

## ADDRESS

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## EDUCATION

- 1992-1996 Ph.D., Cellular Biology, University of Leon, Spain.
- 1992 M.S. University of Leon, Spain.
- 1987-1991 B.S. University of Leon, Spain.

## PROFESSIONAL APPOINTMENTS

- 2007-present Director, Flow Cytometry Core Facility, The Research Institute at Nationwide Children's Hospital, Columbus, OH.
- 2004-present Principal Investigator, Center for Vaccines and Immunity, The Research Institute at Nationwide Children's Hospital, Columbus, OH.
- 2004-present Assistant Professor, Department of Pediatrics, The Ohio State University School of Medicine, Columbus, OH.
- 2001-2004 Research Assistant Member, Trudeau Institute, Saranac Lake, NY.
- 2000-2001 Research Associate, Trudeau Institute, Saranac Lake, NY. Supervisor: Dr. M. A. Blackman.
- 1997-2000 Postdoctoral Research Associate, Department of Immunology, St. Jude Children's Research Hospital, Memphis, TN. Supervisors: Drs. M. A. Blackman and P. C. Doherty.

## HONORS

- Junior Faculty Travel Award, American Association of Immunologists, 2002.
- Keystone Symposia Scholarship, 2000.
- Fellowship of the Norwegian Government, February-June 1996.
- Special PhD Thesis Award Academic Year 1995/96, University of Leon (Spain).

## MEMBERSHIPS

- 2007-present The Ohio State University Center for Microbial Interface Biology
- 2006-present The Ohio State University Comprehensive Cancer Center
- 2001-present American Association of Immunologists

## EDITORIAL SERVICE

- Ad Hoc Reviewer: The Journal of Immunology, The Journal of Experimental Medicine, Viral Immunology, PlosONE
- Editorial Board: Infection & Drug Resistance

**NATIONAL/INTERNATIONAL SERVICE**

- 2007 Member of NIH Scientific Review Group ZAI1-PA-I-S2 “Immune Mechanisms of Viral Control”
- 2006 Reviewer for The Louisiana Board of Regents Research Competitiveness Subprogram

**TEACHING****Classroom teaching**

- 2008 MVIMG-814.02 Current Topics in Immunology, Course Coordinator
- 2008 IBGP-789 Immunological Research of Pediatric Disease, Course Speaker
- 2007 IBGP-795 Microbiology, Course Speaker
- 2006-present IBGP-789 Immunological Research of Pediatric Disease, Course Coordinator
- 2005 IBGP-851 Host Microbial Interactions, Course Speaker

**Mentored teaching**

STUDENT NAME	TYPE	DATES IN THE LAB.	CURRENT STATUS
Perry, James	IBGP Rotation	2007 Winter Quarter	Pre-doctoral researcher
Nagy, Amber	IBGP Rotation	2006 Summer Quarter	Pre-doctoral researcher
Anderson, Kathleen	Post-doctoral fellow	5/06-present	
Pengal, Ruma	Post-doctoral fellow	8/05-2/06	Post-doctoral researcher
Ravneberg, David	IBGP Rotation	2006 Winter Quarter	Pre-doctoral researcher
	IBGP Ph.D.	5/06-12/07	
Toby, Inimary	IBGP Rotation	2005 Fall Quarter	Pre-doctoral researcher
Cush, Stephanie	IBGP Rotation	2005 Summer Quarter	
	IBGP Ph.D.	5/06-present	
McNally, Beth	Post-doctoral fellow	05/08-present	

**Honors and Awards Received by Students and Trainees**

- Stephanie Cush:  
Award for Poster Presentation, 6<sup>th</sup> Annual OSUMC Graduate and Postgraduate Research Day, 2007
- Kathleen Anderson  
2007 Keystone Symposia Bill And Melinda Gates Scholar

**INVITED PRESENTATIONS**

- Keystone Symposia Viral Immunity: From Basic Mechanisms to Vaccines. March 2006 Keystone, Colorado
- New Jersey Medical School, Newark NJ, April 28, 2008

**PUBLICATIONS**

1. Flaño, E. and Durbin J. 2008. Methods Used to Study Respiratory Viruses. *Current Protocols in Cell Biology* (in press).
2. Flaño, E. 2008. Viral Immunity: It Takes Two to Tango. *Viral Immunol* 21(3):(in press).
3. Jewell, N.A., Gitiban, N., Mertz, S.E., Akter, P., Stokes Peebles Jr., R., Bakaletz, L.O., Durbin, R.K., Flaño, E., Durbin, J.E. 2007. Differential type I IFN induction by respiratory viruses in vivo. *Journal of Virology* 81(18):9790-9800.
4. Weslow-Schmidt, J., Jewell, N.A., Mertz, S.E., Durbin, J.E., Flaño, E. 2007. Type I IFN inhibition and plasmacytoid dendritic cell activation during respiratory virus infection. *Journal of Virology* 81(18):9778-89.
5. Cush, S.S., Anderson, K.M., Ravneberg, D.H., Weslow-Schmidt, J.L., Flaño, E. 2007. Memory generation and maintenance of CD8+ T cell function during viral persistence. *Journal of Immunology*. 179:141-153.
6. Martinez-Sobrido, L., Gitiban, N., Fernandez-Sesma, A., Cros, J., Mertz, S.E., Jewell, N.A., Hammond, S., Flaño, E., Durbin, R.K., Garcia-Sastre, A., Durbin, J.E. 2006. Protection against Respiratory Syncytial Virus by a Recombinant Newcastle Disease Virus Vector. *Journal of Virology*. 80:1130-1139.
7. Flaño, E., Basak, K., Woodland, D.L. and Blackman, M.A. 2005. Infection of dendritic cells by a  $\gamma$ -herpesvirus induces functional modulation. *Journal of Immunology*. 175:3225-3234.
8. Flaño, E., Jia, Q., Moore, J., Woodland, D.L., Sun, R. and Blackman, M.A. 2005. Early establishment of gamma-herpesvirus latency: implications for immune control. *Journal of Immunology*. 174:4972-4978.
9. Flaño, E., Hardy, C.L., Kim, I.J., Frankling, C., Coppola, M.A., Nguyen, P., Woodland, D.L., and Blackman, M.A. 2004. T cell reactivity during infectious mononucleosis and latent stages of  $\gamma$ -herpesvirus infection in mice. *Journal of Immunology*. 172:3078-3085.
10. Macrae, A.I., Usherwood, E.J., Husain, S.M., Flaño, E., Kim, I.J., Woodland, D.L., Nash, A.A., Blackman, M.A., Sample, J.T. and Stewart, J.P. 2003. MHV-68 M2 protein is a B cell-associated antigen important for latency but not lymphocytosis. *Journal of Virology* 77:9700-9709.
11. Kim, I-J., Flaño, E., Woodland, D.L., Lund, F.E., Randall, T.D. and Blackman, M.A. 2003. Maintenance of long-term  $\gamma$ -herpesvirus B cell latency is dependent on CD40-mediated development of memory B cells. *Journal of Immunology*, 171:886-892.
12. Flaño, E., Kim, I-J., Woodland, D.L. and Blackman, M.A. 2003. Differential  $\gamma$ -herpesvirus distribution in distinct anatomical locations and cell subsets during persistent infection in mice. *Journal of Immunology*. 170:3828-3834.
13. Flaño, E., Kim, I.J., Woodland, D.L., and Blackman, M.A. 2002.  $\gamma$ -Herpesvirus latency is preferentially maintained in splenic germinal center and memory B cells. *Journal of Experimental Medicine* 196:1363-1372.
14. Blackman, M.A. and Flaño, E. 2002. Persistent gammaherpesvirus infections: what can we learn from an experimental mouse model? *Journal of Experimental Medicine*. 195:F29-F32.
15. Kim, I.-J., Flaño, E., Woodland, D.L., Blackman, M.A. (2002) Antibody-mediated control of persistent  $\gamma$ -herpesvirus infection. *Journal of Immunology* 168:3958-3964.
16. Woodland, D. L., Flaño, E., Usherwood, E. J., Liu, L., Kim, I.-J., Husain, S. M., Sample, J. T., and Blackman, M. A. (2001) Antigen expression during murine  $\gamma$ -herpesvirus infection. *Immunobiology* 204:649-658.

17. Flaño, E, Woodland, D.L., Blackman, M.A. (2001). A mouse model for infectious mononucleosis. *Immunologic Research* 24:353-369.
18. Woodland, D.L., Usherwood, E.J., Liu, L., Flaño, E., Kim, I.-J., Blackman, M.A. (2001) Vaccination against murine  $\gamma$ -herpesvirus infection. *Viral Immunology* 14:217-226.
19. Hardy, C.L., Flaño, E., Cardin, R.C., Kim, I.-J., Nguyen, P., King, S., Woodland, D.L., Blackman, M.A. (2001). Factors controlling CD8<sup>+</sup> T cell activation associated with murine  $\gamma$ -herpesvirus-induced infectious mononucleosis. *Viral Immunology* 14:391-402.
20. Flaño, E., Woodland, D.L., Blackman, M.A., Doherty, P.C. (2001). Analysis of virus-specific CD4<sup>+</sup> T cells during long-term gammaherpesvirus infection. *Journal of Virology* 75:7744-7748.
21. Blackman, M.A., Flaño, E., Usherwood, E., Woodland, D.L. (2000). Murine  $\gamma$ -herpesvirus-68, a model for infectious mononucleosis? *Molecular Medicine Today* 6:488-490.
22. Flaño, E., Husain, S.M., Sample, J.T., Woodland, D.L., Blackman, M.A. (2000). Latent murine  $\gamma$ -herpesvirus infection is established in activated B cells, dendritic cells and macrophages. *Journal of Immunology* 165:1074-1081.
23. McIntosh, D., Austin, B., Flaño, E., Villena, A., Martinez-Pereda, J.A., Tarazona, J.V. (2000). Lack of uptake of *Renibacterium salmoninarum* by gill epithelia of rainbow trout (*Onchorhynchus mykiss*, Walbaum). *Journal of Fish Biology* 56:1053-1061.
24. Flaño, E., Woodland, D.L., Blackman, M.A. (1999). Requirement for CD4<sup>+</sup>T cells in V $\beta$ 4<sup>+</sup>CD8<sup>+</sup> T cell activation associated with latent murine gammaherpesvirus infection. *Journal of Immunology* 163:3403-3408.
25. Liu, L., Flaño, E., Usherwood, E.J., Surman, S.L., Blackman, M.A., Woodland, D.L. (1999). Lytic cycle T cell epitopes are expressed in two distinct phases during MHV-68 infection. *Journal of Immunology* 163:868-874.
26. Coppola, M.A., Flaño, E., Nguyen, P., Hardy, C.L., Cardin, R.D., Shastri, N., Woodland, D.L., Blackman, M.A. (1999). MHC-independent stimulation of CD8<sup>+</sup> T cells in vivo during latent murine  $\gamma$ -herpesvirus infection. *Journal of Immunology* 163:1481-1489.
27. Flaño, E., López-Fierro, P., Alvarez, F., Razquin, B., Villena, A. (1998). Splenic cultures from rainbow trout, *Oncorhynchus mykiss*: establishment and characterisation. *Fish and Shellfish Immunology* 8:589-606.
28. Schroder, M.B., Flaño, E., Pilstrom, L., Jorgensen, T.O. (1998) Localisation of plasma cells in Atlantic cod (*Gadus morhua* L.) tissues; identified by in situ hybridisation. *Fish and Shellfish Immunology* 8:565-576.
29. Hernanz Moral, C., Flaño del Castillo E., Lopez Fierro, P., Villena Cortes, A., Anguita Castillo, J., Cascon Soriano, A., Sanchez Salazar, M., Razquin Peralta, B., Naharro Carrasco, G. (1998). Molecular characterization of the *Aeromonas hydrophila aroA* gene and potential use of an auxotrophic *aroA* mutant as live attenuated vaccine. *Infection and Immunity* 66:1813-1821.
30. Flaño, E., López-Fierro, P., Razquin, B., Villena, A. (1997). *In vitro* proliferation of eosinophilic granular cells in gill cultures from rainbow trout. *Fish and Shellfish Immunology* 7: 519-521.
31. McIntosh, D., Flaño, E., Grayson, T.H., Gilpin, M.L., Austin, B., Villena, A. (1997). Production of putative virulence factors by *Renibacterium salmoninarum* grown in cell culture. *Microbiology* 134: 3349-3356.
32. Flaño, E., Alvarez, F., López-Fierro, P., Razquin, B., Villena, A., Zapata, A. (1996). *In vitro* and *in situ* characterisation of fish thymic nurse cells. *Developmental Immunology* 26:11-18.
33. Alvarez, F., Flaño, E., Castillo, A., López-Fierro, P., Razquin, B., Villena, A. (1996). Tissue distribution of barrier cells in the hematopoietic and lymphoid organs of salmonids. *The Anatomical Record* 245:17-24.

34. Flaño, E., López-Fierro, P., Razquin, B., Kaattari, S.L., Villena, A. (1996). Histopathology of the renal and splenic haemopoietic tissues of coho salmon, *Oncorhynchus kisutch*, experimentally infected with *Renibacterium salmoninarum*. *Diseases of Aquatic Organisms* 24:107-115.
35. Flaño, E., López-Fierro, P., Razquin, B.E., Villena, A. (1996). *In vitro* differentiation of eosinophilic granular cells in *Renibacterium salmoninarum*-infected gill cultures from rainbow trout. *Fish and Shellfish Immunology* 6:173-184.
36. Flaño, E., Kaattari, S.L., Razquin, B., Villena, A. (1996) Histopathology of the thymus of coho salmon, *Oncorhynchus kisutch*, experimentally infected with *Renibacterium salmoninarum*. *Diseases of Aquatic Organisms* 26:11-18.
37. Alvarez, F., Flaño, E., Villena, A., Zapata, A., Razquin, A. (1994). Seasonal intrathymic erythropoietic activity in trout. *Developmental and Comparative Immunology* 18:409-420.

## SUPPORT

R01 AI059603      P.I. Emilio Flaño      03/01/2005–02/28/2010      NIH/NIAID

“Gamma-herpesvirus infection of dendritic cells”

This proposal studies the interaction between herpesviruses and dendritic cells and its impact on the generation of T cell immunity.

R21 AI074349      P.I. Emilio Flaño      02/15/2008–01/17/2010      NIH/NIAID

“Immune correlates of protection during gamma-herpesvirus vaccination”

The goal of this proposal is to identify the immune correlates of protection induced by dendritic cell vaccination that ameliorate acute infection and prevent viral latency in mice after murine gamma-herpesvirus challenge.

R01 AI068956      PI: Liu, Yusen      07/01/07 – 06/30/11      NIH/NIAID

“The role of MKP-1 in innate immune responses to LPS”

The major goal of this project is to understand the role of MKP-1 during bacterial infection and sepsis. The physiological function of MKP-1 in the regulation of innate immunity and cardiac function will be studied. The concept of MKP-1 induction-based therapeutic strategy for the treatment of sepsis will be tested. Dr. Liu is the PI on this grant.