

# Charles R. Cantor

## Curriculum Vitae

**Born:** August 26, 1942; Brooklyn, New York

### Education

1963 A.B., Columbia University, *Summa Cum Laude*  
1966 Ph.D., University of California, Berkeley  
Eastman Kodak Award  
Research Sponsor: Prof. I. Tinoco, Jr.

### Employment

1966-1969 Assistant Professor of Chemistry, Columbia University  
1969-1972 Associate Professor of Chemistry, joint appointment in  
Biological Sciences, Columbia University  
1972-1981 Professor of Chemistry, joint appointment in Biological Sciences,  
Columbia University  
1981-1989 Professor and Chairman of Genetics and Development,  
College of Physicians and Surgeons, Columbia University; and  
Deputy Director for Education, 1981-85, Comprehensive Cancer Center;  
Deputy Director for Biotechnology, 1985-88, Comprehensive Cancer  
Center  
1988-1989 Higgins Professor of Genetics and Development, Faculty of Medicine,  
Columbia University  
1988-1990 Director, Human Genome Center, Lawrence Berkeley Laboratory  
1989-1991 Senior Biochemist, Cell and Molecular Biology Division, Lawrence  
Berkeley Laboratory  
1989-1992 Professor of Molecular Biology, University of California, Berkeley  
1990-1992 Principal Scientist, Human Genome Project, U.S. Department of Energy  
1991-1992 Senior Biochemist, Chemical Biodynamics Division, Lawrence Berkeley  
Laboratory  
1992-present Professor of Biomedical Engineering and Biophysics, Boston University  
1992-present Director, Center for Advanced Biotechnology, Boston University  
1994-present Professor, Pharmacology Department, Boston University Medical School  
1995-1998 Chair, Department of Biomedical Engineering, Boston University  
1998-present Chief Scientific Officer, Sequenom, Inc. and Member, Board of Directors  
2001-present Adjunct Professor, Department of Bioengineering, UCSD

### Awards and Honors

1969-1971 Fellow of the Alfred P. Sloan Foundation  
1972 Fresenius Award in Chemistry  
1973-1974 Guggenheim Fellow  
1975-1976 Fairchild Distinguished Visiting Scholar, California Institute of Technology  
1978 Eli Lilly Award in Biological Chemistry  
1981 Fellow of the American Association for the Advancement of Science  
1985 Outstanding Investigator Grant, National Cancer Institute

1988 Biochemical Analysis Prize of the German Society of Clinical Chemistry  
 1988 Member of the National Academy of Sciences  
 1988 Member of the American Academy of Arts and Sciences  
 1989 ISCO Award for Advances in Biochemical Instrumentation  
 1990 Herbert A. Sober Award, American Society for Biochemistry and Molecular Biology  
 1990 Honorary Member, Japanese Biochemical Society  
 1992 Fellow of the California Academy of Sciences  
 2000 Fellow of the Biophysical Society  
 2000 Emily M. Gray Award, Biophysical Society  
 2002 Chief Scientist of the Year, T Sector and BIOCUM  
 2004 The Ohio State University Human Cancer Genetics Program Commemorative Medal for Excellence in Research and Clinical Care

### **Special Lectureships**

1985 Distinguished Lecturer, University of Tennessee  
 1985 Distinguished Lecturer, University of Cincinnati  
 1985 Jesse Beams Lecturer, University of Virginia  
 1986 Barton Lecturer, University of Oklahoma  
 1986 Peter Debye Lecturer, Cornell University  
 1986 Stephanie Lynn Kossoff Memorial Lecturer, Columbia University  
 1987 Reilly Lecturer, Notre Dame University  
 1987 Allied Corporation Lecturer, Waksman Institute  
 1987 Visiting Scholar, Japan Society for the Promotion of Science  
 1988 Veatch Lecturer, Harvard Medical School  
 1988 Sol Spiegelman Lecturer, University of Illinois  
 1989 Steinberg/Wylie Lecturer, University of Maryland  
 1989 Biochemical Society Lecturer, British Association for the Advancement of Science  
 1989 Ronald R. Fisher Lecturer, University of South Carolina  
 1990 Boyce Thompson Distinguished Lecturer, Cornell University  
 1990 Distinguished Lecturer, Oak Ridge National Laboratory  
 1991 Hanna Memorial Lecturer, Case Western Reserve University  
 1991 Distinguished Speaker in Biochemistry and Molecular Biology, University of Wisconsin, Milwaukee  
 1992 Baker Lecturer, Cornell University  
 1992 Special Chair Professor, National Science Council, Republic of China  
 1994 Barnett Lecture in Bioanalytical Chemistry, Northeastern University  
 1996 Douglas G. Hill Memorial Lecturer, Duke University  
 1997 University Lecturer, Boston University  
 1998 Distinguished Lecturer, George Mason University  
 1992 George Burch Memorial Lecture, Association of University Cardiologists  
 2001 Plenary Lecture, Biophysical Society of Taiwan Seventh Annual Symposium on Recent Advances in Biophysics  
 2002 Harvard Morrison Lecture  
 2004 McElvan Lecturer, University of Wisconsin, Madison on Analytical Chemistry

## Professional Affiliations and Service

1971-1975	NIH Study Section, BBCA
1972-1986	Editorial Board, <i>Archives of Biochemistry and Biophysics</i>
1972-1981	Editorial Board, <i>Journal of Molecular Evolution</i>
1972-1992	Editorial Board, <i>Journal of Molecular Biology</i>
1973-1986	Editorial Advisory Board, <i>Biopolymers</i> ; Editorial Board, 1980-83
1973-1988	Editorial Board, <i>Nucleic Acids Research</i>
1974	Co-chairman, Biopolymers Gordon Conference
1974-1992	Harvey Society
1976-1988	Proposal Review Panel, Stanford Synchrotron Radiation Laboratory; Chairman, 1980-88
1976-present	Series Editor, <i>Advanced Textbooks in Chemistry</i> , Springer-Verlag, New York
1977-1981	CMBD Review Committee, NIGMS, NIH; Chairman, 1979-81
1978-1983	Editorial Board, <i>Biochemistry</i>
1978-1983	Board of Trustees, Cold Spring Harbor Laboratory
1978-present	Biophysical Society; Council Member, 1978-81
1979-1981	Nominating Committee, American Chemical Society, Division of Biological Chemistry
1980-1994	Society for Analytical Cytology
1981-1986	Editorial Board, <i>Journal of Biological Chemistry</i>
1982-present	American Society of Biochemistry and Molecular Biology, formerly American Society of Biological Chemists; Nominating Committee, 1982-83
1982-1994	Associate Editor, <i>Annual Review of Biophysics and Biophysical Chemistry</i>
1983-1984	National Research Council Committee on Causes and Effects of Changes in Stratospheric Ozone
1983-1987	Consultant, Syntex Medical Diagnostics
1983-1987	Associate Editor, <i>Journal of Molecular Evolution</i>
1984-1985	Consultant, Lifecodes, Inc., formerly Actagen, Inc.
1984-1988	Editorial Board, <i>Accounts of Chemical Research</i>
1984-1988	Consultant, LKB-Produkter AB
1984-1989	Principal Investigator, Columbia University, Member of MacArthur Foundation Consortium on the Biology of Parasitic Diseases
1984-1995	Advisory Council, Department of Molecular Biology, Princeton University
1984-1986	Scientific Advisory Board, American Cyanamid Company, Wayne, NJ
1984-present	International Union of Biochemistry and Molecular Biology, formerly Nomenclature Commission of the International Union of Biochemistry
1985-1986	Office of Technology Assessment Advisory Panel on Determining Mutation Frequencies in Human Beings
1985-1986	Consultant, Molecular Biophysics Technology, Inc.
1985-1989	National Research Council Committee on Research Opportunities in Biology
1985-1991	Board of Reviewing Editors, <i>Science</i>
1985-present	Consultant, Genelabs, Inc., Redwood City, CA
1985-1994	U.S. National Committee of International Union of Pure and Applied Biophysics; Vice Chairman, 1988-1990; Chairman, 1991-1994
1986	Chairman, Committee for External Review, Department of Genetics, Stanford University
1986-1987	Department of Energy HERAC Subcommittee on the Human Genome
1986-1988	National Research Council Committee on the Human Genome
1986-1989	Council, National Institute of General Medical Sciences, NIH
1986-1989	Visiting Committee for Brookhaven National Laboratory Biology Department

1987-1989 Scientific Advisory Board, Hereditary Disease Foundation  
 1987-1994 Subject Area Editor, *Genomics*  
 1987-1994 Advisory Committee, Searle Scholars Program; Chairman, 1993-1994  
 1987-2000 Scientific and Technical Advisory Board, Prince Ventures Partner, III  
 1988-1991 Co-organizer, Three Cold Spring Harbor Laboratory Meetings on Genome Mapping and Sequencing  
 1988-1996 Scientific Advisory Council, Roswell Park Memorial Institute  
 1988-present Biomedical Advisory Committee, Pittsburgh Supercomputing Center  
 1988-present Cell and Membrane Transport Commission, International Union of Pure and Applied Biophysics  
 1988-1992 Chairman, Department of Energy Human Genome Coordinating Committee; member, 1991-1994  
 1988-present Member, Executive Committee and Founding Council, International Human Genome Organization [HUGO]; Vice President, 1990-present; Chairman, 1991-1995; Chair, HUGO Human Genome Mapping Committee [HGMC]; President, HUGO Americas, 1992-present  
 1988-present Editorial Board, *Current Opinion in Biotechnology*  
 1988-1998 Consultant, Amersham-Pharmacia Biotechnology, formerly Pharmacia LKB Biotechnology AB  
 1989-1990 Member, NAS/NRC Panel on Cooperation with the USSR on Structure of the Eucaryotic Genome and Regulation of its Expression  
 1989-1991 Member, Executive Committee, Human Gene Mapping Workshops  
 1989-present American Society of Human Genetics  
 1989-1992 Co-chair, Human Genome I, II, III meetings  
 1989-1994 Scientific Advisory Committee, European Molecular Biology Laboratory  
 1989-present Advisory Committee, University of Pittsburgh Biotechnology Center  
 1990-1993 Advisory Committee, MacArthur Foundation Program in Parasite Biology  
 1990-1995 Member, Board of Scientific Counselors, National Center for Biotechnology Information [NCBI], National Library of Medicine  
 1990-1998 Member, UNESCO Scientific Coordinating Committee on the Human Genome Project  
 1991-1993 Member, Scientific Advisory Board, Ribogene, Inc.  
 1991-present Member, Advisory Board, Encyclopedia of Molecular Biology and Biotechnology  
 1992-1997 Member, Board of Directors, Chair, Scientific Advisory Board, ATGC/AT Biochem, Inc.  
 1992-2002 Member, Scientific Advisory Board, Aclara, Inc., formerly Soane Technologies, Inc., Hayward, CA  
 1992-1994 Organizer, 1st through 3rd International Conference on Bioinformatics, Supercomputing, and Complex Genome Analysis, Tallahassee, FL  
 1993-2000 Member, Board of Scientific Advisors, Mosaic Technologies, Inc., Boston, MA  
 1993-1998 Member, Plant Genome Science and Technology Coordinating Committee, Department of Agriculture  
 1993-1994 Chair, European Bioinformatics Institute [EBI] Advisory Committee  
 1993-1998 Member, Scientific Advisory Committee, Incyte Pharmaceuticals, Inc., Palo Alto, CA  
 1994-present Member, Advisory Board, Boston University *Journal of Science Technology and Law*  
 1994-1998 Consultant, SEQUENOM, Inc., San Diego, CA  
 1994-present Co-chair, Biotechnology Advisory Committee, Fisher Scientific, Hampton, NH  
 1994-1998 Member, HERAC Genome Project Subcommittee  
 1995-1998 Consultant, Trichor, Boston, MA  
 1996-present Member, Editorial Board, *Biotechniques*

1996-1997 Member, NRC Committee, "Bits of Power"

1996-2000 Consultant, AmberGen, Boston, MA

1996-2002 Member, Advisory Committee, ELBA Foundation, Italy

1997-2000 Member, DARPA Advisory Committee on Biological Warfare Defense

1997-1998 Treasurer, New England Complex Systems Institute

1996-2000 FASEB Consensus Committee on Federal Funding, representing the Biophysical Society; Chair, DOE Subcommittee

1997-present Advisor, Techno Ventures Management, Munich

1996-present Consultant, Caliper, Inc., Palo Alto, CA

1997-2000 Member, The Protein Society

1997-1999 Quest Scholar, Quest Diagnostics, Inc., San Juan Capistrano, CA

1998-present Member, Defense Intelligence Agency Bio 2020 Red Team, Washington, D.C.

1999-present Science Board, GENpathways, formerly CISTem, San Diego, CA

2000-present Board of Directors, Human BioMolecular Research Institute, San Diego, CA

2000-present Consultant, Samsung SAIT, Korea

2002-present Editorial Advisory Board, Oxford University Press

2001-present Editorial Board, *Proceedings of the National Academy of Sciences*

2001-present Editorial Board, *American Journal of Pharmacogenomics*

2001-present Editorial Advisory Board, *Genomics and Proteomics*

2001-present Chairman, Lawrence Livermore National Laboratories BBRP Board

2001-present Dean's Advisory Board, Division of Biology, University of California San Diego

2001-present Industrial Advisory Board, Department of Chemistry and Biochemistry, University of California San Diego

2001-present Sciences Advisory Board, Brandeis University School of Science

2001-present Scientific Advisor, Automated Cell, Pittsburgh, PA

2001-present Board of Directors, Carta Proteomics, San Mateo, CA

2001-present Scientific Advisory Board, Cellicon, Boston, MA

2001-2003 Scientific Advisory Board, GeneFormatics, Inc., San Diego, CA

2001-present Scientific Advisory Board, Odyssey, Inc., San Ramon, CA

2002-present Editorial Team, *Drug Discovery Today*

2002-present Board of Directors, SIGA Technologies, Inc., San Diego, CA

2002-present Board of Directors, Plexus Vaccine, San Diego, CA

2002-present Advisory Committee Member, Stockholm Strategic Research Foundation

2002-present Board of Directors, Molecular Sciences Institute, Berkeley, CA

2002-present Scientific Advisory Board, Rodi Pharmaceuticals, Del Mar, CA

2002-present Scientific Advisory Board, Buffalo Center of Excellence in Bioinformatics

2002-present Founder and Member, Board of Directors, SelectX Pharmaceuticals, Inc., Lexington, MA 02421

2003-present Board of Directors, Human BioMolecular Research Institute, San Diego, CA

2003-present Scientific Advisory Board, Strand Genomics, Bangalore, India

2003-present Member, Editorial Academy, *International Journal of Oncology*, Athens, Greece

2003-present Member, National Advisory Board, Boston University Research Center for Translational Genomics and Human Rights, Boston, MA

2004-present Board of Directors, EXSAR, Monmouth Junction, NJ

2004-present Scientific Advisory Board, GeneGo, St. Joseph, MI

2004-present Scientific Advisory Board, Modular Genetics, Woburn, MA

2004-present Scientific Advisory Board, NuAce Technologies, Ramat-Hasharon Israel

2004-present Scientific Advisory Board, Provid Research, Piscataway, NJ

2004-present Scientific Advisory Board, StructureSpec, La Jolla, CA

2004-present	Scientific Advisory Board, University of Boston, Center for Advanced Biotechnology
2004-present	Scientific Advisory Board, Joint Center for Structural Genomics (JCSG), La Jolla, CA
2004-present	Scientific Advisory Board, UppsalaBio-X, Uppsala, Sweden

## Publications

- Over 400 Journal Articles

### CHARLES R. CANTOR, PH.D. PUBLICATIONS

1. Cantor, C.R., Tinoco Jr., I., and Peller, L. 1964. *Exoenzyme Kinetics with Applications to the Determinations of Nucleotide Sequences*. Biopolymers, 2, 51.
2. Cantor, C.R. and Tinoco Jr., I. 1965. *Absorption and Optical Rotatory Dispersion of Seven Trinucleoside Diphosphates*. J. Mol. Bio. 13, 65-67.
3. Cantor, C.R. and Jukes, T.H. 1966. *Repetitions in the Polypeptide Sequence of Cytochromes*. Biochem. Biophys. Res. Comm., 23, 319-323.
4. Mandeles, S. and Cantor, C.R. 1966. *Base Composition of Intact Nucleic Acid Oligomers*. Biopolymers, 4, 759-768.
5. Cantor, C.R. and Jukes, T.H. 1966. *The Repetition of Homologous Sequences in the Polypeptide Chains of Certain Cytochromes and Globins*. Proc. Natl. Acad. Sci. USA, 56, 177-184.
6. Cantor, C.R., Jaskunas, S.R., and Tinoco Jr., I. 1966. *Optical Properties of Ribonucleic Acids Predicted from Oligomers*. J. Mol. Biol., 20, 39-62.
7. Cantor, C.R. 1966. *Sequence Dependent Properties of Oligonucleotides*. Ph.D. Thesis, University of California, UCRL report number 16701.
8. Cantor, C.R. and Tinoco Jr., I. 1967. *Calculated Optical Properties of 64 Trinucleoside Diphosphates*. Biopolymers, 5, 821-835.
9. Cantor, C.R. 1967. *Possible Conformations of 5S Ribosomal RNA*. Nature, 216, 513-514.
10. Cantor, C.R. 1968. *The Extent of Base-Pairing in 5S Ribosomal RNA*. Proc. Natl. Acad. Sci. USA, 59, 478-483.
11. Cantor, C.R. 1968. *Kinetics of Primer-Dependent Polynucleotide Phosphorylase Synthetic Reactions*. Biopolymers, 6, 369-384.
12. Cantor, C.R. 1968. *The Occurrence of Gaps in Protein Sequences*. Biochem. Biophys. Res. Comm., 31, 410-416.
13. Newmark, R.A. and Cantor, C.R. 1968. *Nuclear Magnetic Resonance Study of the Interactions of Guanosine and Cytidine in Dimethyl Sulfoxide*. J. Amer. Chem. Soc., 90, 5010-5017.
14. Jaskunas, S.R., Cantor, C.R., and Tinoco Jr, I. 1968. *Association of Complementary Oligoribonucleotides in Aqueous Solution*. Biochemistry, 7, 3164-3178.
15. Cantor, C.R. 1968. *Conformation and Interactions of Oligonucleotides*. IUPAC preprint B3.
16. Cantor, C.R. and Chin, W.W. 1968. *Oligonucleotide Interactions. I. Structure of 2:1 Complexes Between Polyuridylic Acid and Oligoadenylic Acid*. Biopolymers, 6, 1745-1752.

17. Matsubara H., Jukes, T.H., and Cantor, C.R. 1968. *Structural and Evolutionary Relationships of Ferredoxins*. Brookhaven Symp. Biol., 21, 201-216.
18. Jukes, T.H. and Cantor, C.R. 1969. *Evolution of Protein Molecules*. Mammalian Protein Metabolism III, 21.
19. Cantor, C.R., Fairclough, R., and Newmark, R.A. 1969. *Oligonucleotide Interactions. II. Differences in Base Stacking in Linear and Cyclic Deoxythymidine Oligonucleotides*. Biochemistry, 8, 3610-3617.
20. Simon, S.R. and Cantor, C.R. 1969. *Measurement of Ligand-Induced Conformational Changes in Hemoglobin by Circular Dichroism*. Proc. Natl. Acad. Sci. USA, 63, 205-212.
21. Cantor, C.R., Warshaw, M.M., and Shapiro, H. 1970. *Oligonucleotide Interactions III. Circular Dichroism Studies of the Conformation of Deoxyoligonucleotides*. Biopolymers, 9, 1059-1077.
22. Beardsley, K. and Cantor, C.R. 1970. *Studies of Transfer RNA Tertiary Structure by Singlet-Singlet Energy Transfer*. Proc. Natl. Acad. Sci. USA, 65, 39-46.
23. Warshaw, M.M. and Cantor, C.R. 1970. *Oligonucleotides Interactions. IV. Conformational Differences between Deoxy- and Ribo-Dinucleoside Phosphates*. Biopolymers, 9, 1070-1103.
24. Tinoco Jr., I. and Cantor, C.R. 1970. *Applications of Optical Rotatory Dispersion and Circular Dichroism to the Study of Biopolymers*. Meth. Biochem. Anal., 18, 81.
25. Tao, T., Nelson, J.H., and Cantor, C.R. 1970. *Conformational Studies on tRNA. Fluorescence Lifetime and Nanosecond Depolarization Measurements on Bound Ethidium Bromide*. Biochemistry, 9, 3514-3524.
26. Beardsley, K., Tao, T., and Cantor, C.R. 1970. *Studies on the Conformation of the Anti-Codon Loop of tRNA<sup>Phe</sup>. Effect on Environment on the Fluorescence of the Y Base*. Biochemistry, 9, 3524-3532.
27. Reeves, R.M., Cantor, C.R., and Chambers, R.W. 1970. *The Effect of Magnesium Ions on the Conformation of Two Highly Purified Yeast Alanine tRNAs*. Biochemistry, 9, 3993-4002.
28. Grunberger, D., Nelson, J.D., Cantor, C.R., and Weinstein, I.B. 1970. *Coding and Conformational Properties of Oligonucleotides Modified with the Carcinogen N-2-Acetylaminofluorene*. Proc. Natl. Acad. Sci. USA, 66, 488-494.
29. Gennis, R. and Cantor, C.R. 1970. *Optical Properties of Specific Complexes Between Complementary Oligonucleotides*. Biochemistry, 9, 4714-4725.
30. Wells, R.D., Larson, J.E., Grant, R.C., Shortle, B.E., and Cantor, C.R. 1970. *Physicochemical Studies on Polydeoxyribonucleotides Containing Defined Repeating Nucleotide Sequences*. J. Mol. Biol., 54, 465-497.
31. Mitsui, Y., Langridge, R., Shortle, B.E., Cantor, C.R., Grant, R.C., Kodama, M., and Wells, R.D. 1970. *Physical and Enzymatic Studies on Poly d(I-C).d(I-C). An Unusual Double-Helical DNA*. Nature, 228, 1166-1169.
32. Cantor, C.R., Beardsley, K., Nelson, J., Tao, T., and Chin, K.W. 1971. *Studies on tRNA Structure Using Covalently and Non-covalently Bound Fluorescent Dyes*. Prog. Molec. and Subcellular Biology, 2, 297.
33. Grunberger, D., Weinstein, I.B., Fink, L.M., Nelson, J.H., and Cantor, C.R. 1971. *Interaction of N-e-Acetylaminofluorene with RNA*. Prog. Molec. and Subcellular Biology, 2, 371.
34. White, J.P. and Cantor, C.R. 1971. *Role of Magnesium in the Binding of Tetracycline to Escherichia coli Ribosome*. J. Mol. Biol., 58, 397-400.
35. Lanks, K.W., Sciscenti, J., Weinstein, I.B., and Cantor, C.R. 1971. *Studies on Rat Liver Phenylalanyl-tRNA Synthetase: I. Purification, Stabilization and Complex Formation*. J. Biol. Chem., 246, 3494-3499.
36. Cantor, C.R. and Tao, T. 1971. *Application of Fluorescence Techniques to the Study of Nucleic Acids*. Nucleic Acids Research., 2, 31.
37. Cantor, C.R. and Katz, L. 1971. *Nucleic Acids*. Ann. Rev. Phys. Chem., 22, 25.

38. Cantor, C.R. 1971. *Fluorescence Studies of Biopolymer Structure*. Trans. NY Acad. Sci., 33, 576-585.
39. Cantor, C.R. and Pechukas, P. 1971. *Determination of Distance Distribution Functions by Singlet-Singlet Energy Transfer*. Proc. Natl. Acad. Sci. USA, 68, 2099.
40. Nelson, J.H., Grunberger, D., Cantor, C.R., and Weinstein, I.B. 1971. *Modification of Ribonucleic and by Chemical Carcinogens IV: Circular Dichroism and Proton Magnetic Resonance Studies of Oligonucleotides Modified with the Chemical Carcinogen 2-Acetylaminofluorene*. J. Mol. Biol., 62, 331-346.
41. Holmquist, R., Cantor, C.R., and Jukes, T. 1972. *Improved Procedures for Comparing Homologous Sequences in Molecules of Proteins and Nucleic Acids*. J. Mol. Biol., 64, 145.
42. Gennis, R.B. and Cantor, C.R. 1972. *Optical Studies of a Conformational Change in DNA Prior to Melting*. J. Mol. Biol., 65, 381-399.
43. White, J.P., Kuntz, I.D., and Cantor, C.R. 1972. *Studies on the Hydrations of Escherichia coli Ribosomes by Nuclear Magnetic Resonance*. J. Mol. Biol., 64, 511-514.
44. Ventilla, M., Cantor, C.R., and Shelanski, M. 1972. *A Circular Dichroism Study of Microtubule Protein*. Biochemistry, 11, 1554-1561.
45. Pellegrini, M., Oen, H., and Cantor, C.R. 1972. *Covalent Attachment of a Peptidyl-tRNA to the 50S Subunit of the E. coli Ribosome*. Proc. Natl. Acad. Sci. USA, 69, 837-841.
46. Huang, K. and Cantor, C.R. 1972. *Surface Topography of the 30S E. coli Ribosomal Subunit: Reactivity Towards Fluorescein Isothiocyanate*. J. Mol. Biol., 67, 265-275.
47. Gennis, R.B. and Cantor, C.R. 1972. *The Use of Nonspecific Dye Labeling Singlet Transfer Measurements on Complex Systems. A Theoretical Model*. Biochemistry, 11, 2509-2517.
48. Gennis, L.S., Gennis, R.B., and Cantor, C.R. 1972. *Singlet Energy Transfer Studies on Associating Protein Systems: Distance Measurement on Trypsin Alpha-Chymotrypsin and their Protein Inhibitors*. Biochemistry, 11, 2517-2524.
49. Hsiung, N. and Cantor, C.R. 1973. *Reaction of Celite-Bound Fluorescein Isothiocyanate with the 50S E. coli Ribosomal Subunits*. Arch. Biochem. Biophys., 157, 125-132.
50. Shelanski, M.L., Gaskin, F., and Cantor, C.R. 1973. *Microtubule Assembly in the Absence of Added Nucleotides*. Proc. Natl. Acad. Sci. USA, 70, 765-768.
51. Tscherne, J.S., Lanks, K.W., Salin, P.D., Grunberger, D., Cantor, C.R., and Weinstein, I.B. 1973. *Studies on Rat Liver Phenylalanyl-tRNA Synthetase. II. Further Purification, Substrate Specificity and Effects of Substrates on Heat Inactivation*. J. Biol. Chem., 248, 4052-4059.
52. Tscherne, J.S., Weinstein, I.B., Lanks, K.W., Naola, B., Gersten, G., and Cantor, C.R. 1973. *Phenylalanyl-tRNA Synthetase Activity Associated with Rat Liver Ribosomes and Microsomes*. Biochemistry, 12, 3859-3865.
53. Oen, H., Pellegrini, M., Eilat, D., and Cantor, C.R. 1973. *Identification of a 50S Protein at the Peptidyl-tRNA Binding Site of the E. coli Ribosome*. Proc. Natl. Acad. Sci. USA, 70, 2799-2803.
54. Litman, D.J. and Cantor, C.R. 1974. *Surface Topography of the Escherichia coli Ribosome. Enzymatic Iodination of the 50S Subunit*. Biochemistry, 13, 512-518.
55. Gaskin, F., Kramer, S., Cantor, C.R., Adelstein, R., and Shelanski, M.L. 1974. *A Dynein-Like Protein Associated with Neurotubules*. FEBS Lett., 40, 281-286.
56. Eilat, D., Pellegrini, M., Oen, H., de Groot, N., Lapidot, Y., and Cantor, C.R. 1974. *Affinity Labeling the Acceptor Site of the Peptidyl Transferase Center of the Escherichia coli Ribosome*. Nature, 250, 514-516.



57. Oen, H., Pellegrini, M., and Cantor, C.R. 1974. *Peptidyl Transferase Inhibitors Alter the Covalent Reaction of BrAcPhe-tRNA with the E. coli Ribosome*. FEBS Lett., 45, 218-222.
58. Reines, S.A. and Cantor, C.R. 1974. *Oxidized 3'-Terminus of RNA*. Nucleic Acids Research, 1, 767-786.
59. Cantor, C.R., Huang, K., and Fairclough, R. 1974. *Fluorescence Spectroscopic Approaches to the Study of Three-dimensional Structure of Ribosomes*. In, "The Ribosome", eds. Lengyel, P., Nomura, M., and Tissieres, A., 587.
60. Cantor, C.R., Pellegrini, M., and Oen, H. 1974. *Affinity Labeling Techniques for Examining Functional Sites of Ribosomes*. In, "The Ribosome", eds. Lengyel, P., Nomura, M., and Tissieres, A., 573.
61. Pellegrini, M., Oen, H., Eilat, D., and Cantor, C.R. 1974. *The Mechanism of Covalent Reaction of Bromoacetyl-phenylalanyl-transfer RNA with the Peptidyl tRNA Binding Site of the Escherichia coli Ribosome*. J. Mol. Biol., 88, 809-829.
62. Eilat, D., Pellegrini, M., Oen, H., Lapidot, Y., and Cantor, C.R. 1974. *A Chemical Mapping Technique for Exploring the Location of Proteins Along the Ribosome-Bound Peptide Chain*. J. Mol. Biol., 88, 831-840.
63. Hsiung, N., Reines, S.A., and Cantor, C.R. 1974. *Investigation of the Ribosomal Peptidyl Transferase Center Using a Photo-affinity Label*. J. Mol. Biol., 88, 841-855.
64. Gaskin, F., Cantor, C.R., and Shelanski, M.L. 1974. *Turbidimetric Studies of the In vitro Assembly and Disassembly of Porcine Neurotubules*. Appendix on Interpretation of the Light Scattering from Long Rods by B.J. Berne. J. Mol. Biol., 89, 737-755.
65. Litman, D.J., Lee, C.C., and Cantor, C.R. 1974. *Evidence for Conformational Change in the 30S E. coli Ribosomal Subunit upon Formation of 70S Particles*. FEBS Lett., 47, 268-271.
66. Sopori, M., Pellegrini, M., Lengyel, P., and Cantor, C.R. 1974. *Affinity Labeling of Escherichia coli. Ribosomal Proteins with an Analog of the Natural Initiator tRNA*. Biochemistry, 13, 5432-5439.
67. Hsiung, N. and Cantor, C.R. 1974. *A New Simpler Photoaffinity Analogue of Peptidyl tRNA*. Nucleic Acids Research, 1, 1753-1762.
68. Gaskin, F., Cantor, C.R., and Shelanski, M.L. 1975. *Biochemical Studies on the In vitro Assembly and Disassembly of Microtubules*. Ann. NY Acad. Sci., 253, 133-146.
69. Gaskin, F., Litman, D.J., Cantor, C.R., and Shelanski, M.L. 1975. *The Formation of Filamentous Structures from Iodinated Neurotubules*. J. Supramol. Struct., 3, 39-50.
70. Langlois, R., Kim, S.H., and Cantor, C.R. 1975. *A Comparison of the Fluorescence of the Y Base of Yeast tRNAPhe in Solution and in Crystals*. Biochemistry, 14, 2554-2558.
71. Huang, K.H. and Cantor, C.R. 1975. *Studies of 30S Escherichia coli Ribosome Reassembly Using Individual Proteins Labeled with an Environmentally Sensitive Fluorescent Probe*. J. Mol. Biol., 97, 423-441.
72. Huang, K.H., Fairclough, R., and Cantor, C.R. 1975. *Singlet Energy Transfer Studies of the Arrangement of Proteins in the 30S Escherichia coli Ribosome*. J. Mol. Biol., 97, 442-470.
73. Ventilla, M., Cantor, C.R., and Shelanski, M.L. 1975. *Some Features of the Vinblastine-Induced Assembly of Porcine Tubulin*. Arch. Biochem. Biophys., 171, 154-162.
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