PROFESSIONAL BIOGRAPHY: Fred J. Stevens

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EDUCATIONAL BACKGROUND:

1976	Ph.D	Biophysics	Northwestern University
1974	M.S.	Physics	Northwestern University
1971	B.A.	Physics	Hamline University

PROFESSIONAL EXPERIENCE:

1/01-present:	Senior Biophysicist; Biosciences Divsion Argonne National Laboratory
8/87-12/00:	Biophysicist; Biosciences Division, Argonne National Laboratory.
1/84-7/87:	Assistant Biophysicist; Division of Biological and Medical Research (BIM), Argonne National Laboratory.
8/81-12/83:	Project Manager, Research Biochemist; Diagnostics Division, Abbott Laboratories.
2/81-7/81:	Assistant Scientist, BIM, Argonne National Laboratory (Term Appointment).
11/77-1/81:	Postdoctoral Appointee, BIM, Argonne National Laboratory.
1/76-10/77:	Research Associate, Department of Microbiology and Public Health, Michigan State University.

CURRENT RESEARCH INTERESTS:

Analyses of protein primary structures to identify correlates of pathological properties with emphasis on the immunoglobulin superfamily and related beta-domain proteins. Protein:protein interactions; protein structure and function; physical principles in biological systems; computer modeling for enzyme modification and computer simulation of macromolecular interactions. Development of chromatography systems and computer simulations for the analysis of the kinetics and affinity of macromolecular interaction including antibody:antigen, anti-idiotope:idiotope, rheumatoid factor:IgG, antibody:peptide and protein:nucleic acid interactions. Development of chromatographic methods for the identification and characterization of pathological immunoglobulin light chains formed during multiple myeloma and related diseases. Recognition of protein structural and functional similarities at minimal levels of amino acid sequence identity.

HONORS:

Editorial Board: *Amyloid:The International Journal of Experimental and Clinical Investigation* (1999-present)
NIH Postdoctoral Fellowship. 1978. Awarded for project initiated at Michigan State University. Declined.
Fellowships from Physics Dept., Northwestern University (1971-1973)
National Merit Scholarship (1966-1971)

CONSULTANTSHIPS AND ADJUNCT APPOINTMENTS:

4/93--present:	Affiliate, University of Chicago Cancer Institute
2/90--present:	University of Tennessee Medical Center at Knoxville. Visiting Scientist
4/85--4/88:	Abbott Laboratories. Consultant, Chemical and Agricultural Products Division.
1/82--12/83:	Consultant, BIM, Argonne National Laboratory.
12/78--12/80:	Guest Research Associate. Division of Biology, Brookhaven National Laboratory.

TEACHING EXPERIENCE:

Argonne National Laboratory maintains several formal programs that support education and training of students at the undergraduate, graduate, and post-graduate levels. Undergraduate students participate in research projects in my laboratory on an annual basis. Training includes formal and informal lectures that cover fundamentals of the methods that are used, as well as presentation of the larger context and significance of the studies in which they participate. A graduate student recently completed her PhD (IIT) undermy supervision. I have participated on the graduate committee of two graduate students who have obtained their PhD. I have supervised or participated in the supervision and development of 10 postdoctoral students. One of these has been recently hired onto the scientific staff of Argonne National Laboratory.

COMPETITIVE EXTRAMURAL FUNDING:

Source: NIH
Project: "Biophysics of Myeloma Pathology" (05/01/92 - 03/31/06)
Total: $3,117,489 (direct + indirect); (+ supplemental $217,812)

Source: DOE (ER/LTT)
Project: "Exploratory Research to Identify
Anti-Amyloid Drugs" (CRADA) (9/01/93 - 12/30/96)
Total: $510,000 (direct + indirect)

Source: DOE (NN-20)
Project : "Ultrasensitive Actinide Detection Through
Bio-based Receptors" (12/1/96 -09/30/00)
Total: $1,500,000 (est, direct + indirect)

Source: NIH
Project: “Protein Structure, Stability, and Aging” (04/15/00 – 04/14/04)
Total: $1,555,000 (direct + indirect); (+ supplemental $83,952)

MEMBERSHIPS IN PROFESSIONAL SOCIETIES:

Biophysical Society (active)
Protein Society (active)
American Association of Immunologists (active)
American Association for the Advancement of Science (active)
International Society of Amyloidosis (active)
International Interest Group in Biorecognition Technology
American Society for Cell Biology
American Society for Microbiology

PATENTS:

1. Stevens, F.J. 1988. Size-exclusion chromatography system for macromolecular interaction analysis. **No. 4,762,617**

2. Stevens, F.J. 1991. A method of field flow fractionation wherein the polarity of the electric field is periodically reversed **No. 5,133,844**

3. Stevens, F.J. and S.-P. Tsai. Preparation of acrylic acid from lactic acid via modified fumarase. Abandoned.

4. Stevens, F.J., A. Solomon, and E. Myatt. 2000. Method for detecting and diagnosing disease caused by pathological protein aggregation. **No. 6,063,636**

5. Stevens, F.J. Method for producing fabrication material for constructing micrometer-scaled machines, fabrication material for micrometer-scaled machines.

Pending.

6. Stevens, F.J., R. Raffen, P. Wilkins-Stevens, and M. Schiffer. 2002. Method for altering antibody light chain interactions. **No. 6,485,943**

7. Stevens, F.J. and P. Wilkins-Stevens. Device for detecting actinides, method for detecting actinides. Pending

8. Stevens, F.J., M. Schiffer, P. Wilkins Stevens, W. Carey Hanly, and S.L. Tollaksen. Device for detecting molecules, method for detecting molecules. Pending.

9. Stevens, F.J., Y. Argon, D. Davis, and R. Raffen. A fibril-blocking peptide, a method for preventing fibril formation. **No. 6,878,521**

10. Stevens, F.J. 2003. System and method for a parallel immunoassay system. 2003 **No. 6,489,120**

INVENTION REPORTS:

1. Stevens, F.J. 1986. Size-exclusion chromatography system for macromolecular interaction analysis. ANL-IN-86-018, DOE: S-64,667.

2. Stevens, F.J. 1987. One-step viral immunoassay. ANL-IN-87-107, DOE: S-67,394.

3. Stevens, F.J. and D.A. LeBuis. 1988. Pulsed-field field-flow fractionation (PF4). ANL-IN-88-072, DOE: S68,647.

4. Stevens, F.J. 1990. Nephromimitic chromatography for identification and diagnosis of pathological proteins. ANL-IN-90-011, DOE: S-71,196.

5. Stevens, F.J. 1990. Antibody characterization workstation. ANL-IN-017, DOE: S-71,319.

6. Stevens, F.J. 1990. Nonlinear electroimmuno detector device. ANL-IN-038, DOE: S-71,992.

7. Stevens, F.J. 1991. Micrometer design and construction by self-assembly of nanometer-scale engineered proteins. ANL-IN-91-101, DOE: S-75,872.

8. Stevens, F.J. 1992. Automated analytical assay involving magnetic separation. ANL-IN-92-045, DOE: S-76,933.

9. Stevens, F.J. and S.-P. Tsai. 1992. A process for conversion of lactic acid into acrylic acid catalyzed by a modified fumarase. ANL-IN-92-060.

10. Stevens, F.J. and M. Schiffer. 1993. Protein engineering strategies for optimized production of recombinant antibodies. ANL-IN-93-108

11. Stevens, F.J. 1994. Engineering of proteins to create detectors for actinides and other heavy metals. ANL-IN-94-144, DOE: S-83,527.

12. Stevens, F.J. 1994. Drug design strategies to inhibit amyloid fibril formation. ANL-IN-94-145, DOE S-83,528.

13. Stevens, F.J. 1995 Method to evoke a cellular immune response to *in situ* amyloid deposits. ANL-IN-95-019, DOE S84,206

14. Stevens, F.J. 1995. A novel biomaterial substance derived from a biological fibril. ANL-IN-95-040, DOE S-84,207

15. Stevens, F.J. 1995. PROSPECDS (Protein SequencePoly-Evaluation, Comparison, & Display Systems) ANL-SF-95-068

16. Stevens, FJ. 1996. 30 Second Immunoassay. ANL-IN-96-062, DOE S-86,391

17. Stevens, F.J. 1996. Use of genetically engineered plants to produce human biomolecules. ANL-IN-96-075, DOE S-86,844

18. Stevens, F.J. 1996. Immunassay for detection of biological agents. . ANL-IN-96-122, DOE-S87,875

19. Stevens, F.J. 1997. Massively Parallel Immunoassay (MPIA). ANL-IN-97-055, DOE S89,003

20. Stevens, F.J., M. Schiffer, K. Nash, and M. Jensen. 1997. Designs for actinide binding sites at the interface of a protein dimer. ANL-IN-97-056, DOE S89,002

21. Stevens, F.J. and M. Schiffer. 1998. Janusbody: a compact molecule with antibody-antigen binding characteristics. ANL-IN-98-021, DOE S90,947.

22. Stevens, F.J., and R. Raffen. 1998. In vitro protein fibril production: potential high-throughput method to screen for anti-amyloid drug leads. ANL-IN-98-046, DOE S91,201

23. Stevens, F.J., C.S. Giometti, and A. Joachimiak. 1998. The anti-western blot.

24. Stevens, F.J. and P. Wilkins Stevens. 1998. Immunological assays for actinides. ANL-IN-98-086,
DOE S91,835

25. Stevens, F.J., Y. Argon, D. Davis, and R. Raffen. 1999. Composition of a fibril-blocking peptide; strategy for development of peptides to inhibit conformational disease resulting from protein domain swapping. ANL-IN-99-019, DOE S93,203

26. Argon, Y., D.P. Davis, F.J. Stevens, and R. Raffen. 2000. A method for inhibiting amyloid-like protein aggregation with peptides. UCHI # 820.

27. Stevens, F.J. 2000. A method for high-throughput screening of protein nucleic acid (PNA) libraries for ligand (protein-binding) activity. ANL-IN-00-13

28. Stevens, F.J. and F. Collart. 2000. Universal Genomic Detector: A generic method for

identification and comparison of genomic material. ANL-IN-00-014

29. Stevens, F.J. 2000.Cyber cell: Molecular beacon methodology for a live-cell/microprocessor interface. ANL-IN-00-15

30. Stevens, F.J. and J.F. Carpenter. 2000. Lethal ligands: From conformational disease to conformational therapy. ANL-IN-00-22

31. Stevens, F.J. 2000. Biosentinel: Device for autonomous monitoring and evaluation of environmental samples. ANL-IN-00-52

32. Stevens, F.J. and M. Schiffer. 2000. Process for customizing functional stability of antibodies.

33. Stevens, F.J. 2000. Protein nucleic acids: methodology for generation and detection of forensic signatures.

34. Stevens, F.J. 2001. Differential PCR PNA-clamped SNP diagnostics. ANL-IN-01-101.

35. Stevens, F.J. 2001. Peptidyl chaperones. ANL-IN-01-101.

36. Stevens, F.J. 2003. Method for producing antibodies to proteins from select against without access to select agents; method for producing antibodies to proteins that cannot be produced for experimental reasons. ANL-IN-03-015

37. Vilim, R., and F.J. Stevens. 2003. Parsimonious fold-specific protein classifier from attribute-constrained genetic algorithms. ANL-IN-03-003.

38. Stevens, F.J. 2003. A thermophilic organophosphate detoxification enzyme. ANL-IN-03-051

39. Stevens, F.J., L. Chen, B. Kay. 2003. Functionalized three-dimensional protein lattices formed by self assembly. ANL-IN-03-52

40. Stevens, F.J. 2003. A systematic strategy for the disruption of adhesion protein-based biofilms of medical and commercial significance. ANL-IN-03-115

TECHNICAL REPORTS:

1. Levine, D., M. Facello, P. Hallstrom, G. Reeder, B. Walenz, and F.J. Stevens. 1996. STALK Users Guide. ANL/MCS-TM-214

2. Levine, D., M. Facello, P. Hallstrom, G. Reeder, B. Walenz, and F.J. Stevens. 1996. STALK Programmers Guide. ANL/MCS-TM-215

3. Stevens, F.J. 1999. Protein structure, stability, and conformational disease: human antibody light chains 1999. ANL/BIO/99-1

ABSTRACTS/PRESENTATIONS:

1. Stevens, F.J. and T.T. Wu. 1974. A third-stage mutant of *E. coli* capable of utilizing

he polyhydric pentitols as sole source of carbon and energy. Abstr. Ann. Mtg. Am. Soc. Microbiol., p 156.

2. Stevens, F.J. and T.T. Wu. 1976. Acquisition by *E. coli* K-12 of the ability to utilize an unnatural pentose, D-lyxose. Federation Proc. **35:** 1660.

3. Stevens, F.J. and R.L. Uffen. 1977. Acquisition of photosynthetic competence by anaerobic dark-grown cells of *R. rubrum* exposed to light. Presented at 4th Ann. Mtg. on the Molec. Biol. of Photosyn. Microorganisms; May 7.

4. Stevens, F.J., H.S. Pankratz, and R.L. Uffen. 1977. Cytochemical and spectrophotometric examination of the effect of glutaraldehyde on the oxidation of 3,3'-diaminobenzidine in phototropic bacteria. Cell Biology **75:** 244a.

5. Stevens, F.J., F. Westholm, A. Solomon, and M. Schiffer. 1979. Heterogeneity of κI light chains. Federation Proc. **38:** 940.

6. Stevens, F.J., F.A. Westholm, A. Solomon, and M. Schiffer. 1979. Role of the third hypervariable region in the self-association of κI immunoglobulin light chains. Presented at Midwest Autumn Immunology Conference; November 5.

7. Stevens, F.J., F.A. Westholm, A. Solomon, and M. Schiffer. 1980. Computer simulation of small zone gel filtration: heterologous association of immunoglobulin light chains. Federation Proc. **39:** 2210.

8. Schiffer, M., F.J. Stevens, F. Westholm, D. Carlson, and B. Schoenborn. 1980. Small angle neutron scattering study of Bence Jones protein Mcg: comparison of structures in solution and in crystal. Presented at Gordon Conference on Diffraction Methods in Molecular Biology; June 21.

9. Peraino, C., and F.J. Stevens. 1980. Characteristics of liver tumor promotion by phenobarbital. Presented at Symposium on Cocarcinogenesis and Biological Effects of Tumor Promoters; Oct. 13 (Klais, West Germany).

10. Schiffer, M., F.J. Stevens, and F.A. Westholm. 1980. Structural properties of Bence Jones proteins in the crystal and in solution. 38th Annual Pittsburgh Diffraction Conference; Oct. 30.

11. Wu, T.T., P.W. Stevens, J.G. Hovis, and F.J. Stevens. 1981. Production of an evolutionary remnant enzyme in *Escherichia coli* K-12. FEMS Symposium on Overproduction of Microbiol Products. Abstracts, p. 43.

12. Short, M., F.J. Stevens, F. Westholm, A. Solomon, and M. Schiffer. 1980. Preliminary X-ray crystallographic studies of Bence Jones protein Loc. Presented at Midwest Autumn Immunology Conference; Oct. 18.

13. Short, M., F.J. Stevens, F. Westholm, A. Solomon, and M. Schiffer. 1982. Crystallographic investigation of lambda Bence Jones protein Loc. Federation Proc. **41:** 287.

14. Short, M.T., F.J. Stevens, and M. Schiffer. 1983. High pressure gel permeation chromatography

in the study of self-associating immunoglobulin κI light chains and an idiotype-anti-idiotype complex. Federation Proc. **42:** 931.

15. Stevens, F.J., S. Anaokar, G. Korom, J. Tice, and P. Spillar. 1983. Solid phase enzyme immunoassay for serum leutenizing hormone. Clin. Chem. **29:** 1241.

16. Schiffer, M., R.L. McMasters, C.-H. Chang, and F.J. Stevens. 1984. Interactions of immunoglobulin constant domains. Gordon Research Conference on Physics and Physical Chemistry of Biopolymers; June 27.

17. Stevens, F.J. and C.F. Ainsworth. 1985. Antibody-antigen interactions: application of chromatography simulation and laboratory microcomputer. Federation Proc. **44:** 1077.

18. Stevens, F.J. 1985. Application of microcomputer-controlled size-exclusion chroatography and computer simulation to analysis of macromolecular interactions. Presented at Amoco-sponsored University/Industry Poster Session; Oct. 23 (Naperville, IL).

19. Schiffer, M., C.-H. Chang, F.J. Stevens, and A. Solomon. 1985. Implications of the protruding binding site of light-chain dimer Loc for the structure of the anti-idiotypic antibody. Presented at Symposium Idiotype Networks and Immune Regulation: Potential Uses in Vaccines and In Understanding Human Diseases; December 4 (San Antonio).

20. Stevens, F.J. and M. Schiffer. 1985. Analysis of idiotype:anti-idiotype interactions by small-zone size-exclusion chromatography: consideration of equilibrium constant and rate constants. Presented at Symposium Idiotype Networks and Immune Regulation: Potential Uses in Vaccines and In Understanding Human Diseases; December 4 (San Antonio).

21. Stevens, F.J. and C.F. Ainsworth. 1986. Microcomputer controlled size-exclusion chromatography. Biophys. J. **49:** 88a.

22. Carperos, W., J. Jwo, and F.J. Stevens. 1986. Analysis of monoclonal antibodies by liquid chromatography. Presented at Abbott Laboratories, State of Illinois-Sponsored Poster Session; November 26 (North Chicago, IL).

23. Boernke, W.E. and F.J. Stevens. 1987. HPLC-based size-exclusion chromatography for the detection of interactions between nucleic acids and proteins. Biophys. J. **51:** 442a.

24. Stevens, F.J. and M. Schiffer. 1987. Modification of an ELISA-based method to determine affinity: correction for nonlinear relationship between occupancy of antibody binding sites and attachment of IgG to immobilized antigen. Federation Proc. **46:** 491.

25. Stevens, F.J. 1987. Simulation of macromolecular interactions: kinetically controlled elution characteristics during size-exclusion high-performance liquid chromatography. Presented at Amoco-sponsored University-Industry Poster Session; Oct 8 (Naperville, IL).

26. Carperos, W.E. and F.J. Stevens. 1987. Application of size-exclusion high performance liquid chromatography for the measurement of antibody-antigen dissociation rate constants. Presented at Amoco-sponsored University-Industry Poster Session; Oct 8 (Naperville, IL).

27. Stevens, F.J. 1987. Macromolecular interactions: kinetically controlled elution characteristics during size-exclusion HPLC. Presented at Conference on Biotechnology Research Directions: Biomolecules; Nov 6 (Argonne, IL)

28. Carperos, W.E. and F.J. Stevens. 1987. Application of size-exclusion high-performance liquid chromatography for the measurement of antibody-antigen dissociation rate constants. Presented at Conference on Biotechnology Research Directions: Biomolecules; Nov 6 (Argonne, IL)

29. Schiffer, M., C.-H. Chang and F.J. Stevens. 1987. Domain-domain interactions affect the expression of idiotope. Presented at Symposium on Idiotype Networks and Immune Regulation: II Autoimmunity, Cancer, Receptors and Vaccines; Nov 18 (San Antonio).

30. Stevens, F.J. 1988. Simulation of kinetically controlled elution characteristics exhibited by macromolecular interactions during size-exclusion HPLC. Biophys. J. **53:** 400a.

31. Stevens, F.J., and P. Kaumaya. 1988. Size-exclusion HPLC analyses of protein and peptide epitopes. Presented at Second Conference on Biotechnology Research Directions: Biomolecules; Nov 4 (Argonne, IL)

31. Schiffer, M., C.-H. Chang, Z.B. Xu and F.J. Stevens. 1989. Modification of antibody binding site through altered V-V domain interactions. J. Cell. Biol. 13A:94.

33. Boernke, W.E. and F.J. Stevens. 1989. Study of interactions between myeloperoxidase and nucleic acids by size-exclusion HPLC. Biophys. J. **55:** 525a.

34. Stevens, F.J., and P. Kaumaya. 1989. Size-exclusion HPLC analyses of peptide epitopes. FASEB J. **3:** A1135.

35. Schiffer, M., C.-H. Chang, Z-B. Xu and F.J. Stevens. 1989. Conformational effects and diversity of antibodies. Presented at 7th International Congress of Immunology, (Berlin).

36. Spangler, B.D., F.J. Stevens, and E.M. Westbrook. 1989. Binding of monoclonal antibodies to cholera toxin: comparison of solid phase and solution phase techniques. Presented at Amoco-sponsored University-Industry Poster Session; Oct 12 (Naperville, IL).

37. Stevens, F.J. 1990. Simulation of macromolecular interactions during size-exclusion chromatography: positive cooperativity contribution by gel matrix. Biophys. J. **57:** 82a.

38. Stevens, F.J. 1990. Chromatographic analyses of protein:protein interactions: from the supercomputer to the kidney. Presented at the University of Illinois at Chicago, Dept. of Biochemistry; April 19.

39. Stevens, F.J. 1990. Chromatographic analyses of macromolecular interactions: from the supercomputer to the kidney. Presented at the Wayne State University, Dept. of Biochemistry; Sept 4.

40. Stevens, F.J. 1990. Biophysical aspects of myeloma pathology. University of Tennessee-Knoxville, School of Medicine; Sept 7.

41. Myatt, E.A. and F.J. Stevens. 1991. Induction of protein aggregation in nephromimitic solutions.

Biophys. J. **59:** 119a.

42. Shen, B., F.J. Stevens, and U. Luthi. 1991. Elasticity of human erythrocyte spectrin inferred from conformational analysis. FASEB J. **5:** A685.

43. Myatt, E.A. and F.J. Stevens. 1991. Induction of protein aggregation in nephromimitic solutions. Presented at Gordon Research Conference; June 17--21.

44. Spangler, B.D., G.D. Armstrong, and F.J. Stevens. 1991. HPLC analysis of pertussis binding to glycoproteins. Presented at fifteh European Workshop on Bacterial Protein Toxins, Veldhoven, July.

45. Chen, S., S. Goldin, F.J. Stevens, and B.W. Shen. 1991. Elasticity of human erythrocyte spectrin inferred from electron microscopic and conformational analysis. Presented at Gordon Research Conference, Plymouth State College, New London, N.H.; August 5--9.

46. Stevens, F.J. 1991. Polymerization of immunoglobulin domains: a model system for the development of facilitated macromolecular assembly. (Presented at the Second Foresight Conference on Molecular Nanotechnology, Palo Alto, CA; (November 7--9)).

47. Stevens, F.J. 1991. Biophysical and computational aspects of immunoglobulin light chain pathology. Chicago Medical School, North Chicago, IL. Dept of Biochemistry; November 21.

48. Stevens, F.J., E.A. Myatt, A. Solomon, and M. Schiffer. 1992. Amyloidosis AL: Molecular model for a biophysical disease. Biophys. J. 61: A211

49. Stevens, F.J. and R.L. Stevens. 1992. Protein-protein interaction kinetics. Presented at Concurrent Supercomputing Consortium Workshop, CalTech, February 11.

50. Harrison, H.H., T. Godsey, K. Bedford, A. Katta, K. Miller, E. Weisenberg, J.E. Bowman, E.Myatt, C.S. Giometti, and F.J. Stevens. 1992. Comparison of microheterogeneity patterns of purified monoclonal light chains (Bence Jones proteins) and polyclonal free light chains that produce the pseudo-oligoclonal ("ladder light chain") pattern in immunofixation studies of urine. Clin. Chem.

51. Stevens, F.J. 1992. Analysis of antibody light chain interactions: modeling of amyloid fibril formation. Presented at Northern Illinois University, De Kalb, IL, Oct. 2.

52. Gaasterland, T., R.L. Stevens, F.J. Stevens, and M. Schiffer. Critiquing protein molecule structures. Presented at The Third Keck Symposium on Computational Biology, Houston, TX, Nov. 1-3, 1992.

52. Myatt, E.A., A. Solomon, and F.J. Stevens. Aggregation of immunoglobulin light chains. J. Immunol. **150:** 861, 1993.

54. Li, D., F.J. Stevens, M. Schiffer, and L.E. Anderson. Cysteine clusters in the light activated

chloroplast enzymes. Plant Physiol. **102:** 37, 1993.

55. Li, D., F.J. Stevens, M. Schiffer, and L.E. Anderson. Identification of redox-sensitive cysteines distal to catalytic site in light-activated chloroplastic glyceraldehyde-3-phosphate dehydrogenase by modeling. Presented at The XIII Midwest Enzyme Conference, Loyola University, Oct 9, 1993.

56. Huang, D.-B., C.-H. Chang, C. Ainsworth, M. Schiffer, F.J. Stevens, A. Brunger, M. Eulitz, and A. Solomon. Novel immunoglobulin variable domain interaction is observed. ACA Meeting, Albuquerque, PK14, 1993.

57. Jiang, X., P. Lykos, M. Schiffer, and F.J. Stevens. The design and evaluation of the peptide inhibition of antibody light chain dimer formation by molecular modeling. Presented at The Second Annual Development of Small Molecule Mimetic Drugs, Philadelphia, April 11-12, 1994.

58. Stevens, F.J. A molecular model for amyloid fibril formation by antibody light chains. Presented at Loyola University, Chicago, April 21, 1994.

59. Li, D., F.J. Stevens, M. Schiffer, and L.E. Anderson. Mechansims of light modulation: identification of potential redox-sensitive cysteines in chloroplast fructose-1,6-bisphosphatase and sedoheptulose-1,7-bisphosphatase. FASEB J. **8:** A1290, 1994.

60. Muslin, E.H., D. Li, M. Schiffer, F.J. Stevens, M.I. Donnelly, and L. Anderson. Construction of a redox-sensitive malate dehydrogease. Presented at XIV Annual Midwest Autumn Enzymology Conference. 1994

61. Stevens, F.J. Physcial chemical aspects of antibody interactions with itself, antigen, and solid surfaces. Presented at Surfaces in Biomaterials '94, Scottsdale, AZ., Sept 8--10, 1994.

62. Li, D., E. H. Muslin, L.E. Anderson, M.M. Pacold, M. Donnelly, M. Schiffer, and F.J. Stevens. Engineering a domain-locking disulfide into a bacterial malate dehydrogenase produces a redox-sensitive enzyme. FASEB J. 9:A1284, 1995.

63. Paul, S., L. Li, P. Wilkins-Stevens, F.J. Stevens, and A.Solomon. Natural catalytic antibodies: peptide hydrolyzing activities of monoclonal human light chains and VL fragment. FASEB J 9: 1265, 1995.

64. Kalaga, R., H. Huang, F.J. Stevens, A. Solomon, and S. Paul. gp120 hydrolysis by catalytic antibody light chain. Presented at The 9th International Congress of Immunology, San Fransisco, CA, July 23-29, 1995.

65. Jiang, X.-L., E.A. Myatt, R. Raffen, and F.J. Stevens. Study of interactions between amyloid forming protein and glycosaminoglycans. Presented at Protein Interactions. Pfizer/Beckman Institute Protein Symposium. Urbana, IL, June 1-4, 1995.

66. Anderson, L.E., H.C. Huppe, D. Li, and F.J. Stevens. Identification of a potential recdox -sensitive inter-domain disulfide in the sedoheptulose bisphosphatase of *Chlamydomonas*

reinhardtii. Presented at Xth International Photosynthesis Congress, Montpellier, France, August 20-25, 1995.

67. Stevens, F.J. Molecular studies of light chain amyloidosis. Presented at FASEB Conference: Amyloid and other Abnormal Protein Assembly Processes, Copper Mountain, CO, August 20-25, 1995.

68. Mulsin, E.H., F.J. Stevens, and L.E. Anderson. A disulfide bridge stabilizes anaerobically induced lactate dehydrogenase in barley. Presented at Thoiredoxins and Related Proteins, Witzenhausen, University of Kassel, August 27-31, 1995.

69. Anderson, L.E., D. Li, E.H. Muslin, M.E. Pacold, M.I. Donnelly, M. Schiffer, and F.J. Stevens. Mechanism of light modulation: Identification of redox-sensitive cysteines in malate dehydrogenase by modeling and by site-directed mutagenesis. Presented at Thioredoxins and Related Proteins, Witzenhausen, University of Kassel, August 27-31, 1995.

70. Muslin, E.H., F.J. Stevens, and L.E. Anderson. Anaerobically induced lactate dehydrogenase: The role ofa disulfide bridge in enzyme stability. Presented at XV Annual Midwest Autumn Enzymology Conference. Chicago, IL. Oct 15, 1995

71. Li, A.D., H.C. Huppe, F.J. Stevens, and L.E. Anderson. *Chlamydomonas reinhardtii* NADP-linked glyceraldehyde-3-phosphate dehydrogenase is DTT-activatable. Presented at XV Annual Midwest Autumn Enzymology Conference. Chicago, IL. Oct 15, 1995

72. Anderson L.E., A. D. Li, E.H. Muslin, M.E. Pacold, M.I.Donnelly, M. Schiffer, and F.J. Stevens 1995. Mechansim of light modulation: identification of redox-sensitive cysteines in target enzymes by modeling and by site-directed mutagenesis. Presented at XV Annual Midwest Autumn Enzymology Conference. Chicago, IL. Oct 15.

73. Muslin E.H., A. D. Li, F.J. Stevens, M. Schiffer, M. Donnelly, and L.E. Anderson. 1995. The engineering of new domain-locking disulfides into a bacterial malate dehydrogenase strengthens evidence for original model of reductive activation of the chloroplast enzyme. Presented at Photosynthesis Symposium, Turkey Run, IN, Oct.

74. Raffen, R., P. Wilkins Stevens, D.K. Hanson, Y. Deng, M. Berrios-Hammond, F.A. Westholm, M. Schiffer, and F.J. Stevens. 1996. In vitro characterization of light chain amyloidosis using recombinant light chain variable domains. Biophysical J.

75. Levine, D. and F.J. Stevens. 1996. STALK: A Molecular Docking System. Presented at The Second Sandia National Laboratories Workshop on Computational Molecular Biology, March 4-6, 1996, Albuquerque, New Mexico

76. Huang, D.-B., C. Ainsworth, C.-H. Chang, F.J. Stevens, and M. Schiffer. 1996. Structure of the variable domain of human immunoglobulin κIV light chain Len Presented at the International Union of Crystallography XVII Congress and General Assembly, Seattle, WA., Aug 8-17.

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