

Curriculum Vitae
Alanna Schepartz

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Born: January 9, 1962, NYC

Education

1982 B.S., Chemistry; State University of New York, Albany, NY (with S. Bank)
1987 Ph.D., Chemistry; Columbia University, New York, NY (with R. Breslow)

Professional

California Institute of Technology

1986-1988 National Institutes of Health Postdoctoral Fellow (with P.B. Dervan)

Yale University

1988 Assistant Professor of Chemistry
1992 Associate Professor of Chemistry
1994 Milton Harris, '29 Ph.D. Associate Professor of Chemistry
1995 Professor of Chemistry
2000-2017 Milton Harris, '29 Ph.D. Professor of Chemistry
2001-2019 Professor of Molecular, Cellular and Developmental Biology
2002-2007 Howard Hughes Medical Institute Professor
2011-2014 Director, Yale Chemical Biology Institute
2017-2019 Sterling Professor of Chemistry

University of California, Berkeley

2019-present T. Z. and Irmgard Chu Distinguished Chair in Chemistry
2019-present Professor of Molecular and Cellular Biology
2019-present Faculty Affiliate, California Institute for Quantitative Biosciences
2021-present Chan-Zuckerberg Investigator
2022-2023 Miller Institute Faculty Fellow

Awards and Honors

SUNY@Albany

1982 Presidential Award for Undergraduate Research

Columbia University

- 1983 Award for Excellence in Teaching
- 1986 Pegram Award for Graduate Research

California Institute of Technology

- 1987 N.I.H. Postdoctoral Fellowship

Yale University

- 1990 David and Lucile Packard Foundation Fellow
- 1991 Eli Lilly Biochemistry Fellow
- 1991 Morse Faculty Fellow, Yale University
- 1991 National Science Foundation Presidential Young Investigator Award
- 1993 Camille and Henry Dreyfus Teacher-Scholar Award
- 1994 Alfred P. Sloan Research Fellowship
- 1995 Invited Lecturer, National Organic Symposium
- 1995 A.C.S. Arthur C. Cope Scholar Award
- 1997 A.C.S. Eli Lilly Award in Biological Chemistry
- 1998-2001 Chair, N.I.H. Study Section on Natural Products and Bioorganic Chemistry
- 1999 Dylan Hixon '88 Award for Teaching Excellence in the Natural Sciences
- 2002 Agnes Fay Morgan Research Award, Iota Sigma Pi
- 2002-2007 Howard Hughes Medical Institute Professor
- 2003 Fellow, American Association for the Advancement of Science
- 2003-2005 Editorial Advisory Board, Journal of the American Chemical Society
- 2005 Invited Lecturer, National Organic Symposium
- 2008 Frank H. Westheimer Prize Medal, Harvard University
- 2010 A.C.S. Chemical Biology Prize & Prize Lecture (inaugural recipient)
- 2010 Alexander M. Cruickshank Prize
- 2010 Elected Fellow, American Academy of Arts & Sciences
- 2010 Elected Fellow, American Chemical Society
- 2012 A.C.S. Ronald Breslow Award for Achievement in Biomimetic Chemistry
- 2014 Elected Member, National Academy of Sciences
- 2015 Elected Member, Connecticut Academy of Science and Engineering
- 2015 Wheland Prize Medal, University of Chicago
- 2016 Editor-in-Chief, Biochemistry
- 2017 Sterling Professor, Yale University
- 2018 Inspiring Yale Award, Yale University
- 2018 Journal Rejuvenation Award, ACS Publications

University of California, Berkeley

- 2019-present T. Z. and Irmgard Chu Distinguished Chair in Chemistry
- 2020 ACS Ralph F. Hirschmann Award in Peptide Chemistry
- 2020 Streck Award in Chemical Biology, University of Nebraska-Lincoln
- 2021 Vincent du Vigneaud Award, American Peptide Society

2021	Mertes Award, University of Kansas
2022	Chan Zuckerberg Institute Investigator
2022-2023	Miller Institute Faculty Fellow
2023	ARC Institute Innovation Investigator

Ancillary Professional Activities

1995-1996	Member, Organizing Committee, Symposium on the Frontiers of Science
1995-1996	Co-organizer, Symposium on the Chemistry of Gene Regulation, Biological Chemistry Division, American Chemical Society
1995-1998	Member, N.I.H. Study Section on Bioorganic and Natural Products Chemistry
1998-2000	Chair, N.I.H. Study Section on Bioorganic and Natural Products Chemistry
2000	Invited Participant, Presidents Workshop on Gender Equity in Academic Science, MIT
2003-2010	Executive Board, Yale University Center for Genomics and Proteomics
2003-2010	Co-Director, Yale University Center for Chemical Genomics
2008	Advisory Board, <i>Faculty of 1000 Medicine Reports</i>
2009	Co-organizer, Symposium on Seeing Inside Cells, Biological Chemistry Division, American Chemical Society
2008-2013	Member, Searle Scholars Advisory Board Committee
2009-2011	Chair, Yale Chemical Biology Institute Advisory Committee
2010-2013	Chair, Searle Scholars Advisory Board
2010-2019	Member, Yale Comprehensive Cancer Center
2015	Member, Harvard FAS Life Sciences Review Committee
2015-2016	Selection Committee, Wolf Foundation Prize in Chemistry
2016	Member, Princeton Academic Review Committee (Department of Chemistry)
2016-2020	Member, PacifiChem Advisory Board
2017	Member, Harvard Academic Review Committee (Department of Chemistry and Chemical Biology)
2017-2022	Member, Max Planck Institute Scientific Advisory Board
2018	Chair, National Academy of Sciences Award in Chemical Sciences Selection Committee
2019	Member, 2019 National Academy of Sciences Class Membership Committee
2022-2023	Member, Planning Committee, Department of Chemistry, UC Berkeley

Editorial Activities

1994-2016	Editorial Board, <i>Chemistry & Biology</i>
1997-1998	Co-Editor, Interactions, Assembly and Processing, <i>Current Opinion Chemical Biology</i>
1997-present	Editorial Board, <i>Current Opinion in Chemical Biology</i>
2005-2016	Associate Editor, <i>Journal of the American Chemical Society</i>
2012	Co-Editor, Molecular Imaging, <i>Current Opinion Chemical Biology</i>
2013	Co-Editor, Supramolecular Chemistry, <i>Israel Journal of Chemistry</i>

2016-present	Editorial Board, <i>Cell Chemical Biology</i>
2016-present	Editor-in-Chief, <i>Biochemistry</i>
2019-2021	Editorial Committee, <i>Annual Review of Biochemistry</i>

Publications

1. Substituent Effect on the Electrochemical Oxidation of Arylmethyl Anions. 3. Effect of Methyl Substitution on Diarylmethyl Anions. S. Bank, A. Schepartz, P. Giammateo, J. Zubietta, *J. Org. Chem.* **1983**, *48*, 3458-3464.
2. Hydrolysis of an Amide in a Carboxypeptidase Model Using Co(III) and Bifunctional Catalysts. A. Schepartz & R. Breslow, *J. Am. Chem. Soc.* **1987**, *109*, 1814-1826.
3. On the Mechanism of Peptide Cleavage by Carboxypeptidase A and Related Enzymes. R. Breslow & A. Schepartz, *Chem. Lett.* **1987**, 1-4.
4. Self-Assembling Ionophores. A. Schepartz & J.P. McDevitt, *J. Am. Chem. Soc.* **1989**, *111*, 5976-5977.
5. Site-Specific Cleavage of the Protein Calmodulin Using a Trifluoperazine-Based Affinity Reagent. A. Schepartz & B. Cuenoud, *J. Am. Chem. Soc.* **1990**, *112*, 3247-3249.
6. Synthesis of α -BOC- ϵ -EDTA-Lysine Tribenzyl Ester. An Amino Acid Analog Suitable for Solid Phase Peptide Synthesis. B. Cuenoud & A. Schepartz, *Tetrahedron* **1991**, *47*, 2535-2542.
7. Tethered Oligonucleotide Probes. A Strategy for the Recognition of Structured RNA. P. Richardson & A. Schepartz, *J. Am. Chem. Soc.* **1991**, *113*, 5109-5111.
8. Polyether Tethered Oligonucleotide Probes. S.T. Cload & A. Schepartz, *J. Am. Chem. Soc.* **1991**, *113*, 6324-6326.
9. A General Scheme for Incorporating Nonnatural Functionality into Peptides. B. Cuenoud & A. Schepartz, *Tetrahedron Lett.* **1991**, *32*, 3325-3328.
10. Binding of alkali-metal cations by self-assembling ionophore complexes of Nickel(II). M.W. Jones, N. Gupta, A. Schepartz & H. Thorpe, *Inorg. Chem.* **1992**, *31*, 1308-1310.
11. A New Strategy for Directed Protein Cleavage. B. Cuenoud, T. Tarasow & A. Schepartz, *Tetrahedron Lett.* **1992**, *33*, 895-898.
12. Conformation-Dependent Cleavage of Staphylococcal Nuclease with a Disulfide-Linked Iron Chelate. M. Ermacora, J.M. Delfino, B. Cuenoud, A. Schepartz & R.O. Fox, *Proc. Natl. Acad. Sci. USA* **1992**, *89*, 6383-6387.
13. Protein-Cleavage Mapping: A New Tool for Drug Discovery and Protein Folding Studies. M. Hayward & A. Schepartz, in *Perspectives in Medicinal Chemistry*, B. Testa, E. Kyburz, W. Fuhrer, R. Giger, Eds., Verlag: Basel, **1993**, p. 501-512.
14. Design of a Metallo-bZIP Peptide that Discriminates Between CRE and AP1 Target Sites: Selection Against AP1. B. Cuenoud & A. Schepartz, *Proc. Natl. Acad. Sci. USA* **1993**, *90*, 1154-1159.
15. Altered Specificity of DNA-Binding Proteins with Transition Metal Dimerization Domains. B. Cuenoud & A. Schepartz, *Science* **1993**, *259*, 510-513.
16. Kinetic and Thermodynamic Analysis of RNA Binding by Tethered Oligonucleotide Probes: Alternative Structures and Conformational Changes. S.T. Cload, P.L. Richardson, Y. Huang & A. Schepartz, *J. Am. Chem. Soc.* **1993**, *115*, 5005-5014.

17. Selection of Structure-Specific Inhibitors of the HIV Rev–Rev Response Element Complex. S.T. Cload & A. Schepartz, *J. Am. Chem. Soc.* **1994**, *116*, 437-443.
18. DNA Targets for Certain bZIP Proteins Distinguished by an Intrinsic Bend. D.N. Paoella, C.R. Palmer & A. Schepartz, *Science* **1994**, *264*, 1130-1133.
19. Mapping RNA Regions in Eukaryotic Ribosomes that are Accessible to Methidiumpropyl-EDTA•Fe(II) and EDTA•Fe(II). H. Han, A. Schepartz, M. Pelligrini & P.B. Dervan, *Biochemistry* **1994**, *33*, 9831-9844.
20. Distribution of Labor Among bZIP Segments in the Control of DNA Affinity and Specificity. S.J. Metallo & A. Schepartz, *Chem. Biol.* **1994**, *1*, 143-151.
21. A Uniquely Modified RNA: Introduction of a Single RNA Cleavage Agent into the M1 Ribozyme. P.L. Richardson, M.L. Gross, R.D. Smith, K.J. Light-Wahl, R.D. Smith & A. Schepartz, *Bio. Med. Chem. Lett.* **1994**, *4*, 2133-2138.
22. Mechanistic Studies on the Formation of bZIP•DNA Interfaces: A Simple Example of Supramolecular Stereochemistry. D.N. Paoella, C.R. Palmer, S.J. Metallo & A. Schepartz, in *Supramolecular Stereochemistry*, J. Siegel, Ed. NATO Adv. Ser. **1995**, 83-90.
23. Peptide Models of bZIP Proteins: Quantitative Analysis of DNA Affinity and Specificity. S.J. Metallo & A. Schepartz, *Tech. Protein Chem.* **1995**, *6*, 385-391.
24. Nonspecific DNA Bending and the Specificity of Protein•DNA Interactions. A. Schepartz, *Science* **1995**, *269*, 988-989.
25. Convenient Syntheses of Bifunctional Metal Chelates. M. H. Hayward, J. C. Adrian, Jr. & A. Schepartz, *J. Org. Chem.* **1995**, *60*, 3924-3927.
26. Mechanism of DNA Binding Enhancement by the HTLV-I Transactivator Tax. A.M. Baranger, C.R. Palmer, M.K. Hamm, H. A. Giebler, A. Brauweiler, J.K. Nyborg, & A. Schepartz, *Nature* **1995**, *376*, 606-608.
27. DNA Bending and Binding by Metallo-Peptide Models of bZIP Proteins. C.R. Palmer, L.S. Sloan, J.C. Adrian, Jr., B. Cuenoud, D.N. Paoella & A. Schepartz, *J. Am. Chem. Soc.* **1995**, *117*, 8899-8907.
28. Studies on the Formation of Protein•DNA Interfaces: DNA Specificity and Straightening by CREB. M.K. Hamm & A. Schepartz, *Bio. Med. Chem. Lett.* **1995**, *5*, 1621-1626.
29. Conformation of Tax-response elements in the human T-cell leukemia virus type I promoter. J.M. Cox, L.S. Sloan & A. Schepartz, *Chem. Biol.* **1995**, *2*, 819-826.
30. Triplex Tethered Oligonucleotide Probes. A.C. Moses & A. Schepartz, *J. Am. Chem. Soc.* **1996**, *118*, 10896-10897.
31. Certain bZIP Proteins Bind DNA Sequentially as Monomers and Dimerize on the DNA. S.J. Metallo & A. Schepartz, *Nat. Str. Biol.* **1997**, *4*, 115-117.
32. Inhibition of Rev•RRE Complexation by Triplex Tethered Oligonucleotide Probes. A.C. Moses, S.W. Huang & A. Schepartz, *Bioorg. Med. Chem.* **1997**, *5*, 1123-1129.
33. Electrostatic Mechanism for DNA Bending by bZIP Proteins. D.N. Paoella, Y. Liu & A. Schepartz, *Biochemistry* **1997**, *36*, 10033-10038.
34. Bidirectional Binding of the TATA box binding protein to the TATA Box. J.M. Cox, M.H. Hayward, J.F. Sanchez, L.D. Gagnas, S. van der Zee, J.H. Dennis, P.B. Sigler, & A. Schepartz, *Proc. Natl. Acad. Sci. USA* **1997**, *94*, 13475-13480.

35. The role of a basic amino acid cluster in target site selection and nonspecific binding of bZIP peptides to DNA. S.J. Metallo, D.N. Paoletta, & A. Schepartz, *Nucl. Acids Res.* **1997**, *25*, 2967-2972.
36. Kinetics and Mechanism of RNA Binding by Triplex Tethered Oligonucleotide Probes. A.C. Moses & A. Schepartz, *J. Am. Chem. Soc.* **1997**, *119*, 11591-11597.
37. Evidence for Induced DNA bending by the yeast zinc cluster protein PUT3. P. Hoffmann & A. Schepartz, *Bio. Med. Chem. Lett.* **1997**, *7*, 2049-2054.
38. Mechanism of DNA Binding Enhancement by the Hepatitis B Virus Protein X. C.R. Palmer, L.D. Gegnas, A. Schepartz, *Biochemistry* **1997**, *36*, 15349-15355.
39. Sequence determinants of the intrinsic bend in the cyclic AMP response element. L.S. Sloan & A. Schepartz, *Biochemistry* **1998**, *37*, 7113-7118.
40. Preinitiation complex assembly: Potentially a bumpy path. J.M. Cox, A.R. Kays, J.F. Sanchez & A. Schepartz, *Curr. Op. Chem. Biol.* **1998**, *2*, 11-17.
41. At the chemistry-biology interface. A. Schepartz & P.S. Kim, *Curr. Op. Chem. Biol.* **1998**, *2*, 9-10.
42. Polarity of transcription on Pol II and archaeal promoters: where is the "one-way sign" and how is it read? F.T. Tsai, O. Littlefield, P.F. Kosa, J. M. Cox, A. Schepartz & P.B. Sigler, *Cold Spring Harb. Symp. Quant. Biol.* **1998**, *63*, 53-61.
43. Highly specific DNA recognition by a designed, miniature protein. N.J. Zondlo & A. Schepartz, *J. Am. Chem. Soc.* **1999**, *121*, 6938-6939.
44. DNA specificity enhanced by sequential binding of protein monomers. J.J. Kohler, S.J. Metallo, T.L. Schneider & A. Schepartz, *Proc. Natl. Acad. Sci. USA* **1999**, *96*, 11735-11739.
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48. Concerted evolution of structure and function in a miniature protein. J.W. Chin & A. Schepartz, *J. Am. Chem. Soc.* **2001**, *123*, 2929-2930.
49. Kinetic studies of Fos-Jun-DNA complex formation: DNA binding prior to dimerization. J.J. Kohler & A. Schepartz, *Biochemistry* **2001**, *40*, 130-142.
50. Kinetic Preference for Oriented DNA Binding by the Yeast TATA-Binding Protein TBP. Y. Liu & A. Schepartz, *Biochemistry* **2001**, *40*, 6257-6266.
51. A Roller Coaster Ride of Thrills. A. Schepartz, *Chem. Eng. News* **2001**, 125th Anniversary Issue, *79*, 164.
52. Hepatitis B Virus protein pX enhances monomer assembly pathway of bZIP•DNA complexes. T.L. Schneider & A. Schepartz, *Biochemistry* **2001**, *40*, 2835-2843.
53. Methodology for optimizing functional miniature proteins based on avian pancreatic polypeptide using phage display. J.W. Chin, R.M. Grotzfeld, M.A. Fabian & A. Schepartz, *Bioorg. Med. Chem. Lett.* **2001**, *11*, 1501-1505.

54. Effects of nucleic acids and polyanions on dimer formation and DNA binding by dimeric transcription factors. J.J. Kohler & A. Schepartz, *Bioorg. Med. Chem.* **2001**, *9*, 2435-2443.
55. Design and evolution of a miniature Bcl-2 binding protein. J.W. Chin & A. Schepartz, *Angew. Chem. Int. Ed. Eng.* **2001**, *40*, 3806-3809. **Highlight:** *Science* **2001**, *291*, 2049.
56. Electrostatic Control of Half-Site Spacing Preferences by the cyclic AMP Response Element Binding Protein CREB. J.K. Montclare, L.S. Sloan & A. Schepartz, *Nucl. Acids Res.* **2001**, *29*, 3311-3319.
57. Gal4-VP16 and Gal4-AH increase the orientational and axial specificity of TATA box recognition by TATA box binding protein. A.R. Kays & A. Schepartz, *Biochemistry* **2002**, *41*, 3147-3155. **Highlight:** Faculty of 1000:
<http://www.f1000biology.com/article/id/1006604/evaluation>
58. A View to a Kill: Ligands for Bcl-2 family proteins. S.E. Rutledge, J.W. Chin & A. Schepartz, *Curr. Op. Chem. Biol.* **2002**, *6*, 479-485.
59. Miniature Homeodomains: High specificity without an N-terminal arm. J.K. Montclare & A. Schepartz, *J. Am. Chem. Soc.* **2003**, *125*, 3416-3417.
60. Helix macrodipole control of β^3 -peptide 14-helix stability in water. S.A. Hart, A.B.F. Bahadoor, E.E. Matthews, & A. Schepartz, *J. Am. Chem. Soc.* **2003**, *125*, 4022-4023.
61. Molecular recognition of protein surfaces: High affinity ligands for the CBP KIX domain. S.E. Rutledge, H. M. Volkman & A. Schepartz, *J. Am. Chem. Soc.* **2003**, *125*, 14336-14347.
62. High affinity, paralog-specific recognition of the Mena EVH1 domain by a miniature protein. D. Golemi-Kotra, R. Mahaffy, M.J. Footer, J.H. Holtzman, T.D. Pollard, J.A. Theriot & A. Schepartz, *J. Am. Chem. Soc.* **2004**, *126*, 4-5.
63. Helical β -peptide inhibitors of the p53-hDM2 interaction. J.A. Kritzer, J.D. Lear, M. Hodsdon & A. Schepartz, *J. Am. Chem. Soc.* **2004**, *126*, 9468-9469.
64. Relationship between side chain structure and 14-helix stability of β^3 -peptides in water. J.A. Kritzer, J. Tirado-Rives, S.A. Hart, J.D. Lear, W.L. Jorgensen, & A. Schepartz, *J. Am. Chem. Soc.* **2005**, *127*, 167-178.
65. Paralog-selective ligands for Bcl-2 proteins. A.C. Gemperli, S.E. Rutledge, A. Maranda & A. Schepartz, *J. Am. Chem. Soc.* **2005**, *127*, 1596-1597.
66. Binding mode and transcriptional activation potential of high affinity ligands for the CBP KIX domain. H.M. Volkman, S.E. Rutledge, and A. Schepartz, *J. Am. Chem. Soc.* **2005**, *127*, 4649-4658.
67. β -peptide inhibitors of protein-protein interactions. J.A. Kritzer, O.M. Stephens, D.A. Guarracino. S.K. Reznik & A. Schepartz, *Bio. Med. Chem.* **2005**, *13*, 11-16.
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doi:[10.1039/b510123a](https://doi.org/10.1039/b510123a)
69. Solution Structure of a β -peptide Ligand for hDM2. J.A. Kritzer, M.E. Hodsdon & A. Schepartz, *J. Am. Chem. Soc.* **2005**, *127*, 4118-4119.
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74. Miniature protein inhibitors of the p53•hDM2 interaction. J.A. Kritzer, R. Zutshi, M. Cheah, F.A. Ran, R. Webman, T.M. Wonjirad & A. Schepartz, *ChemBioChem* **2006**, *7*, 29-31.
75. Relationship between salt-bridge identity and 14-helix stability of β^3 -peptides in aqueous buffer. D.A. Guarracino, H.R. Chiang, T.N. Banks, J.D. Lear, M.E. Hodsdon & A. Schepartz, *Org Lett.* **2006**, *8*, 807-810.
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79. Biophysical characterization of a β -peptide bundle: Comparison to natural proteins. E.J. Petersson, C. Craig, D.S. Daniels, J.X. Qiu, & A. Schepartz, *J. Am. Chem. Soc.* **2007**, *129*, 5344-5345. <https://doi.org/10.1021/ja070567g>
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82. Engineering a monomeric miniature protein. A.M. Hodges & A. Schepartz, *J. Am. Chem. Soc.* **2007**, *129*, 11024-11025.
83. Intrinsically cell-permeable miniature proteins based on a minimal cationic PPII motif. D.S. Daniels & A. Schepartz, *J. Am. Chem. Soc.* **2007**, *129*, 14578-14579. **Highlight:** *Chem. Eng. News* **2007**, *85*, 43; **Highlight:** Faculty of 1000 Biology: <http://www.f1000biology.com/article/id/1097219/evaluation>
84. Biophysical and structural characterization of a robust octameric β -peptide bundle. J.L. Goodman, D.S. Daniels, J.X. Qiu, E.J. Petersson & A. Schepartz, *J. Am. Chem. Soc.* **2007**, *129*, 14746-14751.
85. Sophistication of foldamer form and function in vitro and in vivo. A.D. Bautista, C.J. Craig, E.A. Harker, & A. Schepartz, *Current opinion in chemical biology*, **2007**, *11*, 685-692. doi:10.1016/j.cbpa.2007.09.009
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87. Minimally cationic cell-permeable miniature proteins via alpha-helical arginine display. B. Smith, D.S. Daniels, A. Coplin, G. Jordan, & L. McGregor, & A. Schepartz, *J. Am. Chem. Soc.* **2008**, *130*, 2948-2949.
88. Tetrameric β^3 -peptide bundles. J.L. Goodman, M.A. Molski, J. Qui, & A. Schepartz, *ChemBioChem* **2008**, *9*, 1576-1578.
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