR Community) Meeting in Structural Biology, England, July 2007 (declined).

186) Department of Chemistry, University of Massachusetts, Amherst, October, 2007.

187) Department of Chemistry, RPI, Albany, October, 2007.

188) International Society of Magnetic Resonance Meeting, Taiwan, October, 2007 (declined).

189) 5th Symposium of Biophysics, University of Maryland, Nov. 2007. (Declined).

190) UCSF Biophysics/Chemistry/Chemical Biology Series, Dec. 2007.

191) Gordon Research Conference, "Biomolecular Interactions and Methods" January 2008, Ventura, Ca (declined).

192) Gordon Research Conference, "Protein Folding and Dynamics", January 2008, Ventura, Ca (declined).

193) The *2nd Annual User Meeting* of the European Network of Research Infrastructures for Providing Access and Technological Advancements in bio-NMR, Frankfurt, Germany. Jan 2008 (declined).

194) Biophysical Society Meeting, Feb. 2008, California. (declined).

195) Pasteur Institute and Varian: NMR a tool for Biology VIII, Jan. 2008, Paris (declined).

196) Experimental NMR Conference, April. 2008. California

197) Structural Analysis of Supramolecular Assemblies by Hybrid Methods, April 2008, California.

198) Principal Speaker, NMR Discussion Group, University of Cambridge, Cambridge, UK, April 2008.

199) Department of Biochemistry, Oxford University, UK. April, 2008.

200) Gordon Research Conference, NMR in Computational Biology, Italy, May 2008.

201) Canadian Society of Chemistry Meeting, Edmonton, May, 2008

202) Department of Biochemistry, Toronto, 100 Year Anniversary Symposium, May 2008.

203) Protein Function, Structure and Engineering Research Center (CREFSIP) of University Laval (Quebec City, Canada), May (2008).

204) Graduate Student Symposium at the MRC Laboratory of Molecular Biology in Cambridge, UK, May 29, 2008 (declined).

205) Gordon Research Conference, "Biopolymers", Newport RI, June 2008. (declined).

206) "Protein Folding", Rome, June 2008 (declined).

207) Protein Dynamics by NMR, Department of Biochemistry, University of Alberta, July 2008.

208) FASEB Folding in the Cell, VT, July 2008.

209) Gordon Research Conference on Enzymes, Co-Enzymes and Metabolic Pathways. July 2008. (declined).

210) Fundamental Advances in Contemporary NMR Spectroscopy, 236th American Chemical Society National Meeting, Philadelphia, August 2008. (declined).

211) International Conference of Magnetic Resonance in Biological Systems, California, August 2008.

212) Horizons in Molecular Biology 2008. September 2008, Germany (declined).

213) Moot NMR, September 2008, Windsor (declined).

214) Future Directions in NMR Meeting, October 2008, Bangalore, India (declined).

215) Integrating the Physical and Applied Sciences into Health Research Workshop III, Ottawa, Key-note speaker, Oct. 2008.

216) Max-Planck-Institute of Biochemistry, Martinsried, EU project INSTRUCT. (declined).

217) 3rd Montreal Structural Biology Meeting. November 2008, Montreal.

218) Cellular, Molecular and Stuctural Aspects of Neuronal Differentiation and Neurodegeneration, November, 2008, Argentina. (Declined).

219) Australian and New Zealand Society for Magnetic Resonance, Dec, 2008 (Key-note lecture) (declined).

220) Keystone Symposium on Frontiers of NMR in Biology. Feb, 2009 (declined).

221) Mesilla Chemistry Workshop, "Multi-Scale Modeling of Biological Molecules", New Mexico, Feb. 2009 (declined).

222) John S. Dunn, Sr. Gulf Coast Consortium for Magnetic Resonance (GCC MR), Houston, February 2009.

223) Biophysical Society, Symposium on Intrinsically Disordered Proteins, Boston, February, 2009.

224) ACS National Meeting, "Functional Motions in Enzyme Catalysis", Salt Lake City, March 2009 (declined).

225) University of Georgia, March 2009.

226) “Molecular Science of Fluctuation toward Biological Functions", Okazaki, Japan, March 2009 (declined).

227) 2nd annual International Conference on Accelerating Biopharmaceutical Development, hosted by the Society for Biological Engineering, 9-12 March 2009, Coronado CA (declined).

228) Experimental NMR Conference, CA, March 2009.

229) Bijvoet Tutorial Symposium, April 5th and 6th 2009, Utrecht (The Netherlands). April, 2009 (declined).

230) Chemical Biophysics Symposium, University of Toronto, April 2009.

231) Chemical Biophysics Symposium, Keynote, Rutgers University, April 2009.

232) Department of Chemistry, University of Wisconsin, May 2009.

233) Symposium “Application of High-resolution NMR Spectroscopy to Biological Problems”, Johns Hopkins University, May, 2009.

234) Danish NMR Meeting, May 2009, Aarhus, Denmark (declined).

235) Keystone Symposium on Protein Dynamics, Allostery and Function, June 2009 (declined).

236) Gordon Conference in Magnetic Resonance, June 2009, New England (declined).

237) Washington Area NMR Symposium, Bethesda, June 2009.

238) Protein Society, Boston, July 2009.

239) European Magnetic Resonance Meeting, Sweden, July 2009.

240) Max Planck Institute of Biochemistry Graduate Program Seminar Series, Fall 2009.

241) Dept of Biological Sciences, Carnegie Melon University, Sept. 2009.

242) Dept of Chemistry, UBC, Oct. 2009.

243) Dept. of Molecular and Cellular Biology, University of Guelph, Nov. 2009.

244) Department of Chemistry, York University, Fall, 2009.

245) Bijvoet Tutorial Symposium, April 12th and 13th 2010, The Netherlands.

246) Department of Chemistry/Biochemistry, University of Colorado, Spring 2010.

247) CARB NMR Research Symposium, May 2010, Rockville, MD.

247) Joint Euromar/Ismar Conference, July 2010, Florence (declined).

248) Methods in Protein Structure Analysis, Aug. 2010, Sweden (declined).

249) International Conference of Biological Magnetic Resonance, Australia, Aug. 2010 (declined).

250) 8th International NCCR Symposium on New Trends in Structural Biology, ETH, Zurich, Switzerland. September, 2010.

251) Meeting of the Brazillian Biochemistry and Molecular Biology Society, May 2010 (declined).

252) Workshop in Spectroscopy in Biology, Maresias, Brazil, Oct. 2010. (declined).

253) "Molecular Science of Fluctuation toward Biological Functions", Otsu City , Japan, November 2010. (declined).

254) "NMR at the interface of physics, chemistry and biology", Chandigarh, India, Nov. 29-30, 2010 (declined).

255) Enabeling Structure Based Drug Discovery for G Protein-Coupled Receptors, Hawaii, December, 2010. (declined).

256) Department of Biochemistry/Chemistry, University of Santa Barbara, Dec. 9, 2010.

257) Keystone Symposium. Frontiers of NMR Biology. January 8-12, 2011.

258) Frontiers of NMR Spectroscopy-Biomolecular Structure, Dynamics and Interactions. March 23, 2011, New York.

259) Experimental NMR Conference, Asilomar, CA. April 10-15, 2011.

260) Brazilian Biochemistry Society Meeting, Protein Excited States Symposium, Iguacu, Brazil, April 30-May 3, 2011. (declined)

261) IX European Symposium of The Protein Society, May 2011, Stockholm. (declined)

262) 3rd Asian Pacific Protein Association Conference, Shanghai University, Shanghai, China, May 6-9, 2011. (declined)

263) International Structural Genomics Meeting, Toronto, Ontario, May 10-14, 2011, Toronto

264) Gordon Research Conference Computational Aspects – Biomolecular NMR. May 22-27, 2011. Italy.

265) Nano Machines in Health and Disease, Brookhaven, NY, May 23, 2011 (declined).

266) Variation in Protein Conformation: Cell Biological and Pathological Relevance. Germany, July 2011. (declined)

267) Magnetic Resonance Gordon Research Conference, University of New England, Maine, June 12-17, 2011. (declined)

268) Symposium in honor of Prof. John Markley, Madison, WI, June 27-28, 2011 (declined).

269) Gordon Research Conference, Enzymes, Coenzyme and Metabolic Pathways, July 2011. (declined)

270) "Bio-NMR" funded by the European Infrastructure Programme, "Structure determination of membrane proteins by NMR", Frankfurt, Aug 19-21, 2011 (declined).

271) Euromar 2011, Plenary Lecture, Frankfurt, German, August 21-25, 2011. (declined).

272) 9th Interntional NCCR Symposium on New Trends in Structural Biology. University of Zurich, Switzerland, Sept 1-2, 2011. (declined).

273) Keynote speaker, Max Delbruck Center for Molecular Medicine and Leibniz Institute for Molecular Pharmacology, Berlin, September, 2011. (declined).

274) Dept of Chemistry, Cornell University, New York, September 2011.

275) Department of Biochemistry, University of Alberta, September, 2011.

276) Cold Spring Harbor Asia Conference on Protein Structure Based Drug Design., Suzhou, China, Sept. 19-23, 2011. (declined).

277) IUBAB International Biophysics Congress, Oct. 2011. Beijing China. (declined).

278) Barcelona BioMed Conference, "Macromolecular Dynamics", Oct 2011, Barcelona, Spain.

279) Moot NMR Meeting, Toronto, Oct. 2011.

280) International Symposium on Analytical Science and Technology. Plenary Lecture. Korea, Nov. 2011. (declined).

281) Keystone Symposia on High Throughput Structural Biology/Structural Biology of Cellular Processes: From Atoms to Cells. Jan 2012.

282) Gordon Research Conference, Biomolecular Interactions and Methods, Keynote Speaker, Jan. 2012.

283) Biophysical Society, San Diego, Ca, Feb. 2012.

284) Trends in Enzymology (TinE), Gottingen, Germany, June 3rd-6th, 2012 (declined)

285) Institute of Structural and Molecular Biology Program, London England, June 20-21, 2012.

286) PrP Canada, Protein Folding and Disease Conference, Toronto, Ontario, June 25-27, 2012.

287) Canada-China Systems Biology Symposium and the 19th Methods in Protein Structure Analysis, Ottawa, Ontario, June 25-28, 2012.

288) Chianti NMR workshop on BioNMR 2012, Pistoia, Italy, June 17-22, 2012 (declined).

289) ICBMRS, Plenary Lecture, Lyon, France, August 2012

290) Department of Biochemistry, University of Minnesota, Sept. 2012.

291) 27th European Crystallographic Meeting (ECM27), August 6-11, (2012), Bergen, Norway. Keynote Lecture (Declined).

292) 06th International Titisee Conference on "Reconstituting Chromatin: From Self-Assembly To Self-Organization" to be held from October 10th to 14th, 2012 in Titisee, Black Forest, Germany. (Declined).

293) Protein Folding and Dynamics, National Center for Biological Sciences, Bangalore, India, Oct 15-17, 2012. (Declined).

294) Department of Chemistry, Bristol University, UK, January 2013.

295) Keystone Symposia on Frontiers of NMR in Biology. Jan 13-18, 2013. Utah, USA. (Declined).

296) Department of Biochemistry and Biophysics, Univ of Penn. February 2013.

297) Experimental NMR Conference, Asilomar, USA, April 2013.

298) Institute of Biophysical Dynamics, University of Chicago, May 2013.

299) IMSAR (International Society of Magnetic Resonance), Plenary Lecture, Rio de Janiero, Brazil, May 19-24, 2013 (declined)

300) Department of Biochemistry, McGill, Montreal, Quebec, June 2013.

301) 96th Canadian Chemistry Conference and Exhibition, May 2013.

302) European Biophysics Congress, Lisbon, July 13-17, 2013. Plenary Speaker

303) CIC bioGUNE, Bilbao, Spain, July 2013.

303) Euromar 2013, Crete, Greece, June 30-July 5, 2013. Plenary lecture (Declined).

304) Swedish Structural Biology Network, Keynote Lecture in NMR, June 2013. (Declined).

305) Macromolecular Crowding TSRC Workship, June 2013 (Declined).

306) Embo Meeting, Amsterdam, Sept. 2013 (Declined).

307) NMR Symposium, Princeton, Dept of Chemistry NJ, Sept. 2013 (Declined).

308) Symposium for the Inauguration of 800 MHz NMR, Princeton, Sept 2013 (Declined).

309) Upstate New York NMR Symposium, RPI, Troy NY, Plenary Lecture, Nov 2013.

310) Eastern Analytical Society, Symposium in honor of Dr. Dennis Torchia, Nov 2013.

311) GRC in Protein Folding and Dynamics (Plenary Lecture), January, 2014.

312) University of Maryland Biophysics Symposium, January 2014.

313) University of Michigan, Dept of Biological Chemistry, March 2014.

314) Annual Danish NMR Meeting, Keynote Speaker, Carlsberg Laboratory, May, 2014 (Declined).

315) Dept of Biophysics, University of Texas, Southwestern Medical School, May, 2014.

316) Swedish Structure Biology Network Conference, Keynote Speaker, Tallberg Sweden, June 2014 (Declined).

317) Euromar 2014, Zurich, Switzerland, June, 2014. Plenary Lecture. (Declined)

318) GRC in Biopolymers, New Port, RI, June 2014, (Declined).

319) “From Structure and Dynamics to Tailored Enzymes, Therapeutic, and Synthetic Macromolecular Devices”, Madrid, Spain, May 7-9, 2014 (Declined).

320) Sackler Lecturer, Tel Aviv University, Israel, May 11-15 2014.

321) Lecturer, Protein Expression Workshop, Rehovot Israel, May 9, 2014.

322) Symposium in honor of Shneior Lifson and the 2013 Nobel Prize Winners, Rehovot Israel, May 10, 2014.

323) First Basel Fellowships for Excellence Program, Basel Switzerland, June 5, 2014 (declined).

324) Plenary Lecture, Molecular Origins of Protein Misfolding and Neurodegenerative Disease, Vancouver, Canada, July 2014 (declined).

325) International Conference of Biological Magnetic Resonance Spectroscopy, Dallas, Aug 2014.

326) IDPbyNMR, Grosseto, Italy, Sept, 2014, Declined.

327) Dept of Chemistry, Dalhousie University, Halifax, Nova Scotia, Sept. 2014.

328) Lokey Lecture, Technion University , Haifa, Israel, Dec. 22, 2014

329) Dept of Chemistry, Technion University, Haifa, Israel, Dec. 25, 2014.

330) Dept of Chemistry, Bar Ilan University, Ramat Gan, Israel, Dec. 30, 2014.

331) Plenary Lecture, Advanced Isotopic Labelling Methods for Integrated Structural Biology, Feb 2-5, 2015, Grenoble, France (Declined).

332) Structural Biology Symposium, Brussels, Belgium, Feb. 8-10, 2105.

333) Experimental NMR Conference, Plenary Lecture, April, 2015. Asilomar CA, USA. (Declined)

334) Dept of Chemistry, Biochemistry Division, April 27, 2015. MIT, USA

335) Dept of Chemistry, Physical Chemistry Division, April 28, 2015, MIT USA

336) CUNY Seminar Series, New York, May 11, 2015

337) Tri-Institutional Structural Biology Seminar Series, New York, May 12, 2015

338) Inauguration of new 950 MHz spectrometer, Invited speaker, Aarhus, Denmark, June 2015.

339) Canadian Chemical Society, June 2015, Ottawa. (Declined).

340) EUROMAR, Prague, Czech Republic, July 2015 (Declined).

341) 6th Asia-Pacific NMR Conference, Hong Kong, Aug 2015 Plenary Lecture (Declined).

342) ISMAR 2015, Shanghai, China. Plenary Lecture, Aug 2015 (Declined).

343) Symposium in Structural Biology, Zurich, August 2015, Plenary Lecture.

344) Recent Advances in NMR, Pacifichem 2015, Dec, Hawaii (Declined).

345) The Astbury Conversation: University of Leeds, April 11-12, 2016.

346) Experimental NMR Conference, Pitsburgh, PA, April 10-15, 2016 (Declined).

347) Ad Bax NMR Birthday Symposia, NIH, Bethesda, MD, June 13-14, 2016.

348) Israel Magnetic Resonance Meeting, Rehovot, Israel, June 21-22, 2016.

349) Dept of Chemistry, University of Iceland, Reykjavik, July 5, 2016.

350) FASEB Protein Folding in the Cell, July 2016, Vermont.

351) EUROMAR, Denmark, July 2016 (Declined).

352) International Conference on Magnetization Resonance in Biological Systems. Kyoto, Japan, Aug 2016. Declined.

353) BBRC symposium. Toronto, Canada, Oct 7, 2016.

354) Plenary Lecture. V Latin American Protein Society. Rio de Janeiro, Brazil, Nov 7-10, 2016. Declined.

355) Plenary Lecture. EMBL Conference: Molecular Machines: Integrative Structural and Molecular Biology 2016. Nov 20-23, 2016. Heidelberg, Germany.

356) Department of Chemistry, University of South Florida, Feb 9, 2017.

357) Biophysical Society, Biopolymers in Vivo Subgroup, New Orleans, USA, Feb 11, 2017 (Declined).

358) Zomes IX Conference on PCI complexes, Rome, Italy, Feb 14-17, 2017. (Declined).

359) Plenary Lecture. Advanced Isotope Labeling Methods for Integrated Structural Biology. March 6-9, Grenoble, France 2017. Declined.

360) Keynote Lecturer. Keystone Symposia on Frontiers of NMR in Life Sciences. March 12-17, 2017. Keystone, CO, USA.

361) Experimental NMR Conference, March 26-31, 2017. Asilomar, California.

362) Biological Macromolecules: Structure, Catalysis and Regulation. April 15-16, 2017, Tsinghua University, Beijing, China. (Declined)

363) Department of Chemistry and Biochemistry, Duke University, May 12, 2017.

364) Computational Aspects of Biomolecular NMR Gordon Research Conferences, Maine, USA, June 11-16, 2017 (Declined).

365) 100th Canadian Chemistry Conference, Toronto, June, 2017.

366) Plenary Lecture. International Society for Magnetic Resonance Meeting. Quebec City, July 23-28, 2017.

367) 2017 Gairdner Lecture, University of Lethbridge, Alberta, Oct. 19, 2017.

368) 2017 Gairdner Lecture, University of Alberta, Alberta, Oct. 23, 2017.

369) 2017 Gairdner Lecture, University of Calgary, Alberta, Oct. 24, 2017.

370) 2017 Gairdner Lecture, McGill, Quebec, Nov. 14, 2017.

371) 2017 Gairdner Lecture, University of New Found Land, Nov. 15, 2017.

372) Robert E. Olson Lecture, St Louis University, Dec. 6, 2017.

373) Society of Chinese Bioscientists in America (Toronto Chapter), Metabolism and Methods – new discoveries in diabetes and other diseases. Toronto, Ontario, Feb. 23, 2018.

374) ASBMB Annual Meeting (American Society for Biochemistry and Molecular Biology), San Diego, CA, April 25, 2018.

375) Les Houches – TSRC Protein Dynamics Workshop, Chamonix, France May 27 – June 1, 2018. (Declined).

376) “Control of protein function by conformational switching”, Collaborative Research Center CRC1035, Venice, May 3-6, 2018. (Declined).

377) Lemieux Lecturer, Department of Chemistry, University of Ottawa, May 2, 2018.

378) Department of Biological Chemistry and Molecular Pharmacology. Harvard Medical School. May 17, 2018.

379) Brian Sykes Celebration, University of Alberta, June 19, 2018.

380) IberoAmerican NMR Meeting. Lisbon, June 27-30, 2018. (Declined).

381) Protein Society, Boston, July 2018. Award Lecture.

382) Cambridge Isotope Lecture, July 2018, Newton, Mass, USA.

383) Keynote speaker, ICMRBS, Dublin Ireland, Aug, 2018.

384) Advanced Isotopic Labeling Methods for Integrated Structural Biology, Grenoble, France, March 2019. (Declined).

385) UCSF, San Francisco, CA, Dept of Biochemistry, October 15, 2018

386) University of Ottawa, Faculty of Medicine, October 23, 2018

387) York University, Toronto, Dept of Biology. October 24, 2018

388) Biophysical Society, March, 2019.

389) 4th Instruct Biennial Structural Biology Conference, Alcala de Henares, Span, May 23, 2019 (Declined).

390) Partnership for Structural Biology Symposium, Macromolecules in Action, Grenoble France, July 4-5, 2019. (Declined).

391) Swedish Conference on Macromolecular Structure and Function. Tallberg, Sweden, June 14-17, 2019. (Declined).

392) Canadian Student Health Research Form and Gairdner Student Event, Winnipeg, Manitoba, June 13-15, 2019.

393) Murnau Conference for Structural Biology 2020. Murnau am Staffelsee, Bravaria, Germany. (Declined).

394) Sarkar Symposium, Feb 20, 2020, Toronto, Canada.

395) Weizmann GHz-fest, Feb 24-26, 2020. Rehovot, Israel.

396) Annual Gairdner Lecture, Lakehead University, March 5, 2012, Thunder Bay, Ontario.

397) Inaugural Lecture, Emerging Topics in Biomolecular Magnetic Resonance, (on-line), June 4, 2020.

398) Protein Folding and Dynamics Webinar, (on-line), June 15, 2020.

399) Euromar Meeting, Plenary Lecture, July 5-9, 2020, Bilbao, Spain.

400) Inaugural Lecture, Chemical Institute of Canada, Physical & Theoretical Division, Sept, 2020.

401) UCSF-PRiME symposium, Chemical and Structural Biology of Proteostasis. Dec 1, 2020.

402) Molecular Biophysics Unit 50/Ramachandram 100 celebrations, Feb. 5, 2021.

403) Australia and New Zealand Magnetic Resonance Society (ANZMAG), Feb. 23, 2021.

404) Lorne Conference on Protein Structure and Function. Melborne, Australia, February 2021. (Declined)

405) Advanced Physical and Computational Techniques to Investigate Protein Dynamics. April 2021.

406) Keynote speaker University of Toronto Medical Biophysics Symposium, May 31, 2021.

407) Isotope Day 2021, Cambridge Isotopes Limited, Speaker, June 2, 2021.

408) SMART: NMR Spectroscopy Symposium in honor of Bill Reynolds, June 10, 2021.

409) Ubiquitin Group, Wuerzburg University, Germany, June 28, 2021

410) American Crystallography Meeting, July 30-Aug 4, 2021.

411) Intercontinental Magnetic Resonance Conference on Methods and Applications. Sept 1-3, 2021.

412) Department of Pharmacology, Yale University, Oct 14th, 2021.

413) American Chemical Society NJ chapter NMR Topical Group Annual Symposium, Oct 18th, New Jersey, 2021.

414) Eastern Analytical Symposium, Nov 12th 2021, New Jersey.

415) Practical Integrative Structural Biology Course, Hamburg, November 2021.

416) U. Penn, Biochemistry and Biophysics, December 9, 2021.

417) Proteostasis Consortium Seminar Series, Feb 9, 2022,

418) 6th Ulm meeting – Biophysics of Amyloid Formation, Feb 22, 2022.

419) Structural Biology and Biophysics Seminars (SBBS), Biozentrum, University of Basel, Switzerland, March 15, 2022.

420) American Chemical Society Meeting, San Francisco, March 20, 2022.

421) PROTEO 2022, Montreal, May 13, 2022.

422) St. Jude Symposium on Structural and Computational Biology, Memphis. May 23-24, 2022.

423) International Society of Magnetic Resonance in Biological Systems, Boston, MA, Aug. 2022 (Declined).

424) 20S Proteasome Degradation Pathway, Weizmann Institute of Science, Israel, Jan 8-12 2023 (declined).

425) 1st Austrian NMR symposium, Vienna, May 2-3 2023.

426) NMR a tool for Biology, Paris, May 2023 (Declined).

427) Protein Biochemistry and Biophysics, Johannes Kepler University, Linz, Austria, May 23-24, 2023.

428) Dept of Computational Biology and Biomolecular NMR Spectroscopy, Vienna, May 25, 2023.

429) European Biophysics Congress, Stockholm, Sweden, July 30 - Aug 4, 2023.

430) Cleveland Center for Membrane and Structural Biology, Case Western Reserve, Cleveland, Sept. 13, 2023.

431) Protein Society Webinar Seminar, Oct 6, 2023 2-4 PM.

432) Dept. of Chemistry and Biochemistry, Ohio State University, Oct 10, 2023.

433) MOOT NMR Meeting, McMaster University, Oct 13, 2023.

434) 65th Experimental NMR Conference, Asilomar, CA, USA, April 7-11, 2024. (Declined)

435) Birthday Symposium for Professor Hashim Al-Hashimi, Entering a New Era of Conformational Dynamics in Molecular Biophysics and Biomedicine, Columbia University, NY, March 15-16, 2024.

436) NMR Symposium in honor of Professor Christian Griensinger, Max Planck, Gottingen, April 3-6, 2024.

437) Plenary Lecture, 20th European Magnetic Resonance Congress, Bilbao, Spain, June 30-July 4, 2024.

438) Protein Society Meeting, Vancouver, Canada, July 23-July 26, 2024.

439) Plenary Lecture, International Conference of Magnetic Resonance in Biological Systems, Seoul, South Korea, August 18-23, 2024.

440) Gairdner Lecture, Department of Biochemistry, University of Saskatchewan, Saskatoon, Canada, October 29, 2024.

441) 9th Gateway NMR Conference and Inauguration Symposium of the National Gateway Ultrahigh Field NMR Center at Ohio State, May 16-16, 2025, The Ohio State University, Columbus, Ohio.

442) Biophysical Society of Canada, Hamilton, Ontario, May 21, 2025.

443) Department of Molecular and Cellular Biology, University of Guelph, May 28, 2025.

444) Department of Biochemistry, Western University, London, Ontario, June 6, 2025.

445) Department of Biological Chemistry and Pharmacology, Harvard University, Symposium in Honor of Gerhard Wagner, July 14-15, 2025.

Note: I decline the majority of meeting invitations so (i) I can spend time with family and so (ii) I can have the time to do my own experiments.

TEACHING

Undergraduate coordinator of Molecular Biophysics BSc program offered through the Department of Physics.

1) Chemistry 1455H, NMR Spectroscopy 1: Introduction to NMR: Theory and Application.

2) Chemistry 1456H, NMR Spectroscopy 2: Advanced Theory and Application.

3) MMG 1012Y Protein Structure and Function.

4) MMG 1014Y. Macromolecular Biology. Special Topics Course.

5) Biochemistry 2021.

6) BCH 2024H Biomolecular Dynamics and Function.

ORGANIZATION OF NATIONAL AND INTERNATIONAL MEETINGS

"Frontiers in Structural Biology Symposium" June 1993.

2) "NMR of Biomolecules" for the Canadian Society of ChemistryMay 1995.

3) Minisymposium on Biomolecular NMR, Canadian Society for Biochemistry and Molecular and Cellular Biology. June 1996.

4) International Society of Magnetic Resonance in Biological Systems Conference, Toronto, August 2002.

RESEARCH TRAINING

1) Ouwan Zhang, Graduate Student (PhD) in Chemistry with Dr. Julie Forman-Kay, June 1992 - April 1997.

2) Neil Farrow, Post-Doctoral Associate, September 1992 - July 1997.

3) Steven Pascal, Post-Doctoral Associate, March 1993 - July 1996.

4) Toshio Yamazaki, Post-Doctoral Associate, April 1993 - April 1995.

5) Yves Aubin, Post-Doctoral Associate, September 1993 - October 1995.

6) Mike Rosen, Post-Doctoral Associate, October 1993 - January 1996.

7) Ping Xu, Post-Doctoral Associate, January 1994 - September 1994.

8) Li-Lin Tay, Graduate Student (MSc) in Chemistry with Dr. Bill Reynolds. September 1994 - November 1996.

9) N. Rao, Post-Doctoral Associate, April 1995 - October 1996.

10) D. Yang, Post-Doctoral Associate, May 1995 – May 2001.

11) Kevin Gardner, Post-Doctoral Associate, August 1995 - July 1998.

12) Pascale Legault, Post-Doctoral Associate, September 1995 - July 1998.

13) Sebastian Vincent, Post-Doctoral Associate, May 1996 - September 1997.

14) Catherine Zwahlen, Post-Doctoral Associate, May 1996 - December 1998.

15) Joel Tolman, Post-Doctoral Associate, December 1997 - September 1999.

16) Logan Donaldson, Post-Doctoral Associate, July 1998 - September 2000.

17) Geoff Mueller, Post-Doctoral Associate, September 1998 – May 2001.

18) James Choy, Post-Doctoral Associate, October 1998 – Nov 2005.

19) Nikolai Skrynnikov, Post-Doctoral Associate, January 1998 – Sept. 2002.

20) Frans Mulder, Post-Doctoral Associate, February 1998 – July 2001.

21) Johan Evenas, Post-Doctoral Associate, July 1999 – February 2001.

22) Tony Mittermaier, Graduate Student, September 1997 – Jan 2004.

23) Natalie Goto, Graduate Student, September 1997 - February 2001.

24) Peter Hwang, Graduate Student, September 1999 – Nov 2005.

25) Jason Ollerenshaw, Graduate Student, September 2000 – Sept 2005.

26) Vitali Tugarinov, Post-Doctoral Associate, December 2000 – July 2007.

27) Oscar Millet, Post-Doctoral Associate, September 2000 – April 2004.

28) Dimitry Korzhnev, Post-Doctoral Associate, September 2001-Sept 2010.

29) Irina Bezsonova, Graduate Student, September 2001-Sept. 2008

30) Karen Kloibler, Post-Doctoral Associate, September 2001-Jan 2004.

31) Pramodh Vallurupalli, Post-Doctoral Associate, Oct 2002-June 2009.

32) Remco Sprangers, Post-Doctoral Associate, April 2003-March 2008.

33) Algirdas Velyvis, Post-Doctoral Associate, April 2003-2009.

34) Philipp Neudecker, Post-Doctoral Associate, April 2004-Oct. 2010.

35) Jason Malthrop, Graduate Student, Sept. 2004-February 2008.

36) Flemming Hansen, Post-Doctoral Associate, Sept 2005-Sept 2010.

37) Patrik Lundstrum, Post-Doctoral Associate, Oct 2005-February 2009.

38) Eugene V. Tischenko, Post-Doctoral Associate, Oct 2005-August 2009.

39) Tomasz Religa, Post-Doctoral Associate, August 2008-October 2011.

40) Andy Baldwin, Post-Doctoral Associate, May 2008-July 2012.

41) Amy Ruschak, Post-Doctoral Associate, June 2008-April 2012.

42) Michael Latham, Post-Doctoral Associate, July 2008-Nov 2014.

43) Hugo van Ingen, Post-Doctoral Associate, August 2008-Dec 2010.

44) Guillaume Bouvignies, Post-Doctoral Associate, August 2008-November 2013.

45) Julia Barette, Graduate Student, January 2009, August 2011.

46) Alex Hansen, Post-doctoral Fellow, January 2009-February 2014.

47) Rina Rosenzweig, Post-Doctoral Associate, September 2010-June 2016.

48) Lichi Shi, Post-Doctoral Associate, Jan 2011-Sept 2014.

49) Julianne Kitevski, Post-Doctoral Associate, July 2013-June 2017.

50) Ashok Sekhar, Post-Doctoral Associate, July 2011-August 2017.

51) Rafal Augustyniak, Post-Doctoral Associate, May 2012-June 2018.

52) Dong Long, Post-Doctoral Associate, Oct 2012-May 2015.

53) Anne Schuetz, Post-Doctoral Associate, August 2013-May 2017.

54) Enrico Rennella, Post-Doctoral Associate, June 2014-Present.

55) Rui Hwang, Post-Doctoral Associate, Sept 2014-May 2020.

56) Rob Culik, Post-Doctoral Associate, Sept 2014-August 2017.

57) Siavash Vahidi, Post-Doctoral Associate, Sept 2015-May 2020.

58) Zev Ripstein, Graduate Student, Sept 2015-Oct 2020

59) Tairan Yuwen, Post-Doctoral Associate, Nov 2015-Nov 2019

60) Jacob Brady, Post-Doctoral Associate, Nov 2015-Nov 2019.

61) Tae Hun Kim, Post-Doctoral Associate, Dec 2016-Dec 2022.

62) Gili Abramov, Post-Doctoral Associate, Jan 2018-Feb 2022.

63) Rob Harkness, Post-Doctoral Associate, July 2018-March 2024.

64) Alex Conicella, Post-Doctoral Associate, July 2018-Feb 2021.

65) Leo Wong, Post-Doctoral Associate, November 2018-July 2020.

66) T. Reid Alderson, Post-Doctoral Associate, February 2019-Feb 2022.

67) Yuki Toyama, Post-Doctoral Associate, April 2019-Sept 2022.

68) Zev Ripstein, Post-Doctoral Associate, Oct 2020-Aug 2021.

69) Alex Server, Graduate Student, Sept 2020-Present.

70) Rashik Ahmed, Post-Doctoral Associate, Nov. 1, 2021-Present.

71) Atul Kaushik Rangadurai, Post-Doctoral Associate, Nov. 1, 2021-Present

72) Nicolas BolikCoulon, Post-Doctoral Associate, Dec. 1, 2021-Present.

73) Jeff Paul Bonin, Post-Doctoral Associate, July 1, 2022-Present.

74) Philipp Roessler, Post-Doctoral Associate, Jan 1, 2023 – Present.

75) Aidan Estelle, Post-Doctoral Associate, April 15, 2023-Present.

76) Orr Lusky, Post-Doctoral Associate, March 1, 2025-Present.

Current statistics show that only about 10% of trainees go on to independent research careers – yet 40 of 57 trainees who have left the Kay laboratory are on faculty at major research intensive universities, an additional 5 are scientists in government laboratories and 6 are in industry. My trainees are now professors at University of Toronto, Université de Montréal, McGill University, University of Ottawa, York University, Guelph University, University of Manitoba, and other academic centers, group leaders at Health Canada and industrial sites. Other trainees have established careers at universities throughout the U.S., Europe, Israel and Asia at sites as diverse as Singapore, Dallas, New York, London and Hyderabad. Included in this list are a very significant number of women.

Listed below are former trainees that are now on faculty across the world: Steven Pascal, Professor, Massey University, New Zealand; Toshio Yamazaki, Professor, Osaka University, Japan; Mike Rosen, Professor, Southwestern Medical Center and Howard Hughes Investigator, USA; Daiwen Yang, Professor, National University of Singapore, Singapore; Kevin Gardner, Professor, Southwestern Medical Center, USA; Pascale Legault, Professor, University of Montreal, Canada; Joel Tolman, Professor, Johns Hopkins University, USA; Logan Donaldson, Professor, York University, Canada; James Choy, Professor, University of Western Ontario, Canada; Nikolai Skrynnikov, Professor, Purdue University, USA; Frans Mulder, Professor, University of Groningen, Netherlands; Tony Mittermaier, Professor, McGill University, Canada; Natalie Goto, Professor, University of Ottawa, Canada; Oscar Millet, Professor, University of Bilbao, Spain; Voula Kanelis, Professor, University of Toronto, Canada; Remco Sprangers, Group Leader, Max Planck, Tuebingen, Germany; Patrik Lundstrum, Professor, Linköping University, Sweden; Vitali Turgarinov, Professor, University of Maryland, USA; Flemming Hansen, Professor, Imperial College, London, UK; Dmitry Korzhnev, Professor, University of Connecticut; Tomasz Religa, Professor, Case Western Reserve, Cleveland, USA; Amy Ruschak, Professor, Case Western Reserve, Cleveland, USA; Philipp Neudecker, Professor. Julich Institutes; Pramodh Vallurupalli, Professor, Hyderabad, India; Andy Baldwin, Professor Oxford, Alex Hansen, Research Professor Ohio State, USA; Guillaume Bouvignies, Assistant Professor, CNRS Grenoble France; Irina Bezsonova, Professor, University of Connecticut; Don Long, Professor, University of Science and Technology, China; Michael Latham, Professor, Texas Tech University; Peter Hwang, Professor, University of Alberta; Rina Rosenzweig, Professor Weizmann Institute, Israel; Ashok Sekhar, Professor, Indian Institute of Science, Bengaluru, India; Rafael Augustyniak, Assistant Professor, University of Warsaw, Poland; Anne Schuetz, Professor, University of Munich, Germany; Tairan Yuwen, Assistant Professor, Peking University, China; Rui Hwang, Assistant Professor, University of Guelph, Canada; Siavash Vahidi, Assistant Professor, University of Guelph; Leo Wong, Shenzhen Institute of Advanced Technology (SIAT) in Shenzhen, China; Zev Ripstein, Assistant Professor, University of Manitoba, Canada. Reid Alderson, Assistant Professor, University of Graz, Austria. Tae Hun Kim, Assistant Professor, Case Western Reserve University, Canada. Robert Harkness, Assistant Professor, University of Guelph, Canada. Several trainees have pursued industry related careers: Yves Aubin, Merck Frosst, Canada; Neil Farrow, Berringer-Manheim, USA; Sebastian Vincent, Nestle, Switzerland; Johan Evenas, Astra Zeneca, Sweden as well as independent positions in government laboratories: Ping Xu, NRC, Canada; Geoff Mueller, National Cancer Institute, North Carolina, USA. Eugene Tishchenko, JEOL, USA.

Visiting Sabbaticals

1) Ron Venters, Duke University, 1998 - 1999.

2) David Cistolla, Washington University, 1999 - 2000.

3) Dominique Marion, Grenoble, France, March 2001 - September 2001.

4) Alex Bain, McMaster University. June 2001- June 2002.

5) Matthew Cordes, University of Arizona. September 2009-December 2009.

6) Jung-Ho Kim, Seoul National University, September 2024-July 2025.

RESEARCH INTERESTS

Research focuses on the development of NMR techniques for studying macromolecular structure and dynamics and the application of NMR techniques to problems of biological and clinical importance. In particular the research is divided into the following areas:

1) *Methodological Developments*. Research is focused on developing ^{15}N, ^{13}C, ^{2}H multi-dimensional NMR spectroscopy and gradient enhanced spectroscopy to increase the molecular weight limitations currently imposed on protein structure determination using conventional techniques. A second area relates to the development of ^{15}N and ^{13}C relaxation techniques for the study of protein dynamics in solution.

2) *Dynamics Studies of Supra-molecular Complexes*. In particular, we are studying the proteasome as well as protein machines involved in disaggregation and the nucleosome. The work builds on our methodological developments that facilitate studies of protein complexes in the MDa molecular weight range.

3) *Protein Dynamics*. Methods are developed and applied to study backbone and sidechain protein dynamics and how dynamic properties change upon ligand binding or folding. Relationships between dynamics and thermodynamics are being developed and applied to binding and folding events.

4) *Protein Folding*. Methods are developed and applied to study protein folding and misfolding, residual structure in unfolded and partially folded states and dynamic properties of these molecules.

5) *Studies of Excited State Protein Conformers*. We are developing the framework to study sparsely populated, transiently formed conformations of proteins that are implicated in function and in disease. The methodology is applied to a wide spectrum of protein systems.