

## BIOGRAPHICAL DATA

**Name:** Linda L. Spremulli

**Born:** September 6, 1947  
Corning, New York

**Education:** University of Rochester, Rochester, NY B.A.,  
(Chemistry) 1965-1969

Massachusetts Institute of Technology, Cambridge, Massachusetts Ph.D.  
(Biochemistry) 1969-1973

### Professional Experience:

2013-present	Phased retirement
2012-2013	Associate Chair for Education, Department of Chemistry
1999-2000	Associate Chair Department of Chemistry
1997-1998	Acting Associate Dean for Operations College of Arts & Sciences, Univ. North Carolina Chapel Hill
1995-1996	Acting Chair Department of Chemistry University of North Carolina Chapel Hill
1993-1996	Edouard Morot-Sir Professor of Chemistry
1993-1994	Interim Vice Chancellor for Graduate Studies and Research, University of North Carolina, Chapel Hill
1990-1995	Director of Graduate Studies Department of Chemistry University of North Carolina, Chapel Hill, NC
1986-Present	Professor, Department of Chemistry University of North Carolina, Chapel Hill, NC
1981-1986	Associate Professor, Department of Chemistry University of North Carolina, Chapel Hill, NC
1976-1981	Assistant Professor, Department of Chemistry, University of North Carolina, Chapel Hill, NC
1974-1976	NIH Postdoctoral Fellow - awarded from the National Cancer Institute - with Dr. Joanne Ravel, Department of Chemistry, University of Texas,

Austin, TX.

1973-1974 Postdoctoral Research Associate - Clayton Foundation Biochemical Institute with Dr. Joanne Ravel, University of Texas, Austin, TX,

**Professional Societies:**

American Chemical Society  
American Association for the Advancement of Science  
American Society of Microbiologists  
American Society of Biological Chemists  
RNA Society  
American Association of University Professors  
Sigma Xi  
Phi Beta Kappa

**Honors:**

Eli Lilly unsolicited award of \$6000 each year for two years.  
National Institute of Health Trainee - Postdoctoral Fellowship  
Phi Beta Kappa  
University of Rochester Award for Outstanding Woman in Science  
Sigma Xi - President  
Katherine Kennedy Carmichael Teaching Award  
Tanner Teaching Award  
Academy of Distinguished Teaching Scholars Univ. North Carolina  
Fellow, American Association for the Advancement of Science, elected Fall 2000  
Invited Speaker Gordon Conference on Mitochondria and Chloroplasts, 2004.  
Invited speaker international meeting on mitochondrial dysfunction in human disease 2010  
Board of Governors Teaching Award Univ. North Carolina

**Professional Activities (Abbreviated):**

Associate Editor - *Journal of Biological Chemistry*  
Editorial Board - *Mitochondrion*  
Editorial Board - *Journal of Biological Chemistry*  
Editorial Board - *Biochemistry*  
Editorial Board - *Biochimica et Biophysica Acta*  
National Institutes of Health - Biochemistry Study Section  
National Institutes of Health - Biomedical Sciences Review Panel  
National Science Foundation, reviews and Gene Expression Panel  
Sigma Xi Delegate at Large  
Sigma Xi President Elect, UNC Chapter -1984 -1985  
Sigma Xi President, UNC Chapter, 1985-1986  
Representative - NSF Sponsored Conference on Careers for Women in Science, Fall, 1979.  
American Society of Biological Chemists - Committee on Equal

Opportunities for Women.  
International Union of Biochemistry - Committee on Translational Factors  
RNA Society of North Carolina - Chair Organizing Committee for the Symposium on RNA  
Biology IV, Fall, 2001  
RNA Society of North Carolina, Board of Directors, 2000-2010

**Departmental Service (Abbreviated):**

Grievance Committee (1976-1978, 1981-1987, 2000-present, Chair)  
Undergraduate Studies Committee (1977-1978, 1987-1990)  
Graduate Studies Committee (1978-1983, 1985-1986)  
Minorities and Handicapped Programs (1981-1984, Chair 1987-1990)  
NIGMS Shared Instrumentation Proposal Committee  
AB Advisor (1977-1978)  
Chairperson, CAUSE Proposal to NSF (1977-1978)  
Biological Chemistry - Search Committee (1977-1980)  
Chemistry/Marine Sciences - Joint Appointment Committee  
Analytical Search Committee (1983-1984)  
Five Year Planning Committee (1984-1985)  
Faculty Search Committee (1984-1986, 1989)  
Chairperson, Continuing Education (1984-1985)  
B.S. Advisor (1987-1989)  
Kenan Report Ad Hoc Committee (1987-1988)  
Kenan Endowment Stewardship Report (1989)  
Dept. Chem. & Program for Molecular Biology & Biotechnology Search Committee  
Faculty Development Committee (1990)  
UNC Chemistry/Glaxo-Frontiers in Chemistry and the Life Sciences  
Search Committee - Biological Chemistry (chair) 1994-1995  
Director, Graduate Studies, (1990-1995)  
Internal Review Committee - the Graduate Program in Chemistry  
Acting Chair Department of Chemistry 1995-1996  
Undergraduate Studies Committee (1999)  
Associate Chair Department of Chemistry 1999-2000  
Search Committee for Accounting Specialist (Chair) Fall 2000  
Development Committee (1999-present)  
Search Committee Genomics (2001-2004) Chair 2002, Chair, 2003  
Search Committee Bioinformatics, Chair, 2002, Chair 2003  
Search Committee Biological Chemistry 2005  
Tenure and Promotion Review Committee 2004-2005; 2008-2010  
Search Committee Inorganic Position 2009-2010  
Search Committee (Open Search) 2010-2011  
Search Committee (Lecturer in Chemistry) 2012-2013  
Education Committee (ad hoc) 2013-2016  
Search Committee for Departmental Lecturer 2013-2014  
Executive Committee (ad hoc) 2013-2014

**University Service (Abbreviated):**

Radioisotopes Committee - 1978-1979  
Honors Advisory Committee - 1980-1984  
Faculty Buildings and Grounds Committee - 1980-1981  
Administrative Board of the General College - 1980-1986  
    Program Review Subcommittee - 1981-1983  
    Subcommittee on General Education - 1984-1985  
    Ad-hoc Committee on Mandatory Academic Support Programs - 1985  
Biotechnology Committee - 1981-1982  
Screening Committee for Assistant Dean - 1982-1983  
Faculty Council - 1982-1985  
Faculty Hearings Committee - 1981-1986  
Faculty Committee on Research - 1983-1986  
Virology Search (Department of Micro/Immunology Cancer Research Center) -  
Association for Women Faculty, Secretary - 1982-1986  
Nominating Committee - Division of National Sciences, Chairperson, 1985  
Search Committee for Assistant Dean, College of Arts & Sciences, Chair 1985  
Nominating Committee for Faculty Council and Elective Faculty  
    Committees, 1986, 1992  
AAUP Committee on the Economic Status of the Profession, 1989  
Admission Committee - School of Dentistry - 1987-1990  
University Representative - Alliance for Undergraduate Education, Chicago,  
    March, 1988.  
Program in Molecular Biology & Biotechnology  
    ad hoc committee on computers  
    ad hoc committee on student recruitment  
Faculty Mentor Program, 1989-1990  
Search Committee for Associate Provost and Dean of the Graduate School  
    (Chairperson) 1989-1990  
Administrative Board of the Graduate School  
Fellowship Review Committee Graduate School  
Educational Policy Committee  
*Ad hoc* faculty advisory committee on land use  
Arts & Sciences Endowment Committee  
Patent Committee  
Committee on Special Degrees and Honorary Awards (Chair)  
College of Arts and Sciences Divisional Assessment Committee  
Committee on Teaching Awards  
Task Force on Liberal Studies (1997)  
Scientific Computing Committee 1997-2000 (Chair)  
Technology Council 1997-1999  
*Ad hoc* Committee on Research Administration (Chair) 1999  
Advisory Board Division of Continuing Education 1998-present  
Search Committee - Director of Health & Safety 1999  
Review Committee - Office of the Vice Provost for Graduate Studies and Research ▶99  
Review Committee University Research Council (2000-2003)  
University Committee on Research Compliance 2000-present

Review Committee for the Dean of Arts & Sciences 2001  
Task Force on Curriculum Revision - Philosophical Subcommittee  
Review Committee Curriculum in Genetics  
Provost's Task Force on Academic Planning, 2002-2003  
Hearings Committee (2002-2007)  
Ad hoc committee on Women in Science, College Arts & Sciences  
Advance Proposal Writing Team (NSF application)  
Committee on the Status of Women (2008-2009)  
Conflict of Interest Committee (2007-present)  
Office of Sponsored Research Advisory Committee (2008-2010)  
Task Force – Evaluation of the CCI Program (2012-2013) Chair

### Undergraduate Courses Taught Last Three Years:

Spring 2016 Chem 430: Introduction to Biological Chemistry (~230 Students)  
Spring 2015: Chem 432 Metabolic Chemistry & Cellular Regulatory Networks (~ 80 students)  
Spring 2014: Chem 432 Metabolic Chemistry & Cellular Regulatory Networks (~ 80 students)  
Spring 2013: Chem 432 Metabolic Chemistry & Cellular Regulatory Networks (~ 62 Students)  
Fall 2012: Chem 102: Gen Chem II (228 Students)  
Fall 2012: Chem 397H Honors Seminar in Chemistry (5 students)  
Spring 2012 Chem 430: Introduction to Biological Chemistry (~130 Students)  
Spring 2012 Chem 432: Metabolic Chemistry & Cellular Regulatory Networks (~ 65 Students)  
Fall 2011: Chem 102: Gen Chem II (235 Students)  
Fall 2011: Chem 396: Honors Seminar in Chemistry (4 students)  
Fall 2011: Chem 395: Honors Research in Chemistry  
Spring 2011: Chem 432: Metabolic Chemistry and Cellular Regulatory Networks (65 Students)

### Publications:

Agris, Paul F., Spremulli, Linda L., Brown, Gene M., (1974), "tRNA Methylases from HeLa Cells: Purification and Properties of an Adenine-1-Methylase and Guanine-N-Methylase", *Archives of Biochem. and Biophys.*, **162**, 38-47.

Spremulli, Linda L., Agris, Paul F., Brown, Gene M., and RajBhandary, U.L.,(1974), "Escherichia coli Formylmethionine tRNA: Methylation of Specific Guanine and Adenine Residues Catalyzed by HeLa Cell tRNA Methylases and the Effect of These Methylations on its Biological Properties", *Archives Biochem. Biophys.*, **162**, 22-37.

Haralson, M.A., Spremulli, L.L., Shive, W., and Ravel, J.M., (1974) "Occurrence of Initiation Factor 2 in the Postribosomal Fraction and Identification of an Initiation Inhibitor as Elongation Factor G", *Archives of Biochem. and Biophys.*, **165**, 247-254.

Spremulli, L.L., Haralson, M.A., and Ravel, J.M. (1974) "Effect of T4 Infection on Initiation of Protein Synthesis and Messenger Specificity of Initiation Factor 3", *Archives of Biochem. and Biophys.*, **165**, 581-587.

Agris, P.F., Spremulli, L.L., and Brown, G.M., (1975), "Transfer Ribonucleic Acid Methylases from HeLa Cells: Effects of Salts on Activity", *Cancer Biochem. Biophys.*, **1**, 97-105.

Spremulli, L.L., and Ravel, J.M., (1976), "Characterization of Elongation Factor 1 from Yeast", *Archives of Biochem. and Biophys.*, **172**, 261-269.

Baumstark, B., Spremulli, L.L., RajBhandary, U. and Brown, G. (1977), "Initiation of Protein Synthesis without Formylation in a Mutant of *Escherichia coli* that Grows in the Absence of Tetrahydrofolate", *J. Bacteriology*, **129**, 457-471.

- Brown, B., Lax, S., Liang, L., Dabney, B., Spremulli, L., and Ravel, J. (1977) "Repression of the Tyrosine, Lysine and Methionine Biosynthetic Pathways in a *hisT* Mutant of *Salmonella typhimurium*", *J. Bacteriology*, **129**, 1168-1170.
- Spremulli, L.L., Walthall B., Lax, S. and Ravel, J. (1977) "Purification and Properties of a Met-tRNA<sub>f</sub> Binding Factor from Wheat Germ", *Archives of Biochem. and Biophys.*, **178**, 565-575.
- Russell, D., and Spremulli, L. (1978) "Identification of a Wheat Germ Ribosome Dissociation Factor Distinct from Initiation Factor eIF-3", *J. Biol. Chem.*, **253**, 6647-6649.
- Walthall, B., Spremulli, L., Lax S., and Ravel, J. (1979) "Isolation and Purification of Five Factors Required for the Initiation of Protein Synthesis in Wheat Germ." in *Methods in Enzymology* (K. Moldave ed.) **60**, 193-204.
- Spremulli, L., Walthall, B., Lax, S., and Ravel, J. (1979) "Partial Purification of the Factors Required for the Initiation of Protein Biosynthesis in Wheat Germ", *J. Biol. Chem.*, **254**, 143-148.
- Russell, D., and Spremulli, L. (1979) "A Rapid and Sensitive Assay for the Detection of Eukaryotic Ribosome Dissociation Factors", *Anal. Biochem.*, **93**, 238-243.
- Breitenberger, C., Graves, M., and Spremulli, L. (1979) "Evidence for the Nuclear Location of the Gene for Chloroplast Elongation Factor G", *Archives of Biochem. and Biophys.*, **194**, 265-270.
- Breitenberger, C., Moore, M., Russell, D. and Spremulli, L. (1979) "Purification of Eukaryotic Cytoplasmic Elongation Factor 2 and Organellar Elongation Factor G by an Affinity Binding Procedure", *Anal. Biochem.*, **99**, 434-440.
- Russell, D. and Spremulli, L. (1979) "Purification and Characterization of a Ribosome Dissociation Factor (Eukaryotic Initiation Factor 6) from Wheat Germ", *J. Biol. Chem.*, **254**, 8796-8800.
- Sperrazza, J., Russell, D., and Spremulli, L. (1980) "Reversible Dissociation of Wheat Germ Ribosomal Subunits: Cation-Dependent Equilibria and Thermodynamic Parameters", *Biochem.*, **19**, 1053-1058.
- Breitenberger, C. and Spremulli, L. (1980) "Purification of *Euglena gracilis* Chloroplast Elongation Factor G and Comparison with Other Prokaryotic and Eukaryotic Translocases", *J. Biol. Chem.*, **255**, 9814-9820.
- Russell, D. and Spremulli, L. (1980) "Mechanism of Action of the Wheat Germ Ribosome Dissociation Factor: Interaction with the 60 S Subunit", *Archives of Biochem. and Biophys.*, **201**, 518-526.
- Graves, M., Breitenberger, C. and Spremulli, L. (1980) "*Euglena gracilis* Chloroplast Ribosomes: Improved Isolation Procedure and Comparison of Elongation Factor

- Specificity with Prokaryotic and Eukaryotic Ribosomes", *Archives of Biochem. and Biophys.*, **204**, 444-454.
- Fox, L., Erion, J., Tarnowski, J., Spremulli, L., Brot, N. and Weissbach, H. (1980) "*Euglena gracilis* Chloroplast EF-Ts: Evidence that it is a Nuclear-Coded Gene Product", *J. Biol. Chem.*, **255**, 6018-6019.
- Spremulli, L., Breitenberger, C., Graves, M., Beck, C. and Steege, D. (1981) "Comparison of the *Euglena* Chloroplast Protein Synthesizing System with those of Prokaryotes and Eukaryotes", *Anal. New York Acad. Sci.*, **361**, 461-470.
- Sperrazza, J., Moore, M., and Spremulli, L. (1981) "Influence of Various Cations on the Equilibria between Wheat Germ Ribosomes and their Subunits", *Biochem.*, **20**, 5073-5079.
- Spremulli, L.L. (1982) "Chloroplast Elongation Factor Tu: Evidence that it is the Product of a Chloroplast Gene", *Archives of Biochem. and Biophys.*, **214**, 734-741.
- Beck, C.M. and Spremulli, L.L. (1982) "Purification of *Euglena* EF-1<sub>L</sub>: A Cytoplasmic Factor That Also Functions on Prokaryotic and Organellar Ribosomes", *Archives of Biochem. and Biophys.*, **215**, 414-424.
- Steege, Deborah A., Graves, M.C., and Spremulli, L.L. (1982) "*Euglena gracilis* Chloroplast Small Subunit rRNA: Sequence and Base Pairing Potential of the 3' Terminus, Cleavage by Colicin E3", *J. Biol. Chem.*, **257**, 10430-10439.
- Graves, M.C. and Spremulli, L.L. (1983) "Activity of *Euglena gracilis* Chloroplast Ribosomes with Prokaryotic and Eukaryotic Initiation Factors", *Archives of Biochem. and Biophys.*, **222**, 192-199.
- Manning, M., Moore, M., Spremulli, L. and Griffith, J. (1983) "Coat Protein Conformation in M13 Filaments, I-Forms and Spheroids", *Biochem. Biophys. Res. Comm.*, **112**, 349-355.
- Sperrazza, J.M. and Spremulli, L.L. (1983) "Quantitation of Cation Binding to Wheat Germ Ribosomes: Influences on Subunit Association Equilibria and Ribosome Activity", *Nucleic Acids Res.*, **11**, 2665-2679.
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- Sreedharan, S.P. and Spremulli, L.L. (1985) "*Euglena gracilis* Chloroplast Elongation Factor Tu: Interaction with Guanine Nucleotides and Aminoacyl-tRNA", *J. Biol. Chem.*, **260**, 8771-8776.



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- Spremulli, G. H. and Spremulli, L.L. (1987) "Effect of GDP on the Interactions Between Chloroplast EF-Ts and Chloroplast and *E. coli* EF-Tu", *Biochem. and Biophys. Res. Comm.*, **148**, 1490-1495.
- Spremulli, L.L. and Kraus, B.L. (1987) "Bovine Mitochondrial Ribosomes: Effect of Cations and Heterologous Dissociation Factors on Subunit Interactions", *Biochem. and Biophys. Res. Comm.*, **147**, 1077-1081.
- Kraus, B.L. and Spremulli, L.L. (1988) "Evidence for the Nuclear Location of the Genes for Chloroplast IF-2 and IF-3 in *Euglena*", *Plant Physiol.*, **88**, 993-995.
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- Liao, H-X. and Spremulli, L. L. (1989) "Interaction of Bovine Mitochondrial Ribosomes with Messenger RNA", *J. Biol. Chem.*, **264**, 7518-7522.
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- Schwartzbach, C. J. and Spremulli, L. L. (1989) "Bovine Mitochondrial Protein Synthesis Elongation Factors", *J. Biol. Chem.*, **264**, 19125-19131.
- Liao, H-X and Spremulli, L. L. (1990) "Effects of Length and mRNA Secondary Structure on the Interaction of Bovine Mitochondrial Ribosomes with Messenger RNA", *J. Biol. Chem.*, **265**, 11761-11765.
- Liao, H-X and Spremulli, L. L. (1990) "Identification and Initial Characterization of Translational Initiation Factor 2 from Bovine Mitochondria", *J. Biol. Chem.*, **265**, 13618-13622.
- Ma, L. and Spremulli, L. L. (1990) "Identification and Characterization of Large, Complex Forms of Chloroplast Translational Initiation Factor 2 from *Euglena gracilis*", *J. Biol. Chem.*, **265**, 13560-13565.
- Chung, H. K. and Spremulli, L. (1990) "Purification and Characterization of Elongation Factor G from Bovine Liver Mitochondria", *J. Biol. Chem.*, **265**, 21000-21004.
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- Roney, W. B., Ma, L., Wang, C-C. and Spremulli, L. L. (1991) "Recent Progress on Understanding the Initiation of Translation in the Chloroplasts of *Euglena gracilis*", NATO ASI Series H, Cell Biology, **55**, 197-205.
- Schwartzbach, C. J. and Spremulli, L. L. (1991) "Interaction of Animal Mitochondrial EF-Tu:EF-Ts with Aminoacyl-tRNA, Guanine Nucleotides, and Ribosomes", *J. Biol. Chem.* **266**, 16324-16330.
- Wang, C-C and Spremulli, L. L. (1991) "Chloroplast Translational Initiation Factor 3: Purification and Characterization of Multiple Forms From *Euglena gracilis*", *J. Biol. Chem.* **266**, 17079-17083.
- Kumazawa, Y., Schwartzbach, C. J., Liao, H-X, Mizumoto, K., Kaziro, Y., Miura K., Watanabe, K., and Spremulli, L. L. (1991) "Interaction of Bovine Mitochondrial Phenylalanyl-tRNA with Ribosomes and Elongation Factors From Mitochondria and Bacteria", *Biochim. Biophys. Acta* **1090**, 167-172.
- Liao, H-X and Spremulli, L. L. (1991) "Initiation of Protein Synthesis in Animal Mitochondria: Purification and Characterization of Translational Initiation Factor 2", *J. Biol. Chem.* **266**, 20714-20719.
- Ma, Lan and Spremulli, L. L. (1992) "Immunological Characterization of the Complex Forms of Chloroplast Translational Initiation Factor 2 from *Euglena gracilis*", *J. Biol. Chem.* **267**, 18356-18360.

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- Lin, Qiong, Ma, Lan, Burkhart, William, and Spremulli, Linda (1994) "Isolation and Characterization of cDNA Clones for Chloroplast Translational Initiation Factor 3 from *Euglena gracilis*", *J. Biol. Chem.* **269**, 9436-9444.
- Betts, L., and Spremulli, L. (1994) "Analysis of the Role of the Shine-Dalgarno Sequence and mRNA Secondary Structure on the Efficiency of Translational Initiation in the *Euglena gracilis* Chloroplast atpH mRNA", *J. Biol. Chem.*, **269**, 26456-26463.
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- Ma, Jianhong, Farwell, Mary, Burkhart, William, Spremulli, Linda (1995) "Cloning and Sequence Analysis of the cDNA for Bovine Mitochondrial Translational Initiation Factor 2" *Biochimica et Biophysica Acta*, **1261**, 321-324.
- Hong, Xin, Woriac, Velinda, Burkhart, William, and Spremulli, Linda (1995) "Cloning and Expression of Mitochondrial Translational Elongation Factor Ts from Bovine and Human Liver" *J. Biol. Chem.*, **270**, 17243-17349.
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- Woriac, V., W. Burkhart, and Spremulli, L. (1995) "Cloning, Sequence Analysis and Expression of Mammalian Mitochondrial Protein Synthesis Elongation Factor Tu" *Biochim. Biophys. Acta* **1264**, 347-356.
- Ma, J., and Spremulli, L. (1996) "Expression, Purification and Mechanistic Studies of Bovine Mitochondrial Translational Initiation Factor 2" *J. Biol. Chem.* **271**, 5805-5811.
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- Xin, H., Leanza, K., and Spremulli, L. (1997) **▲**Expression of Bovine Mitochondrial Elongation Factor Ts in *Escherichia coli* and Characterization of the Heterologous Complex Formed with Prokaryotic Elongation Factor Tu@ *Biochim. Biophys. Acta*, **1352**, 102-112
- Zhang, Y., Sun, V., and Spremulli, L. (1997) **▲**Role of Domains in *Escherichia coli* and Mammalian Mitochondrial Elongation Factor Ts in the Interaction with Elongation Factor Tu@, *J. Biol. Chem.* **272**, 21956-21963
- Yu, N-J., and Spremulli, L. (1997) **▲**Structural and Mechanistic Studies on Chloroplast Translational Initiation Factor 3 from *Euglena gracilis*@, *Biochemistry*, **36**, 14827-14835
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- Zhang, Y., and Spremulli, L. (1998) **▲**Mutational Analysis of the Roles of Residues in *Escherichia coli* elongation factor Ts in the interaction with elongation Factor Tu@ *J. Biol. Chem.*, **273**, 4556-4562
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