

Biographical Sketch Gerhard Wagner

Citizen of the United States and Germany
Married, one daughter and one son

Education

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| Diploma, Physics, Technical University, Munich, Germany | 1972 |
| Ph.D, Biophysics, ETH, Zürich, Switzerland | 1977 |
| Privatdozent, Biophysics, ETH, Zürich, Switzerland | 1982 |

Professional Experience

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| 1977-1978 | Research Assistant, ETH Zürich |
| 1978-1979 | Research Associate, MIT Cambridge |
| 1979-1982 | Research Assistant, ETH Zürich |
| 1982-1991 | Privatdozent, ETH Zürich |
| 1987-1989 | Associate Professor, Biological Chemistry, University of Michigan, |
| 1989-1990 | Professor, Biological Chemistry, University of Michigan |
| 1990- | Professor, Biological Chem. and Mol. Pharmacology, Harvard Medical School |
| 1992- | Elkan Rogers Blout Professor of Biological Chemistry and Molecular Pharmacology, Harvard Medical School |
| 1987-1994 | Member Advisory Committee National NMR Facility at Madison |
| 1988-1991 | Member NSF Study Section, Biophysics Program |
| 1998-2000 | Member NIH study Section BBCB |
| 1990-1993 | Editor FEBS Letters |
| 1990- 2002 | Editorial Board Protein Science |
| 1993-1997 | Associate Editor Protein Science |
| 1990-1992, 1995, 2013 | Section Editor Current Opinion in Structural Biology |
| 1993- | Editorial Board Journal of Magnetic Resonance |
| 1993- | Editorial Board Journal of Biomolecular NMR |
| 1998- | Editorial Board Biochemistry |
| 2001-2015 | Associate Editor Cell |
| 2002-2009 | Editor Quarterly Reviews in Biophysics |
| 1985-1987 | Consultant Hoffmann-LaRoche, Basel |
| 1989- 1993 | Scientific Associate, Chiron, Emeryville |
| 1989-1990 | Consultant Dow Chemicals, Midland |
| 1990-1992 | Consultant Genentech, South San Francisco |
| 1992-1998 | Consultant Procept, Inc., Cambridge |
| 1992-1999 | Consultant Vertex Pharmaceuticals, Cambridge |
| 1994-1997 | Consultant Pfizer |
| 1997-1998 | Consultant Dyax, Cambridge |
| 1998-2003 | Scientific Advisory Board Enanta Pharmaceuticals, Cambridge |
| 1994-1997 | Advisory Board Brookhaven Protein Data Bank |
| 1995-1998 | Advisory Board Francis Bitter Magnet Lab, MIT |
| 1995-1998 | Executive Committee Experimental NMR Conference |
| 1995-1996 | External Advisory Committee for the UCLA-DOE Laboratory of Structural Biology and Molecular Medicine |
| 1999 | Advisory Board "Protein Folds Project" RIKEN, Tokyo |
| 1995 | Organizer Keystone Symposium: Frontiers of NMR in Molecular Biology IV |
| 1997 | Organizer Keystone Symposium: Frontiers of NMR in Molecular Biology V |
| 1999 | Organizer Keystone Symposium: Frontiers of NMR in Molecular Biology VI |
| 2002-2007 | Member NIH Protein Structure Initiative Advisory Committee |
| 2006 | Co-organizer Cold Spring Harbor Symposium on Translational Control |
| 2008 | Co-organizer Keystone Symposium: Structural Biology |

2011- ISMAR nominating committee
2013 Organizer Keystone Symposium: Frontiers of NMR in Biology
2013 Visiting Professor University of Melbourne Australia

Honors, awards and named lectures

1970-1974 Fellowship Studienstiftung des Deutschen Volkes
1977 ETH Award for PhD Thesis
1992 Zürich Protein Lecture, ETH Zürich
1995/96 Wellcome Visiting Professor in Basic Medical Sciences, Kansas State University
1998 The Wellcome Lecture in Structural Biology, Kansas State University
2000 Elected Fellow to American Association for the Advancement of Science
2003 The Cleveland Structural Biology Lecture
2004 Eastern Analytical Symposium Achievement Award in Magnetic Resonance
2005 Elected Member to Deutsche Akademie der Naturforscher Leopoldina (German National Academy)
2008 Elected Fellow to the International Society of Magnetic Resonance
2011 Stein and Moore Award of the Protein Society
2011 Agilent Thought Leader Award
2012 Mill Hill Lecture 2012
2013 Elected member of the National Academy of Sciences (US)
2013 Harvard-Australia Fellowship
2015 Elected member of the American Academy of Arts and Sciences
2018 Laukien Prize of the Experimental NMR Conference (ENC)

Memberships

American Chemical Society
American Society for the Advancement of Science
American Society for Biochemistry and Molecular Biology
Protein Society
American Biophysical Society
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Publications

1. A. Mayer, G. Wagner, H. Uebelhack, H. Formanek, F. Parak, P. Schlecht and H. Eicher: Mössbauer studies on the electronic structure of ferrous iron in hemoglobin. Proc. of the 1st European Congress on Biophysics. Baden, Austria, Vol. VI, Y14 D9 (1971) (Abstract).
2. A. Bundi, C. Grathwohl, J. Hochmann, R.M. Keller, G. Wagner and K. Wüthrich: Proton NMR of the Protected Tetrapeptides TFA-Gly-Gly-L-Ala-O-CH₃, where X stands for one of the 20 common amino acids. J. Magn. Reson. **18**, 191 (1975).
3. K. Wüthrich and G. Wagner: NMR investigations of the dynamics of the aromatic amino acid residues in the basic pancreatic trypsin inhibitor. FEBS Lett. **50**, 265-268 (1975).
4. K. Wüthrich, J. Hochmann, R.M. Keller, G. Wagner, M. Brunori and G. Giacometti: ¹H NMR relaxation in high spin ferrous hemoproteins. J. Magn. Reson. **19**, 111 (1975).
5. G. Wagner and K. Wüthrich: Proton NMR studies of the aromatic residues in the basic pancreatic trypsin inhibitor (BPTI). J. Magn. Reson. **20**, 435 (1975).

6. G. Wagner, A. DeMarco and K. Wüthrich: Convolution difference spectra at 360 MHz of the basic pancreatic trypsin inhibitor. *J. Magn. Reson.* **20**, 565 (1975).
7. K. Wüthrich and G. Wagner: High resolution NMR studies of the molecular dynamics of proteins in solution. *Experientia* **31**, 726 (1975) (Abstract).
8. L.R. Brown, A. DeMarco, G. Wagner and K. Wüthrich: A study of the lysyl residues in the basic pancreatic trypsin inhibitor using ^1H NMR at 360 MHz. *Eur. J. Biochem.* **62**, 103 (1976).
9. G. Wagner and K. Wüthrich: ^1H NMR studies of the dynamics of the solution conformation of the basic pancreatic trypsin inhibitor (BPTI). *Proc. XXIII Coll.-Protides of the Biological Fluids*. London: Pergamon Press, 186 (1976).
10. K. Wüthrich, G. Wagner and H. Tschesche: Comparative ^1H NMR studies of the cow colostrum trypsin inhibitor (CTI), the trypsin inhibitor of *Helix pomatia* (HPI) and the basic pancreatic trypsin inhibitor (BPTI). *Proc. XXIII Coll.-Protides of the Biological Fluids*. London: Pergamon Press, 201 (1976).
11. G. Wagner, A. DeMarco and K. Wüthrich: Dynamics of the aromatic amino acid residues in the globular conformation of the basic pancreatic trypsin inhibitor (BPTI). I. ^1H NMR studies. *Biophys. Struct. Mechanism.* **2**, 139 (1976).
12. K. Wüthrich, G. Wagner and A. DeMarco: NMR Studien der molekularen Dynamik von globulären Proteinen in Lösung: BPTI. *Experientia* **32**, 802 (1977) (Abstract).
13. G. Wagner, R. Richarz and K. Wüthrich: pH dependent changes of breathing modes in a globular protein. *Experientia* **33**, 802 (1977) (Abstract).
14. K. Wüthrich, G. Wagner, R. Richarz and A. DeMarco: Completion of X-ray structures of proteins by high resolution NMR. In "NMR in Biology" (R.A. Dwek, I.D. Campbell, R.E. Richards and R.J.P. Williams, eds.) Academic Press, London, 51 (1977).
15. A. DeMarco, H. Tschesche, G. Wagner and K. Wüthrich: ^1H NMR studies at 360 MHz of the methyl groups in native and chemically modified basic pancreatic trypsin inhibitor (BPTI). *Biophys. Struct. Mechanism* **3**, 303 (1977).
16. G. Wagner, K. Wüthrich and H. Tschesche: ^1H NMR study of the conformation and the molecular dynamics of the glycoprotein cow colostrum trypsin inhibitor. *Eur. J. Biochem.* **86**, 67-76 (1978).
17. G. Wagner, K. Wüthrich and H. Tschesche: A ^1H NMR study of the solution conformation of the iso-inhibitor K from *Helix pomatia*. *Eur. J. Biochem.* **89**, 367-377 (1978).
18. L.R. Brown, A. DeMarco, R. Richarz, G. Wagner and K. Wüthrich: The influence of a single salt bridge on the static and dynamic features of the globular solution conformation of the basic pancreatic trypsin inhibitor: ^1H and ^{13}C NMR studies of the native and transaminated inhibitor. *Eur. J. Biochem.* **88**, 87-95 (1978).
19. K. Wüthrich, G. Wagner, R. Richarz and S.J. Perkins: Individual assignments of the methyl resonances in the ^1H NMR spectrum of the basic pancreatic trypsin inhibitor (BPTI). *Biochemistry* **17**, 2253-2263 (1978).

20. K. Wüthrich and G. Wagner: Dynamic aspects of protein conformation studied by nuclear magnetic resonance techniques - Evidence for hydrophobic stability domains in globular proteins. Proc. Intern. Symp. on Biomolecular Structure, Conformation, Function and Evolution, Madras, 1978, (R. Srinivasan, ed.) Pergamon Press, Oxford, Vol. **2**, 23 (1980).
21. K. Wüthrich, G. Wagner and A. Bundi: NMR studies of molecular dynamics of peptides and proteins. In "Nuclear Magnetic Resonance Spectroscopy in Molecular Biology", Proceedings of the 11th Jerusalem Symposium on Quantum Chemistry and Biochemistry (B. Pullman, ed.) Reidel, Dodrecht, Holland, pp. 201-210 (1978).
22. G. Wagner and K. Wüthrich: Dynamic model of globular protein conformations based on NMR studies in solution. *Nature* **275**, 247-248 (1978).
23. K. Wüthrich and G. Wagner: Internal motions in globular proteins. *Trends in Biochemical Sciences* **3**, 227-230 (1978).
24. K. Wüthrich, G. Wagner and R. Richarz: A dynamic model for globular protein conformations based on high resolution proton NMR data. In "Protein: Structure, Function and Industrial Applications". Proceedings of the 12th FEBS Meeting in Dresden (Hofmann et al., eds.), Pergamon Press, Oxford, England, **52**, 143-152 (1979).
25. A. Dubs, G. Wagner and K. Wüthrich: Individual assignments of amide proton resonances in the proton NMR spectrum of the basic pancreatic trypsin inhibitor. *Biochim. Biophys. Acta* **577**, 177-194 (1979).
26. G. Wagner and K. Wüthrich: Truncated driven nuclear overhauser effect (TOE). A new technique for studies of selective ^1H - ^1H Overhauser effects in the presence of spin diffusion. *J. Magn. Reson.* **33**, 675-680 (1979).
27. G. Wagner, H. Tschesche and K. Wüthrich: The influence of a localized chemical modification of the basic pancreatic trypsin inhibitor on static and dynamic aspects of the molecular conformation in solution. *Eur. J. Biochem.* **95**, 239-248 (1979).
28. G. Wagner, A.J. Kalb and K. Wüthrich: Conformational studies by ^1H NMR of the basic pancreatic trypsin inhibitor after reduction of the disulfide bond 14-38. Influence of charged protecting groups on the stability of the protein. *Eur. J. Biochem.* **95**, 249-253 (1979).
29. H. Roder, R. Richarz, G. Wagner and K. Wüthrich: NMR studies of the reversible thermal denaturation of the basic pancreatic trypsin inhibitor. *Experientia* **35**, 942 (1979) (Abstract).
30. K. Wüthrich and G. Wagner: Nuclear magnetic resonance of labile protons in the basic pancreatic trypsin inhibitor. *J. Mol. Biol.* **130**, 1-18 (1979).
31. R. Richarz, P. Sehr, G. Wagner and K. Wüthrich: Kinetics of the exchange of individual amide protons in the basic pancreatic trypsin inhibitor. *J. Mol. Biol.* **130**, 19-30 (1979).
32. G. Wagner and K. Wüthrich: Correlation between the amide proton exchange rates and the denaturation temperature in globular proteins related to the basic pancreatic trypsin inhibitor. *J. Mol. Biol.* **130**, 31-37 (1979).
33. G. Wagner and K. Wüthrich: Structural interpretation of the amide proton exchange in the basic pancreatic trypsin inhibitor and related proteins. *J. Mol. Biol.* **134**, 75-94 (1979).

34. K. Wüthrich, H. Roder and G. Wagner: Internal Mobility and Unfolding of Globular Proteins. In "Protein Folding" (R. Jaenicke, ed.), Elsevier/North Holland Biomedical Press. 549-564 (1980).
35. K. Wüthrich, G. Wagner, R. Richarz and W. Braun: Correlation between Internal Mobility and Stability of Globular Proteins. *Biophysical J.* **32**, 549-560 (1980).
36. G. Wagner: Activation Volumes ΔV^\ddagger for the Rotational Flips of Internal Aromatic Rings in Globular Proteins, Determined by High Resolution 360 MHz ^1H NMR at Variable Pressure. *Experientia* **36**, 735 (1980) (Abstract).
37. G. Wagner: Activation Volumes for the Rotational Motion of Interior Aromatic Rings in Globular Proteins Determined by High Resolution ^1H NMR at Variable Pressure. *FEBS Letters* **112**, 280-284 (1980).
38. G. Wagner: A Novel Application of Nuclear Overhauser Enhancement (NOE) in Proteins: Analysis of Correlated Events in the Exchange of Internal Labile Protons. *Biochem. Biophys. Res. Comm.* **97**, 614-620 (1980).
39. K. Wüthrich, A. Eugster and G. Wagner: $p^2\text{H}$ Dependence of the Exchange with the Solvent of Interior Amide Protons in Basic Pancreatic Trypsin Inhibitor Modified by Reduction of the Disulfide Bond 14-38. *J. Mol. Biol.* **144**, 601-604 (1980).
40. A. Kumar, G. Wagner, R.R. Ernst and K. Wüthrich: Studies of J-Connectivities and Selective ^1H - ^1H Overhauser Effects in H_2O Solutions of Biological Macromolecules by Two-Dimensional NMR Experiments. *Biochem. Biophys. Res. Comm.* **96**, 1156-1163 (1980).
41. G. Wagner: Examples of Exchange Phenomena in the Basic Pancreatic Trypsin Inhibitor. In "Protein Dynamics and Energy Transduction", Proc. of the VIth Taniguchi International Symposium, Biophysics Division, Sanda, Japan (ed. S. Ishiwata), 56-82 (1980).
42. G. Wagner, A. Kumar and K. Wüthrich: Systematic Application of Two-Dimensional ^1H NMR Techniques for Studies of Proteins 2. Combined use of Correlated Spectroscopy and Nuclear Overhauser Spectroscopy for Sequential Assignments of Backbone Resonances and Elucidation of Secondary Structures. *Eur. J. Biochem.* **114**, 375-384 (1981).
43. A. Kumar, G. Wagner, R.R. Ernst and K. Wüthrich: Build-up Rates of the Nuclear Overhauser Effects Measured by Two-Dimensional Proton Magnetic Resonance Spectroscopy: Implications for Studies of Protein Conformation. *J. Am. Chem. Soc.* **103**, 3654-3658 (1981).
44. G. Wagner: Internal Mobility in Globular Proteins. *Comments Mol. Cell. Biophys.* **1**, 261-280 (1982).
45. K. Wüthrich, G. Wider, G. Wagner and W. Braun: Sequential Resonance Assignments as a Basis for Determination of Spatial Protein Structures by High Resolution Proton Nuclear Magnetic Resonance. *J. Mol. Biol.* **155**, 311-319 (1982).
46. G. Wagner and K. Wüthrich: Sequential Resonance Assignments in Protein ^1H NMR Spectra: Basic Pancreatic Trypsin Inhibitor *J. Mol. Biol.* **155**, 347-366 (1982).
47. K. Wüthrich and G. Wagner: NMR Studies of Concerted Motions in the Interior and on the Surface of Globular Proteins. Proc. Ciba Foundation Symposium on Internal Motions in Proteins, London, 1982, pp. 310-328 (1982).

48. G. Wagner and K. Wüthrich: Amide Proton Exchange and Surface Conformation of the Basic Pancreatic Trypsin Inhibitor (BPTI) in Solution: Studies with Two-Dimensional Nuclear Magnetic Resonance. *J. Mol. Biol.* **160**, 343-361 (1982).
49. G. Wagner and K. Wüthrich: Dynamik von Proteinstrukturen. *Naturwissenschaften* **70**, 105-114 (1983).
50. G. Wagner: Characterization of the distribution of internal motions in the basic pancreatic trypsin inhibitor using a large number of internal NMR probes. *Quart. Rev. Biophys.* **16**, 1-57 (1983).
51. G. Wagner, A. Pardi and K. Wüthrich: Hydrogen bond length and ^1H NMR chemical shifts in proteins. *J. Am. Chem. Soc.* **105**, 5948-5949 (1983).
52. G. Wagner and E.R.P. Zuiderweg: Two-dimensional double quantum ^1H NMR spectroscopy of proteins. *Biochem. Biophys. Res. Comm.* **113**, 854-860 (1983).
53. G. Wagner: Two-dimensional relayed coherence transfer spectroscopy of a protein. *J. Magn. Reson.* **55**, 151-156 (1983).
54. A. Pardi, G. Wagner and K. Wüthrich: Protein conformation and proton nuclear magnetic resonance chemical shifts. *Eur. J. Biochem.* **137**, 445-454 (1983).
55. M. Rance, O.W. Sørensen, G. Bodenhausen, G. Wagner, R.R Ernst and K. Wüthrich: Improved spectral resolution in COSY ^1H NMR spectra of proteins via double quantum filtering. *Biochem. Biophys. Res. Comm.* **117**, 479-485 (1983).
56. M. Rance, G. Wagner, O.W. Sørensen, K. Wüthrich and R.R. Ernst: Application of w_1 -decoupled 2D correlation spectra to the study of proteins. *J. Magn. Reson.* **59**, 250-261 (1984).
57. G. Wagner: 2D relayed coherence transfer-NOE spectroscopy (relayed NOESY). *J. Magn. Reson.* **57**, 497-505 (1984).
58. D. Neuhaus, G. Wider, G. Wagner and K. Wüthrich: X-relayed ^1H - ^1H correlated spectroscopy. *J. Magn. Reson.* **57**, 164-168 (1984).
59. G. Wagner and K. Wüthrich: Observation of internal motility of proteins by nuclear magnetic resonance in solution. *Methods in Enzymology*, **131**, 307-326 (1986)
60. K. Wüthrich and G. Wagner: Internal dynamics in proteins. *Trends Biochem. Sci.* **9**, 152-154 (1984).
61. D. Neuhaus, G. Wagner, M. Vasak, J.H.R. Kägi and K. Wüthrich: ^{113}Cd - ^1H spin-spin couplings in homonuclear ^1H correlated spectroscopy of metallothionein. Identification of cysteine ^1H spin systems. *Eur. J. Biochem.* **14**, 659-667 (1984).
62. C.I. Stassinopoulou, G. Wagner and K. Wüthrich: Two-dimensional ^1H NMR of two chemically modified analogs of the basic pancreatic trypsin inhibitor. Sequence specific resonance assignments and sequence location of conformation changes relative to the native protein. *Eur. J. Biochem.* **145**, 423-430 (1984).
63. G. Wagner, C.I. Stassinopoulou and K. Wüthrich: Amide proton exchange studies by two-dimensional correlated ^1H NMR in two chemically modified analogs of the basic pancreatic trypsin inhibitor. *Eur. J. Biochem.* **145**, 431-436 (1984).

64. G. Bodenhausen, G. Wagner, M. Rance, O.W. Sørensen, K. Wüthrich and R.R. Ernst: Longitudinal two-spin order in 2D exchange spectroscopy (NOESY) *J. Magn. Reson.* **59**, 542-550 (1984).
65. M. Rance, G. Bodenhausen, G. Wagner, K. Wüthrich and R.R. Ernst: A systematic approach to the suppression of J cross-peaks in 2D exchange spectroscopy. *J. Magn. Reson.* **62**, 497-510 (1985).
66. H. Roder, G. Wagner and K. Wüthrich: Individual amide proton exchange rates in thermally unfolded basic pancreatic trypsin inhibitor. *Biochemistry*, **24**, 7407-7411 (1985).
67. H. Roder, G. Wagner and K. Wüthrich: Amide proton exchange in proteins by EX₁ kinetics: Studies of the basic pancreatic trypsin inhibitor at various p²H and temperature. *Biochemistry*, **24**, 7396-7407 (1985).
68. W. Denk, G. Wagner, M. Rance and K. Wüthrich: Combined suppression of diagonal peaks and t₁-ridges in two-dimensional nuclear Overhauser enhancement spectra. *J. Magn. Reson.* **62**, 350-355 (1985).
69. G. Wagner, G. Bodenhausen, N. Müller, M. Rance, O.W. Sørensen, R.R. Ernst and K. Wüthrich: Exchange of two-spin order in nuclear magnetic resonance: separation of exchange and cross relaxation processes. *J. Am. Chem. Soc.*, **107**, 6440-6446 (1985).
70. D. Neuhaus, G. Wagner, M. Vasak, J.H.R. Kägi and K. Wüthrich: Systematic application of high resolution, phase sensitive two-dimensional ¹H NMR techniques for the identification of the amino acid proton spin systems in proteins: rabbit liver metallothionein-2. *Eur. J. Biochem.*, **151**, 257-273 (1985).
71. M.H. Frey, G. Wagner, M. Vasak, O.W. Sørensen, D. Neuhaus, E. Wörgötter, J.H.R. Kägi and K. Wüthrich: Polypeptide-metal cluster connectivities in metallothionein-2 by novel ¹H-¹¹³Cd heteronuclear two-dimensional NMR experiments. *J. Am. Chem. Soc.*, **107**, 6847-6851 (1985).
72. W. Braun, G. Wagner, E. Wörgötter, M. Vasak, J.H.R. Kägi and K. Wüthrich: Polypeptide fold in the two metal cluster of metallothionein-2 by nuclear magnetic resonance in solution *J. Mol. Biol.*, **187**, 125-129 (1986).
73. G. Wagner, D. Neuhaus, E. Wörgötter, M. Vasak, J.H.R. Kägi and K. Wüthrich: Nuclear Magnetic Resonance identification of "half-turn" and ₃₁₀-helix secondary structures in rabbit liver metallothionein-2. *J. Mol. Biol.*, **187**, 131-135 (1986).
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75. G. Otting, H. Widmer, G. Wagner and K. Wüthrich: t₁- and t₂-ridges in 2D-NMR Spectra: Origin and Procedures for Suppression. *J. Magn. Reson.*, **66**, 187-193 (1986).
76. W. Denk, R. Baumann and G. Wagner: Quantitative evaluation of cross peak intensities by projection of two-dimensional NOE spectra on a linear space spanned by a set of reference resonance lines. *J. Magn. Reson.*, **67**, 386-390 (1986).
77. G. Wagner, M.H. Frey, D. Neuhaus, E. Wörgötter, W. Braun, M. Vasak, J.H.R. Kägi and K. Wüthrich: Spatial Structure of Rabbit Liver Metallothionein-2 in Solution by NMR. *Proc. 2nd International Meeting on Metallothionein*, Zürich, Aug. 1985, Birkhäuser Verlag, Basel, pp. 149-157.

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80. G. Wagner and D. Brühwiler: Toward the complete assignment of the carbon Nuclear Magnetic Resonance spectrum of the basic pancreatic trypsin inhibitor. *Biochemistry*, **25**, 5839-5843 (1986).
81. G. Wagner, W. Braun, T. Havel, T. Schaumann, N. Go and K. Wüthrich: Protein Structures in Solution by Nuclear Magnetic Resonance and Distance Geometry. The Polypeptide Fold of the Basic Pancreatic Trypsin Inhibitor Determined using Two Different Algorithms, DISGEO and DISMAN. *J. Mol. Biol.*, **196**, 611-639 (1987).
82. G. Otting, H. Senn, G. Wagner and K. Wüthrich: Editing of 2D ^1H NMR spectra Using X Half-Filters: Combined Use with Residue Selective ^{15}N -Labeling of Proteins. *J. Magn. Reson.*, **70**, 500-505 (1986).
83. G. Wagner and K. Wüthrich: Reply to the Comments on "Amide Proton Exchange Studies by two-dimensional correlated ^1H NMR in two chemically modified analogs of the basic pancreatic trypsin inhibitor". *Eur. J. Biochem.* **157**, 617-618 (1987).
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86. G. Wagner, D. Brühwiler and K. Wüthrich: Reinvestigation of the aromatic side chains in the basic pancreatic trypsin inhibitor by heteronuclear two-dimensional nuclear magnetic resonance. *J. Mol. Biol.* **196**, 227-231 (1987).
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89. H. Widmer, G. Wagner, H. Schweitz, M. Lazdunski and K. Wüthrich: The secondary structure of the toxin ATX Ia from *Anemonia sulcata* in aqueous solution determined on the basis of complete sequence specific ^1H NMR assignments. *Eur. J. Biochem.* , **171**, 177-192 (1988).
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101. G.T. Montelione and G. Wagner: Accurate Measurements of Homonuclear H^N-H ^{α} Coupling Constants in Polypeptides Using Heteronuclear 2D NMR Experiments. *J. Am. Chem. Soc.*, **111**, 5474-5475 (1989).
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