

Gabino Rafael Fernandez-Botran, Ph.D.

3418 Brookhollow Drive
Louisville, KY 40220
(502) 852-5375 (Office)
(502) 235-8796 (cell)
(502) 852-1177 (FAX)
rafael@louisville.edu

A. Education:

Licenciatura (equivalent to B.S.), Biological Chemistry, 1979. Facultad de Ciencias Químicas y Farmacia; Universidad de San Carlos de Guatemala, Guatemala City, Guatemala.

Ph.D., Microbiology, 1985. Department of Microbiology, The University of Kansas Medical Center, Kansas City, KS.

Postdoctoral, Immunology. 1985 - 1991. Department of Microbiology, The University of Texas Southwestern Medical Center, Dallas, TX.

B. Academic Appointments:

1/1979-12/1979: **Supervisor and Instructor**, Clinical Laboratory School, Facultad de Ciencias Químicas y Farmacia, Universidad de San Carlos de Guatemala, Guatemala City, Guatemala.

1/1980 - 7/1980: **Adjunct Professor of Microbiology III**; Facultad de Ciencias Químicas y Farmacia, Universidad de San Carlos de Guatemala, Guatemala City, Guatemala.

8/1980 - 5/1985: **Graduate Student**; Department of Microbiology, The University of Kansas Medical Center, Kansas City, KS. (Advisor: Tsuneo Suzuki, M.D., Ph.D.).

6/1985 - 9/1991: **Postdoctoral Fellow and Instructor**; Department of Microbiology, The University of Texas Southwestern Medical Center at Dallas, Dallas, TX. (Supervisors: Ellen S. Vitetta, Ph.D. and Jonathan W. Uhr, M.D.).

9/1991 - 4/1992: **Instructor**; Cancer Immunobiology Center, The University of Texas Southwestern Medical Center at Dallas, Dallas, TX. (Supervisor: Phillip E. Thorpe, Ph.D.).

4/1992 -5/1998: **Assistant Professor**; Department of Microbiology & Immunology, School of Medicine, University of Louisville, Louisville, KY.

10/1994 - 5/1998: **Assistant Professor**; Division of Experimental Immunology and Immunopathology, Department of Pathology & Laboratory Medicine, School of Medicine, University of Louisville, Louisville, KY.

5/1/98 - present: **Associate Professor**; Division of Research, Department of Pathology & Laboratory Medicine; joint appointment at Department of Microbiology & Immunology, School of Medicine, University of Louisville, Louisville, KY.

C. Other positions and Employment including Military Service:

1/1977 - 1/1979: **Research Assistant**, Division of Agricultural and Food Chemistry, Nutrition Institute of Central America and Panama (INCAP), Guatemala City, Guatemala. (Advisors: Ricardo Bressani, Ph.D. and Luiz G. Elias, Ph.D.).

1/1979 - 6/1979: **Supervisor**, Clinical Laboratory, "Juan de Dios Rodas Hospital", Sololá, Guatemala.

1/1980 - 7/1980: **Supervisor**, Clinical Laboratory, "Centro Medico Hospital", Guatemala City, Guatemala.

D. Board Certification and Licensure:

N.A.

E. Professional Memberships and Activities:

1988 – present: Member, **American Association of Immunologists (AAI)**.

1994 - 2000: Associate Member, **Center for Applied Microcirculatory Research (CAMR)**, University of Louisville, Louisville, KY.

1995 – present: Member, **International Cytokine Society (ICS)**.

1998 – present: Member, **Society for Leukocyte Biology (SLB)**.

1999 – present: Member, **Institute for Molecular Diversity and Drug Design (IMD³)**, University of Louisville, Louisville, KY.

2002 – present: Member, **Center for Genetics and Molecular Medicine (CGeMM)**, University of Louisville, Louisville, KY.

2005 – present: Founding Member, **International Network of Science, Technology and Innovation of Guatemala.**

F. Honors and Awards:

- 1977, 1978 Research Fellowship, Division of Food and Agricultural Chemistry, Nutrition Institute of Central America and Panama (INCAP), Guatemala City, Guatemala.
- 1982 – 1983 Dissertation Fellowship, The University of Kansas, Lawrence, KS.
- 1983 – 1984 Biomedical Sciences Scholar Award, University of Kansas Alumni Association, Kansas City, KS.
- 1986 Invited speaker, IV National Congress of Microbiology, Guatemala City, Guatemala.
- 1989 New Investigator Recognition Award, Clinical Immunology Society (CIS).
- 1992 Invited speaker, FASEB Meeting, Anaheim, CA.
- 1992 Invited speaker, Second Symposium on Molecular Hematology, Freiburg, Germany.
- 1993 Invited Workshop Chairperson, 22nd. Autumn Immunology Conference, Chicago, IL.
- 1993 President's Young Investigator Award, University of Louisville, Louisville, KY
- 1995 Third Place Award in the Young Investigator Award Competition, The International Cytokine Society, Harrogate, U.K.
- 1997 Invited speaker, Latin American Nutrition Society Meeting, Guatemala City, Guatemala.
- 1999 Invited speaker, School of Medicine, Universidad Dr. José Matías Delgado, San Salvador, El Salvador.
- 2000 Third Place Award in Scientific Importance. Research! Louisville 2000, University of Louisville, Louisville, KY.
- 2001 Invited Speaker, II Central American Congress on STD/HIV/AIDS, Guatemala City, Guatemala.
- 2002 Outstanding Research Faculty Recognition. Department of Pathology & Laboratory Medicine, University of Louisville, Louisville, KY.
- 2005 Outstanding Research Faculty Recognition. Department of Pathology & Laboratory Medicine, University of Louisville, Louisville, KY.
- 2005 Invited Speaker and Panelist. Convergencia 2005. Consejo Nacional de Ciencia y Tecnología (CONCYT), Guatemala City, Guatemala.

- 2006 Invited Speaker and Panelist. Convergencia 2006. Consejo Nacional de Ciencia y Tecnología (CONCYT), Guatemala City, Guatemala.
- 2006 Invited Speaker. Universidad de San Carlos de Guatemala, Guatemala City, Guatemala.
- 2007 Invited Speaker and Panelist. Convergencia 2007. Consejo Nacional de Ciencia y Tecnología (CONCYT), Guatemala City, Guatemala.
- 2008 Invited Speaker and Panelist. Convergencia 2008. Consejo Nacional de Ciencia y Tecnología (CONCYT), Guatemala City, Guatemala.
- 2008 Invited Speaker and Session Chairman. Therapeutic potential of cytokine targets. Molecular Medicine Tri-conference. Bridging Biology, Chemistry and Business. San Francisco, CA.
- 2009 Invited Speaker and Panelist. Convergencia 2009. Consejo Nacional de Ciencia y Tecnología (CONCYT), Guatemala City, Guatemala.
- 2010 Invited Keynote Speaker. XIII Congress of Medicine. Universidad Dr. José Matías Delgado, San Salvador, El Salvador.
- 2010 Invited Speaker and Panelist. Convergencia 2010. Consejo Nacional de Ciencia y Tecnología (CONCYT), Guatemala City, Guatemala
- 2010 Invited Panelist. Expert Panel on Yeast β -Glucan. Mead Johnson Nutrition, Santa Monica, CA.
- 2011 Invited Keynote Speaker. Mechanism of action of β -Glucan. VIVA Symposium. Mead Johnson Nutrition, Asia. Hanoi, Vietnam.
- 2011 Invited Keynote Speaker. Mechanism of action of β -Glucan. VIVA Symposium. Mead Johnson Nutrition, Asia. Ho Chi Minh City, Vietnam.
- 2011 Invited Speaker and Panelist. Convergencia 2011. Consejo Nacional de Ciencia y Tecnología (CONCYT), Guatemala City, Guatemala.
- 2012 Invited Keynote Speaker. XV Congress of Medicine. Universidad Dr. José Matías Delgado, San Salvador, El Salvador.
- 2012 Invited Speaker and Panelist. Convergencia 2012. Consejo Nacional de Ciencia y Tecnología (CONCYT), Guatemala City, Guatemala.
- 2012 Invited Keynote Speaker. 1st Symposium on Autoimmunity. Hospital Roosevelt and Universidad de San Carlos de Guatemala, Guatemala City, Guatemala.
- 2014 Invited Speaker. XVII Congress of Medicine. Universidad Dr. José Matías Delgado, San Salvador, El Salvador.
- 2014 Certificate of Reviewing Excellence – *Brain Behavior and Immunity/Elsevier*.

G. Committee Assignments and Administrative Services:

1996 – present	Member of the Research Committee, Department of Pathology and Laboratory Medicine , University of Louisville. Chair of the Research Committee (2002 – 2004).
1997 - 1999	Member of the Promotion, Appointment and Tenure Committee, Department of Pathology and Laboratory Medicine , University of Louisville.
1997 - 1999	Member of the Promotion and Tenure Committee, Department of Pathology and Laboratory Medicine , University of Louisville.
1998 – present	Member of the Admissions Committee, School of Medicine , University of Louisville.
1998 - 1999	Member of the Performance Based Salary Increase Committee (PBSI), Department of Pathology and Laboratory Medicine , University of Louisville.
1999 – 2002	Member of the Minority Affairs Committee, The American Association of Immunologists (AAI) .
1999 – present	Member of the Executive Council, Autumn Immunology Conference (AIC) .
1999 – 2015	Chair, Diversity Program, Autumn Immunology Conference (AIC) .
2002 – 2007	Member of the Council on Diversity and Racial Equality (CODRE) , University of Louisville.
2004 -2007	Member of the Admissions Committee, American Association of Immunologists (AAI) .
2005 – present	Member of the International Network of Science, Technology and Innovation for Guatemala .
2007 – 2009	Member, Travel Awards Committee, Institute of Molecular Diversity and Drug Design (IMD3) , University of Louisville.
2009 – present	Member of the Diversity Committee, School of Medicine , University of Louisville.
2009 – present	Member, Faculty Affairs Committee, Department of Pathology & Laboratory Medicine , University of Louisville.
2009 – 2011	Chair, Travel Awards Committee, Institute of Molecular Diversity and Drug Design (IMD3) , University of Louisville.
2012	Member, LCME Review Preparation Committee – Admissions , School of Medicine, University of Louisville.
2013 – 2017	Chair, Diversity Committee, School of Medicine , University of Louisville.

2016	Workshop Coordinator, Autumn Immunology Conference (AIC)
2017	Secretary, Autumn Immunology Conference (AIC)
2017-present	Member, Graduate Council , School of Medicine, University of Louisville
2018	Chair, Autumn Immunology Conference

H. Journal Editorial Boards, Advisory Councils, Peer Reviewer of Manuscripts:

Editorial Boards:

1998 – 2004	Associate Editor, <i>The Journal of Immunology</i> .
1998 – 2005	Associate Editor, <i>Analytical Pharmacology</i> .
2008 – 2016	Associate Editor, <i>Inflammation and Allergy – Drug Targets (IA-DT)</i>
2012 – present	Associate Editor, <i>Brain, Behavior and Immunity</i>
2015	Topic Editor, <i>Frontiers in Psychology</i>
2017 - present	Section Editor (Inflammation). <i>University of Louisville Journal of Respiratory Infections</i>

Advisory Councils, Granting Agencies:

1993 – present	Member of the Intramural Research Incentive Grants (IRIG) Committee , University of Louisville.
2001	Reviewer, Boyd Professorship, Louisiana State University , Baton Rouge, LA.
2003	Reviewer, Arthritis Research Campaign , London, U.K.
2004 - 2010	Member of the Minority/Disability Predoctoral Fellowships Study Section, NIH .
2004 - 2005	Reviewer, Swiss Federal Institute of Technology , Zürich, Switzerland.
2005 – 2012	Member, R1 Immunology and Virology Study Section, American Heart Association (AHA) .
2006	Reviewer, The Wellcome Trust , London, U.K.
2006	Reviewer, Agence Nationale de la Recherche , Paris, France.
2009 - 2010	Chairman, Minority/Disability Predoctoral Fellowships Study Section, NIH .

2011 Member, Chair Review Committee, Department of Pharmacology and Toxicology, University of Louisville.

Peer Review of Manuscripts:

1992 – present *Ad-hoc* reviewer for the following journals: *Biochimica et Biophysica Acta, Biopharmaceutics and Drug Disposition, Brain, Behavior, and Immunology, Canadian Journal of Microbiology, Cancer Research, Cellular Immunology, Cell and Molecular Biology Letters, Chemical Reviews, Clinical and Experimental Immunology, Cytokine, FASEB Journal, Human Immunology, Immunology, Inflammation and Allergy–Drug Targets, Inflammation Research, International Journal of Molecular Science, Journal of Immunology, Journal of Leukocyte Biology, Journal of Nutritional Biochemistry, Journal of Women’s Health, Life Sciences, Molecular Immunology, Orphanet Journal of Rare Diseases, PLOS-One, Revista de la Dirección General de Investigación (DIGI), Scientific Reports, The Journal of Peptide Research, The Lancet.*

I. Board Memberships:

N.A.

J. Teaching:

Courses:

7/1979 - 12/1979 Instructor, Medical Bacteriology and Medical Mycology (undergraduate level courses), Clinical Laboratory School, Facultad de Ciencias Químicas y Farmacia, Universidad de San Carlos de Guatemala, Guatemala City, Guatemala.

1/1980 - 7/1980 Lecturer, General Microbiology, Medical Bacteriology and Medical Parasitology (undergraduate level courses), Facultad de Ciencias Químicas y Farmacia, Universidad de San Carlos de Guatemala, Guatemala City, Guatemala.

1980 - 1984 Instructor, Medical Bacteriology course (Medical students), Department of Microbiology, University of Kansas Medical Center.

1985 - 1991 Instructor, Immunology and Parasitology modules of the Medical Microbiology course (Medical students), Department of Microbiology, University of Texas Southwestern Medical Center.

1992 - 1995 Lecturer, Immunology Section of the Remedial Medical Microbiology Course, Department of Microbiology & Immunology, School of Medicine, University of Louisville.

1992 – 1995	Lecturer, Immunology Section of the Dental Microbiology course, Dental School, University of Louisville.
1992 - 2012	Lecturer, Medical Microbiology course (MBIO-850-Medical students). Department of Microbiology & Immunology, School of Medicine, University of Louisville.
1992 – present	Lecturer, Introductory Immunology (MBIO602 – Graduate students). Department of Microbiology & Immunology, School of Medicine, University of Louisville.
1999	Lecturer, Basic Immunology Course for Health Professionals. Universidad Evangélica de El Salvador, San Salvador, El Salvador.
1999 – present	Lecturer, Cancer Immunology Elective course (PATH 869). Department of Pathology & Laboratory Medicine, School of Medicine, University of Louisville. Course director since 2010.
2007 - present	Lecturer, Advanced Immunology course (MBIO-658-Graduate students), Department of Microbiology & Immunology, School of Medicine, University of Louisville.
2009 - present	Lecturer, Sophomore Medical Pathology course (medical students), Department of Pathology & Laboratory Medicine, School of Medicine, University of Louisville.
2011 – present	Dental Immunology Course (BMSC806-04), Dental School, University of Louisville.

Graduate Student Supervision:

1990 - 1991	Direct supervision of two graduate (Ph.D) students, during laboratory rotations at the Department of Microbiology, The University of Texas Southwestern Medical Center at Dallas, Dallas, TX. Ramona Leibnitz (Spring 1990) "Generation of an IL-4-dependent line"; Doug Reed (Spring 1991) "Effect of Ricin A on cytokine binding and activity".
1992 - 1996	Ph.D. advisor for Paula M. Chilton. Department of Microbiology & Immunology, University of Louisville. Dissertation title: Regulation of soluble interleukin-4 receptor expression in murine spleen cells (Approved on August 26, 1996).
1993 - 1996	Ph.D. advisor for Yuhe Ma. Department of Microbiology & Immunology, University of Louisville. Dissertation title: Potential role of soluble cytokine receptors as carrier proteins: Effects of soluble interleukin-4 receptors on the pharmacokinetics of murine IL-4" (Approved on August 21, 1996).
1996 - 1998	M.S. advisor for Dr. Jun Yan, Department of Microbiology and Immunology, University of Louisville. Dissertation title: Characterization of the interactions between interferon- γ and glycosaminoglycans/gangliosides and their potential modulatory effects on the biological activity of interferon- γ . (Approved on May 21, 1998).

- 1999 - 2000 Ph.D. advisor for Bradley Brewer, Department of Pharmacology and Toxicology, University of Louisville.
- 2003 – 2006 Research sponsor for undergraduate student, James G. Cripps. Department of Chemistry, University of Louisville. Currently in graduate school at Dartmouth University.

Postdoctoral Student Supervision:

- 2000 – 2003 Xichun Sun, Ph.D. Currently in the Department of Pathology, University of Texas Medical Branch, Galveston, TX.
- 2000 – 2005 Fabian Crespo, Ph.D. Currently in the Department of Anthropology, University of Louisville, Louisville, KY.

Other Research Supervision:

- 1995 Sponsor for Walter Jones, Summer Research Fellow from the American Association of Immunologists (AAI).
- 2005 Sponsor for Summer Undergraduate Research student, Brent Dunn, Berea College, Berea, KY. (KBRIN Program).
- 2005 Sponsor for Junior High School student, Nihit Bajaj, Manual High School, Louisville, KY. (Brown Cancer Center Summer Research Internship).
- 2006 Sponsor for Junior High School students, Susanna Kim and Kristie Disney, Manual High School, Louisville, KY. (Brown Cancer Center Summer Research Internship).
- 2007 Sponsor for Summer Undergraduate Research student, Shawn Greschel, Transylvania University, Lexington, KY. (KBRIN Program).
- 2007 Sponsor for Senior High School student, Kevin Gerstle, Saint X High School, Louisville, KY. (Brown Cancer Center Summer Research Internship).
- 2008 Sponsor for 2nd year Medical student, Cristina Fernandez, School of Medicine, University of Louisville (Summer Research).
- 2008 Sponsor for Junior High School student, Sahiba Chopra, Manual High School, Louisville, KY.
- 2010, 2011 Sponsor for undergraduate student, Julio Aleman, Universidad del Valle, Guatemala.
- 2012 Sponsor for undergraduate student, Roberto Fernández Ruiz, Univesidad del Valle, Guatemala.

Thesis Committees:

1992 – 1994	Member, Ph.D. Thesis Committee, Cem Akin, Department of Microbiology & Immunology, University of Louisville.
1992 – 1995	Member, Ph.D. Thesis Committee, Brian Thornton, Department of Microbiology & Immunology, University of Louisville.
1999 – 2002	Member, Ph.D. Thesis Committee, Feng Hong, Department of Microbiology & Immunology, University of Louisville.
1999 – 2002	Member, Ph.D. Thesis Committee, Laura Pantoja, Department of Microbiology & Immunology, University of Louisville.
2000 - 2002	Member, Ph.D. Thesis Committee, Vijay Gorantla, Department of Physiology & Biophysics, University of Louisville.
2001 – 2003	Member, Ph.D. Thesis Committee, Melanie Scott, Department of Microbiology & Immunology, University of Louisville.
2002 – 2004	Member, Ph.D. Thesis Committee, Chuancang Jiang, Department of Microbiology & Immunology, University of Louisville.
2002 – 2004	Member, Ph.D. Thesis Committee, Cristopher Cunningham, Department of Pharmacology & Toxicology, University of Louisville.
2003 – 2005	Member, Ph.D. Thesis Committee, Dianne Franke, Department of Microbiology & Immunology, University of Louisville.
2005 -2006	Member, Ph.D. Thesis Committee, Matt Turina, Department of Physiology & Biophysics, University of Louisville.
2007	Member, Ph.D. Qualifying Exam, Christelle P. El Haibi, Department of Microbiology & Immunology, University of Louisville.
2008 – 2010	Member, Ph.D. Thesis Committee, Sathnur Pushpakumar, Department of Physiology & Biophysics, University of Louisville.
2008 – 2011	Member, Ph.D. Thesis Committee, Megan Mott, Department of Anatomy & Neurobiology, University of Louisville.
2010 – 2012	Member, Ph.D. Thesis Committee, Tatyana M. Fernandes, Department of Physiology & Biophysics, University of Louisville.
2013	Member, Qualifying Committee, Jeremy Camp, Department of Microbiology and Immunology
2014	Member, Qualifying Committee, Bindu Hedge, Department of Microbiology & Immunology
2015	Member, MS Thesis Committee, Reginald Nkansah, Department of Physiology, University of Louisville.

- 2015 Member, Ph.D. Thesis Committee, Yvette Szabo, Department of Psychology and Brain Sciences, University of Louisville.
- 2015 Member, Ph.D. Thesis Committee, Tuo Shao, Department of Pharmacology & Toxicology, University of Louisville.
- 2017 Member, Ph.D. Thesis Committee, Lindsay Knight, Translational Neuroscience Program, University of Louisville.

K. Abstracts and Presentations:

Oral Presentations: National/International Meetings:

1. **Fernandez-Botran, R., L. G. Elias, and R. Bressani.** 1980. Antinutritional factors in legume seeds (*Phaseolus vulgaris*) and their possible relationship with the content of tannins and associated polyphenols. Minisymposium. *Proceedings of the XVII Meeting of the Central American and Caribbean Program for the Improvement of Edible Cultures.(PCCMCA)*, Guatemala City, Guatemala, 1980.
2. **Fernandez-Botran, R.** 1986. Recent advances on the etiology and immunological treatment of cancer. Invited talk. *IV National Congress of Microbiology*, Guatemala City, Guatemala.
3. **Fernandez-Botran, R., and E. S. Vitetta.** 1989. A soluble IL-4 binding protein is present in mouse serum and ascites: a potential role in immuno regulation. *Cytokine*, 1:149. Minisymposium at the *II International Symposium on Cytokines*, Hilton Head, SC.
4. **Fernandez-Botran, R., and E.S. Vitetta.** 1992. Immunological and functional relationships between membrane and soluble IL-4 receptors. *FASEB J.*, 6:A1123. Minisymposium at the 1992 FASEB Meeting, Anaheim, CA.
5. **Fernandez-Botran, R.** 1992. Do soluble cytokine receptors have a role in the regulation of inflammatory and immune responses? Invited panelist at the 1992 FASEB Meeting, Anaheim, CA.
6. **Fernandez-Botran, R.** 1992. Soluble cytokine receptors. Invited speaker at the *II Symposium on Molecular Hematology*, Freiburg, Germany.
7. **Fernandez-Botran, R., and P. M. Chilton.** 1993. Regulation of the secretion of soluble IL-4 receptors (sIL-4R) in murine spleen cells and different cell lines. *J. Immunol.*, 150(II):91A. Minisymposium at the 1993 joint AAI/CIS Meeting, Denver, CO.
8. **Fernandez-Botran, R.** 1993. Soluble Interleukin-4 Receptors and their Role in Immunoregulation". Invited speaker. NIAID, NIH, Bethesda, MD.
9. **Fernandez-Botran, R.** 1993. The Role of Cytokines in the Immunity Against Infectious Diseases. Invited speaker. Institute of Nutrition of Central America and Panama (INCAP), Guatemala City, Guatemala.

10. **Fernandez-Botran, R.** 1994. Soluble Interleukin-4 Receptors: do they participate in Immunoregulation? Invited speaker. Department of Microbiology and Immunology and Department of Anatomy, Cell Biology and Neurobiology, Loyola University Chicago, Maywood, IL.
11. **Fernandez-Botran, R.** 1994. Soluble Cytokine Receptors: do they participate in immunoregulation? Invited speaker. Department of Microbiology, Molecular Bacteriology and Immunology, University of Kansas Medical Center, Kansas City, KS.
12. **Fernandez-Botran, R.** 1995. The Role of Endogenous Soluble Interleukin-4 Receptors in the Regulation of IL-4 Activity. Invited Speaker. Central Research Division, Pfizer Inc., Groton, CT.
13. **Fernandez-Botran, R., P. M. Chilton, Y. Ma, J. Windsor, and N. E. Street.** 1995. Differential regulation of soluble interleukin-4 receptor by CD4⁺ T cell subsets: Implications in immunoregulation. *Cytokine*, 7:596. Selected talk at the *3rd International Cytokine Society Conference*, Harrogate, U.K.
14. **Fernandez-Botran, R., H. E. Hurst, and Y. Ma.** 1996. Modulation of the pharmacokinetic properties of IL-4 by soluble IL-4 receptors: balancing agonistic and antagonistic properties. *Eur. Cytokine Netw.*, 7:655. Minisymposium at the *1st Joint Meeting of the ICS & ISCIR*, Geneva, Switzerland.
15. **Fernandez-Botran, R.** Applications of Molecular Biology in the Study of Cytokines and Regulation of the Immune Response. Invited speaker. *Congress of the Latin American Nutrition Society*. Guatemala City, Guatemala.
16. **Fernandez-Botran, R., and J. Vetvickova.** 1999. Soluble gangliosides interfere with IFN γ activity and modulate the differentiation of CD4⁺ T cells. Talk. *European Research Conference on Cytokines, Hormones and Immunity*. Castelvecchio Pascoli, Italy.
17. **Fernandez-Botran, R.** 1999. Cytokines and the regulation of immune responses: from the laboratory to clinical practice. Invited Speaker. Universidad Dr. José Matías Delgado, San Salvador, El Salvador.
18. **Fernandez-Botran, R., V. Gorantla, X. Ren, G. Perez-Abadia, C. Maldonado, M. Ray and J. Barker.** 2001. An inhibitor of glycosaminoglycan-cytokine interactions delays rejection of rat allogeneic skin grafts. *Scand. J. Immunol.*, 54 (Suppl. 1): 107. Minisymposium at the *11th International Congress of Immunology*. Stockholm, Sweden.
19. **Fernandez-Botran, R.** 2001. Cytokines in the immunity, pathology and treatment of pneumonia. Invited Speaker. *Second Central American Congress of STI/HIV/AIDS*. Guatemala City, Guatemala.
20. **Fernandez-Botran, R.** 2001. Cytokines and the treatment of AIDS. Invited Speaker. *Second Central American Congress of STI/HIV/AIDS*. Guatemala City, Guatemala.
21. **Fernandez-Botran, R.** 2001. Chemokine receptors and cellular entry by HIV. Invited Speaker. *Second Central American Congress of STI/HIV/AIDS*. Guatemala City, Guatemala.
22. **Fernandez-Botran, R.** 2003. Multilevel immunoregulation by gangliosides. Implications in cancer. Invited speaker. Department of Microbiology & Immunology. The University of Kansas Medical Center. Kansas City, KS.

23. **Fernandez-Botran, R., J. Cripps and F. A. Crespo.** 2004. Inhibición de interacciones entre citocinas y glicosaminoglicanos: una estrategia anti-inflamatoria. *Inmunología*, 23: 170. Talk at the XXX Congress of the Spanish Society of Immunology. Santander, Spain.
24. **Fernandez-Botran, R., X. Sun and F. A. Crespo.** 2004. The immunoregulatory effects of gangliosides involve modulation of Th1/Th2 differentiation and cytokine signaling. *Clin. Invest. Med.*, 27(4): 85C. Talk at the 12th International Congress of Immunology and 4th Annual Conference of FOCIS. Montreal, Canada. 2004.
25. **Fernandez-Botran, R.** 2005. Treachery and deception: how tumors escape the immune system. Invited lecture. Universidad Rafael Landívar, Guatemala City, Guatemala.
26. **Fernandez-Botran, R.** 2005. From basic sciences to their application: new strategies in the treatment of inflammatory diseases. Invited lecture. Universidad Rafael Landívar, Guatemala City, Guatemala.
27. **Fernandez-Botran, R.** 2005. Experiences in teaching and promoting interest and participation of students in the basic sciences. Invited lecture. *Converciencia 2005*, Guatemala City, Guatemala.
28. **Fernandez-Botran, R.** 2005. Speaker. Panel Forum on Education for Science and Research. *Converciencia 2005*, Guatemala City, Guatemala.
29. **Fernandez-Botran, R.** 2005. Treachery and deception: how tumors escape the immune system. Invited lecture. Universidad de San Carlos de Guatemala, Guatemala City, Guatemala.
30. **Fernandez-Botran, R.** 2005. Contribution of Bioengineering to the design, assay and production of novel pharmacologic agents. Keynote address at the XX ESIQ Congress. Guatemala City, Guatemala.
31. **Fernandez-Botran, R.** 2006. The role of the Immune System in Cancer. Ivided teleconference talk. Universidad de San Carlos de Guatemala (USAC), Guatemala City, Guatemala.
32. **Fernandez-Botran, R.** 2006. Cancer and the immune response. Invited Speaker. *Converciencia 2006*, Guatemala City, Guatemala.
33. **Fernandez-Botran, R.** 2006. Research and education. Invited Speaker. *Converciencia 2006*, Guatemala City, Guatemala.
34. **Fernandez-Botran, R.** 2006. Genetic markers and cancer. Invited speaker. Universidad de San Carlos de Guatemala. Guatemala City, Guatemala.
35. **Fernandez-Botran, R.** 2007. Genetics and immunology of cancer. Invited speaker. Universidad Mariano Gálvez, Guatemala City, Guatemala.
36. **Fernandez-Botran, R.** 2007. The importance of research activities in the formation of professionals. Invited speaker. Universidad Mariano Gálvez, Guatemala City, Guatemala.
37. **Fernandez-Botran, R.** 2007. The importance of research activities in the formation of professionals. Invited speaker. *Converciencia 2007*, Guatemala City, Guatemala.

38. **Fernandez-Botran, R.** 2008. Targeting cytokine interactions with glycosaminoglycans to modulate inflammation. Invited speaker. *Molecular Medicine Tri-conference. Bridging Biology, Chemistry and Business.* San Francisco, CA.
39. **Fernandez-Botran, R.** 2008. Anthropology in the XXI century: Population studies based on genetic polymorphisms. Invited speaker. Universidad Galileo. Guatemala City, Guatemala.
40. **Fernandez-Botran, R.** 2008. Anthropology in the XXI century: Population studies based on genetic polymorphisms. Invited speaker. School of Medicine, Universidad Francisco Marroquín. Guatemala City, Guatemala.
41. **Fernandez-Botran, R.** 2008. Cancer: the latests discoveries. Invited speaker. *Converciencia 2008,* Guatemala City, Guatemala.
42. **Fernandez-Botran, R.** 2009. Genes and cancer. Invited Speaker. *Converciencia 2009,* Guatemala City, Guatemala.
43. **Fernandez-Botran, R.** 2009. Genes and cancer. Invited speaker. School of Medicine, Universidad Rafael Landívar, Guatemala City, Guatemala.
44. **Fernandez-Botran, R.** 2009. Equilibrium in the Immune System. Invited speaker. School of Medicine, Universidad Francisco Marroquín, Guatemala City, Guatemala.
45. **Fernandez-Botran, R.** 2009. Advances in cancer immunotherapy. Actualization Symposium in Immunology and Microbiology. Keynote address. Facultad de Ciencias Químicas y Farmacia, Universidad de San Carlos de Guatemala, Guatemala City, Guatemala.
46. **Fernandez-Botran, R.** 2010. The Immune System and Cancer. Invited Speaker. XIII Congress of Medicine, Universidad Dr. José Matías Delgado, San Salvador, El Salvador.
47. **Fernandez-Botran, R.** 2010. The Search for New Therapeutic Targets in Cancer and Inflammation. Keynote adress. XIII Congress of Medicine, Universidad Dr. José Matías Delgado, San Salvador, El Salvador.
48. **Fernandez-Botran, R.** 2010. Potential Applications of Biotechnology in the Health Field. Invited panelist. Symposium on the Status and Future of Biotechnology in Guatemala. Guatemala City, Guatemala.
49. **Fernandez-Botran, R.** 2010. Biotechnology, Immune System and Nutrition. Invited Speaker. *Converciencia 2010.* Guatemala City, Guatemala.
50. **Fernandez-Botran, R.** 2011. The Immune System and action of Beta Glucans. Keynote Speaker. *VIVA Symposium.* Hanoi, Vietnam.
51. **Fernandez-Botran, R.** 2011. The Immune System and action of Beta Glucans. Keynote Speaker. *VIVA Symposium.* Ho Chi Minh City, Vietnam.
52. **Fernandez-Botran, R.** 2011. Cancer Immunology. Invited speaker. Universidad Rafael Landívar, Guatemala City, Guatemala.
53. **Fernandez-Botran, R.** 2011. Genetic variability and disease susceptibility. Invited speaker. *Converciencia 2011,* Guatemala City, Guatemala.

54. **Fernandez-Botran, R.** 2011. Scientific Publications Workshop. Invited speaker. *Converciencia 2011*, Guatemala City, Guatemala.
55. **Fernandez-Botran, R.** 2011. Immunology and Cancer. Invited speaker. Centro Universitario de Oriente, Universidad de San Carlos de Guatemala, Chiquimula, Guatemala.
56. **Fernandez-Botran, R.** 2012. The Relationship between the Immune System and Cancer. Just Enemies? Keynote Speaker. XV Congress of Medicine, Universidad Dr. José Matías Delgado, San Salvador, El Salvador.
59. **Fernandez-Botran, R.** 2012. Advances in Cancer Immunotherapy: Cells, Antibodies and Vaccines. Invited Speaker. XV Congress of Medicine, Universidad Dr. José Matías Delgado, San Salvador, El Salvador.
60. **Fernandez-Botran, R.** 2012. The Immunology of Cancer. *Converciencia 2012*, Guatemala City, Guatemala.
61. **Fernandez-Botran, R.** 2012. Academic Quality and Publication. *Converciencia 2012*, Guatemala City, Guatemala.
62. **Fernandez-Botran, R.** 2012. Autoimmunity. 1st Symposium on Autoimmunity, Hospital Roosevelt and Universidad de San Carlos de Guatemala, Antigua Guatemala, Guatemala.
63. **Fernandez-Botran, R.** 2012. Inhibition of the interactions between cytokines and glycosaminoglycans to modulate inflammation. 1st Symposium on Autoimmunity, Hospital Roosevelt and Universidad de San Carlos de Guatemala, Antigua Guatemala, Guatemala.
64. **Fernandez-Botran, R.** 2014. Local and systemic cytokine and neutrophil activation profiles in community-acquired pneumonia. XVII Congress of Medicine, Universidad Dr. José Matías Delgado, San Salvador, El Salvador.
65. **Fernandez-Botran, R.** 2014. Immune response factors in the HIV/HCV co-infection. XVII Congress of Medicine, Universidad Dr. José Matías Delgado, San Salvador, El Salvador.
66. **Fernandez-Botran, R.** Advances in Cancer Immunotherapy. Universidad de San Carlos de Guatemala. March 10, 2016.
67. **Fernandez-Botran, R.** Cytokine and neutrophil activation profiles in Community-Acquired Pneumonia. Universidad de San Carlos de Guatemala. March 13, 2016.
68. **Fernandez-Botran, R.** Advances in the Molecular Diagnosis of Cancer. VIII Scientific Week of the Military Medical Center and the School of Medicine of Universidad Mariano Galvez, Guatemala. October 6, 2016.
69. **Fernandez-Botran, R.** Calidad Académica y Publicación (*Academic Quality and Publication*). Universidad Galileo, Guatemala City, Guatemala. March 25, 2017.
70. **Fernandez-Botran, R.** Avances en la Inmunoterapia del Cáncer (*Advances in Cancer Immunotherapy*). School of Chemical Sciences and Pharmacy. Universidad de San Carlos de Guatemala, Guatemala City, Guatemala. March 25, 2017.

71. **Fernandez-Botran, R.** Genes y Cáncer (Genes and Cancer). School of Medicine. Universidad de San Carlos de Guatemala, Guatemala City, Guatemala. March 26, 2017.
72. **Fernandez-Botran, R.** Avances en la Inmunoterapia del Cáncer (Advances in Cancer Immunotherapy). Universidad Mariano Gálvez, Guatemala City, Guatemala. March 26, 2017.
73. **Fernandez-Botran, R.** Genes y Cáncer (Genes and Cancer). Universidad Mariano Gálvez, Guatemala City, Guatemala. March 26, 2017.
74. **Fernandez-Botran, R.** Avances en la Inmunoterapia del Cáncer (Advances in Cancer Immunotherapy). School of Medicine. Universidad de San Carlos de Guatemala, Guatemala City, Guatemala. March 27, 2017.
75. **Fernandez-Botran, R.** Calidad Académica y Publicación (*Academic Quality and Publication*). School of Medicine. Universidad de San Carlos de Guatemala, Guatemala City, Guatemala. March 27, 2017.

Oral Presentations: Local/Regional Meetings:

1. **Fernandez-Botran, R.** 1993. Soluble Interleukin-4 Receptors and their Role in Immunoregulation. Invited speaker. Department of Biology, Western Kentucky University, Bowling Green, KY.
2. **Fernandez-Botran, R.** 1995. Regulation of cytokine Activity by Soluble Receptors. Invited speaker. Center for Applied Microcirculatory Research, University of Louisville, Louisville, KY.
3. **Yan, J., and R. Fernandez-Botran.** 1997. Interferon γ binds to glycosaminoglycans and gangliosides: potential immunoregulatory interactions. Talk and poster at the 26th Annual Autumn Immunology Conference. Chicago, IL.
4. **Brewer, B., and Fernandez-Botran, R.** 1999. IFN γ binds to gangliosides. Talk and poster at the 28th Annual Autumn Immunology Conference. Chicago, IL.
5. **Fernandez-Botran, R.** 2000. Targeting of glycosaminoglycan-cytokine interactions as an immune-modulatory approach. Talk at the CAMR Minisymposium, Brown Cancer Center, University of Louisville, Louisville, KY.
6. **Fernandez-Botran, R.** 2001. Targeting of glycosaminoglycan-cytokine interactions. Immunoregulatory activities. Invited speaker. *IMD³ Symposium 2001, Drug Design for a New Millenium*. University of Louisville and Jewish Hospital, Louisville, KY.
7. **Crespo, F., and R. Fernandez-Botran.** 2001. Gangliosides modulate the differentiation of helper T cells. Talk and poster at the 30th Annual Autumn Immunology Conference. Chicago, IL.

8. **Crespo, F.A., A. Ramirez and R. Fernandez-Botran.** 2002. Immunoregulatory effects of gangliosides and the Th1/Th2 paradigm. Talk and poster at the 31st Autumn Immunology Conference. Chicago, IL.
9. **Cripps, J. G., F. A. Crespo, P. Romanovskis, A. F. Spatola and R. Fernandez-Botran.** 2003. Modulation of inflammation by targeting glycosaminoglycan (GAG)/ cytokine interactions. Talk and poster at the 32nd Autumn Immunology Conference. Chicago, IL.
10. **Hart, R., I. Litvan, R. Fernandez-Botran, M. Casanova, C. Tillquist and F. Crespo.** 2006. Cytokine polymorphisms, neuroinflammation and brain disorders. Talk and poster at the 35th Annual Autumn Immunology Conference. Chicago, IL.
11. **Fernandez-Botran, R.** 2013. Pneumonia-Host Response. Invited speaker. Clinical & Translational Research in Infectious Diseases. University of Louisville, Louisville, KY.

Poster Presentations: National/International Meetings:

1. **Fernandez-Botran R., and T. Suzuki.** 1982. Isolation and characterization of a Fc_γ receptor from human amnion: IgG-binding and phospholipase A₂ activity. *Fed. Proc.*, 41:427. Poster at the 1982 FASEB Meeting, New Orleans, LA.
2. **Fernandez-Botran, R., and T. Suzuki.** 1983. Prostaglandin E₂ receptor and adenylate cyclase system of a murine macrophage-like cell line (P3388D₁). *J. Reticuloendothel. Soc.*, 34:179. Poster at the 1983 Meeting of the Reticuloendothelial Society (RES), Portland, OR.
3. **Fernandez-Botran, R., and T. Suzuki.** 1984. Biochemical properties of phosphatidylcholine (PC)/IgG_{2b}-binding proteins of a murine macrophage-like cell line (P388D₁). *Fed. Proc.*, 43:1915. Poster at the 1984 Meeting of the American Association of Immunologists (AAI), St. Louis, MO.
4. **Suzuki, T., and R. Fernandez-Botran.** 1984. Properties of prostaglandin-binding proteins on the surface of P388D₁ cells and in their isolated forms. In: M. Bailey (Ed.). *Prostaglandins and Leukotrienes'84. Their Biochemistry, Mechanism of Action and Clinical Applications.* Washington, D.C.
5. **Fernandez-Botran, R., and T. Suzuki.** 1985. Mode of PGE₂-induced desensitization of adenylate cyclase of a murine macrophage-like cell line (P388D₁). *Fed. Proc.*, 44:1701. Poster at the 1985 FASEB Meeting, Anaheim, CA.
6. **Suzuki, T., and R. Fernandez-Botran.** 1985. Biochemical signals transmitted by Fc_γ receptors: activation of adenylate cyclase activity of cyc^c cells by fusion of IgG-binding proteins inserted into liposomes. *Fed. Proc.*, 44:1861. Poster at the 1985 FASEB Meeting, Anaheim, CA.
7. **Fernandez-Botran, R., V. M. Sanders, K. G. Oliver, Y.-W. Chen, P. H. Krammer, J. W. Uhr, and E. S. Vitetta.** 1987. The role of interleukin-4 in the response of helper T cells to antigen. *Lymphokine Res.*, 6:1625. Poster at the Fifth International Lymphokine Workshop, Clearwater Beach, FL.

8. **Fernandez-Botran, R., V. M. Sanders, K. G. Oliver, Y.-W. Chen, P. H. Krammer, J. W. Uhr, and E. S. Vitetta.** 1987. IL-4-mediated antigen-induced proliferation of murine T helper cells. *Fed. Proc.*, 46:780. Poster at the 1987 FASEB Meeting, Washington D.C.
9. **Sanders, V. M., R. Fernandez-Botran, K. G. Oliver, J. W. Uhr, and E. S. Vitetta.** 1987. IL-4 enhances the ability of antigen-specific B cells to form conjugates with carrier-specific T cells. *Fed. Proc.*, 46:759. Poster at the 1987 FASEB Meeting, Washington D.C.
10. **Fernandez-Botran, R., V. M. Sanders, T. Mosmann, J. W. Uhr, and E. S. Vitetta.** 1988. Lymphokine-mediated regulation of the proliferative response of clones of T_{h1} and T_{h2} cells. *FASEB J.*, 2:A878. Poster at the 1988 FASEB Meeting, Las Vegas, NV.
11. **Sanders, V.M., R. Fernandez-Botran, T. Mosmann, J. W. Uhr, and E. S. Vitetta.** 1988. Conjugation of hapten-specific B cells to carrier-specific T_{h1} and T_{h2} cells. *FASEB J.*, 2:A1229. Poster at the 1988 FASEB Meeting, Las Vegas, NV.
12. **Pure, E., J. Metlay, R. M. Steinman, V. Sanders, R. Fernandez-Botran, E. S. Vitetta, and M. L. Birkeland.** 1988. Epitopes on CD45R (T200) molecules define differentiation antigens on murine T lymphocytes. *FASEB J.*, 2:A1663. Poster at the 1988 FASEB Meeting, Las Vegas, NV.
13. **Stevens, T., A. Bossie, V. M. Sanders, R. Fernandez-Botran, R. Coffman, T. Mosmann, and E. S. Vitetta.** 1988. Activation of antigen-specific B cells by clones of T_{h1} and T_{h2} cells and antigen. *FASEB J.*, 2:A1663. Poster at the 1988 FASEB Meeting, Las Vegas, NV.
14. **Fernandez-Botran, R., V. M. Sanders, and E. S. Vitetta.** 1989. IL-4 induces down-modulation of high-affinity IL-2 receptors on T and B cell lines. *FASEB J.*, 3:A1131. Poster at the 1989 FASEB Meeting, New Orleans, LA.
15. **Sanders, V.M., R. Fernandez-Botran, R. Coffman, T. Mosmann, and E. S. Vitetta.** 1989. Initial antigen-specific MHC-restricted interaction between T and B cells is monogamous. *FASEB J.*, 3:A673. Poster at the 1989 FASEB Meeting, New Orleans, LA.
16. **Vitetta, E. S., R. Fernandez-Botran, and J. W. Uhr.** 1989. Mechanisms underlying the interaction of IL-2 and IL-4 receptors on T and B cells. *Cold Spring Harbor Symposium on Immunological Recognition*. New York.
17. **Fernandez-Botran, R., and E.S. Vitetta.** 1990. Presence of high affinity IL-4-binding proteins in the serum and biological fluids of mice and humans. *FASEB J.*, 4:A2063. Poster at the 1990 FASEB Meeting, New Orleans, LA. 1990.
18. **Fernandez-Botran, R., C. Yang, and P. E. Thorpe.** 1992. Attachment of the endoplasmic reticulum consensus sequence, KDEL, to ricin A chain immunotoxins. *III Symposium on Immunotoxins*. Orlando, FL.
19. **Akin, C., R. Fernandez-Botran, and G. Sonnenfeld.** 1993. Induction of GM-CSF secretion by TNF α , IL-1, phorbol ester and calcium ionophore in K-562 leukemic cells. *J. Immunol.*, 150(II):51A. Poster at the 1993 Experimental Biology Meeting. New Orleans, LA.

20. **Ma, Y., H. E. Hurst, and R. Fernandez-Botran.** 1994. Soluble interleukin-4 receptors delay degradation and increase the half-life of IL-4 *in vivo*. *FASEB J.*, 8(II):A995. Poster at the 1994 Experimental Biology Meeting. Anaheim, CA.
21. **Fernandez-Botran, R., S. Hieny, P. M. Chilton, T. A. Wynn, and A. Sher.** 1994. Regulation of the secretion of soluble interleukin-4 receptor (sIL-4R) during murine schistosomiasis: correlation with IL-4 production. *FASEB J.*, 8(II):A996. Poster at the 1994 Experimental Biology Meeting. Anaheim, CA.
22. **Chilton, P. M., N. E. Street, and R. Fernandez-Botran.** 1994. Differential secretion of soluble interleukin-4 receptor (sIL-4R) by murine CD4⁺ T cell subsets. *FASEB J.*, 8(II):A1004. Poster at the 1994 Experimental Biology Meeting. Anaheim, CA.
23. **Fernandez-Botran, R., and D. E. Justus.** 1994. Interaction of cytokines with glycosaminoglycans (heparin): potential immunotherapeutic applications. *J. Leukocyte Biol., Suppl.* 1994:21. Poster at the 1994 Meeting of the Society for Leukocyte Biology, Tucson, AZ.
24. **Fernandez-Botran, R.** 1994. Regulation of production of soluble interleukin-4 receptor *in vivo*. Poster at the Inflammatory Cytokine Antagonists Meeting. Philadelphia, PA. 1994.
25. **Manela, F. D., R. Fernandez-Botran, S. Cornell, and C. H. Tamburro.** 1995. Characterization of qualitative and quantitative lymphocyte differences in responders and non-responders to α -interferon therapy for hepatitis C. Poster at the Meetings of the American Gastroenterology Association, AASLD at Digestive Disease Week.
26. **Chilton, P. M., and R. Fernandez-Botran.** 1995. Soluble and membrane interleukin-4 receptor expression is coordinately regulated. Poster at the 9th International Congress of Immunology, San Francisco, CA.
27. **Ma, Y., H. E. Hurst, and R. Fernandez-Botran.** 1995. Soluble interleukin-4 receptors delay receptor-mediated inactivation of IL-4 *in vivo*. Poster at the 9th International Congress of Immunology, San Francisco, CA.
28. **Fernandez-Botran, R., P. M. Chilton, Y. Ma, and N. E. Street.** 1995. The production of soluble interleukin-4 receptor is preferentially regulated by Th2 cells. Poster at the 9th International Congress of Immunology, San Francisco, CA.
29. **Fowler, N. A., J. Borden, R. Fernandez-Botran, J. P. Swiggett, A. M. Hakenewerth, and G. E. Sonnenfeld.** 1996. Measurement of immune parameters in medical students during academic examinations. *Grav. Space Biol. Bull.*, 10:64.
30. **Yan, J., and R. Fernandez-Botran.** 1997. Interferon γ binds to glycosaminoglycans and gangliosides: potential immunoregulatory interactions. *Cytokine*, 9:933. Poster at the 1997 Meeting of the International Cytokine Society, San Diego, CA.
31. **Yan, J., J. Vetvickova, and R. Fernandez-Botran.** 1998. Binding of interferon γ by glycosaminoglycans and gangliosides: A strategy for localization and/or inhibition of its activity. Poster at the 5th International Workshop on Cytokines. Florence, Italy.
32. **Shirbacheh, M. V., W. C. Breidenbach, J. W. Jones, M. W. Linder, R. Fernandez-Botran,**

- C. Maldonado, X. Ren, and J. H. Barker.** 1998. Benefits of Local Immunotherapy in limb allotransplantation. Poster at the American Association for Hand Surgery. Scottsdale, AZ.
33. **Breidenbach, W. C., V. I. Sharobaro, R. Fernandez-Botran, X. Ren, S. Chien, J. C. Firrel, J. W. Jones, C. Maldonado, J. Vetvickova, and J. H. Barker.** 1998. Effect of cryopreservation on the immunogenicity of allogeneic skin grafts and flaps. Poster at the American Society for Reconstructive Microsurgery. Scottsdale, AZ.
34. **Hu, S. J., R. Fernandez-Botran, and J. W. Jones.** 1998. CSA stimulates proliferation of vascular smooth muscle cells (VSMC) and enhances monocyte (MN) adhesion to VSMC. Poster at the American Society for Transplantation Meeting. Scottsdale, AZ.
35. **Hu, S. J., R. Fernandez-Botran, and J. W. Jones.** 1999. CSA induces vascular smooth muscle cell proliferation. Poster at the Meeting of The Society of University Surgeons. New Orleans, LA.
36. **Fernandez-Botran, R., and J. Vetvickova.** 1999. Gangliosides bind and inhibit IFN γ activity and promote differentiation of Th2 cells. *FASEB J.* 13:A941. Poster at the Experimental Biology 99 Meeting. Washington, D.C.
37. **Fernandez-Botran, R., and J. Vetvickova.** 1999. Soluble gangliosides interfere with IFN γ activity and modulate the differentiation of CD4⁺ T cells. Poster at the Conference on Cytokines, Hormones and Immunity. Castelvecchio Pascoli, Italy. 1999.
38. **Fernandez-Botran, R., B. Brewer and J. Vetvickova.** 1999. Soluble gangliosides interfere with IFN γ activity and modulate the differentiation of CD4 T cells. Poster at the 7th Annual Conference of the International Cytokine Society. Hilton Head, SC.
39. **Gorantla, V., G. Perez-Abadia, X. Ren, H.I. Orhun, E. Quan, C. Maldonado, M. Ray, J.H. Barker and R. Fernandez-Botran.** 2001. An inhibitor of glycosaminoglycan- cytokine interaction delays rejection of vascularized skin allografts. Poster at the American Society for Transplantation. Chicago, IL.
40. **Gorantla, V., G. Perez-Abadia, X. Ren, H.I. Orhun, E. Quan, C. Maldonado, M. Ray, J.H. Barker and R. Fernandez-Botran.** 2001. Prolongation of Vascularized Skin Flap Survival Using a Novel Peptide. Poster at the 46th Annual Meeting of the Plastic Surgery Research Council, Milwaukee, WI.
41. **Tsappidi, S., M.T. Tseng, X. Sun and R. Fernandez-Botran.** 2002. Hippocampal NR₁ expression following transient global ischemia in rat. Poster at the Society for Neuroscience, 32nd Annual Meeting. Orlando, FL.
42. **Sun, X., F. Crespo, P. Romanovskis, M. Ray, A. Spatola and R. Fernandez-Botran.** 2002. Tackling immune/inflammatory diseases from a new angle: targeting cytokine-glycosaminoglycan interactions. Poster at Experimental Biology 2002. New Orleans, LA.
43. **Carr, L., R. Fernandez-Botran and A. Tucker.** 2002. Role of dopamine D₂ receptors in cytokine production by mouse splenocytes. Poster at Experimental Biology 2002. New Orleans, LA.
44. **Uriarte, S., R. Molestina, R. Fernandez-Botran, R. Miller, A. Farinati, K. Eiguchi, J. Ramirez, and J. Summersgill.** 2002. Effect of macrolide and quinolone antibiotics on gene

- expression of endothelial cells stimulated with tumor necrosis factor- α . *40th Annual Meeting of the Infectious Disease Society of America (IDSA)*. Chicago, IL.
45. **Crespo, F. A., L.-H. Liu, M. T. Tseng and R. Fernandez-Botran.** 2004. Targeting cytokine-glycosaminoglycan interactions as neuroprotective approach for brain ischemia/reperfusion. Poster at Experimental Biology 2004. Washington, D.C.
 46. **Fernandez-Botran, R., X. Sun and F. A. Crespo.** 2004. The immunoregulatory effects of gangliosides involve modulation of Th1/Th2 differentiation and cytokine signaling. *Clin. Invest. Med.*, 27(4): 85C. Poster at the *12th International Congress of Immunology and 4th Annual Conference of FOCIS*. Montreal, Canada.
 47. **Crespo, F. A., J. G. Cripps and R. Fernandez-Botran.** 2005. Gangliosides and the modulation of Th1/Th2 differentiation. Poster at *Experimental Biology 2005*. San Diego, CA.
 48. **Cripps, J.G., F. A. Crespo, P. Romanovskis, A. F. Spatola, and R. Fernandez-Botran.** 2005. Modulation of acute inflammation by targeting glycosaminoglycan/ cytokine interactions. Poster at *Experimental Biology 2005*. San Diego, CA.
 49. **Fernandez-Botran, R., J. Cripps, P. Alard, M. Kosiewicz, and F. Crespo.** 2006. Gangliosides promote the emergence of Foxp3⁺ regulatory T cells. *J. Immunol.*, 176:S276. Poster at the Meeting of the American Association of Immunologists (AAI), Boston, MA.
 50. **Crespo, F. A, J. A. Bouldin, R. Fernandez-Botran, M. F. Casanova, and C. R. Tillquist.** 2007. A global survey of cytokine expression polymorphism in human populations. *Am. J. Phys. Anthropol., Suppl.* 44:92-93. Poster at the Meeting of the American Association of Physical Anthropologists, Philadelphia, PA.
 51. **Qazzaz, H. M. H., K. Ihenetu, F. Crespo, R. Fernandez-Botran, and R. Valdes, Jr.** 2007. DLIF (Digoxin-like immunoreactive factor) induces apoptosis in cancer cells. *Clin. Chem.*, 207;53(suppl):A2007.
 52. **Fernandez-Botran, R., J.G. Cripps and F.A. Crespo.** 2007. Expression of gangliosides by tumor cells contributes to immune escape mechanisms and tumor growth. *Cytokine*, 39:10. Poster at the International Cytokine Society Meeting, San Francisco, CA.
 53. **Mott, M., M. Casanova, R. Fernandez-Botran, L. Sears, C. Tillquist, and F. Crespo.** 2007. Cytokine polymorphisms and their role in autism: a maternal and child perspective. *2007 Neuroscience Meeting*, San Diego, CA.
 54. **Fernandez-Botran, R., S. Greschel, and D. Roach.** 2008. Targeting the expression of GM2/GD2 synthase in tumor cell lines reduces tumor growth and enhances immune responses. *Cytokine*, 43:288. Poster at the ICS and ISICR Meeting, Montreal, Canada.
 55. **Crespo, F., R. Fernandez-Botran, M.F. Casanova, R. Oberst and C.R. Tillquist.** 2008. What do cytokine polymorphisms tell us about human population history? The case of European populations. *Cytokine*, 43:329. Poster at the ICS and ISICR Meeting, Montreal, Canada.
 56. **Al-Ghoul, M., P. Womack, R. Fernandez-Botran and R. Valdes.** 2008. Metabolism of digoxin to dihydrodigoxin reduces its anticancer effect in breast cancer cells. *Clin. Chem.*,

- 54:A127. Poster at the Meeting of the American Association of Clinical Chemists, Chicago, IL.
57. **Crespo, F.A., R. Fernandez-Botran, M.F. Casanova and C.R. Tillquist.** 2008. What can cytokine polymorphisms tell us about human population history? The case of interleukin-6. *Amer. J. Phys. Anthropol.*, 135(S46):83.
58. **Crespo, F.S., R. Fernandez-Botran, M. Casanova and C.R. Tillquist.** 2009. Cytokine polymorphisms in human populations: testing the pathogen hypothesis. *Amer. J. Phys. Anthropol.*, 138(S48):112.
59. **Tillquist, C.R., R. Fernandez-Botran, M. Casanova and F. A. Crespo.** 2009. Phylogeographic variation of ASPM is determined by IL-10? *Amer. J. Phys. Anthropol.*, 138(S48):255.
60. **Mott, M., M. Casanova, R. Fernandez-Botran, L. Sears, C. Tillquist, and F.A. Crespo.** 2009. Cytokine Polymorphisms and their Potential Role in Autism. *International Meeting for Autism Research*, Chicago, IL.
61. **Newton, T.L., R. Fernandez-Botran, J.J. Miller, V.E. Burns.** 2009. Inflammation levels in midlife women with histories of relationship stress. *Meeting of the American Psychosomatic Society (APS)*, Chicago, IL.
62. **Allison, K., K. Fleming, T. L. Newton, R. Fernandez-Botran, J.J. Miller, and V.E. Burns.** 2009. Current PTSD symptoms moderate associations between intimate partner violence and physical health status in postmenopausal women. *Meeting of the International Society for Traumatic Stress Studies (ISTSS)*, Atlanta, GA.
63. **Fernandez-Botran, R., J. Zhang, G. Brock, S. Appana, M. Plankey, M. Young, B. Herold, H. Durkin, M.C. Villacres, R.M. Greenblatt, A. French, J. Golub, and J. Bordon.** 2010. Cytokine expression profiles in HIV-infected women preceding tuberculosis (WIHS project W08012). *Cytokines in Infectious Diseases, Autoimmune Disorders and Cancer- Joint Meeting of the International Cytokine Society (ICS) and the International Society for Interferon and Cytokine Research (ISICR)*. Chicago, IL.
64. **Mott, M.C., M.F. Casanova, R. Fernandez-Botran, L. L. Sears, C.R. Tillquist and F.A. Crespo.** 2010. Transcriptional analysis of cytokines in the cerebral cortex of autistic patients. *International Meeting for Autism Research (IMFAR) 2010*. Philadelphia, PA.
65. **Crespo, F.A., R. Fernandez-Botran, M.C. Casanova, and C.R. Tillquist.** 2010. Cytokine polymorphisms in human populations. Testing the pathogen hypothesis. *79th Annual meeting of the American Association of Physical Anthropologists*. Albuquerque, NM.
66. **Newton, T.L., R. Fernandez-Botran, J.J. Miller, A.C. Cambon, V. Ellison Burns, and K.E. Allison.** 2010. Plasma interleukin-6 levels and PTSD history in midlife women. *11th International Congress of Behavioral Medicine*. Washington, D.C.
67. **Dryden, G. W., Fernandez-Botran, G.R., Qazzaz, H.H.** 2011. EGCG reduces pro-inflammatory cytokine production and induces apoptosis in activated CD14⁺ macrophages, CD4⁺CD45RO⁺ T cells, and mixed macrophage/T cell populations, but not CD4⁺CD45RA⁺ T cells from IBD patients and controls. *Digestive Diseases Week 2011*, Chicago, IL.

68. **Dreeben, S., Sephton, S.E., Jablonski, M. E., Litvan, I., Houghton, D., Giese-Davis, J., Sokhadze, T., Fernandez-Botran, R., Eismann, E.A., Hanneman, S., Salmon, P.** 2011. Mindfulness and psychological adjustment among Parkinson's disease patients and their partners. *American Psychosomatic Society 69th Annual Scientific Meeting*, San Antonio, TX.
69. **Sephton, S.E., Dreeben, S.J., Jablonski, M.E., Litvan, I., Houghton, D., Constantino, A., Giese-Davis, J., Sokhadze, T., Fernandez-Botran, R., Eismann, E.A., Hanneman, S., Salmon, P.A.** 2011. Randomized-controlled trial of mindfulness-based stress reduction for Parkinson's disease patients and their partners. *American Psychosomatic Society 69th Annual Scientific Meeting*, San Antonio, TX.
70. **Salmon, P., Dreeben, S.J., Jablonski, M.E., Litvan, I., Houghton, D., Constantino, A., Giese-Davis, J., Sokhadze, T., Fernandez-Botran, R., Eismann, E.A., Hanneman, S., and Sephton, S.E.** 2011. A randomized-controlled pilot study of mindfulness-based stress reduction for Parkinson's disease patients and caregiver dyads. *9th Annual International Mindfulness Conference for Clinicians, Researchers and Educators*, University of Massachusetts, Norwood, MA.
71. **Mott, M.C., Crespo, F.A., Fernandez-Botran, R., Sears, L.L., Williams, P.G., Casanova, M.F.** 2011. Evaluation of Cytokine Expression in Cerebral Cortex and Blood Plasma of Autistic Patients. *International Meeting for Autism Research (IMFAR) 2011*, San Diego, CA.
72. **Nota, M.F., Fernandez-Botran, R., Crespo, F.A., Rougier, G.** 2011. Encouraging interest in health science career: A model for hispanic undergraduates. *National Hispanic Medical Association, 15th Annual Conference*. Washington, D.C.
73. **Barve, S., Gobejishvili, L., Zhang, J., Joshi-Barve, S., Fernandez-Botran, R., McClain, C.** 2011. Targeting hepatic glycosaminoglycans (GAGs)-cytokine interactions protects mice from concanavalin-A-induced immune hepatitis (CIH). *62nd Annual Meeting of the American Association for the Study of Liver Diseases*, San Francisco, CA.
74. **Newton, T. L., Miller, J. J., Fernandez-Botran, R., Fleming, K. N., & Burns, V. E.** 2012. Remitted intimate partner violence and hematologic measures in midlife women. *National Conference on Health and Domestic Violence*. San Francisco, CA.
75. **Qifa, X., Zhang, J., Wang, J., Fernandez-Botran, R., Barve, S., McClain, C.** 2012. Modulation of alcoholic hepatitis by targeting the expansion of myeloid derived suppressor cells. *63rd Annual Meeting of the American Association for the Study of Liver Diseases*, Boston, MA.
76. **Tseng, M.T., Fernandez-Botran, R., Graham, U.M., Wu, P., Hardas, S.S., Sultana, R., Unrine, J.M., Grulke, E.A., MacPhail, R.C., Yokel, R.A.** 2012. Systemic accumulation, biological responses, and fate of vascular-infused nanoceria in the rat. *Nanotoxicology 2012*, Beijing, China.
77. **Fleming, K. N., Knight, H. M., Newton, T. L., Fernandez-Botran, R., Miller, J. J., Burns, V. E.** Emotional/verbal abuse predicts severity of posttraumatic stress and depression symptoms in previously abused women. *Women's Health 2012: The 20th Annual Congress*, Washington, D.C.

78. **Knight, H. M., Fleming, K. N., Newton, T. L., Fernandez-Botran, R., Miller, J. J., & Burns, V. E.** 2012. Inflammatory responses while anticipating recall of a potentially traumatic memory. *Women's Health 2012: The 20th Annual Congress*, Washington, D.C.
79. **Fleming, K. N., Newton, T. L., Fernandez-Botran, R., Miller, J. J., & Burns, V. E.** 2012. Histories of intimate partner stalking and intimate partner violence in post-abuse women: Associations with current posttraumatic stress symptoms. *National Conference on Health and Domestic Violence*, San Francisco, CA.
80. **Short, N., Keeton, K., Fernandez-Botran, R., Crespo, F.** 2012. Differential immune responses in human populations: searching for evolutionary clues. Undergraduate Symposium at the *Annual Meeting of the American Association of Physical Anthropologists (AAPA)*, Portland, OR.
81. **Uriarte, S.M., Arnold, F.W., Fernandez-Botran, R., Rane, M.J., Peyrani, P., Wiemken, T., Bordon, J., Ramirez, J.A.** 2012. Translational study linking neutrophil activation and cytokine responses with clinical outcome in patients with community-acquired pneumonia. *International Conference of the American Thoracic Society*, San Francisco, CA.
82. **Uriarte, S.M., Fernandez-Botran, R., Rodriguez-Hernandez, L., Le, J., Camp, J.V., Rane, M.J., Peyrani, P., Wiemken, T., Uppatla, S., Cavallazzi, R., Arnold, F., Bordon, J., Ramirez, J.A.** 2012. Neutrophil activation and cytokine response predict the outcome of patients with community-acquired pneumonia. *Conference on Neutrophil in Immunity*, Quebec, Canada.
83. **Dryden, G.W., Hussien, H.M., Fernandez-Botran, R.** 2012. Targeting cytokine interactions with glycosaminoglycans as a therapeutic approach in colitis: effects on inflammation and tumor development. *Digestive Diseases Week*, San Diego, CA.
84. **Hussien Quazzaz, H.M., Stillman, A.N., Fernandez-Botran, R., Dryden, G.W.** 2012. Effects of EGCG on epithelial IL-27 axis: mechanism of action revealed? *Digestive Diseases Week*, San Diego, CA.
85. **Fernandez-Botran, R., Q. Xie, L. Gobejishvili, J. Zhang, S. Joshi-Barve, C. McClain, S. Barve.** 2013. Disruption of chemokine-glycosaminoglycan interactions protects the liver in the murine Concanavalin A-induced acute hepatitis model. *15th International Congress of Immunology (ICI)*, Milan, Italy.
86. **Perez San Juan, J., L. Rodriguez-Hernandez, S. Uriarte, R. Kelley, T. Wiemken, R. Fernandez-Botran, M. Gnani, P. Peyrani, J. Bordon, M. Rane, F. Arnold, J. Ramirez.** 2013. Neutrophil function in elderly patients hospitalized with community-acquired pneumonia (CAP): results from the Community-Acquired Pneumonia Inflammatory Study Group (CAPSIG). *Infectious Diseases Society of America (IDSA) IDWeek*, San Francisco, CA.
87. **Arnold, F.W., J.A. Ramirez, R. Fernandez-Botran, M. Rane, S. Uriarte, R. Kelley, T. Wiemken, P. Peyrani, J. Bordon.** 2013. Macrolide immunomodulation and outcomes in hospitalized patients with community-acquired pneumonia. *Infectious Diseases Society of America (IDSA) IDWeek*, San Francisco, CA.
88. **Szabo, Y.Z., R. Fernandez-Botran, J.J. Miller, V.E. Burns, T.L. Newton.** 2013. Chronically traumatized midlife women resistant to PTSD or recovered from PTSD have similar

- health-related quality of life. *International Society for Traumatic Stress Studies*, Philadelphia, PA.
89. **Szabo, Y.Z., K.N. Fleming, R. Fernandez-Botran, J. J. Miller, V.E. Burns, T.L. Newton.** 2013. Past emotional/verbal abuse predicts current depression symptom clusters in post-abuse community-dwelling women. *International Society for Traumatic Stress Studies*, Philadelphia, PA.
 90. **Szabo, Y.Z., R. Fernandez-Botran, J.J. Miller, K.B. Lyle, T.L. Newton.** 2014. Detection and stress reactivity of interleukin-10 in oral fluids. *American Psychosomatic Society*, San Francisco, CA.
 91. **Szabo, Y. S., Miller, J. J., Fernandez-Botran, R., Burns, V. E., Newton, T. L.** 2015. Health risks in midlife women: The roles of cumulative trauma and posttraumatic stress. Poster presented at the meeting of the American Psychosomatic Society, Savannah, GA (March 2015).
 92. **Frimodig, J., R. Fernandez-Botran, P. Matheson, A. Matheson, N. Garrison, C. McClain.** 2015. Small peptide MC2 mitigates liver injury in a rat model of ischemia reperfusion. Poster presented at the meeting of the Shock Society, Denver, CO (June 2015). *Shock*. 43(6S), Suppl. 1: p52.
 93. **Warnecke, A. J., Szabo, Y. Z., Burns, V. E., Fernandez-Botran, R., Miller, J. J., & Newton, T. L.** 2015. Sheltering for safety in community women with divorce histories. Poster presented at the meeting of the International Society of Traumatic Stress Studies, New Orleans, LA. (November 2015)
 94. **Szabo, Y. Z., Fernandez-Botran, R., & Newton, T. L.** 2017. Cumulative Trauma, Emotion Reactivity and Salivary Cytokine Reactivity Among Exceptionally Healthy Women. To be presented as a poster presentation at International Society for Traumatic Stress Studies (ISTSS), Chicago, IL.
 95. **Morello Gearhart A, Fernandez-Botran R, Peyrani P, Wiemken T, Reyes A, Gauhar U, Rivas-Perez H, Roman J, Ramirez JA, Cavallazzi R.** 2017. Role of Cytokines in the Lung and Systemic Inflammation in Patients with COPD. Presented as a poster at the American Thoracic Society (ATS) Meeting. Washington DC.

Poster Presentations: Local/Regional Meetings:

1. **Yan, J., D. Justus, L. A. Hunt, and R. Fernandez-Botran.** 1997. Interferon γ binds to glycosaminoglycans and gangliosides: potential immunoregulatory interactions. Poster at the 23rd. Annual Student Research Day. University of Louisville, Louisville, KY.
2. **Brewer, B., and Fernandez-Botran, R.** 1999. IFN γ non-covalently interacts with gangliosides. Poster at Research! Louisville 1999. University of Louisville, Louisville, KY.
3. **Sun, X., J. Vetvickova, A. Spatola, and R. Fernandez-Botran.** 2000. Targeting of glycosaminoglycan-cytokine interactions. Poster at the 29th Annual Autumn Immunology Conference. Chicago, IL.

4. **Sun, X., J. Vetvickova, A. Spatola, and R. Fernandez-Botran.** 2000. Targeting of glycosaminoglycan-cytokine interactions. Poster at Research! Louisville 2000. University of Louisville, Louisville, KY.
5. **Gorantla, V., X. Ren, G. Perez-Abadia, C. Maldonado, M. Ray, J. Barker, and R. Fernandez-Botran.** 2000. An inhibitor of glycosaminoglycan-interactions delays rejection of allogeneic rat skin grafts. Poster at Research! Louisville 2000. University of Louisville, Louisville, KY.
6. **Sun, X., A. Spatola, V. Gorantla, X. Ren, G. Pérez-Abadía, C. Maldonado, M. Ray, J. Barker and R. Fernandez-Botran.** 2001. Targeting of glycosaminoglycan-cytokine interactions. Immunoregulatory activities. Poster at the IMD³ Symposium 2001, Drug Design for a New Millenium. University of Louisville and Jewish Hospital, Louisville, KY.
7. **Crespo, F., and R. Fernandez-Botran.** 2001. Gangliosides modulate the differentiation of helper T cells. Poster at Research! Louisville 2001. University of Louisville, Louisville, KY.
8. **Crespo, F.A., A. Ramirez and R. Fernandez-Botran.** 2002. Immunoregulatory effects of gangliosides and the Th1/Th2 paradigm. Poster at Research! Louisville 2002. University of Louisville, Louisville, KY.
9. **Crespo, F. A., J. G. Cripps and R. Fernandez-Botran.** 2005. Gangliosides and the modulation of Th1/Th2 differentiation. Poster at the James Graham Brown Cancer Center 4th Annual Retreat. Louisville, KY.
10. **Ihenetu, K., H. Quazzaz, F. A. Crespo, R. Fernandez-Botran, and R. Valdes, Jr.** 2005. Induction of apoptosis by non-toxic concentrations of cardiac glycosides. Poster at Research! Louisville 2005. University of Louisville, Louisville, KY.
11. **Cripps, J. G., F. A. Crespo and R. Fernandez-Botran.** 2005. Targeting glycosaminoglycan - cytokine interactions as a novel anti-inflammatory approach. IMD³ Fall Fest. University of Louisville, Louisville, KY.
12. **Fernandez-Botran, R., J. Cripps, P. Alard, M. Kosiewicz, and F. Crespo.** 2006. Gangliosides promote the emergence of Foxp3⁺ regulatory T cells. Poster at the 5th Annual Retreat, The James Graham Brown Cancer Center, University of Louisville, Louisville, KY.
13. **Fernandez-Botran, R., J. Cripps, P. Alard, M. Kosiewicz, and F. Crespo.** 2006. Gangliosides promote the emergence of Foxp3⁺ regulatory T cells. Poster at Research! Louisville, 2006, University of Louisville, Louisville, KY.
14. **Crespo, F. A, J. A. Bouldin, R. Fernandez-Botran, M. F. Casanova, and C. R. Tillquist.** 2006. A global survey of cytokine expression polymorphism in human populations. Poster at Research! Louisville, 2006, University of Louisville, Louisville, KY.
15. **Ihenetu, K. U., H. M. Hussien Quazzaz, R. Fernandez-Botran, and R. Valdes, Jr.** 2006. DLIF (Digoxin-like immunoreactive factor) selectively induces apoptosis in malignant lymphoblastic cells. Poster at Research! Louisville, 2006, University of Louisville, Louisville, KY.
16. **Quazzaz, H., M. W. Linder, R. Fernandez-Botran, and G. Dryden.** 2006. EGCG, a green tea catechin, reduces pro-inflammatory cytokine production and induces apoptosis in

- human PBMCs. Poster at Research! Louisville, 2006, University of Louisville, Louisville, KY.
17. **Fernandez-Botran, R., S. Greschel, K. Gerstle, and D. Roach.** 2007. Loss of expression of ganglioside GD2 by lymphoma and lung carcinoma cells results in reduced tumorigenicity and immunosuppressive effects. A potential role for GD2 in immune evasion. Poster at Research! Louisville 2007. University of Louisville, Louisville, KY.
 18. **Mott, M., M. Casanova, R. Fernandez-Botran, L. Sears, C. Tillquist, and F. Crespo.** 2007. Cytokine polymorphisms and their role in autism: a maternal and child perspective. Poster at Research! Louisville 2007. University of Louisville, Louisville, KY.
 19. **Fernandez-Botran, R., D. Roach, S. Greschel, K. Gerstle, J. G. Cripps and F. A. Crespo.** 2007. Expression of gangliosides by tumor cells contributes to immune escape mechanisms and tumor growth. Poster at the 6th Annual Retreat, The James Graham Brown Cancer Center, University of Louisville, Louisville, KY.
 20. **Hart, R., R. Fernandez-Botran, I. Litvan, M. Casanova, C. Tillquist and F. Crespo.** 2007. Cytokine polymorphisms and their role in progressive supranuclear palsy. Poster at the 36th Annual Autumn Immunology Conference. Chicago, IL.
 21. **Greschel, S., D. Roach, K. Gerstle and R. Fernandez-Botran.** 2007. Disialo-ganglioside (GD2) expression promotes tumorigenicity and immune evasion in a mouse lymphoma model. Poster at the Summer Scholar Research Symposium, University of Louisville, Louisville, KY.
 22. **Fernandez, C., R. Fernandez-Botran, J. Miller and T. Newton.** 2008. Measurement of IL-6 levels in saliva and oral-maxillary transudate (OMT) and their relationship to systemic (plasma) IL-6 levels in a psychological stress study population. Poster at *Research! Louisville 2008*. University of Louisville, Louisville, KY.
 23. **Fernandez-Botran, R., S. Greschel, and D. Roach.** 2009. Targeting the expression of GM2/GD2 synthase in tumor cell lines reduces tumor growth and enhances immune responses. Poster at the IMD3 Symposium 2009. University of Louisville, Louisville, KY.
 24. **Fernandez-Botran, R.** 2009. Overexpression of *six1* and *cyclin d1* in a ganglioside-negative EL-4 lymphoma variant that gives rise to tumors expressing GD2 disialo-ganglioside. Poster at the 8th Annual Retreat, The James Graham Brown Cancer Center, University of Louisville, Louisville, KY.
 25. **Fernandez-Botran, R., J. Zhang, G. Brock, S. Appana, M. Plankey, M. Young, B. Herold, H. Durkin, M.C. Villacres, R.M. Greenblatt, A. French, J. Golub, and J. Bordon.** 2010. Cytokine expression profiles in HIV-infected women preceding tuberculosis (WIHS project W08012). Poster at *Research! Louisville 2010*. University of Louisville, Louisville, KY.
 26. **Peyrani, P., Bordon, J., Uriarte, S., Fernandez-Botran, R., Rane, M., Cavallazzi, R., Saad, M., Arnold, F., Ramirez, J.** 2011. Correlation of inflammatory response with clinical outcomes in a patient hospitalized with influenza pneumonia: A case report from the Community-Acquired Pneumonia Inflammatory study group. *Research! Louisville 2011*. University of Louisville, Louisville, KY.
 27. **Uriarte, S.M., Fernandez-Botran, R., Rane, M.J., Rodriguez-Hernandez, L., Peyrani, P., Wiemken, T., Thompson, K.K., Uppatla, S., Cavallazzi, R., Arnold, F., Bordon, J.,**

- Ramirez, J.A.** 2011. Neutrophil Activation and Cytokine Response: What role do they play on the outcomes of community-acquired pneumonia patients? *Research! Louisville 2011*. University of Louisville, Louisville, KY.
28. **Fernandez-Botran, R., Quazzazz, H.H., Dryden, G.W.** 2011. Targeting cytokine interactions with glycosaminoglycans as a novel therapeutic approach in colitis: Effects on inflammation and tumor development. *Research! Louisville 2011*. University of Louisville, Louisville, KY.
29. **Fernandez-Botran, R., Quazzazz, H.H., Dryden, G.W.** 2011. Targeting cytokine interactions with glycosaminoglycans as a novel therapeutic approach in colitis: Effects on inflammation and tumor development. *James Graham Brown Cancer Center 10th Annual Retreat*. Louisville, KY.
30. **Fernandez-Botran, R., Hussien Quazzaz, H., Dryden, G.** 2012. Targeting cytokine interactions with glycosaminoglycans as a novel therapeutic approach in colitis: Effects on inflammation and tumor development. *Research! Louisville 2012*. University of Louisville, Louisville, KY.
31. **Uriarte, S.M., Fernandez-Botran, R., Rane, M., Rodriguez-Hernandez, L., Peyrani, P., Wiemken, T., Thompson, K., Uppatla, S., Bordon, J., Ramirez, J.A.** 2012. Neutrophil activation and cytokine response: what role do they play on the outcomes of community-acquired pneumonia patients? *Research! Louisville 2012*. University of Louisville, Louisville, KY.
32. **Kang, K.A., Maldonado, C., Cai, J., Fernandez-Botran, R., Sethu, P., Guo, H., Soh, K.-S.** 2012. Potential roles of primo vascular system in cancer metastasis. *James Graham Brown Cancer Center 11th Annual Retreat*, Louisville, KY.
33. **Arnold, F.W., J.A. Ramirez, R. Fernandez-Botran, M. Rane, S. Uriarte, R. Kelley, T. Wiemken, P. Peyrani, J. Bordon.** 2013. Macrolide immunomodulation and outcomes in hospitalized patients with community-acquired pneumonia. *Research! Louisville 2013*, Louisville, KY.
34. **Nahas, A., Binford L., Beavin L., Burns M., Corcino V., Velasquez MR, Fernandez-Botran, R., Wiemken T., Ramirez J., Cavallazzi R.** 2015. Systemic inflammatory response in patients with clinically stable COPD. *Research! Louisville 2015*, Louisville, KY.
35. **Elkhawas, I., Salunkhe V., Beavin L., Burns M., Corcino V., Fernandez-Botran R., Wiemken T., Ramirez J., Peyrani P.** 2015. Key cytokines mediating chronic inflammation and accelerating aging (inflammaging) in subjects with stable HIV disease. *Research! Louisville 2015*, Louisville, KY.
36. **Wiemken, T., Kelley R., Fernandez-Botran, R., Peyrani P., Cavallazzi R., Bordon J., Ramirez J.** 2015. Hierarchical clustering to identify cytokine patterns in hospitalized patients with community-acquired pneumonia (CAP). *Research! Louisville 2015*, Louisville, KY.
37. **Frimodig, J., R. Fernandez-Botran, P. Matheson, A. Matheson, N. Garrison, C. McClain.** 2015. Small peptide MC2 mitigates liver injury in a rat model of ischemia reperfusion. *Research! Louisville 2015*, Louisville, KY.
38. **Fernandez-Botran, R., I.A. Wellmann, C. Une, E. Méndez, E. Hernández de Rodas, C.I.**

Villagrán de Tercero. 2016. Serum Levels of Soluble Urokinase Plasminogen Activator Receptor (uPAR) and Pepsinogen I/II ratios (PGI/PGII) in Gastric Cancer Patients and their Correlation with Infection by Pathogenic *Helicobacter pylori* Strains. *Research! Louisville 2016, Louisville, KY.*

39. **Fernandez-Botran, R., Y.Z. Szabo, K.B. Lyle, T.L. Newton.** 2017. Increased salivary levels of Urokinase Plasminogen Activator Receptor (uPAR) following acute stress and correlation with inflammatory markers. Abstract presented at Research Louisville! 2017. September 2017. Louisville, KY.

L. Patents:

1. **Valdes, R., K. Ihenetu, R. Fernandez-Botran, and H. Quazzaz.** 2006. Treating cancer with cardenolides. U.S. patent 12/131,763.
2. **Valdes, R., K. Ihenetu, R. Fernandez-Botran, and H. Quazzaz.** 2006. Treating cancer with cardenolides. International patent PCT/US2006/042014.

M. Research Funding:

Completed or Active:

Dates	Source/Title /Role	Amount Awarded
09/1987-08/1988	The University of Texas Southwestern Medical Center Immunoregulatory circuits between murine T helper cell subsets Role: Principal Investigator (20% effort, 100% collaboration)	\$ 6,000
01/1993-05/1993	University of Louisville (RIG grant) Evaluation of Cytokine/Heparin complexes for Immunotherapy Role: Principal Investigator (20% effort, 60% collaboration)	\$ 3,000
07/1993-06/1996	American Heart Association, National Center The Immunoregulatory Role of Soluble Interleukin-4 Receptors Role: Principal Investigator (50% effort, 100% collaboration)	\$128,150
01/1994 -06/1994	The Gorgas Memorial Institute Application of Assays of Secretory Cytokines to the Study of Ocular Chlamydia Infection in Guatemala Role: Principal Investigator (10% effort, 100% collaboration)	\$ 5,000
12/1994-11/1999	National Institutes of Health (NIH) 1R29AI34627 UofL: GRNT970217	\$508,590

	Immunoregulation by Soluble Interleukin-4 Receptors Role: Principal Investigator (10% effort, 100% collaboration)	
11/1996-11/1998	Jewish Hospital Research Foundation Tolerance Induction using Intraportal Class I Antigen Role: Co-Investigator (10% effort, 20% collaboration)	\$40,000
11/1997-11/1999	Jewish Hospital Research Foundation Local Immunotherapy in Composite Tissue Allotransplantation Role: Co-Investigator (10% effort, 20% collaboration)	\$50,000
12/1998-11/2000	Jewish Hospital Research Foundation UofL: GRNT990073 Blockade of Interferon- γ Binding to Glycosaminoglycans as an Innovative Technique in Preventing Allograft Rejection Role: Principal Investigator (20% effort, 50% collaboration)	\$50,000
07/2000-06/2002	American Heart Association Grant # 0051464B UofL: GRNT000346 Targeting of Glycosaminoglycan - Cytokine Interactions Role: Principal Investigator (20% effort, 95% collaboration)	\$90,000
01/2003-12/2005	American Heart Association Grant # 0255420B UofL: GRNT021143 Targeting Cytokine-Glycosaminoglycan Interactions as a Neuroprotective Approach for Brain Ischemia/Reperfusion Role: Principal Investigator (25% effort, 50% collaboration)	\$214,500
01/2003-01/2004	University of Louisville, IRIG Program Interactions as a Novel Protective Approach for Ischemic Brain Injury Role: Principal Investigator (20% effort, 50% collaboration)	\$10,000
07/2003-06/2004	University of Louisville, IRIG Program Gangliosides as Immunoregulatory Molecules in Small Cell Lung Cancer Role: Principal Investigator (10% effort, 100% collaboration)	\$4,000
07/2005-06/2006	Brown Cancer Center Cancer Pilot Grant Immunosuppressive role of tumor-derived gangliosides Role: Principal Investigator (30% effort, 100% collaboration)	\$50,000
07/2003-06/2008	National Institutes of Health (NIH) NIH 1-R01-GM065459 UofL: GRNT020751 Novel feedback-regulation of xenobiotic bioactivation Role: Co-Investigator (10% effort, 10% collaboration)	\$1,811,900
07/2006-06/2009	National Institutes of Health (NIH) NIH 1 R21 AG0249902-01A2 UofL: OGMB051497 Intimate partner violence and inflammatory processes Role: Co-Investigator (10% effort, 20% collaboration)	\$412,5000

09/2006-08/2007	University of Louisville School of Medicine GM2/GD2 synthase and immune evasion by tumors Role: Principal Investigator (10% effort, 100% collaboration)	\$15,000
07/2007-06/2008	University of Louisville. ROW grant. Using Oral Fluids to Assess Markers of inflammation: Reliability, Validity, and Correlations with Traumatic Stress in Women Role: Co-Principal Investigator (10% effort, 50% collaboration)	\$4,000
04/2009-03/2010	University of Louisville School of Medicine IL-4 and IL-4- δ 2 in the modulation of Th1 response to <i>Mycobacterium tuberculosis</i> among HIV-infected individuals Role: Principal Investigator (10% effort, 50% collaboration)	\$11,000
12/2010-11/2015	National Institutes of Health (NIH) R25CA134283-01A2 University of Louisville Cancer Education Program Role: Faculty/Mentor (0% collaboration)	\$1,560,990
11/2011-11/2014	Department of Defense (DoD) Minimizing Shock/Complications in battlefield injuries. Role: Co-investigator (5% effort)	
07/2011-06/2012	University of Louisville. RIG grant Anti-Inflammatory Strategy by Targeting Cytokine-Glycosaminoglycan Interactions: Effects on Colitis and Tumorigenesis Role: Principal investigator (5% effort)	\$5,000
03/2012-12/2012	National Institutes of Health (NIH) U01AI-034994-17REV Subcontract RX-4335-029-UL. Synergistic Mechanisms Contributing to HCV Liver Disease in HIV-Infected Women. Role: Principal Investigator (10% effort)	\$30,000
01/2012-01/2014	DAISY Foundation. RTTM301. The Clinical and Biochemical Effect of Biofeedback on Fatigue and Insomnia in Persons with Breast Cancer Receiving Radiation Therapy Role: Co-investigator (5% effort)	\$20,000
08/2012-07/2013	American Psychological Foundation Visionary Fund Grant Mind-Body Mechanisms Connecting Stress and Health Role: Co-investigator (5% effort)	\$10,000
07/2013-96/2014	University of Louisville. PCG grant. The Contribution of the Host Response to Liver Damage	\$3,600

during HIV/HCV Co-Infection.
Role: Principal investigator (5% effort)

07/2013-96/2014 University of Louisville. PCG grant. \$3,600
Mind-Body Mechanisms Connecting Stress and
Health
Role: Co-investigator (5% effort)

N. Clinical Service:

N.A.

O. Publications, Book Chapters, Monographs and Textbooks:

Peer-Reviewed Publications:

1. **Fernandez, R., L. G. Elias, and R. Bressani.** 1980. Genetic and ambiental variability in trypsin inhibitors and hemagglutinins observed in common bean (*Phaseolus vulgaris*) cultivars from Central America and Colombia. *Turrialba*, 31:153-161. (In Spanish).
2. **Torres, M. F., and R. Fernandez-Botran.** 1980. Human infection by *Pasteurella multocida*: first case reported in Guatemala. *Rev. Col. Med. Guatemala*, 31:27-30. (In Spanish).
3. **Fernandez, R., L. G. Elias, J. E. Braham, and R. Bressani.** 1982. Trypsin inhibitors and hemagglutinins in beans (*Phaseolus vulgaris*) and their relationship with the content of tannins and associated polyphenols. *J. Agr. Food Chem.*, 30:734-739.
4. **Fernandez-Botran, R., and T. Suzuki.** 1984. Properties of prostaglandin-sensitive adenylate cyclase system of a murine macrophage-like cell line (P388D₁). *J. Immunol.*, 133:2655-2661. PMID: 6090536
5. **Fernandez-Botran, R., and T. Suzuki.** 1984. Prostaglandin-sensitive adenylate cyclase of a murine macrophage-like cell line (P388D₁) II. Isolation and partial characterization of PGE₂-binding proteins. *J. Immunol.*, 133:2662-2667. PMID: 6481167
6. **Fernandez-Botran, R., and T. Suzuki.** 1985. Biochemical properties of phosphatidylcholine-binding proteins that share common antigenic determinants with Fc_γ2b receptor. *Biochemistry*, 24:1896-1903. PMID: 2410020
7. **Fernandez-Botran, R., and T. Suzuki.** 1986. Biochemical signal transmitted by Fc receptors for Immunoglobulin G_{2a} of a murine macrophage-like cell line, P388D₁: Mode of activation of adenylate cyclase mediated by immunoglobulin G_{2a}-binding proteins. *Biochemistry*, 25:4388-4397. PMID: 3756145

8. **Fernandez-Botran, R., P. H. Krammer, T. Diamantstein, J. W. Uhr, and E. S. Vitetta.** 1986. B cell-stimulatory factor 1 (BSF-1) promotes growth of helper T cell lines. *J. Exp. Med.*, 164:580-593. PMID: 2941517
9. **Fernandez-Botran, R., V. M. Sanders, K. G. Oliver, Y.-W. Chen, P. H. Krammer, J. W. Uhr, and E. S. Vitetta.** 1986. Interleukin 4 mediates autocrine growth of helper T cells after antigenic stimulation. *Proc. Natl. Acad. Sci. (USA)*, 83:9689-9693. PMID: 2948185
10. **Hirata, Y., R. Fernandez-Botran, and T. Suzuki.** 1987. Relationship between Fc γ 2b receptor and adenylate cyclase of a murine macrophagelike cell line, P388D₁. *Biochemistry*, 26:4183-4192. PMID: 2959316
11. **Sanders, V. M., R. Fernandez-Botran, J. W. Uhr, and E. S. Vitetta.** 1987. Interleukin 4 enhances the ability of antigen-specific B cells to form conjugates with T cells. *J. Immunol.*, 139:2349-2354. PMID: 2958546
12. **Vitetta, E.S., A. Bossie, R. Fernandez-Botran, C. D. Myers, K. G. Oliver, V. M. Sanders, and T. L. Stevens.** 1987. Interaction and activation of antigen-specific T and B cells. *Immunol.Rev.*, 99:193-239. PMID: 2445658
13. **Fernandez-Botran, R., V. M. Sanders, T. R. Mosmann, and E. S. Vitetta.** 1988. Lymphokine-mediated regulation of the proliferative response of clones of T helper 1 and T helper 2 cells. *J. Exp. Med.*, 168:543-558. PMID: 2970518
14. **Sanders, V. M., R. Fernandez-Botran, R. L. Coffman, T. R. Mosmann, and E. S. Vitetta.** 1988. A single antigen-specific B cell can conjugate to either a type 1 or a type 2 helper T cell. *Proc. Natl. Acad. Sci. (USA)*, 85:7724-7728. PMID: 2459715
15. **Shamma, M. S., R. Fernandez-Botran, and T. Suzuki.** 1988. PGE₂-induced desensitization of adenylate cyclase of a murine macrophage-like cell line (P388D₁). *Prostaglandins*, 36:329-341. PMID: 3237996
16. **Stevens, T. L., A. Bossie, V. M. Sanders, R. Fernandez-Botran, R. L. Coffman, T. R. Mosmann, and E. S. Vitetta.** 1988. Regulation of antibody isotype secretion by subsets of antigen-specific helper T cells. *Nature*, 334:255-258. PMID: 2456466
17. **Birkeland, M.L., J. Metlay, V. M. Sanders, R. Fernandez-Botran, E. S. Vitetta, R. M. Steinman, and E. Pure.** 1988. Epitopes on CD45R [T200] molecules define differentiation antigens on murine B and T lymphocytes. *J. Mol. Cell. Immunol.*, 4:71-85. PMID: 2475124
18. **Fernandez-Botran, R., V. M. Sanders, and E. S. Vitetta.** 1989. Interactions between receptors for interleukin 2 and interleukin 4 on lines of helper T cells (HT-2) and B lymphoma cells (BCL₁). *J. Exp. Med.*, 169:379-391. PMID: 2521354
16. **Fernandez-Botran, R., J. W. Uhr, and E. S. Vitetta.** 1989. Cross-linking of interleukin 4 to surface molecules on murine T and B lymphocytes. *Proc. Natl. Acad. Sci. (USA)*, 86:4235-4239. PMID: 2786209
20. **Fernandez-Botran, R.; V. M. Sanders, and E. S. Vitetta.** 1989. Regulation of the biological effects of IL-4 on murine T and B cells. *Cold Spring Harbor Symp. Quant. Biol.*, 54:705-711. PMID: 2640625

21. **Vitetta, E. S., R. Fernandez-Botran, C. D. Myers, and V. M. Sanders.** 1989. Cellular Interactions in the humoral immune response. *Adv. Immunol.*, 45:1-105. PMID: 2665437
22. **Fernandez-Botran, R., and E. S. Vitetta.** 1990. A soluble, high affinity IL-4- binding protein is present in the biological fluids of mice. *Proc. Natl. Acad. Sci.(USA)*, 87: 4202-4206. PMID: 2349230
23. **Deusch, K., R. Fernandez-Botran, M. Konstadoulakis, K. Baur, R. S. Schwartz, and M. P. Madaio.** 1991. Autoreactive T cells from MRL-lpr/lpr mice secrete multiple lymphokines and induce the production of IgG anti-DNA antibodies. *J. Autoimmunol.*, 4:563-576. PMID: 1777090
24. **Fernandez-Botran, R.** 1991. Soluble cytokine receptors: Their role in immunoregulation. *FASEB J.*, 5:2567-2574. PMID: 1868981
25. **Fernandez-Botran, R., and E. S. Vitetta.** 1991. Evidence that natural murine soluble IL-4 receptors may act as transport proteins. *J. Exp. Med.*, 174:673-681. PMID: 1875167
26. **Chilton, P. M., and R. Fernandez-Botran.** 1993. The production of soluble interleukin-4 receptors by murine spleen cells is regulated by T cell activation and interleukin-4. *J. Immunol.*, 151:5907-5917. PMID: 8245438
27. **Fernandez-Botran, R., T. A. Wynn, S. Hieny, Caspar, P., P. M. Chilton, and A. Sher.** 1995. Linked *in vivo* expression of soluble interleukin-4 receptor and IL-4 in murine schistosomiasis. *Eur J. Immunol.*, 25:649-656. PMID: 7705393
28. **Fernandez-Botran, R., P. M. Chilton, Y. Ma, J. L. Windsor, and N. E. Street.** 1996. Control of the production of soluble interleukin-4 receptors: implications in immunoregulation. *J. Leukocyte Biol.*, 59:499-504. PMID: 8613696
29. **Ma, Yuhe, H. E. Hurst and R. Fernandez-Botran.** 1996. Soluble cytokine receptors as carrier proteins: the effects of soluble IL-4 receptors on the pharmacokinetics of murine IL-4. *J. Pharmacol. Exp. Ther.*, 279:340-350. PMID: 8859012
30. **Pearce, E. J., A. Cheever, S. Leonard, M. Covallesky, R. Fernandez-Botran, G. Kohler, and M. Kopf.** 1996. Schistosomiasis mansoni in IL-4-deficient mice. *Internatl. Immunol.* 8:435-444. PMID: 8671630
31. **Fernandez-Botran, R., P. M. Chilton and Y. Ma.** 1996. Soluble cytokine receptors: Their roles in immunoregulation, disease and therapy. *Adv. Immunol.*, 63:269-336. PMID: 8787633
32. **Fernandez-Botran, R., P. M. Chilton, Y. Ma, J. L. Windsor, and N. E. Street.** 1997. The production of soluble interleukin-4 receptors is preferentially regulated by the murine Th2 cell subset. *Cytokine.* 9:166-177. PMID: 9126705
33. **Chilton, P. M., and R. Fernandez-Botran.** 1997. Regulation of the expression of the soluble and membrane forms of the murine IL-4 receptor. *Cell. Immunol.* 180:104-115. PMID: 9341740
34. **Fernandez-Botran, R., J. Yan, and D. E. Justus.** 1999. Binding of interferon- γ by glycosaminoglycans: a strategy for localization and/or inhibition of its activity. *Cytokine.* 11:313-325. PMID: 10328871

35. **Shirbacheh, M. V., X. Ren, J. W. Jones, W. C. Breidenbach, A. W. Jevans, R. Fernandez-Botran, C. Maldonado, J. H. Barker, and S. A. Gruber.** 1999. Pharmacokinetic advantage of intraarterial cyclosporine A delivery to the vascularly-isolated rabbit forelimb. *J. Pharmacol. Exp. Ther.* 289:1185-1190. PMID: 8859012
36. **Fernandez-Botran, R., P. M. Chilton, B. D. Hondowicz, J. Vetvickova, J. Yan, W. Jones III, and P. A. Scott.** 1999. Regulation of the production of soluble IL-4 receptors in murine cutaneous leishmaniasis. The roles of IL-12 and IL-4. *J. Leukocyte Biol.* 66:481-488. PMID: 10496319
37. **Fernandez-Botran, R.** 1999. Soluble cytokine receptors: basic immunology and clinical applications. *Crit. Rev. Clin. Lab. Sci.*, 36:165-224. PMID: 10407682
38. **Fernandez-Botran, R.** 2000. Soluble cytokine receptors: novel immunotherapeutic agents. *Exp. Opin. Invest. Drugs*, 9:497-514. PMID: 11060691
39. **Fernandez-Botran, R.** 2001. A small-molecule antagonist of human and murine CCR1 receptors. *Exp. Opin. Invest. Drugs*, 10:1387-1389. PMID: 11791502
40. **Fernandez-Botran, R., F. A. Crespo, and X. Sun.** 2002. Soluble cytokine receptors in biological therapy. *Exp. Opin. Biol. Ther.*, 2:585-605. PMID: 12171504
41. **Fernandez-Botran, R., V. Gorantla, X. Sun, X. Ren, G. Perez-Abadia, F. A. Crespo, R. Oliver, H. I. Orhun, C. Maldonado, M. Ray, and J. H. Barker.** 2002. Targeting of glycosaminoglycan-cytokine interactions as a novel therapeutic approach in composite tissue allotransplantation. *Transplantation*, 74:623-629. PMID: 12352877
42. **Carr, L., A. Tucker, and R. Fernandez-Botran.** 2003. In vivo administration of L-DOPA or dopamine decreases the number of splenic IFN γ -producing cells. *J. Neuroimmunol.*, 137:87-93. PMID: 12667651
43. **Carr, L., A. Tucker, and R. Fernandez-Botran.** 2003. The enhancement of T cell proliferation is mediated peripherally and does not involve interleukin 2. *J. Neuroimmunol.*, 142:166-169. PMID: 14512176
44. **Fernandez-Botran, R., P. Romanovskis, X. Sun, and A. F. Spatola.** 2004. Linear basic peptides for targeting interferon- γ -glycosaminoglycan interactions. Synthesis and inhibitory properties. *J. Peptide Res.*, 63:56-62. PMID: 15009526
45. **Cripps, J., F. A. Crespo, P. Romanovskis, A. Spatola, and R. Fernandez-Botran.** 2005. Modulation of acute inflammation by targeting glycosaminoglycan-cytokine interactions. *Int. Immunopharmacol.*, 5:1622-1632. PMID: 16039552
46. **Crespo, F.A., X. Sun, J.G. Cripps and R. Fernandez-Botran.** 2006. The immunoregulatory effects of gangliosides involve immune deviation favoring type-2 T cell responses. *J. Leukocyte Biol.*, 79:586-595. PMID: 16415169
47. **Ihenetu, K., H.M. Quazzaz, F. Crespo, R. Fernandez-Botran and R. Valdes, Jr.** 2007. Digoxin-like immunoreactive factors induce apoptosis in human acute T-cell lymphoblastic leukemia. *Clin. Chem.*, 53:1315-1322. PMID: 17495020
48. **Shuske, D., A.S.O. Adeagbo, P.K. Patibandla, U. Egbuhuzo, R. Fernandez-Botran, and W.T. Johnson.** 2009. Cyclooxygenase-2 is upregulated in copper-deficient rats. *Inflammation*, 32:333-339. PMID: 19609832

49. * **Fernandez-Botran, R., J.J. Miller, V.E. Burns and T.L. Newton.** 2011. Correlations among plasma, saliva and oral mucosal transudate levels of interleukin-6 and soluble interleukin-6 receptors in postmenopausal women with past intimate partner violence. *Brain Behav. Immun.*, 25:314-321. PMID: 20888902
50. * **Fernandez-Botran, R., Ahmed, Z., C. Gatenbee, F.A. Crespo, D.W. Dickson, and I. Litvan.** 2011. Cytokine expression and microglial activation patterns in the brains of progressive supranuclear palsy and Alzheimer's disease patients. *Parkinsonism Rel. Disorder*, 17:683-688. PMID: 21741294
51. * **J. Bordon, M. Plankey, M. Young, R.M. Greenblatt, M.C. Villacres, A.L. French, J. Zhang, G. Brock, S. Appana, B. Herold, H. Durkin, J.E. Golub, and R. Fernandez-Botran.** 2011. Lower levels of interleukin-12 precede tuberculosis among HIV-infected women. *Cytokine*, 56:325-331. PMID: 21880503
52. **Newton, T.L., R. Fernandez-Botran, J.J. Miller, D.J. Lorenz, V.E. Burns, K.N. Fleming.** 2011. C-reactive protein levels, interleukin-6 and past intimate partner violence in midlife women: A preliminary study. *J. Women's Health*, 20:1871-1880. PMID: 22044065
53. **Fleming, K.N., T.L. Newton, R. Fernandez-Botran, J.J. Miller, V.E. Burns.** 2012. Intimate partner stalking victimization and posttraumatic stress symptoms in post-abuse women. *Violence Against Women*, 18(12):1368-1389. PMID: 23419275
54. **Newton, T.L., R. Fernandez-Botran, J.J. Miller, A. Cambon, V. Ellison Burns, and K.N. Fleming.** 2013. Post-traumatic stress symptom severity and inflammatory processes in midlife women. *Psychological Trauma: Theory, Research, Practice, and Policy*, 5:439-447.
55. **Bordon, J., S. Aliberti, R. Fernandez-Botran, S.M. Uriarte, M.J. Rane, P.D. Duvvuri, R. Peyrani, L. Morlacchi, F. Blasi, J. Ramirez.** 2013. Understanding the roles of cytokines, neutrophil activity and neutrophil apoptosis in the protective versus deleterious inflammatory response in pneumonia. *Intl. J. Infect. Dis.*, 17:e76-e83. PMID: 23069683
56. **Bordon, J., S.M. Uriarte, F.W. Arnold, R. Fernandez-Botran, M. Rane, P. Peyrani, R. Cavallazzi, M. Saad, J. Ramirez.** 2013. Cytokines and Neutrophils responses in Influenza Pneumonia. *Infection*, 41:1021-1024. PMID: 23589279
57. **Tseng, M.T., G. Fu, R. Fernandez-Botran, P. Wu, U. Graham, D.A. Butterfield, E. Grulke, R.A. Yokel.** 2014. Single dose nanoceria induced hepatotoxicity in intravenous exposed rats. *Toxicol. Path.*, 42:984-996. PMID: 24178579
58. **Newton, T.L., R. Fernandez-Botran, J.J. Miller, V. E. Burns.** 2014. Interleukin-6 and soluble Interleukin-6 receptor levels in posttraumatic stress disorder: associations with lifetime diagnostic status and psychological context. *Biol. Psychol.*, 99:150-159. PMID: 24695006
59. * **Fernandez-Botran, R., S.M. Uriarte, F.W. Arnold, L. Rodriguez-Hernandez, M.J. Rane, P. Peyrani, T. Wiemken, R. Kelley, S. Uppatla, R. Cavallazzi, F. Blasi, L. Morlacchi, S. Aliberti, C. Jonsson, J.A. Ramirez, J. Bordon.** 2014. Contrasting inflammatory responses in severe and non-severe community-acquired pneumonia. *Inflammation*, 37:1158-1166. PMID: 24557760

60. **Fernandez-Botran, R., S. Joshi-Barve, S. Ghare, S. Barve, M. Young, M. Plankey, J. Bordon.** 2014. Cytokine profiles and interferon responsiveness patterns in human immunodeficiency virus (HIV) and Hepatitis C virus (HCV) co-infection. *J. Interferon Cyt. Res.*, 34:885-893. PMID: 24955730
61. **Bordon JM, Fernandez-Botran R, Wiemken TL, Pevrani P, Uriarte SM, Arnold FW, Rodriquez-Hernandez L, Rane MJ, Kellev RR, Binford LE, Uppatla S, Cavallazzi R, Blasi F, Aliberti S, Restrepo MI, Fazeli S, Mathur A, Rahmani M, Avesu K, Ramirez J.** 2015. Bacteremic pneumococcal pneumonia: clinical outcomes and preliminary results of inflammatory response. *Infection*. 43(6):729-38. Epub 2015 Sep 30. PMID: 26424683
62. **Fleming, K.N., Y.Z. Szabo, V.E. Burns, R. Fernandez-Botran and J.J. Miller.** 2015. Intimate partner psychological abuse and posttraumatic stress: understanding the roles of depression and abuse types. *J. Family Violence*. .
63. **Newton, T.L., Burns, V.E., Miller, J.J., Fernandez-Botran, R.** 2016. Subjective sleep quality in women with divorce histories: the role of intimate partner victimization. *J. Interpers. Violence*. 31(8):1430-52. PMID: 25586916
64. **Matheson, P.J., R. Fernandez-Botran, J.W. Smith, S.A. Matheson, C.D. Downward, C.J. McClain, R.N. Garrison.** 2016. MC-2 peptide improves hepatic perfusion and reduces liver injury following resuscitated hemorrhagic shock. *JAMA Surgery*. 151(3):265-725. PMID: 26559151
65. **Arnold, F.W., J. Bordon, R. Fernandez-Botran, M.J. Rane, S.M. Uriarte, R. Kelley, T.L. Wiemken, P. Peyrani, and J.A. Ramirez for the Community-Acquired Pneumonia Inflammatory Study Group.** 2016. Macrolide use and neutrophil function/cytokine levels in hospitalized patients with community-acquired pneumonia: a pilot study. *Lung*. 194(1):155-62. PMID: 26553025
66. **Newton, T.L., R. Fernandez-Botran, K.B. Lyle, Y.Z. Szabo, J.J. Miller and A. Warnecke.** 2016. Co-regulation of Emotion and Salivary Cytokine Response in the Aftermath of Stress. *Emotion*. In press.
67. **Aliberti, S, L.C. Morlacchi, P. Faverio, R. Fernandez-Botran, R. Cosentini, M. Mantero, P. Peyrani, J. Ramirez, J. Bordon, and F. Blasi.** 2016. Pro and anti-inflammatory cytokines in serum and exhaled breath condensate in patients hospitalized with community-acquired pneumonia. *Pneumonia*. 8:8.
68. **Szabo, Y.Z., T.L. Newton, J.J. Miller, K.B. Lyle, and R. Fernandez-Botran.** 2016. Acute stress induces increases in salivary IL-10 levels. *Stress*. 19(5):499-505.
69. **Warnecke A.J., Y.Z. Szabo, V.E. Burns, R. Fernandez-Botran, J.J. Miller, T.L. Newton.** 2016. Sheltering for Safety in Community Women With Divorce Histories. *Violence Against Women*. 2016 Aug 30. pii: 1077801216664426. [Epub ahead of print]
70. **Newton, Tl, R. Fernandez-Botran.** 2016. Promoting Health by Improving Subjective Sleep Quality? Reduction in Depressive Symptoms and Inflammation as Potential Mechanisms and Implications for Trauma-Exposed Persons. *Front Psychiatry*. 7:76. doi: 10.3389/fpsyt.2016.00076. No abstract available.

71. **Richter J., V. Kral, V. Vetvicka, L. Rajnohova Dobiasova, R. Fernandez-Botran.** 2016. Effect of β -glucan supplementation on levels of IgM, IgA, IgG and its subclasses IgG1, IgG2, IgG3, and IgG4 in cancer patients. *J Tumor.* 4(5-6):469-473. doi:10.17554/j.issn.1819-6187.2016.04.98
72. **Aliberti, S., L.C. Morlacchi, P. Faverio, R. Fernandez-Botran, R. Consentini, M. Mantero, P. Peyrani, J. Ramirez, J. Bordon, F. Blassi.** 2016. Serum and exhaled breath condensate inflammatory cytokines in community-acquired pneumonia: a prospective cohort study. *Pneumonia.* 8:8 DOI 10.1186/s41479-016-0009-7
73. **Wiemken, T.L., R.R. Kelly, R. Fernandez-Botran, W.A. Mattingly, F.W. Arnold, S.P. Furmanek, M.I. Restrepo, J.D. Chalmers, P. Peyrani, R. Cavallazzi, J. Bordon, S. Aliberti, J.A. Ramirez.** 2017. Using cluster analysis of cytokines to identify patterns of inflammation in hospitalized patients with Community-Acquired Pneumonia: a pilot study. *U. L. J. Resp. Inf.,* 1(1):3-11. doi: 10.18297/jri/vol1/iss1/1/
74. **San Juan, J.P., L. Rodriguez Hernandez, T.L. Wiemken, R.R. Kelley, R. Fernandez-Botran, M. Gnoni, P. Peyrani, M.J. Rane, F.W. Arnold, J.A. Ramirez, S.M. Uriarte, J. Bordon.** 2017. Neutrophil function in elderly patients hospitalized with Community-Acquired Pneumonia. *U. L. J. Resp. Inf.,* 1(1):12-16. doi: 10.18297/jri/vol1/iss1/3/
75. **Fernandez-Botran, R., T.L. Wiemken, R.R. Kelley, P. Peyrani, J. Bordon, R. Cavallazzi, J.A. Ramirez.** 2017. Analysis of the local and systemic cytokine response profiles in patients with Community-Acquired Pneumonia: Relationship with outcomes and disease severity. *U. L. J. Resp. Inf.,* 1(3):13-20.
76. **Morello Gearhart A, Cavallazzi R, Peyrani P, Wiemken T, Furmanek S, Reyes Vega A, Gauhar U, Rivas-Perez H, Roman J, Ramirez JA, Fernandez-Botran R.** 2017. Lung Cytokines and Systemic Inflammation in Patients with COPD. *U. L. J. Resp. Inf.,* 1(4):1-6.
77. **Peyrani, P., T.L. Wiemken, M.L. Metersky, F.W. Arnold, W.A. Mattingly, C. Feldman, R. Cavallazzi, J. Bordon, R. Fernandez-Botran, J.A. Ramirez.** 2018. The order of administration of macrolides and beta-lactams may impact the outcomes of hospitalized patients with community-acquired pneumonia: Results from the Community-Acquired Pneumonia Organization. *Infect. Dis.* 50:13-20.
78. **Fernandez-Botran, R., I.A. Wellmann, C. Une, E. Méndez-Chacón, E. Hernández de Rodas, B. Bandhari, C.I. Villagrán de Tercero.** 2018. Plasma levels of soluble Urokinase Plasminogen Activator Receptor (uPAR) and Pepsinogen I/II ratios (PGI/PGII) as gastric cancer biomarkers in Guatemalan patients. *Experimental Medical Research.* Submitted.
79. **Szabo YM, Fernandez-Botran, R, Newton TL.** 2017. Cumulative Trauma, Emotion and Salivary Cytokine Response Following Acute Stress among Exceptionally Healthy Women. *Anxiety, Stress, & Coping.* Submitted.

Non-peer Reviewed Publications:

Theses.

1. **Fernandez-Botran, R.** 1979. Antinutritional factors in legume seeds (*Phaseolus vulgaris*) and their potential relationship with the content of tannins and associated polyphenols. Facultad de Ciencias Químicas y Farmacia, Universidad de San Carlos de Guatemala, Guatemala. P. 98. (In Spanish).
2. **Fernandez-Botran, R.** 1985. Transmembrane signaling mechanisms triggered by Fc receptors and prostaglandin receptors. Department of Microbiology, The University of Kansas Medical Center. P. 170.

Book Chapters, Monographs and Text Books.

1. **Brooks, K., R. Fernandez-Botran, and E. S. Vitetta.** 1985. "B cell growth and differentiation factors", In: DiSabato, G.; J.J. Langone and H. Van Vunakis (Eds.). *Methods Enzymol.*, 116:372-379.
2. **Suzuki, T., and R. Fernandez-Botran.** 1986. "Biochemical mechanism of signal transmittance by Fc receptors for IgG_{2a} at the surface of a murine macrophage-like cell line, P388D₁: Activation of adenylate cyclase by IgG_{2a}-binding proteins", In: *Leukocytes and Host Defense*. Alan Liss, New York, 1986. pp. 243-251.
3. **Fernandez-Botran, R., and E.S. Vitetta.** 1990. "A soluble IL-4 binding protein is present in mouse serum". In: C.A. Dinarello, M.J. Kluger, M.C. Powanda and J.J. Oppenheim (Eds.). *The Physiological and Pathological Effects of Cytokines*. Wiley-Liss, New York, 1990. p.p.423-428.
4. **Brooks, K., and R. Fernandez-Botran.** 1994. "Tissue and Cell Culture". In: P. J. Delves (Ed.). *Cellular Immunology LABFAX.*, BIOS Scientific Publishers, Oxford, pp. 45-63.
5. **Fernandez-Botran, R., and V. Vetvicka.** 1995. *Methods in Cellular Immunology*. CRC Press, Boca Raton, FL. P. 244.
6. **Fernandez-Botran, R., and V. Vetvicka.** 2000. *Advanced Methods in Cellular Immunology*. CRC Press, Boca Raton, FL. P. 173.
7. **Fernandez-Botran, R., and V. Vetvicka.** 2001. *Methods in Cellular Immunology, 2nd. Ed.*. CRC Press, Boca Raton, FL. P. 255.
8. **Fernandez-Botran, R.** 2005. *Chemokines*. In: H.V. Vohr, Ed., *Encyclopedic Reference of Immunotoxicology*. Springer-Verlag, Heidelberg. pp. 129-133.
9. **Crespo, T., R. Fernandez-Botran, C. Tillquist, L. Sears, M. Mott, and M. Casanova.** 2010. Cytokine Polymorphisms in autism. Their role in immune alterations. In "Autism: Oxidative Stress, Inflammation and Immune Abnormalities", A. Chauhan, V. Chauhan and T. Brown, Eds. Taylor and Francis Publishers. P. 427.
10. **Fernandez-Botran, R., Q. Xie, L. Gobejishvili, J. Zhang, S. Joshi-Barve, C. McClain, S. Barve.** 2013. Disruption of chemokine-glycosaminoglycan interactions protects the liver in the murine Concanavalin A-induced acute hepatitis model. *Front. Immunol. Conference Abstract: 15th International Congress of Immunology (ICI)*. doi: 10.3389/conf.fimmu.2013.02.00336
11. **Fernandez-Botran, R.** 2013. *Interferon- γ* . In: H.V. Vohr, Ed., *Encyclopedic Reference of Immunotoxicology, 2nd Ed.* Springer-Verlag. eBook.

12. **Fernandez-Botran, R.** 2013. *Chemokines*. In: H.V. Vohr, Ed., *Encyclopedic Reference of Immunotoxicology, 2nd Ed.* Springer-Verlag, Heidelberg. eBook.