

# Professor Frank A. Gomez

## Curriculum Vitae

California State University, Los Angeles  
Department of Chemistry and Biochemistry  
5151 State University Drive  
Los Angeles, California 90032-8202  
323-343-2368  
Fax: 323-343-6490  
E-mail: [fgomez2@calstatela.edu](mailto:fgomez2@calstatela.edu)  
Website: <http://www.calstatela.edu/dept/chem/gomez/index.htm>  
PREM website: <http://www.calstatela.edu/dept/chem/prem/index.htm>

### **Educational Training**

1986	B.S.	Chemistry	California State University, Los Angeles (with T. P. Onak)
1991	Ph.D.	Chemistry	University of California, Los Angeles (with M. F. Hawthorne)
1991-94	Postdoc	Chemistry	Harvard University - Damon Runyon-Walter Winchell Cancer Research Fund Postdoctoral Fellow (with G. M. Whitesides)

### **Professional Experience**

2004-present	Director, CSULA-Caltech Partnership for Research and Education in Materials (PREM) Collaborative
2003-present	Visiting Research Associate, Caltech
2002-present	Professor, California State University, Los Angeles
1997-2002	Associate Professor, California State University, Los Angeles
1994-1997	Assistant Professor, California State University, Los Angeles

### **Awards**

MARC-NIH Undergraduate Fellowship, 1984-1986.  
National Chicano Council for Higher Education Doctoral Fellowship (NCCHE), 1984  
MARC-NIH Predoctoral Fellowship, 1986-1991.  
Hispanic Engineer National Achievement Award Conference (HENAAC), Most Aspiring Scientist, 1993.  
California Educator of the Year, CA Junior Chamber of Commerce (Jaycees), November, 1998.  
SACNAS Undergraduate Institution Mentor Award, 2003.  
CSUPERB Biotechnology Faculty Research Award, January, 2007.

### **Professional Service**

American Chemical Society Committee on Education, Associate Member, 1995-1997.  
Appointed representative to the Section Committee of the American Association for the Advancement of Science (AAAS) Section on Education, 1996-1997; 2001-2002.  
American Chemical Society Task Force on Teacher Professional Development, 1996.  
American Chemical Society Minority Affairs Committee, Associate Member, 1996-1998.  
Executive Committee, Southern California Section of the American Chemical Society, 1998-2000.  
Councilor, SCALACS, 2007-present.  
Executive Board, UCLA NSF-IGERT, 2007-present.  
Editorial Board, *Bioanalysis*, 2008-present.

### **Reviewer**

*Ad hoc* reviewer of proposals, GTE FOCUS Program, Stamford, CT, December, 1994.  
Reviewer of proposals, NSF, 1996-present.  
*Ad hoc* reviewer of manuscripts submitted for publication in: *Journal of Chromatography A*, *Journal of Chromatography B*, *Journal of the American Chemical Society*, *Inorganic Chemistry*, *Electrophoresis*, *The Analyst*, *Journal of Plant Physiology*, *Chemical Engineering Communications*, *Analytical and Bioanalytical Chemistry*, *Journal of Pharmaceutical Sciences*, *Applied Biochemistry*

and Biotechnology, Analytical Chemistry, Talanta, Journal of Separation Science, Sensors and Actuators B, Microfluidics and Nanofluidics, Biophysical Chemistry, Lab on a Chip  
 NSF Model Institutions of Excellence Site Review Committee, UTEP, October, 1996, April, 1997.  
 Committee of Visitors Review Panel for the National Science Foundation (NSF)-NATO  
 Postdoctoral Fellowships in Science and Engineering Program, December, 1996.  
*Ad hoc* reviewer of proposals for the National Research Council, Ford Foundation, March, 1997.  
*Ad hoc* NIH-MBRS reviewer of proposals, February, 1998.  
 Review Panel for the NSF Postdoctoral Fellowships in Science, Mathematics, Engineering and  
 Technology Education (PFSMETE) Program, April, 1998.  
 Review Panel for the NSF Inorganic Chemistry CAREER Award, November, 1998.  
 Review Committee, Chair, Richard C. Tolman Award, April, 1999.  
 NSF-MRSEC Site Visit, Harvard University, October, 2006.  
 Reviewer of proposals for the North Carolina Biotechnology Center, 2008-present.  
 NSF-NSEC Site Visit, University of Wisconsin, Madison, April, 2008.  
*Ad hoc* NIH Enabling Bioanalytical & Biophysical Technologies (EBT) Study Section, January,  
 2009.

### **Community Service**

Board of Directors, Society for Advancement of Chicanos and Native Americans in Science  
 (SACNAS), 1989-1991, 1993-1996, 1997-2003, Secretary 1997-2003.  
 The East Los Angeles Community Union (TELACU) Scholarship Committee, City of Commerce,  
 CA, 1996, 2000.  
 Montebello Unified School District Board of Education, December, 1997-2001.  
 Executive Committee, Los Angeles County School Trustees Association (LACSTA), 1998-2000.  
 Conference Program Chair, SACNAS National Conference, Portland, OR, October, 1999; Atlanta,  
 GA, October, 2000.  
 Don Bosco Technical Institute Board of Trustees, 2007-present.

### **Publications (Underlined names denote undergraduate student co-authors.)**

1. "Synthetic and Rearrangement Studies on the Carboranes *B*-X-*closo*-2,4-C<sub>2</sub>B<sub>5</sub>H<sub>6</sub> (X=Br, I) and *B*,*B'*-X<sub>2</sub>-*closo*-2,4-C<sub>2</sub>B<sub>5</sub>H<sub>5</sub>. Correlation of *B*-Halo- and *B*,*B'*-Dihalodicarba-*closo*-heptaborane Isomer Stabilities," Ng, B.; Onak, T.; Gomez, F.; DiStefano, E. W. *Inorg. Chem.* **1985**, *24*, 4091-4096.
2. "Conversion of *closo*-2,4-C<sub>2</sub>B<sub>5</sub>H<sub>7</sub> to [*nido*-2,4-C<sub>2</sub>B<sub>5</sub>H<sub>7</sub>]<sup>-</sup>," Abdou, Z. J.; Gomez, F.; Abdou, G.; Onak, T. *Inorg. Chem.* **1988**, *27*, 3679-3680.
3. "The Latino Science Recruitment Project," Gomez, F. A. *J. Chem. Ed.* **1990**, *67*, 318-320.
4. "The Use of Mixed Halogens, ICl and IBr, and (C<sub>2</sub>H<sub>5</sub>)<sub>2</sub>NSF<sub>3</sub> as Halogenating Agents for *Closo*-2,4-C<sub>2</sub>B<sub>5</sub>H<sub>7</sub> and Some Derivatives," Gomez, F. A.; Onak, T.; Arias, J.; Alfonso, C. *Main Group Metal Chemistry* **1990**, *13*(4), 237-246.
5. "A Versatile Protecting Group for 1,2-Dicarba-*closo*-dodecaborane(12) and the Structure of a Silylcarborane Derivative," Gomez, F. A.; Johnson, S. E.; Hawthorne, M. F. *J. Am. Chem. Soc.* **1991**, *113*, 5915-5917.
6. "A Simple Route to C-Monosubstituted Carborane Derivatives," Gomez, F. A.; Hawthorne, M. F. *J. Org. Chem.* **1992**, *57*, 1384-1390.
7. "Synthesis and Structural Characterization of Metallocarboranes Containing Bridged Dicarbolide Ligands," Gomez, F. A.; Johnson, S. E.; Knobler, C. B.; Hawthorne, M. F. *Inorg. Chem.* **1992**, *31*, 3558-3567.
8. "Synthesis and Structural Characterization of Pyrazole Bridged Metalla-*bis*(dicarbolide Derivatives of Cobalt, Nickel, Copper, and Iron: Models for Venus Flytrap Cluster Reagents," Varadarajan, A.; Johnson, S. E.; Gomez, F. A.; Chakrabarti, S.; Knobler, C. B.; Hawthorne, M. F. *J. Am. Chem. Soc.* **1992**, *114*, 9003-9011.
9. "Organofunctionalized Derivatives of *O*-Carborane as Precursors to Non-Oxide Ceramics of Boron," Johnson, S. E.; Gomez, F. A.; Hawthorne, M. F.; Thorne, K. J.; MacKenzie, J. D. *Eur. J. Solid State & Inorg. Chem.* **1992**, *29*, 113-125.

10. "Carboracycles: A Family of Novel Macrocyclic Carborane Derivatives," Chizhevsky, I. T.; Johnson, S. E.; Knobler, C. B.; Gomez, F. A.; Hawthorne, M. F. *J. Am. Chem. Soc.* **1993**, *115*, 6981-6982.
11. "Determination of Binding Constants of Ligands to Proteins by Affinity Capillary Electrophoresis: Compensation for Electroosmotic Flow," Gomez, F. A.; Avila, L. Z.; Chu, Y.-H.; Whitesides, G. M. *Anal. Chem.* **1994**, *66*, 1785-1791.
12. "Affinity Capillary Electrophoresis: Insights into the Binding of SH3 Domains by Peptides Derived from an SH3-Binding Protein," Gomez, F. A.; Chen, J. K.; Tanaka, A.; Schreiber, S. L.; Whitesides, G. M. *J. Org. Chem.* **1994**, *59*, 2885-2886.
13. "Determination of the Net Charge of Proteins Using Capillary Electrophoresis," Gao, J.; Gomez, F. A.; Haerter, R.; Whitesides, G. M. *Proc. Natl. Acad. Sci. U.S.A.*, **1994**, *91*, 12027-12030.
14. "Using Capillary Electrophoresis to Follow the Acetylation of the Amino Groups of Insulin and to Estimate their Basicities," Gao, J.; Mrksich, M.; Gomez, F. A.; Whitesides, G. M. *Anal. Chem.* **1995**, *67*, 3093-3100.
15. "Determination of the Binding of Ligands Containing the N-2,4-dinitrophenyl Group to Bivalent Monoclonal Rat anti-DNP Antibody Using Affinity Capillary Electrophoresis," Mammen, M.; Gomez, F. A.; Whitesides, G. M. *Anal. Chem.* **1995**, *67*, 3526-3535.
16. "Multiple-Plug Binding Assays Using Affinity Capillary Electrophoresis," Gomez, F. A.; Mirkovich, J. N.; Dominguez, V. M.; Liu, K. W.; Macias, D. M. *J. Chromatogr. A*, **1996**, *727*, 291-299.
17. "Carboracycles: Macrocyclic Compounds Composed of Carborane Icosahedra Linked by Organic Bridging Groups," Jiang, W.; Chizhevsky, I. T.; Mortimer, M. D.; Chen, W.; Knobler, C. B.; Johnson, S. E.; Gomez, F. A.; Hawthorne, M. F. *Inorg. Chem.* **1996**, *35*, 5417-5426.
18. "Determination of the Binding of  $\beta$ -Cyclodextrin Derivatives to Adamantane Carboxylic Acids Using Capillary Electrophoresis," Kwak, E. -S.; Gomez, F. A. *Chromatographia* **1996**, *43*, 659-662.
19. "Enzyme-Catalyzed Microreactions Using Capillary Electrophoresis: A Quantitative Study," Zhao, D. S.; Gomez, F. A. *Chromatographia* **1997**, *44*, 514-520.
20. "Double Enzyme-Catalyzed Microreactors Using Capillary Electrophoresis," Zhao, D. S.; Gomez, F. A. *Electrophoresis* **1998**, *19*, 420-426.
21. "The Use of Affinity Capillary Electrophoresis for Determining Binding Constants of Ligands to Receptors," Zhao, D. S.; Kwak, E. -S.; Kawaoka, J.; Esquivel, S.; Gomez, F. A. *Am. Lab.* **1998**, *30*, 40-47.
22. "Use of Mobility Ratios to Estimate Binding Constants in Affinity Capillary Electrophoresis," Kawaoka, J.; Gomez, F. A. *J. Chromatogr. B*, **1998**, *715*, 203-210.
23. "Use of a Partial-Filling Technique in Affinity Capillary Electrophoresis for Determining Binding Constants of Ligands to Receptors," Heintz, J.; Hernandez, M.; Gomez, F. A. *J. Chromatogr. A*, **1999**, *840*, 261-268.
24. "Optimization of Capillary Electrophoresis Conditions for In-Capillary Enzyme-Catalyzed Microreactions," Kwak, E. -S.; Esquivel, S.; Gomez, F. A. *Anal. Chim. Acta*, **1999**, *397*, 183-190.
25. "1-[Ferrocenyl(hydroxy)methyl]-1,2-dicarba-closo-dodecaborane," Crundwell, G.; Arellanes, C.; Gomez, F. A.; Kantardjieff, K. *Acta Crystallogr., Sect. C*, **1999**, *C55*, IUC9900087.
26. "Flow-Through Partial-Filling Affinity Capillary Electrophoresis Can Estimate Binding Constants of Ligands to Receptors," Mito, E.; Gomez, F. A. *Chromatographia*, **1999**, *50*, 689-694.
27. "Use of Capillary Electrophoresis and Indirect Detection to Quantitate In-Capillary Enzyme-Catalyzed Microreactions," Zhang, Y.; El-Maghrabi, R.; Gomez, F. A. *Analyst*, **2000**, *125*, 685-688.
28. "Estimation of Receptor-Ligand Interactions by the Use of a Two-Marker System in Affinity Capillary Electrophoresis," Mito, E.; Zhang, Y.; Esquivel, S.; Gomez, F. A. *Anal. Biochem.* **2000**, *280*, 209-215.

29. "On-Column Derivatization and Analysis of Amino Acids, Peptides, and Alkylamines by Anhydrides Using Capillary Electrophoresis," Zhang, Y.; Gomez, F. A. *Electrophoresis*, **2000**, *21*, 3305-3310.
30. "Multiple-Step Ligand Injection Affinity Capillary Electrophoresis for Determining Binding Constants of Ligands to Receptors," Zhang, Y.; Gomez, F. A. *J. Chromatogr. A*, **2000**, *897*, 339-347.
31. "On-Column Ligand Synthesis Coupled to Partial-Filling Affinity Capillary Electrophoresis to Estimate Binding Constants of Ligands to a Receptor," Zhang, Y.; Kodama, C.; Zurita, C.; Gomez, F. A. *J. Chromatogr. A*, **2001**, *928*, 233-241.
32. "On-Column Enzyme-Catalyzed Microreactions Using Capillary Electrophoresis: Quantitative Studies," Zhang, Y.; Kaddis, J.; Silverio, C.; Zurita, C.; Gomez, F. A. *J. Cap. Elect. Microchip Tech.* **2002**, *7*, 1-9.
33. "Determination of Binding Constants Between Teicoplanin and D-Ala-D-Ala Terminus Peptides by Affinity Capillary Electrophoresis", Silverio, C. F.; Plazas, A.; Moran, J.; Gomez, F. A. *J. Liq. Chrom. & Rel. Tech.* **2002**, *25*, 1677-1691.
34. "Flow-Through Partial-Filling Affinity Capillary Electrophoresis Can Estimate Binding Constants of Neutral Ligands to Receptors Via a Competitive Assay Technique", Kaddis, J.; Mito, E.; Heintz, J.; Plazas, A.; Gomez, F. A. *Electrophoresis*, **2003**, *24*, 1105-1110.
35. "Separation of DNA by Capillary Electrophoresis in Uncoated Silica Columns Using Hydroxypropylmethyl Cellulose as the Sieving Matrix", Villareal, V.; Zhang, Y.; Zurita, C.; Moran, J.; Silva, I.; Gomez, F. A. *Anal. Lett.* **2003**, *36*, 451-463.
36. "Determination of Binding Constants Between the Antibiotic Ristocetin A and D-Ala-D-Ala Terminus Peptides by Affinity Capillary Electrophoresis", Azad, M.; Hernandez, L.; Plazas, A.; Rudolph, M.; Gomez, F. A. *Chromatographia*, **2003**, *57*, 339-344.
37. "On-Column Derivatization and Analysis of the Antibiotics Teicoplanin and Ristocetin Coupled to Affinity Capillary Electrophoresis", Silverio, C. F.; Azad, M.; Gomez, F. A. *Electrophoresis*, **2003**, *24*, 808-815.
38. "Partial-Filling Affinity Capillary Electrophoresis", Villareal, V.; Kaddis, J.; Azad, M.; Zurita, C.; Silva, I.; Hernandez, L.; Rudolph, M.; Moran, J.; Gomez, F. A. *Anal. Bioanal. Chem.* **2003**, *376*, 822-831.
39. "On-Column Synthesis Coupled to Affinity Capillary Electrophoresis to Determine Binding Constants of Peptides to Glycopeptide Antibiotics", Azad, M.; Silverio, C.; Zhang, Y.; Villareal, V.; Gomez, F. A. *J. Chromatogr., A*, **2004**, *1027*, 193-204.
40. "Partial-Filling Techniques for Affinity Capillary Electrophoresis to Probe Receptor-Ligand Interactions", Brown, A.; Silva, I.; Chinchilla, D.; Hernandez, L.; Gomez, F. A. *LCGC Europe*, **2004**, 1-7.
41. "Estimation of Binding Constants for the Substrate and Activator of *Rhodobacter sphaeroides* ADP-Glucose Pyrophosphorylase Using Affinity Capillary Electrophoresis", Kaddis, J.; Zurita, C.; Moran, J.; Borra, M.; Polder, N.; Meyer, C. R.; Gomez, F. A. *Anal. Biochem*, **2004**, *327*, 252-260.
42. "Estimation of Binding Constants between Ristocetin and Teicoplanin to Peptides Using On-Column Ligand Derivatization Coupled to Affinity Capillary Electrophoresis", Azad, M.; Brown, A.; Silva, I.; Gomez, F. A. *Anal. Bioanal. Chem.* **2004**, *379*, 149-155.
43. "Use of a Dual-marker Form of Analysis to Estimate Binding Constants Between Receptors and Ligands by Affinity Capillary Electrophoresis", Villareal, V.; Brown, A.; Gomez, A.; Silverio, C.; Gomez, F. A., *Chromatographia*, **2004**, *60*, 73-78.
44. "Optimization of Conditions for Flow-Through Partial-Filling Affinity Capillary Electrophoresis to Estimate Binding Constants of Ligands to Receptors", Brown, A.; Desharnais, R.; Roy, B.C.; Malik, S; Gomez, F. A. *Anal. Chim. Acta*, **2005**, *540*, 403-410.
45. "Flow Injection-Capillary Electrophoresis (FI-CE): Recent Advances and Applications", Hanrahan, G.; Dahdouh, F.; Clarke, F.; Gomez, F.A. *Curr. Anal. Chem.* **2005**, *1*, 321-328.
46. "Multiple-Injection Affinity Capillary Electrophoresis to Estimate Binding Constants of Receptors to Ligands", Chinchilla, D.; Zavaleta, J.; Martinez, K.; Gomez, F. A. *Anal. Bioanal. Chem.* **2005**, *383*, 625-631.

47. "Recent Developments in Affinity Capillary Electrophoresis. A Review", Zavaleta, J.; Chinchilla, D.; Brown, A.; Sogomonyan, T.; Ramirez, A.; Calderon, V.; Gomez, F. A. *Curr. Anal. Chem.* **2006**, *2*, 35-42.
48. "Multiple-Injection Affinity Capillary Electrophoresis to Examine Binding Constants Between Glycopeptide Antibiotics and Peptides", Zavaleta, J.; Chinchilla, D.; Martinez, K.; Gomez, F.A. *J. Chromatogr. A*, **2006**, *1105*, 59-65.
49. "Multiple-Injection Affinity Capillary Electrophoresis." Zavaleta, J.; Chinchilla, D.; Ramirez, A.; Calderon, V.; Gomez, F. A. *LCGC*, **2006**, *24*, 1118-1132; **2007**, 84-92.
50. "Partial Filling Affinity Capillary Electrophoresis Techniques to Probe the Binding of Glycopeptide Antibiotics to D-Ala-D-Ala Terminus Peptides", Zavaleta, J.; Chinchilla, D. B.; Kaddis, C. F.; Martinez, K.; Brown, A.; Gomez, A.; Pao, A.; Ramirez, A.; Nilapwar, S.; Ladbury, J. E.; Gomez, F. A. *J. Cap. Elect. Microchip Tech.*, **2006**, *9*, 101-117.
51. "Partial-Filling Multiple-Injection Affinity Capillary Electrophoresis (PFMIACE) to Examine Binding Constants of Receptors to Ligands," Zavaleta, J.; Chinchilla, D.; Ramirez, A.; Pao, A.; Martinez, K.; Nilapwar, S.; Ladbury, J. E.; Mallik, S.; Gomez, F. A., *Talanta*, **2007**, *71*, 192-201.
52. "1-[Ferrocenyl(hydroxy)methyl]-1,7-dicarba-closo-dodecaborane: Synthesis and X-ray Crystal Structure." Fields, J.; Ouyang, X.; Herron, S. R.; Kantarjieff, K. A.; Jabalameli, A.; Gomez, F. A. *J. Chem. Crystallogr.* **2007**, *37*, 55-62.
53. "Determination of Binding Constants of Polyethylene Glycol Vancomycin Derivatives to Peptide Ligands Using Affinity Capillary Electrophoresis," Hernandez, L.; Hanrahan, G.; Rudolph, M.; Lammertink, R.; Kornfield, J.; Gomez, F. A. *Chromatographia*, **2007**, *65*, 299-303.
54. "Design and Fabrication of Chemically Robust Three-Dimensional Microfluidic Valves," Maltezos, G.; Garcia, E.; Hanrahan, G.; Gomez, F. A.; Vjawhare, S.; van Dam, R. M.; Chen, Y.; Scherer, A. *Lab Chip*, **2007**, *7* 1209-1211.
55. "Implementation of Chemometric Methodology in Affinity Capillary Electrophoresis (ACE): Predictive Investigation of Protein-Ligand Binding", Hanrahan, G.; Montes, R.; Pao, A.; Johnson, A.; Gomez, F. A. *Electrophoresis*, **2007**, *28*, 2853-2860.
56. "Simple Fabrication of Fritless Chromatographic Microchips Packed with Conventional Reversed-Phase Silica Particles," Gaspar, A.; Piyasena, M. E.; Gomez, F. A. *Anal. Chem.* **2007**, *79*, 7906-7909.
57. "Design and Development of a Flow Injection-Capillary Electrophoresis (FI-CE) Analyzer Employing Fiber Optic Detection." Hanrahan, G.; Tse, F.; Dahdouh, F. T.; Clarke, K.; Gomez, F. A. *J. Cap. Elect. Microchip Tech.* **2007**, *10*, 1-6.
58. "Voltage Gradient Partial Filling Multiple Injection Affinity Capillary Electrophoresis to Estimate Binding Constants of Receptors to Ligands", Ramirez, A.; Gomez, F. A. *J. Cap. Elect. Microchip Tech.* **2007**, *10*, 43-50.
59. "Through-a-Chip Affinity Capillary Electrophoresis to Estimate Binding Constants Between Receptors and Ligands", Brown, A. L.; Morales, C.; Gomez, F. A. *Talanta*, **2008**, *74*, 605-612.
60. "Response Surface Examination of the Relationship Between Experimental Conditions and Product Distribution in Electrophoretically Mediated Microanalysis (EMMA)," Montes, R.; Gomez, F. A.; Hanrahan, G., *Electrophoresis*, **2008**, *29*, 375-380.
61. "Chemometric Experimental Design-Based Optimization Techniques in Capillary Electrophoresis: A Critical Review of Modern Applications", Hanrahan, G.; Montes, R.; Gomez, F. A., *Anal. Bioanal. Chem.* **2008**, *390*, 169-179.
62. "Electrochromatography in Fritless Chromatographic Microchips Packed with Conventional Reversed-Phase Silica Particles", Gaspar, A.; Hernandez, L.; Stevens, S.; Gomez, F. A., *Electrophoresis*, **2008**, *29*, 1638-1642.
63. "Magnetically Controlled Valve for Flow Manipulation in Polymer Microfluidic Devices," Gaspar, A.; Piyasena, M.; Daroczi, L.; Gomez, F. A. *Micro. Nano.* **2008**, *6*, 525-531.
64. "Chemometrical Experimental Design-Based Optimization Studies in Capillary Electrophoresis Applications", Montes, R.; Dahdouh, F.; Riveros, T. A.; Hanrahan, G.; Gomez, F. A. *LCGC*, **2008**, *26*, 712-721.

65. "Use of Chemometric Methodology in Optimizing Conditions for Competitive Binding Partial Filling Affinity Capillary Electrophoresis (PFACE)", Montes, R.; Hanrahan, G.; Gomez, F. A., *Electrophoresis*, **2008**, *29*, 3325-3332.
66. "Chemometrical Examination of Active Parameters and Interactions in Flow Injection-Capillary Electrophoresis (FI-CE)," Dahdouh, F. T.; Clarke, K.; Salgado, M.; Hanrahan, G.; Gomez, F. A. *Electrophoresis*, **2008**, *29*, 3779-3785.
67. "Fritless Chromatographic Microfluidic-Based Columns for Chemical Separations," Gaspar, A.; Goldberg, M.; Baghdachi, S.; Stevens, S.; Torres, J.; Salgado, M.; Gomez, F. A. *Am. Lab.* **2008**, *40*, 13-16.
68. "Magnetic Bead-Based Methods to Study the Interaction of Teicoplanin with Peptides and Bacteria," Piyasena, M. E.; Real, L. J.; Diamond, R. A.; Xu, H.; Gomez, F. A. *Anal. Bioanal. Chem.*, **2008**, *392*, 877-886.
69. "Microfluidic Polymerase Chain Reaction", Maltezos, G. M.; Gomez, A.; Zhong, J.; Gomez, F. A.; Scherer, A. *Appl. Phys. Lett.* **2008**, *93*, 243901.
70. "Frontal Analysis Continuous Microchip Capillary Electrophoresis to Study the Binding of Ligands to Receptors Derivatized on Magnetic Beads", Liu, X.; Gomez, F. A. *Anal. Bioanal. Chem.*, **2009**, *393*, 615-621.
71. "Recent Advances in Affinity Capillary Electrophoresis (2007)," Liu, X.; Dahdouh, F.; Salgado, M.; Gomez, F. A. *J. Pharm. Sci.* **2009**, *98*, 394-410.
72. "Microchip Frontal Affinity Chromatography to Study the Binding of a Ligand to Teicoplanin-Derivatized Microbeads", Liu, X.; Gomez, F. A. *Electrophoresis* **2009**, *30*, 1194-1197.
73. "Development of Microfluidic Chips for Heterogeneous Receptor-Ligand Interaction Studies," Goldberg, M. D.; Lo, R. C.; Abele, S.; Macka, M.; Gomez, F. A. *Anal. Chem.* **2009**, *81*, 5095-5098.
74. "Fabrication of a Microfluidic Enzyme Reactor Utilizing Magnetic Beads", Liu, X.; Lo, R.; Gomez, F. A. *Electrophoresis*, **2009**, *30*, 2129-2133.
75. "Use of Magnetic Beads to Study the Interaction of Ristocetin with Peptides and Bacteria", Sarakhanikhorami, M.; Lo, R. C.; Gomez, F. A. *Bioanalysis*, **2009**, *1*, 715-719.
76. "Application of Artificial Neural Networks in the Prediction of Product Distribution in Electrophoretically Mediated Microanalysis (EMMA)", Riveros, T. A.; Porcasi, L.; Muliadi, S.; Hanrahan, G.; Gomez, F. A. *Electrophoresis* **2009**, in press.
77. "Application of External Micro-Spectrophotometric Detection for Microchips", Gaspar, A.; Bacsı, I.; Garcia, E. F.; Braun, M.; Gomez, F. A. *Anal. Bioanal. Chem.* **2009**, in press.
78. "On-Capillary Derivatization Using a Hybrid Artificial Neural Network-Genetic Algorithm Approach", Riveros, T. A.; Hanrahan, G.; Muliadi, S.; Arceo, J.; Gomez, F. A. *Analyst*, **2009**, in press.
79. "Facile Fabrication of an Interface for On-Line Coupling of Microchip Capillary Electrophoresis to Surface Plasmon Resonance", Liu, X.; Du, M.; Zhou, F.; Gomez, F. A. *Lab Chip* **2009**, submitted.

### **Books**

1. "Biological Applications of Microfluidics," Gomez, F. A. ed., Wiley & Sons, Inc., 2008.
2. "Chemometrics in Capillary Electrophoresis," Hanrahan, G.; Gomez, F. A. eds., John Wiley & Sons, Inc., 2009.

### **Book Chapters**

1. Affinity Capillary Electrophoresis to Examine Receptor-Ligand Interactions. Azad, M.; Kaddis, J.; Villareal, V.; Hernandez, L.; Silverio, C. S.; Gomez, F. A. In *Methods in Molecular Biology*, Humana Press, 2004, pp 153-168.
2. Applications of Capillary Electrophoresis to Molecular Recognition and Analysis of In-Capillary Enzyme-Mediated Transformations. Zavaleta, J.; Chinchilla, D.; Brown, A.; Ramirez, A.; Calderon, V.; Sogomonyan, T.; Montes, R.; Gomez, F. A. In *Advances in Chromatography*, CRC Press, 2006, pp 125-172.

3. Microfluidics. Gomez, F. A. In *Biological Applications of Microfluidics*, Gomez, F. A. Ed. John Wiley & Sons, Inc., 2008, pp. 1-7.
4. Chemical Separations in 3D Microfluidics. Maltezos, G. M.; Gomez, A.; Gomez, F. A.; Scherer, A. In *Biological Applications of Microfluidics*; Gomez, F. A., Ed. John Wiley & Sons, Inc., 2008, pp. 263-272.
5. Magnetic Bead-Based Methods to Study the Interaction of Teicoplanin with Peptides and Bacteria. Piyasena, M. E.; Gomez, F. A. In *Biological Applications of Microfluidics*; Gomez, F. A., Ed. John Wiley & Sons, Inc., 2008, pp. 473-488.
6. On-Column Ligand/Receptor Derivatization Coupled to Affinity Capillary Electrophoresis. Zavaleta, J.; Chinchilla, D.; Gomez, A.; Sogomonyan, T.; Silverio, C.; Azad, J. Gomez, F. A. In *Methods in Molecular Biology*, Schmitt-Kopplin, P., Ed. Humana Press, 2008, pp. 647-660.
7. Microfluidics in Protein Chromatography. Gomez, F. A. In *Methods in Molecular Biology*, Loughgan, S. and Walls, D., Eds. Humana Press, 2009, in press.
8. Chemometrical Experimental Design-Based Optimization Studies in Capillary Electrophoresis Applications. Montes, R.; Riveros, T. A.; Dahdouh, F.; Hanrahan, G.; Gomez, F. A. In *Chemometrics in Capillary Electrophoresis*, Hanrahan, G. and Gomez, F. A. eds., John Wiley & Sons, Inc., 2009, in press.

### **Other Publication Activities**

1. Bioorganometallic Chemistry: Faculty Working at a Scientific Interface. Gomez, F. A. *General Chemistry*; West, St. Paul, 1996; p 856.

### **Thesis Advising**

1. Zhao, Dong, Chemistry, M.S. 1997; Ph.D. from UC Riverside.
2. Kwak, Eun-Soo, Chemistry, M.S., 1997; Ph.D. from University of Texas at Austin.
3. Kawaoka, Jane, Chemistry, B.S., Departmental Honor's, 1998; Ph.D. from Yale University.
4. Kaddis, John, Biochemistry, B.S., Departmental Honor's, 2001; in Ph.D. program at USC.
5. Catherine Silverio, M.S., 2002; Ph.D. from UCLA.
6. Maryam Azad, M.S., 2003; in industry.
7. Valerie Villareal, B.S., Departmental Honor's, 2003; in Ph.D. program at UCLA.
8. Jose Zavaleta, Chemistry, M.S. 2005; in industry.
9. Dinora Chinchilla, Biochemistry, B. S., Departmental Honor's, 2005.
10. Abby Brown, Chemistry, B.S., Departmental Honor's, 2005.
11. Jerry Fields, M.S., 2005; in Ph.D. program at USC.
12. Froseen Dahdouh, B.S., Departmental Honor's, 2006; M.S. in progress.
13. Ruthy Montes, M.S., 2007.
14. Lilia Hernandez, M.S., 2007, in industry.
15. Schetema Stevens, M.S., 2008; in Ph.D. program at Caltech.
16. Maral Sarikhani, M.S., 2008; in industry.
17. Mark Goldberg, M.S., 2008; in Ph.D. program at Caltech.
18. Erika Garcia, M.S., 2009.
19. Alejandra Ramirez, M.S., in progress.
20. Dan Botoaca, M.S., in progress.

### **Other Current Student Research Assistants:**

Marisol Salgado, Toni Ann Riveros, Maricar Gutierrez, Maria Ortega, Aileen Becerril, Ariana Valdez, Amy Wat, Miguel Ortiz.

### **Past Student Research Assistants:**

The following undergraduate students have conducted research under my auspices since 1994: Victor M. Dominguez, Kok W. Liu, Doreen M. Macias, Schake Matjan, Chuauthemoc Arellanes, Sally Esquivel, Joseph Heintz, Erica Mito, Cynthia Kodama, Alfredo Plazas, Cecilia Zurita, Julio Moran, Isba Silva, Marcellus Rudolph, Amaris Pao, Taguhi Sogomonyan, Chris Morales, Charles Ufomadu, Violet Calderon, Alvaro Gomez, Shima Baghdachi, Jaime Torres, Jacquie Malette.

### **Past High School, Community College and University Summer Research Assistants:**

Karla Martinez (B.S., 2009 Harvard), Marisol Salgado (now at CSULA), Rocio Vides (now at Stanford), Lenny Sanchez (now in industry), Illiana Escobar, Alejandra Leon, Karen Hernandez, Elie El-Habre,

### **Past Postdoctoral and Visiting Faculty Associates:**

Dr. Ying Zhang, 1999-2001.

Dr. Dazhi Wang, 2004.

Dr. Menake Piyasena, 2005-2007.

Dr. Attila Gaspar (University of Debrecen, Hungary), 2006-2007.

Dr. Xiaojun Liu, 2007-2009.

Dr. Roger Lo, 2008-2009.

### **Current Postdoctoral and Visiting Faculty Associates:**

#### **Current Grant Support**

1. National Science Foundation, DMR-0351848 “CSULA-Caltech Partnership for Research and Education in Materials (PREM) Collaborative”; PI, \$2,895,568; 4/1/04-8/31/10.
2. National Science Foundation, MCB-0448676; RUI: Regulation of Diverse Bacterial ADP-Glucose Pyrophosphorylases,” (Subcontract-PI) \$119,165; 3/1/05-2/28/10.
3. National Science Foundation Research in Undergraduate Institutions (RUI), CHE-0515363; “Microfluidic/Capillary Electrophoresis Devices for Chemical Analysis”; PI, \$450,000; 8/15/05-8/14/10.
4. National Science Foundation Materials Research Science & Engineering Centers (MRSEC), DMR-0520565; “Center for Science and Engineering of Materials (CSEM)”; (Subcontract-PI), \$442,557; 9/1/05-9/30/11.
5. National Science Foundation, CBET-0723271 “MRI: Instrument Development of Microfluidic-Based Flow-Injection Capillary Electrophoresis with Fiber-Optics Detection”; PI, \$138,069; 7/1/07-6/31/10.
6. National Science Foundation, OISE-0754138 “International Research Experiences for Students (IRES): U.S.-Hungary Research and Education on Microfluidics Applications in the Chemical and Materials Sciences”; PI, \$126,522; 4/15/08-4/14/11.
7. National Science Foundation, CHE-0802907 “POWERING THE PLANET: A Chemical Bonding Center in the Direct Conversion of Sunlight into Chemical Fuel”; (Subcontract-PI), \$407,530; 8/1/08-7/31/13.
8. National Science Foundation, OISE-0850443 “International Research Experiences for Students (IRES): Ireland”; PI, \$150,000; 9/1/09-8/31/12.
9. National Science Foundation Engineering Research Center (ERC) for Revolutionizing Metallic Biomaterials, EEC-0812348; (Subcontract-PI), \$42,021; 1/1/09-8/31/09.
10. National Science Foundation, HRD-0934146 “CREST Center for Energy and Sustainability”; (Co-PI), \$4,999,999; 9/1/09-8/31/14.
11. National Science Foundation, SBIR-IIP-0917642 “Polypins for High Throughput PCR”; (Subcontract-PI), \$104,999; 9/1/09-8/31/10.

#### **Past Grant Support**

1. Research Corporation, CC3957; “The Use of Capillary Electrophoresis in the Synthesis and Analysis of Bioorganometallic Species”; PI, \$32,000; 6/1/95-5/31/97.
2. National Science Foundation Instrumentation and Laboratory Improvement Program, DUE-9552334; “Capillary Electrophoresis in the Undergraduate Curriculum”; PI, \$26,181; 7/1/95-6/30/97.
3. National Science Foundation ModularChem Consortium (Subproject); “Controlling Combustion Emissions: Minimizing Unwanted Products”; co-PI, \$29,999; 7/1/95-6/30/96.
4. National Institutes of Health Academic Research Enhancement Award, 1R15GM52619-01; “Bioorganometallic Chemistry: Synthesis and Analysis”; PI, \$101,775; 10/1/95-9/30/98.

5. National Institutes of Health Minority Biomedical Research Support (Subproject), 2 S06 GM08101-25; "Capillary Electrophoresis: Synthesis and Molecular Recognition Studies"; PI, \$236,417; 6/14/96-6/13/00.
6. National Science Foundation CISE/EHR/ENG/MPS Collaborative Research on Learning Technologies, CDA-9616563; "Project Technovision X-33 Planning Year"; co-PI, \$50,000; 10/1/96-9/30/97.
7. CSUPERB; "Structure/Function Studies of Diverse Bacterial ADP-Glucose Pyrophosphorylases", co-PI (with C. Meyer, CSU Fullerton), \$4,500; 2000-2001.
8. National Science Foundation Faculty Early Career Development (CAREER) Program, CHE-9703142; "Applications in Capillary Electrophoresis", PI, \$258,500; 4/15/97-3/31/2002.
9. Research Corporation, CC5293; "On-Column Enzymatic Degradation and Kinetics of Plasmids Using Capillary Electrophoresis", PI, \$49,220; 6/1/2001-5/31/2003.
10. National Science Foundation Collaborative Research in Undergraduate Institutions (CRUI) Program, DBI-9710796; "Impacts of Urban Smog on Physiological Responses in *Arabidopsis Thaliana*", co-PI (with R. Vellanoweth, S. Nickolaisen, J. Gamon, R. Nakamura), \$1,022,606; 10/1/97-9/30/2003.
11. Department of Defense (DoD) Infrastructure Support Program for HBCU/MI, F49620-02-1-0445; "Instrumentation for Research and the Undergraduate Curriculum", PI, \$140,590; 9/15/02-9/14/03.
12. National Science Foundation "Center for Science and Engineering in Materials Research", PI, \$195,516 (subcontract); 5/1/00-8/31/05.
13. National Science Foundation Research in Undergraduate Institutions (RUI), CHE-0136724; "Applications in Capillary Electrophoresis"; PI, \$268,900; 3/15/02-2/28/06.
14. National Institutes of Health Academic Research Enhancement Award, 1 R15 AI055515-01; "Capillary Electrophoresis: Bioanalytical Applications", PI, \$141,200; 7/15/03-6/30/06.
15. National Institutes of Health Academic Research Enhancement Award, 1 R15 AI065468-01; "Bioanalytical Applications of Capillary Electrophoresis", PI, \$141,200; 7/1/05-6/30/08.
16. National Science Foundation, SBIR-IIP-0753673 "Surface Modifications for Bioassays"; (Subcontract-PI), \$104,999; 8/1/08-4/31/09.

### **Collaborators**

Professor Attila Gaspar (Dept. of Chemistry, University of Debrecen, Hungary)  
 Professor Grady Hanrahan (Dept. of Chemistry and Biochemistry, CSULA)  
 Professor Craig Hawker (Dept. of Chemistry, UCSB)  
 Professor Julie Kornfield (Dept. of Chemistry and Chem. Eng., Caltech)  
 Professor John Ladbury (Dept. of Biochemistry and Molecular Biology, University College London)  
 Professor Miroslav Macka (National Centre for Sensor Research, Dublin City University)  
 Dr. Naresh Menon (Chromologic, LLC)  
 Professor Christopher Meyer (Dept. of Chemistry and Biochemistry, CSU Fullerton)  
 Professor Feimeng Zhou (Dept. of Chemistry and Biochemistry, CSULA)

**Research Interests:** Biological applications of microfluidics ("lab-on-a-chip" device development) and capillary electrophoresis (CE) with a particular interest in molecular recognition, enzyme-mediated transformations, bead-based assays, valve development, high-throughput derivatization and analysis, fiber optics detection integration and applications, chemometrics, surface plasmon resonance and flow-injection analysis (FIA).

### **Professional Societies**

American Chemical Society  
 Society for Advancement of Chicanos and Native-Americans in Science  
 California Separation Science Society

### **Departmental Responsibilities**

Elections Committee, 1994-1997.  
 Department of Chemistry and Biochemistry Seminar Coordinator, 1996-present.

Fiscal Affairs Committee, 1997-2000, Chair 1998-1999; 2007-current, Chair 2008-2009.  
Assessment Committee, Chair, 2006-2007, member 2007-current.

### **University Responsibilities**

University Educational Policy Committee, 1995 (Fall).  
Graduate Studies Subcommittee, 1995-1996.  
Honors Convocation and Commencement Committee, 1995-1997.  
University Faculty Policy Committee, Affirmative Action Subcommittee, 1995-1998, Co-chair 1996-1997; Chair 1997-1998.  
Academic Senate, 1997-1998.  
Creative Leaves and Activity Committee, 2002.  
College Personnel Committee A, 2007-2008.

### **Teaching Responsibilities**

Inorganic and Advanced Inorganic Chemistry  
General Chemistry  
Special Topics in Chemistry: Solid State Chemistry, Organometallic Chemistry, Microfluidics  
Invited lecturer in Instrumental Chemical Analysis, Biochemistry and Biochemistry Laboratory

### **Consultant**

Blackside Productions, BreakThrough Public Broadcasting System documentary, Boston, MA, 1993.  
Technical Advisory Board, Materials Science Department, Don Bosco Technical Institute, 1995-present.  
Physical Optics Corporation, 2005-2008.  
ChromoLogic, LLC, 2007-present.

### **Invited Seminars**

California State University, Los Angeles, April 30, 1991.  
San Jose State University, May 7, 1991.  
Arizona State University, March 13, 1992.  
California State University, Northridge, September 10, 1993.  
University of Rhode Island, October 15, 1993.  
University of Texas at El Paso, October 22, 1993.  
Old Dominion University, November 19, 1993.  
California State University, Los Angeles, December 2, 1993.  
Southwest Texas State University, January 21, 1994.  
University of Texas at Arlington, February 9, 1994.  
Cal Poly San Luis Obispo, February 25, 1994.  
East Los Angeles College, February 3, 1995.  
San Diego State University, February 10, 1995.  
Smith College, February 16, 1995.  
Florida International University, March 17, 1995.  
California State University, Los Angeles, March 28, 1995.  
University of Washington, September 12, 1995.  
California Polytechnic University, Pomona, November 7, 1995.  
University of California, Riverside, November 9, 1995.  
Southern Methodist University, March 20, 1996.  
Loyola Marymount University, , October 4, 1996  
Pomona College, October 17, 1996.  
Mount Holyoke College, March 26, 1997.  
University of Utah, May 29, 1997.  
California State University, Fullerton, September 11, 1997.  
California State University, Long Beach, September 17, 1997.  
California State University, Los Angeles, November 21, 1997.  
California State University, Fullerton, December 11, 2002.

California State University, Long Beach, November 5, 2003.  
 University of Southern California, November 11, 2003.  
 California Polytechnic University, Pomona, October 27, 2005.  
 University of California, Los Angeles, April 13, 2006.  
 Santa Monica College, October 9, 2006.  
 Keck Graduate Institute, November 30, 2006.  
 San Jose State University, March 6 2007.  
 University of California, Davis, March 13, 2007.  
 National Science Foundation, May 17, 2007.  
 University of Maryland, June 16, 2007.  
 Howard University, June 18, 2007.  
 Colorado State University, September 5, 2007.  
 West Virginia University, December 5, 2007.  
 University of Texas, San Antonio, February 1, 2008.  
 University of Washington, February 11, 2008.  
 University of Illinois, February 22, 2008.  
 University of California, Santa Barbara, March 18, 2008.  
 Pasadena City College, April 3, 2008.  
 California State University, San Bernardino, April 24, 2008.  
 National Science Foundation, May 12, 2008.  
 West Virginia University, May 13, 2008.  
 Dublin City University (Ireland), June 11, 2008.  
 Centre National de la Recherche Scientifique (Paris), June 13, 2008.  
 University of Debrecen (Hungary), June 17, 2008.  
 University of Vienna (Austria), June 19, 2008.  
 Chiral Technologies, August 20, 2008.  
 Los Angeles City College, October 22, 2008.  
 University of Texas, San Antonio, February 12, 2009.

**Conference Presentations (Underlined names denote undergraduate student co-authors.)**

1. Synthesis and Design of Macrocyclic and Carborane Derived Chelating Agents for Tumor-Imaging and Radioimmunotherapy. Society for Advancement of Chicanos and Native Americans in Science Conference, Phoenix, AZ, January, 1990.
2. Silyl Substituted Carboranes: Substitution and Cage-Degradation Studies. Organosilicon Symposium, El Paso, TX, April, 1991.
3. Silyl Substituted Carboranes: Substitution and Cage-Degradation Studies. Gomez, F. A.; Johnson, S. E.; Hawthorne, M. F. 201st American Chemical Society National Meeting, Atlanta, GA, April, 1991.
4. Affinity Capillary Electrophoresis. Society for Advancement of Chicanos and Native-Americans in Science National Conference, Albuquerque, NM, January, 1993.
5. The Use of Affinity Capillary Electrophoresis for the Study of Biomolecular Noncovalent Interactions. 1995 Pacific Conference on Analytical Chemistry and Spectroscopy, Fullerton, CA, October, 1995.
6. A Multiple-Plug Binding Assay Using Affinity Capillary Electrophoresis. Gomez, F. A.; Mirkovich, J. N.; Dominguez, V. M.; Liu, W. K.; Macias, D. M. 31st Annual American Chemical Society Western Regional Meeting, San Diego, CA, October, 1995.
7. A Multiple-Plug Binding Assay Using Affinity Capillary Electrophoresis. Gomez, F. A.; Mirkovich, J. N.; Dominguez, V. M.; Matjan, S.; Mota, J.; Macias, D. M. 8th International Symposium on High Performance Capillary Electrophoresis, Orlando, FL, January, 1996.
8. The Society for Advancement of Chicanos and Native Americans in Science (SACNAS) - An Overview. The 51st Northwest Regional Meeting of the American Chemical Society, Corvallis, OR, June, 1996.
9. Enzyme-Catalyzed Microreactors Using Capillary Electrophoresis. Pacific Conference, San Francisco, CA, October, 1996.

10. Determination of the Binding of  $\beta$ -Cyclodextrin Derivatives to Adamantane Carboxylic Acids Using Affinity Capillary Electrophoresis. Pacific Conference, San Francisco, CA, October, 1996.
11. Affinity Capillary Electrophoresis. National Minority Research Symposium. Miami, FL, November, 1996.
12. Enzyme-Catalyzed Microreactions Using Capillary Electrophoresis: The Use of Sample-Stacking Methods. Zhao, D. S.; Gomez, F. A. 9th International Symposium on High Performance Capillary Electrophoresis, Anaheim, CA, January, 1997.
13. Determination of the Binding of  $\beta$ -Cyclodextrin Derivatives to Adamantane Carboxylic Acids Using Affinity Capillary Electrophoresis. Kwak, E. -S.; Kawaoka, J.; Gomez, F. A. 213th American Chemical Society National Meeting, San Francisco, CA, April, 1997.
14. Optimization of Capillary Electrophoresis Conditions For In-Capillary Enzyme-Catalyzed Microreactions. Kwak, E. -S.; Esquivel, S.; Gomez, F. A. 214th American Chemical Society National Meeting, Las Vegas, NV, September, 1997.
15. In-Capillary Enzyme-Catalyzed Microreactions Using Capillary Electrophoresis. Zhao, D. S.; Kawaoka, J.; Gomez, F. A. 214th American Chemical Society National Meeting, Las Vegas, NV, September, 1997.
16. Capillary Electrophoresis in the Undergraduate Curriculum. Kawaoka, J.; Gomez, F. A.; Esquivel, S.; Arellanes, C. 214th American Chemical Society National Meeting, Las Vegas, NV, September, 1997.
17. Double Enzyme-Catalyzed Microreactors Using Capillary Electrophoresis. Zhao, D. S.; Gomez, F. A. 11th International Symposium on High Performance Capillary Electrophoresis and Related Microscale Techniques, Orlando, FL, February, 1998.
18. Enzyme-Catalyzed Microreactors Using Capillary Electrophoresis. Gomez, F. A.; Zhao, D. S.; Kwak, E. -S.; Kawaoka, J.; Esquivel, S. 1998 Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, New Orleans, LA, March, 1998.
19. Use of Mobility Ratios to Estimate Binding Constants of Ligands to Proteins in Affinity Capillary Electrophoresis. Kawaoka, J.; Heintz, J.; Mendoza, M.; Gomez, F. A. 216th American Chemical Society National Meeting, Boston, MA, August, 1998.
20. Bioanalytical Applications of Capillary Electrophoresis. Gomez, F. A. Society for Advancement of Chicanos and Native-Americans in Science National Conference, Washington D.C., October, 1998.
21. Use of Mobility Ratios to Estimate Binding Constants of Ligands to Proteins in Affinity Capillary Electrophoresis. Kawaoka, J.; Heintz, J.; Gomez, F. A. 12th International Symposium on High Performance Capillary Electrophoresis and Related Microscale Techniques, Palm Springs, CA, January, 1999.
22. Use of a Partial-Filling Technique in Affinity Capillary Electrophoresis for Determining Binding Constants of Ligands to Receptors. Heintz, J.; Hernandez, M.; Gomez, F. A. Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Orlando, FL, March, 1999.
23. Use of a Partial-Filling Technique in Affinity Capillary Electrophoresis for Determining Binding Constants of Ligands to Receptors. Heintz, J.; Hernandez, M.; Gomez, F. A. 217th American Chemical Society National Meeting, Anaheim, CA, March, 1999.
24. Flow-Through Partial-Filling Affinity Capillary Electrophoresis Can Estimate Binding Constants of Ligands to Receptors. Mito, E.; Heintz, J.; Hernandez, M.; Kodama, C.; Gomez, F. A. 218th American Chemical Society National Meeting, New Orleans, LA, August, 1999.
25. A Competitive Binding Assay Using Flow-Through Partial-Filling Affinity Capillary Electrophoresis. Mito, E.; Heintz, J.; Plazas, A.; Gomez, F. A. 219th American Chemical Society National Meeting, San Francisco, CA, March, 2000.
26. Tetrabutylammonium Fluoride Promoted Synthesis of *o*-Carborane Derivatives. Plazas, A.; Arellanes, C.; Gomez, F. A. 219th American Chemical Society National Meeting, San Francisco, CA, March, 2000.
27. Use of Capillary Electrophoresis and Indirect Detection to Quantitate In-Capillary Enzyme-Catalyzed Microreactions. Zhang, Y.; Gomez, F. A. 219th American Chemical Society National Meeting, San Francisco, CA, March, 2000.

28. In-Capillary Enzyme-Catalyzed Microreactions Using Indirect Detection. Zhang, Y.; Gomez, F. A. CE in the Pharmaceutical Industry: Practical Applications for the Analysis of Proteins, Nucleotides and Small Molecules, San Diego, CA, August, 2000.
29. Estimation of Receptor-Ligand Interactions by the Use of a Two-Marker System in Affinity Capillary Electrophoresis. Kaddis, J.; Zhang, Y.; Gomez, F. A. 221st American Chemical Society National Meeting, San Diego, CA, April, 2001.
30. On-Column Ligand Synthesis Coupled to Partial-Filling Affinity Capillary Electrophoresis. Zhang, Y.; Kodama, C.; Zurita, C.; Gomez, F. A. 221st American Chemical Society National Meeting, San Diego, CA, April, 2001.
31. On-Column Ligand Synthesis Coupled to Partial-Filling Affinity Capillary Electrophoresis. Zhang, Y.; Kodama, C.; Zurita, C.; Gomez, F. A. 24th International Symposium on Capillary Chromatography and Electrophoresis, Las Vegas, NV, May, 2001.
32. On-Column Synthesis Coupled to Affinity Capillary Electrophoresis to Determine Binding Constants of Peptides to Glycopeptide Antibiotics. Azad, M.; Silverio, C.; Zhang, Y.; Villareal, V.; Gomez, F. A. 26th International Symposium on Capillary Chromatography and Electrophoresis, Las Vegas, NV, May, 2003.
33. Affinity Capillary Electrophoresis: From Capillaries to Microfluidic Devices and Back. Gomez, F. A.; Brown, A.; Chinchilla, D.; Zavaleta, J. 28th International Symposium on Capillary Chromatography and Electrophoresis, Las Vegas, NV, May, 2005.
34. Microfluidic “Lab-on-a-Chip” Devices for Affinity Capillary Electrophoresis Separations. Brown, A.; Morales, C.; Ufomadu, C.; Gomez, F. A. International Congress of Nanotechnology, San Francisco, CA, November, 2005.
35. Applications of Nanotechnology: The Atom’s the Limit. Gomez, F. A. The 40<sup>th</sup> Western Regional ACS, Anaheim, CA, January, 2006.
36. The CSULA-Caltech Partnership for Research and Education in Materials (PREM) Collaborative. A Model for the Future. Gomez, F. A. Materials Research Society Meeting, San Francisco, CA, April, 2006.
37. CSULA-Caltech Partnership for Research and Education in Materials (PREM) Collaborative: A Model for the Future. Gomez, F. A. 232<sup>nd</sup> American Chemical Society National Meeting, San Francisco, CA, September, 2006.
38. Microfluidics: The Unbearable Lightness of Being “Small”. Gomez, F. A. CSUPERB, January 13, 2007.
39. CSULA-Caltech Partnership for Research and Education in Materials (PREM) Program: Empowering Minority Students Through Research. Gomez, F. A. Western Regional Meeting American Chemical Society, San Diego, CA, October, 2007.
40. Novel Valve Actuation and Applications in Microfluidics. Gomez, F. A.; Gaspar, A.; Piyasena, M.; Stevens, S.; Salgado, M. Federation of Analytical Chemistry and Spectroscopy Societies (FACSS), Memphis, TN, October, 2007.
41. Affinity Capillary Electrophoresis and other Separations on a Microfluidic Format. Gomez, F. A.; Brown, A.; Piyasena, M.; Gaspar, A.; Stevens, S. American Vacuum Society (AVS), Seattle, WA, October, 2007.
42. Development of Magnetically Controlled Valves in Fritless Chromatographic Microchips Packed with Conventional Reversed-Phase Silica Particles and Their use in Chemical Separations. Gomez, F. A.; Gaspar, A.; Piyasena, M. 31<sup>st</sup> International Symposium on Capillary Chromatography and Electrophoresis, Albuquerque, NM, November, 2007.
43. Simple Fabrication of Fritless Chromatographic Microchips Packed with Conventional Reversed-Phase Silica Particles and Small-Molecule Separations. Gaspar, A.; Piyasena, M.; Stevens, S.; Hernandez, L.; Gomez, F. A. Pittcon, New Orleans, LA, March, 2008.
44. The CSULA-Caltech Partnership for Research and Education in Materials (PREM) Collaborative. Empowering Students Through Research. Gomez, F. A. 235<sup>th</sup> American Chemical Society National Meeting, New Orleans, LA, April, 2008.
45. Simple Fabrication and Use of Fritless Chromatographic Microchips Packed with Reversed-Phase Silica Particles for Small-Molecule Separations. Gomez, F. A. 235<sup>th</sup> American Chemical Society National Meeting, New Orleans, LA, April, 2008.

46. Use of Microfluidics for Separations and Affinity Measurements. Gomez, F. A. 236<sup>th</sup> American Chemical Society National Meeting, Philadelphia, PA, August, 2008.
47. Microchip Affinity Capillary Electrophoresis to Estimate Binding Constants Between Receptors and Ligands. Liu, X.; Sarikhanikhorami, M.; Goldberg, M.; Gomez, F. A. 42<sup>nd</sup> Western Regional Meeting American Chemical Society, Las Vegas, NV, September, 2008.

**Student and Postdoctoral Fellow Conference Presentations (Underlined names denote undergraduate student co-authors.)**

1. A Multiple-Plug Binding Assay Using Affinity Capillary Electrophoresis. Gomez, F. A.; Mirkovich, J. N.; Dominguez, V. M.; Zhao, D. S.; Kwak, E.; Macias, D. M. Southern California Conference on Undergraduate Research (SCCUR), Claremont, CA, November, 1995.
2. Determination of the Binding of  $\beta$ -Cyclodextrin Derivatives to Adamantane Carboxylic Acids Using Affinity Capillary Electrophoresis. Kwak, E. -S.; Kawaoka, J.; Gomez, F. A. 1996 Undergraduate Research Conference, Santa Barbara, CA, April, 1996.
3. Determination of the Binding of  $\beta$ -Cyclodextrin Derivatives to Adamantane Carboxylic Acids Using Affinity Capillary Electrophoresis. Kwak, E. -S.; Kawaoka, J.; Gomez, F. A. Society for Advancement of Chicanos and Native-Americans in Science National Conference, Los Angeles, CA, October, 1996.
4. Enzyme-Catalyzed Microreactors Using Capillary Electrophoresis. Zhao, D. S.; Esquivel, S.; Gomez, F. A. Society for Advancement of Chicanos and Native-Americans in Science National Conference, Los Angeles, CA, October, 1996.
5. Affinity Capillary Electrophoresis. Kwak, E. -S.; Kawaoka, J.; Gomez, F. A. Southern California Conference on Undergraduate Research (SCCUR), Los Angeles, CA, November, 1996.
6. Enzyme-Catalyzed Microreactors Using Capillary Electrophoresis. Zhao, D. S.; Esquivel, S.; Gomez, F. A. Southern California Conference on Undergraduate Research (SCCUR), Los Angeles, CA, November, 1996.
7. A Multiple-Plug Binding Assay Using Affinity Capillary Electrophoresis. Gomez, F. A.; Zhao, D. S.; Esquivel, S. Ninth Annual California State University Biotechnology Symposium, Pomona, CA, January, 1997.
8. Determination of the Binding of  $\beta$ -Cyclodextrin Derivatives to Adamantane Carboxylic Acids Using Affinity Capillary Electrophoresis. Kwak, E. -S.; Kawaoka, J.; Gomez, F. A. Ninth Annual California State University Biotechnology Symposium, Pomona, CA, January, 1997.
9. In-Capillary Enzyme-Catalyzed Microreactions Using Capillary Electrophoresis. Esquivel, S.; Kwak, E. -S.; Zhao, D. S.; Gomez, F. A. 22<sup>nd</sup> West Coast Biological Sciences Undergraduate Research Conference, Los Angeles, CA, May, 1997.
10. Optimization of Capillary Electrophoresis Conditions for In-Capillary Enzyme-Catalyzed Microreactions. Esquivel, S.; Kwak, E. -S.; Gomez, F. A. Society for Advancement of Chicanos and Native-Americans in Science National Conference, Houston, TX, October, 1997.
11. The Synthesis of Bridged Metallacarboranes. Arellanes, C.; Gomez, F. A. Society for Advancement of Chicanos and Native-Americans in Science National Conference, Houston, TX, October, 1997.
12. The Synthesis of Bridged Metallacarboranes. Arellanes, C.; Gomez, F. A. Southern California Conference on Undergraduate Research (SCCUR), Los Angeles, CA, November, 1997.
13. Optimization of Capillary Electrophoresis Conditions for In-Capillary Enzyme-Catalyzed Microreactions. Esquivel, S.; Kwak, E. -S.; Gomez, F. A. Southern California Conference on Undergraduate Research (SCCUR), Los Angeles, CA, November, 1997.
14. The Use of Migration Time Ratios to Estimate Binding Constants in Affinity Capillary Electrophoresis. Kawaoka, J.; Gomez, F. A. Southern California Conference on Undergraduate Research (SCCUR), Los Angeles, CA, November, 1997.
15. Enzyme-Catalyzed Microreactors Using Capillary Electrophoresis. Esquivel, S.; Kawaoka, J.; Gomez, F. A. Tenth Annual California State University Biotechnology Symposium, Pomona, CA, January, 1998.

16. Partial-Filling Affinity Capillary Electrophoresis. Heintz, J.; Hernandez, M.; Gomez, F. A. Southern California Conference on Undergraduate Research (SCCUR), Pomona, CA, November, 1998.
17. Use of Mobility Ratios to Estimate Binding Constants of Ligands to Receptors in Affinity Capillary Electrophoresis. Kodama, C.; Kwok, D.; Kawaoka, J.; Gomez, F. A. Southern California Conference on Undergraduate Research (SCCUR), Pomona, CA, November, 1998.
18. Use of a Partial-Filling Technique in Affinity Capillary Electrophoresis for Determining Binding Constants of Ligands to Receptors. Heintz, J.; Hernandez, M.; Gomez, F. A. Eleventh Annual California State University Biotechnology Symposium, Pomona, CA, January, 1999.
19. Use of Mobility Ratios to Estimate Binding Constants of Ligands to Proteins in Affinity Capillary Electrophoresis. Kawaoka, J.; Heintz, J.; Gomez, F. A. Eleventh Annual California State University Biotechnology Symposium, Pomona, CA, January, 1999.
20. Tetrabutylammonium Fluoride Promoted Novel Reactions of *o*-Carborane to Carbinols. Plazas, A.; Arellanes, C.; Gomez, F. A. Society for Advancement of Chicanos and Native-Americans in Science National Conference, Portland, OR, October, 1999.
21. Partial-Filling Affinity Capillary Electrophoresis can Successfully Determine Binding Constants of Ligands to Receptors. Hernandez, M.; Heintz, J.; Gomez, F. A. Society for Advancement of Chicanos and Native-Americans in Science National Conference, Portland, OR, October, 1999.
22. Flow-Through Partial-Filling Affinity Capillary Electrophoresis Can Estimate Binding Constants of Ligands to Receptors. Mito, E.; Gomez, F. A. Southern California Conference on Undergraduate Research (SCCUR), Los Angeles, CA, November, 1999.
23. Tetrabutylammonium Fluoride Promoted Novel Reactions of *o*-Carborane to Carbinols. Plazas, A.; Arellanes, C.; Gomez, F. A. Southern California Conference on Undergraduate Research (SCCUR), Los Angeles, CA, November, 1999.
24. Flow-Through Partial-Filling Affinity Capillary Electrophoresis. Kaddis, J.; Mito, E.; Plazas, A.; Gomez, F. A. Southern California Conference on Undergraduate Research (SCCUR), Long Beach, CA, November, 2000.
25. Competitive Binding Assay Using Flow-Through Partial-Filling Affinity Capillary Electrophoresis. Kaddis, J.; Mito, E.; Plazas, A.; Gomez, F. A. Thirteenth Annual California State University Biotechnology Symposium, Pomona, CA, January, 2001.
26. Separation of DNA Fragments by Capillary Electrophoresis in Uncoated Silica Columns Using Hydroxypropylmethyl Cellulose as the Sieving Matrix. Villareal, V.; Zurita, C.; Zhang, Y.; Gomez, F. A. Southern California American Chemical Society Undergraduate Research Conference, Santa Barbara, April, 2001.
27. Determination of Binding Constants Between Teicoplanin and D-Ala-D-Ala Terminus Peptides by Affinity Capillary Electrophoresis. Silverio, C.; Gomez, F. A. Society for Advancement of Chicanos and Native-Americans in Science National Conference, Phoenix, AZ, September, 2001.
28. On-Column Ligand Synthesis Coupled to Partial-Filling Affinity Capillary Electrophoresis. Zhang, Y.; Kodama, C.; Zurita, C.; Gomez, F. A. Society for Advancement of Chicanos and Native-Americans in Science National Conference, Phoenix, AZ, September, 2001.
29. Determination of Binding Constants Between Teicoplanin and D-Ala-D-Ala Terminus Peptides by Affinity Capillary Electrophoresis. Silverio, C.; Plazas, A.; Moran, J.; Gomez, F. A. 37<sup>th</sup> American Chemical Society Regional Meeting, Santa Barbara, CA, October, 2001.
30. Binding Constant Determination of Fructose-6-Phosphate to ADP-Glucose Pyrophosphorylase Using Affinity Capillary Electrophoresis. Kaddis, J.; Borra, M.; Meyer, C.; Gomez, F. A. 37<sup>th</sup> American Chemical Society Regional Meeting, Santa Barbara, CA, October, 2001.
31. The Study of Self-Assembling Hydrogels as the Sieving Matrix for Capillary Electrophoresis. Villareal, V.; Lammertink, R.; Kornfield, J. A.; Gomez, F. A. Southern California Conference on Undergraduate Research (SCCUR), Los Angeles, CA, November, 2001.
32. Capillary Electrophoresis Can Estimate Binding Constants Between ADP-Glucose Pyrophosphorylase and Phosphates. Kaddis, J.; Zurita, C.; Borra, M.; Polder, N.; Meyer, C.; Gomez, F. A. Fourteenth Annual California State University Biotechnology Symposium, Pomona, CA, January, 2002.

33. Determination of Binding Constants Between Teicoplanin and D-Ala-D-Ala Terminus Peptides by Affinity Capillary Electrophoresis. Silverio, C. F.; Plazas, A.; Moran, J.; Gomez, F. A. Fourteenth Annual California State University Biotechnology Symposium, Pomona, CA, January, 2002.
34. Binding Constants for Glycopeptide Antibiotics and Their Derivatives to D-Ala-D-Ala Terminus Peptides Determined by Affinity Capillary Electrophoresis. Silverio, C. F.; Gomez, F. A. 10<sup>th</sup> Annual Student Symposium on Research, Scholarship and Creative Activity, Los Angeles, CA, March, 2002.
35. Estimation of Binding Constants Between ADP-Glucose Pyrophosphorylase and Ligands Using Affinity Capillary Electrophoresis. Zurita, C.; Gomez, F. A. 10<sup>th</sup> Annual Student Symposium on Research, Scholarship and Creative Activity, Los Angeles, CA, March, 2002.
36. Determination of Binding Constants of Between Teicoplanin and D-Ala-D-Ala Terminus Peptides by Affinity Capillary Electrophoresis. Silverio, C. F.; Plazas, A.; Moran, J.; Gomez, F. A. Pittcon, New Orleans, LA, March, 2002.
37. On-Column Ligand Synthesis Coupled to Partial-Filling Affinity Capillary Electrophoresis. Zhang, Y.; Kodama, C.; Zurita, C.; Gomez, F. A. Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, New Orleans, LA, March, 2002.
38. Study of Self-Assembling Hydrogels as the Sieving Matrix for Capillary Electrophoresis. Villareal, V.; Lammertink, R.; Gomez, F. A.; Kornfield, J. A. Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, New Orleans, LA, March, 2002.
39. Self-Assembling Hydrogels for Microfluidic Applications. Lammertink, R.; Villareal, V.; Gomez, F. A.; Kornfield, J. A. 223<sup>rd</sup> American Chemical Society National Meeting, Orlando, FL, April, 2002.
40. Binding Constants for Glycopeptide Antibiotics and Their Derivatives to D-Ala-D-Ala Terminus Peptides Determined by Affinity Capillary Electrophoresis. Silverio, C. F.; Moran, J.; Gomez, F. A. 25<sup>th</sup> International Symposium on Capillary Chromatography, Riva del Garda, Italy, May, 2002.
41. Determination of Binding Constants Between Ristocetin and Peptides Using Capillary Electrophoresis. Azad, M.; Gomez, F. A. Society for Advancement of Chicanos and Native-Americans in Science National Conference, Anaheim, CA, September, 2002.
42. Enzymatic Study of Glucose-6-Phosphate Dehydrogenase Immobilized with Fluoroalkylated Polyethylene Glycol Using Capillary Electrophoresis. Villareal, V.; Lammertink, R. G. H.; Kornfield, J. A. Gomez, F. A. Society for Advancement of Chicanos and Native-Americans in Science National Conference, Anaheim, CA, September, 2002.
43. Binding Constants for Vancomycin and Teicoplanin and Their Derivatives to D-Ala-D-Ala Terminus Peptides Determined by Capillary Electrophoresis. Silverio, C.; Azad, M.; Gomez, F. A. Society for Advancement of Chicanos and Native-Americans in Science National Conference, Anaheim, CA, September, 2002.
44. Using Affinity Capillary Electrophoresis to Estimate Binding Constants Between ADP-Glucose Pyrophosphorylase and Ligands. Kaddis, J.; Zurita, C.; Borra, M.; Polder, N.; Meyer, C.; Gomez, F. A. Society for Advancement of Chicanos and Native-Americans in Science National Conference, Anaheim, CA, September, 2002.
45. Study of the Entrapment of Glucose-6-Phosphate Dehydrogenase in Fluoroalkylated Polyethylene Glycol Using Capillary Electrophoresis. Villareal, V.; Lammertink, R.; Kornfield, J. A.; Gomez, F. A. Southern California Conference on Undergraduate Research (SCCUR), Pasadena, CA, November, 2002.
46. Estimating Binding Constants Between ADP-Glucose Pyrophosphorylase and ATP Using Capillary Electrophoresis. Zurita, C.; Borra, M.; Polder, N.; Meyer, C.; Gomez, F. A. Southern California Conference on Undergraduate Research (SCCUR), Pasadena, CA, November, 2002.
47. Determination of Binding Constants Between the Antibiotic Ristocetin A and D-Ala-D-Ala Terminus Peptides by Affinity Capillary Electrophoresis. Azad, M.; Hernandez, L.; Gomez, F. A. Southern California Conference on Undergraduate Research (SCCUR), Pasadena, CA, November, 2002.

48. Determination of Binding Constants between the Antibiotic Ristocetin A and D-Ala-D-Ala Terminus Peptides by Affinity Capillary Electrophoresis. Azad, M.; Hernandez, L.; Rudolph, M.; Gomez, F. A. Fifteenth Annual CSUPERB Symposium, Pomona, CA, January, 2003.
49. Using Affinity Capillary Electrophoresis in the Determination of Binding Constants for ADP-Glucose Pyrophosphorylase. Zurita, C.; Baumbach, R.; Meyer, C.; Gomez, F. A. Fifteenth Annual CSUPERB Symposium, Pomona, CA, January, 2003.
50. Using Affinity Capillary Electrophoresis to Estimate Binding Constants between ADP-Glucose Pyrophosphorylase and ATP. Zurita, C.; Gomez, F. A.; Borra, M.; Polder, N.; Meyer, C. 27<sup>th</sup> Symposium on High Performance Liquid Phase Separations and Related Techniques, Nice, France, June 2003.
51. Estimation of Binding Constants of Antibiotics to Ligands Using On-Column Ligand Synthesis Coupled to Affinity Capillary Electrophoresis. Azad, M. A.; Gomez, F. A. 27<sup>th</sup> Symposium on High Performance Liquid Phase Separations and Related Techniques, Nice, France, June 2003.
52. On-Column Synthesis Coupled to Affinity Capillary Electrophoresis to Determine Binding Constants of Peptides to Glycopeptide Antibiotics. Villareal, V.; Silverio, C.; Gomez, F. A. 27<sup>th</sup> Symposium on High Performance Liquid Phase Separations and Related Techniques, Nice, France, June 2003.
53. Optimization of Experimental Conditions for Flow-Through Partial-Filling Affinity Capillary Electrophoresis (FTPFACE) to Determine Binding Constants Between Receptors and Ligands. Brown, A.; Gomez, F. A. 227<sup>th</sup> American Chemical Society National Meeting, Anaheim, CA, March, 2004.
54. Synthesis of Ferrocenyl and other Derivatives of 1,7- and 1,2-C<sub>2</sub>B<sub>10</sub>H<sub>12</sub> Fields, J.; Herron, S. R.; Kantardjieff, K.; Gomez, F. A. 227<sup>th</sup> American Chemical Society National Meeting, Anaheim, CA, March, 2004.
55. Determining Binding Constants for Synthesized Polyethylene Glycol Derivatized Vancomycin Derivatives and Glycopeptides with use of Affinity Capillary Electrophoresis. Hernandez, L.; Rudolph, M.; Gomez, F. A. 227<sup>th</sup> American Chemical Society National Meeting, Anaheim, CA, March, 2004.
56. Binding Constant Determination of Glycopeptide Antibiotics to D-Ala D-Ala Terminus Peptides Using Affinity Capillary Electrophoresis. Chinchilla, D. B.; Silverio, C.; Zavaleta, J.; Gomez, F. A. 227<sup>th</sup> American Chemical Society National Meeting, Anaheim, CA, March 2004.
57. Design, Development, and Fabrication of Microfluidic Devices for Analytical Applications. Morales, C.; Hansen, C.; Quake, S.; Gomez, F. A. Southern California American Chemical Society Undergraduate Research Conference, April 2004.
58. Binding Constant Determination of Glycopeptide Antibiotics to D-Ala D-Ala Terminus Peptides Using Affinity Capillary Electrophoresis. Chinchilla, D. B.; Silverio, C.; Zavaleta, J.; Gomez, F. A. Southern California American Chemical Society Undergraduate Research Conference, April 2004.
59. Optimization of Experimental Conditions for Flow-Through Partial-Filling Affinity Capillary Electrophoresis (FTPFACE) to Determine Binding Constants Between Receptors and Ligands. Brown, A.; Gomez, F. A. Southern California American Chemical Society Undergraduate Research Conference, April 2004.
60. Development of Capillary Electrophoresis Laser Induced Fluorescence. Gomez, A.; Gomez, F. A. 39<sup>th</sup> Western Regional Meeting of the American Chemical Society, October 2004.
61. Development of a Flow Injection Capillary Electrophoresis (FI-CE) System. Dahdouh, F. T.; Clarke, K.; Hanrahan, G.; Gomez, F. A. 39<sup>th</sup> Western Regional Meeting of the American Chemical Society, October 2004.
62. Optimization of Conditions for Flow-Through Partial-Filling Affinity Capillary Electrophoresis to Estimate Binding Constants of Ligands to Receptors. Brown, A. L.; Gomez, F. A. 39<sup>th</sup> Western Regional Meeting of the American Chemical Society, October 2004.
63. Probing Receptor-Ligand Interactions Using Affinity Capillary Electrophoresis via a Multiple Injection Technique. Zavaleta, J. A.; Chinchilla, D.; Martinez, K.; Gomez, F. A. 39<sup>th</sup> Western Regional Meeting of the American Chemical Society, October 2004.
64. Optimization of Experimental Conditions for Flow-Through Partial-Filling Affinity Capillary Electrophoresis (FTPFACE) to Generate Predictive Equations to Determine Binding Constants

- Between Receptors. Brown, A. L.; Gomez, F. A. Southern California Conference on Undergraduate Research (SCCUR), Whittier, CA, November, 2004.
65. Development of Capillary Electrophoresis Laser Induced Fluorescence. Gomez, A.; Gomez, F. A. Southern California Conference on Undergraduate Research (SCCUR), Whittier, CA, November, 2004.
  66. Flow Injection Capillary Electrophoresis (FI-CE) System Development. Dahdouh, F.; Clarke, K.; Hanrahan, G.; Gomez, F. A. Southern California Conference on Undergraduate Research (SCCUR), Whittier, CA, November, 2004.
  67. Multiple-Injection Affinity Capillary Electrophoresis to Estimate Binding Constants of Receptors to Ligands. Chinchilla, D.; Zavaleta, J.; Martinez, K.; Gomez, F. A. Southern California Conference on Undergraduate Research (SCCUR), Whittier, CA, November, 2004.
  68. Flow Injection Capillary Electrophoresis (FI-CE) System Development. Dahdouh, F.; Clarke, K.; Hanrahan, G.; Gomez, F. A. 18th International Symposium on Microscale Bioseparations - MSB 2005 (formerly HPCE), New Orleans, LA, February, 2005.
  69. Optimization of Microfluidic "Lab-on-a-Chip" Devices for Capillary Electrophoresis Separations. Brown, A. L.; Gomez, F. A. 18th International Symposium on Microscale Bioseparations - MSB 2005 (formerly HPCE), New Orleans, LA, February, 2005.
  70. Determination of Binding Constants of Receptor-Ligand Interactions using Multiple Injection Affinity Capillary Electrophoresis (MIACE). Chinchilla, D.; Martinez, K.; Gomez, F. A. 18th International Symposium on Microscale Bioseparations - MSB 2005 (formerly HPCE), New Orleans, LA, February, 2005.
  71. Direct Observation of Ligand-Receptor Interactions Using a New Affinity Capillary Electrophoresis Technique. Zavaleta, J.; Gomez, F. A. 18th International Symposium on Microscale Bioseparations - MSB 2005 (formerly HPCE), New Orleans, LA, February, 2005.
  72. Development of Capillary Electrophoresis Laser-Induced Fluorescence. Gomez, A.; Gomez, F. A. American Chemical Society Southern California American Chemical Society Undergraduate Research Conference in Chemistry and Biochemistry, Los Angeles, CA, April 2005.
  73. Advancement of a Flow-Injection Capillary Electrophoresis (FI-CE) System. Dahdouh, F. T.; Clarke, K.; Hanrahan, G.; Gomez, F. A. American Chemical Society Southern California American Chemical Society Undergraduate Research Conference in Chemistry and Biochemistry, Los Angeles, CA, April 2005.
  74. Binding Constants of Receptor-Ligand Interactions Obtained by Using Multiple-Injection Affinity Capillary Electrophoresis. Chinchilla, D.; Zavaleta, J.; Gomez, F. A. American Chemical Society Southern California American Chemical Society Undergraduate Research Conference in Chemistry and Biochemistry, Los Angeles, CA, April 2005.
  75. Optimization of Microfluidic "Lab-on-a-Chip" Devices for Capillary Electrophoresis Separations. Brown, A. L.; Gomez, F. A. Gordon Research Conference. Physics and Chemistry of Microfluidics. Oxford, England. August, 2005.
  76. Optimization of PDMS-Based Microfluidics for Biological Applications. Morales, C.; Gomez, F. A. Gordon Research Conference. Physics and Chemistry of Microfluidics. Oxford, England. August, 2005.
  77. Partial Filling Multiple Injection Affinity Capillary Electrophoresis (PFMIACE) to Estimate Binding Constants of Receptors to Ligands. Ramirez, A.; Chinchilla, D.; Zavaleta, J.; Gomez, F. A. Southern California Conference on Undergraduate Research (SCCUR), Riverside, CA, November, 2005.
  78. On-Column Ligand Derivatization Coupled to Multiple Injection Affinity Capillary Electrophoresis. Calderon, V.; Zavaleta, J.; Gomez, F. A. Southern California Conference on Undergraduate Research (SCCUR), Riverside, CA, November, 2005.
  79. Development of a Microfluidic Device for Polymerase Chain Reaction. Gomez, A.; Maltezos, G.; Scherer, A.; Gomez, F. A. Southern California Conference on Undergraduate Research (SCCUR), Riverside, CA, November, 2005.
  80. Development of a Flow Injection Capillary Electrophoresis (FI-CE) System Using Fiber Optic Detection. Dahdouh, F.; Tse, F.; Clarke, K.; Hanrahan, G.; Gomez, F. A. Southern California Conference on Undergraduate Research (SCCUR), Riverside, CA, November, 2005.

81. The Design and Development of a Flow Injection-Capillary Electrophoresis (FI-CE) Analyzer Employing Fiber Optic Detection. Tse, F.; Dahdouh, F.; Hanrahan, G.; Gomez, F. A. The 40<sup>th</sup> Western Regional ACS, Anaheim, CA, January, 2006.
82. Optimization of Microfluidic “Lab-on-a-Chip” Devices for Capillary Electrophoresis Separations. Brown, A. L.; Gomez, F. A. The 40<sup>th</sup> Western Regional ACS, Anaheim, CA, January, 2006.
83. On-Column Ligand Derivatization Coupled to Multiple Injection Affinity Capillary Electrophoresis. Calderon, V.; Gomez, F. A. The 40<sup>th</sup> Western Regional ACS, Anaheim, CA, January, 2006.
84. Estimation of Binding Constants for the Substrate and Activator of Agrobacterium Tumefaciens Adenosine 5'-Diphosphate-Glucose Pyrophosphorylase Using Affinity Capillary Electrophoresis. Sogomonyan, T.; Meyer, C.; Gomez, F. A. The 40<sup>th</sup> Western Regional ACS, Anaheim, CA, January, 2006.
85. Development of a Microfluidic Device for Polymerase Chain Reaction. Gomez, A.; Maltezos, G.; Scherer, A.; Gomez, F. A. The 40<sup>th</sup> Western Regional ACS, Anaheim, CA, January, 2006.
86. Further Development of a Microchip Device for Polymerase Chain Reaction. Gomez, A.; Maltezos, G.; Scherer, A.; Gomez, F. A. 20<sup>th</sup> International Symposium and Exhibit on High Performance Liquid Phase separations and Related Techniques. San Francisco, CA, June, 2006.
87. A Bead-Based Lab-on-a-Chip Device for the Detection of Vancomycin Binding. Piyasena, M.; Gomez, F. A. 20<sup>th</sup> International Symposium and Exhibit on High Performance Liquid Phase separations and Related Techniques. San Francisco, CA, June, 2006.
88. Advances in Partial Filling Multiple Injection Affinity Capillary Electrophoresis (PFMIACE) to Estimate Binding Constants of Receptors and Ligands. Ramirez, A.; Gomez, F. A. 20<sup>th</sup> International Symposium and Exhibit on High Performance Liquid Phase separations and Related Techniques. San Francisco, CA, June, 2006.
89. Use of Affinity Capillary Electrophoresis to Determine Binding Constants of Polyethylene Glycol (PEG)-Vancomycin and Linked Teicoplanin Species to Peptide Ligands. Hernandez, L.; Kornfield, J. Gomez, F. A. 20<sup>th</sup> International Symposium and Exhibit on High Performance Liquid Phase separations and Related Techniques. San Francisco, CA, June, 2006.
90. A Microfluidic-Based Method for Recovering Enhanced Enzymatic Activity of Membrane Bound Proteins from Isolated Rat Liver Cells. Goldberg, M.; Menon, N.; Zeltser, G.; Gomez, F. A. 20<sup>th</sup> International Symposium and Exhibit on High Performance Liquid Phase separations and Related Techniques. San Francisco, CA, June, 2006.
91. Development of a Microcolumn Device for Column Chromatography on a Microfluidics Platform. Gomez, A.; Gomez, F. A. 232<sup>nd</sup> American Chemical Society National Meeting, San Francisco, CA, September, 2006.
92. Membrane Protein Extraction with Microfluidics Systems. Menon, N.; Zeltser, G.; Gomez, F. A.; Piyasena, M.; Goldberg, M. 232<sup>nd</sup> American Chemical Society National Meeting, San Francisco, CA, September, 2006.
93. Bead-Based Methods to Detect the Binding of Ligands to Vancomycin-Group Glycopeptide Antibiotics. Piyasena, M.; Diamond, R. A.; Gomez, F. A. 232<sup>nd</sup> American Chemical Society National Meeting, San Francisco, CA, September, 2006.
94. Optimization of Affinity Capillary Electrophoresis (ACE) Conditions Using Chemometrics. Montes, R. E.; Pao, A.; Hanrahan, G. S.; Gomez, F. A. 232<sup>nd</sup> American Chemical Society National Meeting, San Francisco, CA, September, 2006.
95. Development of a Flow Injection – Capillary Electrophoresis (FI-CE) System Using Fiber Optic Detection. Dahdouh, F.; Tse, F.; Clarke, K.; Hanrahan, G. S.; Gomez, F. A. 232<sup>nd</sup> American Chemical Society National Meeting, San Francisco, CA, September, 2006.
96. Developments in Flow-Based Fiber Optic Detection on a Microfluidic Format. Garcia, E.; Hanrahan, G. S.; Scherer, A.; Gomez, F. A. 232<sup>nd</sup> American Chemical Society National Meeting, San Francisco, CA, September, 2006.
97. A Microfluidic-Based Method for Recovering Enhanced Enzymatic Activity of Membrane Bound Proteins from Isolated Rat Liver Cells. Goldberg, M.; Menon, N.; Zeltser, G.; Gomez, F. A. 232<sup>nd</sup> American Chemical Society National Meeting, San Francisco, CA, September, 2006.

98. Advances in Partial Filling Multiple Injection Affinity Capillary Electrophoresis (PFMIACE) to Estimate Binding Constants of Receptors and Ligands. Ramirez, A.; Gomez, F. A. 232<sup>nd</sup> American Chemical Society National Meeting, San Francisco, CA, September, 2006.
99. "Lab-Through-a-Chip" Affinity Capillary Electrophoresis to Estimate Binding Parameters of ligands to Receptors. Brown, A. L.; Gomez, F. A. 232<sup>nd</sup> American Chemical Society National Meeting, San Francisco, CA, September, 2006.
100. Use of affinity Capillary Electrophoresis to Determine Binding Constants of Polyethylene Glycol (PEG)-Vancomycin and Linked Teicoplanin Species to peptide ligands. Hernandez, L.; Gomez, F. A. 232<sup>nd</sup> American Chemical Society National Meeting, San Francisco, CA, September, 2006.
101. Multiple-Injection Affinity Capillary Electrophoresis to Estimate Binding Constants of Receptors to Ligands. Calderon, V.; Chinchilla, D.; Zavaleta, J.; Gomez, F. A. 232<sup>nd</sup> American Chemical Society National Meeting, San Francisco, CA, September, 2006.
102. Estimation of Binding Constants for the Substrate and Activator of *Rhodospirillum Rubrum* Adenosine 5'-Diphosphate-Glucose Pyrophosphorylase Using Affinity Capillary Electrophoresis. Sogomonyan, T.; Meyer, C. R.; Gomez, F. A. 232<sup>nd</sup> American Chemical Society National Meeting, San Francisco, CA, September, 2006.
103. Development of a Micro Column Device for Flash Chromatography. Gomez, A.; Maltezos, G.; Scherer, A.; Gomez, F. A. Southern California Conference on Undergraduate Research (SCCUR), Los Angeles, CA, November, 2006.
104. Advances in Partial Filling Multiple Injection Affinity Capillary Electrophoresis (PFMIACE) to Estimate Binding Constants of Receptors and Ligands. Ramirez, A.; Gomez, F. A. Southern California Conference on Undergraduate Research (SCCUR), Los Angeles, CA, November, 2006.
105. Chemically Robust Three-Dimensional Microfluidic Valves. Garcia, E.; Maltezos, G.; Scherer, A.; Gomez, F. A.; Hanrahan, G. Southern California Conference on Undergraduate Research (SCCUR), Los Angeles, CA, November, 2006.
106. Estimation of Binding Constants for the Substrate and Activator of *Rhodospirillum Rubrum* Adenosine 5'-Diphosphate-Glucose Pyrophosphorylase Using Affinity Capillary Electrophoresis. Sogomonyan, T.; Meyer, C. R.; Gomez, F. A. Southern California Conference on Undergraduate Research (SCCUR), Los Angeles, CA, November, 2006.
107. Chemometrics Optimization of Flow Injection- Capillary Electrophoresis (FI-CE) Analyzer. Hundal, A.; Dahdouh, F.; Gomez, F. A.; Hanrahan, G. Southern California Conference on Undergraduate Research (SCCUR), Los Angeles, CA, November, 2006.
108. Magnetically Controlled Valve for Polymeric Flow Manipulation in Polymeric Microfluidic Devices. Gaspar, A.; Piyasena, M. E.; Gomez, F. A. Nanotechnology Trade Show, Santa Clara, CA, May, 2007.
109. New Sample Injection Methods for Chip Electrophoresis. Gaspar, A.; Piyasena, M. E.; Gomez, F. A. Nanotechnology Trade Show, Santa Clara, CA, May, 2007.
110. Fabrication of Thin Microfluidic Chips for Chromatographic Separations and Microreactors. Stevens, S.; Gaspar, A.; Gomez, F. A. Western Regional Meeting American Chemical Society, San Diego, CA, October, 2007.
111. Use of Chemometrics for Experimental Optimization of Flow Injection Capillary Electrophoresis (FI-CE) Analysis. Dahdouh, F. T.; Gomez, F. A.; Hanrahan, G. Western Regional Meeting American Chemical Society, San Diego, CA, October, 2007.
112. Optimization Using Chemometric Response Surface Modeling Design. Montes, R.; Gomez, F. A.; Hanrahan, G. Western Regional Meeting American Chemical Society, San Diego, CA, October, 2007.
113. Development of a Microcolumn for the Separation of Chemicals and Proteins. Gomez, A.; Gomez, F. A. Western Regional Meeting American Chemical Society, San Diego, CA, October, 2007.
114. Fabrication of Microfluidic Chips and Their Applications. Salgado, M.; Gomez, F. A. Southern California Conference on Undergraduate Research (SCCUR), Los Angeles, CA, October, 2007.

115. Fabrication of Thin Chips for Chromatographic Separations and Microreactors. Stevens, S.; Gaspar, A.; Gomez, F. A. 31<sup>st</sup> International Symposium on Capillary Chromatography and Electrophoresis, Albuquerque, NM, November, 2007.
116. Experimental Optimization of Flow Injection Capillary Electrophoresis (FI-CE) Analysis Using Chemometrics. Dahdouh, F. T.; Gomez, F. A.; Hanrahan, G. 31<sup>st</sup> International Symposium on Capillary Chromatography and Electrophoresis, Albuquerque, NM, November, 2007.
117. Fabrication of Thin Microfluidic Chips. Stevens, S.; Gaspar, A.; Gomez, F. A. Twentieth Annual CSUPERB Symposium, Oakland, CA, January, 2008.
118. Chemically Robust Microfluidic Chips. Garcia, E.; Maltezos, G.; Hanrahan, G.; Gomez, F. A. Twentieth Annual CSUPERB Symposium, Oakland, CA, January, 2008.
119. Optimization Utilizing Chemometrics in a Flow-Injection Capillary Electrophoresis (FI-CE) Analyzer. Dahdouh, F. T.; Gomez, F. A. Twentieth Annual CSUPERB Symposium, Oakland, CA, January, 2008.
120. Formation of a Chemical Gasket Inside a Microfluidic Chip. Goldberg, M.; Gomez, F. A. Twentieth Annual CSUPERB Symposium, Oakland, CA, January, 2008.
121. Incorporation of Zr(IV) Lewis Acids in Microfluidic Devices for Enantiomeric Separation. Torres, J. A.; Tikkanen W.; Gomez, F. A. Twentieth Annual CSUPERB Symposium, Oakland, CA, January, 2008.
122. Chemically Robust Microfluidic Fabrication and Related Applications. Garcia, E.; Hanrahan, G.; Gomez, F. A. Pittcon, New Orleans, LA, March, 2008.
123. Fabrication of Thin Microfluidic Chips for Chromatographic Separations and Microreactors. Stevens, S.; Gaspar, A.; Gomez, F. A. Pittcon, New Orleans, LA, March, 2008.
124. Synthesis of Silica Supported Zr(IV) Chiral Complexes for Use as Heterogeneous Catalysts. Torres, J. A.; Garcia, Y.; Chin, T.; Anderson, D.; Gomez, F. A.; Tikkanen, W. 235<sup>th</sup> American Chemical Society National Meeting, New Orleans, LA, April, 2008.
125. Studying the Interactions Between Glycopeptide Antibiotic and Peptides by Microchip Capillary Electrophoresis. Liu, X.; Gomez, F. A. 236<sup>th</sup> American Chemical Society National Meeting, Philadelphia, CA, August, 2008.
126. Surface Plasmon Resonance Detection for Microchip Capillary Electrophoresis. Liu, X.; Du, M.; Zhou, F.; Gomez, F. A. 42<sup>nd</sup> Western Regional Meeting American Chemical Society, Las Vegas, NV, September, 2008.
127. Automated Moveable Magnetically Controlled Valve in a Microfluidic Device. Botoaca, D.; Santina, A.; Gomez, F. A. Southern California Conference on Undergraduate Research (SCCUR), Pomona, CA, October, 2008.
128. Application of Artificial Neural Networks in the Prediction of Product Distribution in Electrophoretically Mediated Microanalysis (EMMA). Riveros, T.; Gomez, F. A. Southern California Conference on Undergraduate Research (SCCUR), Pomona, CA, October, 2008.
129. Application of Artificial Neural Networks in the Prediction of Product Distribution in Electrophoretically Mediated Microanalysis (EMMA). Riveros, T.; Hanrahan, G.; Gomez, F. A. Southern California Undergraduate Research Conference, Los Angeles, CA, April 2009.
130. Automated Moveable Magnetically Controlled Valve in a Microfluidic Device. Botoaca, D.; Santina, A.; Gomez, F. A. Southern California Undergraduate Research Conference, Los Angeles, CA, April 2009.

### **Contributed Activities**

1. Workshop coordinator, Obtaining a Faculty/Postdoc Position. Society for Advancement of Chicanos and Native American,s in Science National Conference, El Paso, TX, January, 1995.
2. Invited keynote speaker, From Molecular Recognition to Chicano/Latino Recognition in the Sciences: A Discourse in Not-too Extremes. American Chemical Society Awards Banquet South Florida Section, Florida International University, Miami, FL, March, 1995.
3. Invited speaker, Discipline in the Physical and Mathematical Sciences. The 5th Annual California Minority Graduate Education Forum, Long Beach, CA, April, 1995.
4. Hanging in There: Being a New Kid at the Undergraduate Institution. Gomez, F. A. 209th American Chemical Society National Meeting, Anaheim, CA, April 1995.

5. Invited speaker, How Mentoring Can Help Your Career. The 210th American Chemical Society National Meeting, Chicago, IL, August, 1995.
6. Invited speaker, Sponsoring Minority Scientists: University-based Efforts to Create Partnerships with the Pharmaceutical and Biomedical Industries. Fostering Diversity in the Scientific Workforce in the Pharmaceutical and Biomedical Industries, American Association for the Advancement of Science, Washington, D.C., October, 1995.
7. Workshop coordinator, The Role of Science and Technology in the Future Socioeconomic Status of California's Chicano/Latino Community. California Chicano/Latino Intersegmental Convocation, San Francisco, CA, November, 1995.
8. Invited speaker, Minority Representation in Industry and Higher Education. The 212th American Chemical Society National Meeting, Orlando, FL, August, 1996.
9. Conference Chair, Society for Advancement of Chicanos and Native-Americans in Science National Conference, Los Angeles, CA, October, 1996.
10. Mentoring Minority Students: The Society for Advancement of Chicanos and Native Americans in Science (SACNAS). 213th American Chemical Society National Meeting, San Francisco, CA, April, 1997.
11. Invited speaker, Latino Scholastic Achievement Corporation, California Institute of Technology, Pasadena, CA, February, 1998.
12. Chemical Sciences Symposium Chair, Society for Advancement of Chicanos and Native-Americans in Science National Conference, Washington D.C., October, 1998.
13. Invited speaker, Latino Scholastic Achievement Corporation, Pomona College, Pasadena, CA, February, 1999.
14. Invited speaker, Achieving Graduate Student Diversity Conference, University of California, Los Angeles, CA, November, 1999.
15. Invited speaker, The East Los Angeles Community Union (TELACU) Leadership Conference, City of Commerce, CA, March, 2000.
16. Invited speaker, Latino Scholastic Achievement Corporation Latina Conference, Industry Hills, CA, March, 2000.
17. Commencement speaker, Don Bosco Technical Institute, Rosemead, CA, June 2000.
18. Invited speaker, Fasttrack to the Professoriate, University of California, Irvine, CA, August, 2000.
19. Workshop coordinator, Careers in the Sciences, College Career Conference, Bell High School, Bell, CA, October, 2000.
20. Invited speaker, The East Los Angeles Community Union (TELACU) Leadership Conference, City of Commerce, CA, March, 2001.
21. Invited speaker, Algebra in the Real World Teacher Conference, Montebello, CA, May, 2001.
22. Speaker, Department of Defense, 2009 Minority Serving Institutions (MSI) Technical Assistance Workshop, Cal Poly Pomona, May, 2009.

### **Newspaper/Magazine Articles**

1. "Board Member Dispels Superintendent Rumors"; The Los Angeles Times (Our Times), April 1, 1999.
2. "School Board Election Has No Place for Politics"; The Los Angeles Times (Our Times), October 21, 1999.
3. "MUSD Goes Against Tradition: Elects Board Officers Out of Normal Rotation"; The Montebello Comet, December 9, 1999.
4. "School Board Needs to Refocus on Children"; The Los Angeles Times (Our Times), December 9, 1999.
5. "Putting Our Children's Education First: What Does Politics Have to do With Educating Our Children?"; The Los Angeles Times (Our Times), April 13, 2000.
6. "A Rebuttal to an Educator's Letter"; The Los Angeles Times (Our Times) and The Montebello Comet, May 4, 2000.
7. "Once a Teacher, Always a Teacher"; The Los Angeles Times (Our Times) and The Montebello Comet, June 29, 2000.

8. "Time to Reflect on Our Accomplishments"; The Montebello Comet, July 13, 2000 and The Los Angeles Times (Our Times), July 20, 2000.
9. "Education Makes a World of Difference"; The Montebello Comet, August 17, 2000.
10. "How to Use the Stanford 9 Standardized Test Constructively"; The Los Angeles Times (Our Times), August 24, 2000.
11. "Special Education Receives a Boost in Funding"; The Montebello Comet, November 16, 2000.
12. "Summer College Experiences Show Students the Way to Success"; The Montebello Comet, June 14, 2001.
13. "Reflecting on Our Accomplishments"; The Montebello Comet, July 19 and 26, 2001.
14. "Vouchers and Our Children"; The Montebello Comet, August 1, 2002 and Whittier Daily News, August 5, 2002.
15. "Under Bush, Science and Technology, Politics are at Odds"; San Gabriel Valley Tribune, Whittier Daily News, Pasadena Star News, April 3, 2003.