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## BIOGRAPHICAL SKETCH

Provide the following information for the key personnel and other significant contributors in the order listed on Form Page 2.  
Follow this format for each person.

NAME <b>Christine A. Petersen</b>	POSITION TITLE <b>Associate Professor</b>		
eRA COMMONS USER NAME <b>kalicat</b>			
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Johns Hopkins University	B.A.	May 1994	Biology
Cornell University	D.V.M.	May 1998	Veterinary Medicine
Harvard University	Ph.D.	May 2005	Immun. and Infect. Dis.

### A. Personal statement.

I am the principal investigator and last author in studies that follow endemic visceral leishmaniasis (VL) in US dogs, references 1, 4, 5, 7, 9 and 11. Using both serological and real-time PCR diagnostics, we follow a cohort of over 1000 Foxhound dogs at high risk for VL since 2005. I was an NIH K08 mentored-clinician scientist. Despite less than optimistic funding percentages particularly for junior scientists, I have been the PD/PI for an NIAID-funded R21 "*Role of pathogen-derived capping carbohydrates in altering immunity*" and PI on a sub-contract on a VL vaccine project from an NIAID R01 to the Infectious Disease Research Institute (IDRI). My interdisciplinary R21 project identified pathogen-derived factors that altered *in vivo Leishmania* pathogenesis, described in two manuscripts related to the current proposal; references 11, 12. I was co-I on a funded R21 with Dr. Marcelo Ramelmo-Ortigao whose purpose is to identify the role of US sandflies for transmission of *Leishmania*, particularly in our cohort of infected dogs, which led to publication 11 and one in review. Our active research group is focused on the long term goal of understanding how to best alter the immune response to *Leishmania* species for effective treatment or vaccination against this parasite. Related to our work on VL, our group has current active collaboration with Drs. Mary Wilson, Malcolm Duthie (IDRI), who are faculty on this current proposal, our Brazilian VL collaborator, Dr. Selma Jeronimo (publication 3), and Dr. Steve Beverley.

### B. Positions and Honors.

#### Positions and Employment

1999-2004 Graduate Student, Dept. of Immunology and Infectious Diseases, Harvard School of Public Health, Boston, MA

2004-2005 Affiliate Assistant Professor, Department of Vet. Path., College of Veterinary Medicine, Iowa State University, Ames, IA (title given to NIH K08 mentored training grant funded scientists)

2005-2012 Assistant Professor, Department of Vet. Path., College of Veterinary Medicine, Iowa State University, Ames, IA

2006-2013 Adjunct Assistant Professor, Department of Epidemiology, College of Public Health, University of Iowa, Iowa City, IA

2012-2013 Associate Professor, Department of Vet. Path., College of Veterinary Medicine, Iowa State University, Ames, IA . With tenure.

2013-present Associate Professor, and Director of the Center for Emerging Infectious Diseases, Department of Epidemiology, College of Public Health, University of Iowa, Iowa City, IA

#### Recent Awards and Honors

Brazilian Society of Protozoology Annual Conference invited speaker, Caxambu, MG, Brazil, Oct. 2012.

Ad-hoc reviewer NIH NIAID Tropical Disease Research Centers P50, Sept. 2011, IHD study section, Feb. 2013.

Inaugural International Society for Companion Animal Infectious Diseases Symposium invited speaker, Toulouse, France, 2010.

NIH Health Disparities Scholar, 2003-2007.

Leonard Pearson Veterinary Prize, for professional and academic leadership, 1998.

**C. Five peer-reviewed publications directly relevant to this application** (in chronological order, from 29).

1. Esch, K. J., Juelsgaard, R.M., Martinez, P., Jones, D.E., **Petersen, C.A.** (2013) "Programmed Death-1 mediates CD4+ T cell exhaustion in visceral Leishmaniasis." Journal of Immunology, Vol. 191, 5542-5550.
2. Krupka, M., Seydel, K., Yee, K., Kim, R., Lin, C.-Y., Jiang, H., **Petersen, C.A.**, Taylor, T., Daily, J. (2012) "Broad induction of type-1 Interferon responses associated with subsequent mild malaria following an episode of severe malaria." Infection and Immunity, Vol. 80, 1150-1155. (PMC3294667).
3. Esch, K. J., Pointes, N., Arruda, P., Morais, L., O'Connor, A.M., Jeronimo, S. M.B., **Petersen, C.A.** (2012) "Preventing Zoonotic Canine Leishmaniasis in Northeastern Brazil: Pet Attachment and Adoption of Community *Leishmania* Prevention." The American Journal of Tropical Medicine and Hygiene, Nov;87(5):822-31. doi: 10.4269/ajtmh.2012.12-0251. Epub 2012 Sep 17. (PMC3516256).
4. Boggiatto, M.P., Gibson-Corley, K. N., Metz, K., Gallup, J., Hostetter, J.M., Mullin, K., **Petersen, C.A.** (2011) "Vertical transmission of *Leishmania infantum* in naturally-infected Foxhounds in North America." PLoS Negl. Trop. Dis. 5(4): e1019. doi:10.1371/journal.pntd.0001019. (PMC3129441).
5. Boggiatto, M.P., Ramer-Tait, A.E., Gallup, J., Gibson-Corley, K.N., Metz, K., Kramer, E.E., Hostetter, J.M., Jones, D.E., **Petersen, C.A.** (2010) "Immunologic indicators of clinical progression during canine *Leishmania infantum* infection." Clin. Vacc. Immunol., Vol. 17(2), 267-73. (PMC2815526).

**Ten additional recent publications** (in chronological order, from a total of 31).

6. Gibson-Corley, K. N., Bockenstedt, M., Boggiatto, M.P., **Petersen, C.A.**, Bellaire, B, Jones, D.E. (2014) "Fc Gamma Receptor Recognition is Necessary for Antibody-Enhanced Intracellular Killing of *Leishmania amazonensis*." PLoS ONE, Sep 5;9(9):e106426. doi: 10.1371/journal.pone.0106426. PMID: 25191842.
7. Boggiatto, P. \*, Martinez, P. \*, Jones, D.E., Bellaire, B., Catling, A., **Petersen, C.A.** (2014) "MP1-mediated Endosomal Extracellular signal-related kinase (ERK) activation required for *Leishmania amazonensis* immune alteration" Microbes and Infection. Vol. 16, 328-336. \*co-first author.
8. Martinez, P. M., **Petersen, C.A.** (2014) "Roles of Pathogen-mediated intracellular signaling on antigen presenting cell responses." Immunologic Research, Vol. 59 (1), 153-165.. PMID:24838145
9. Esch, K. J., **Petersen, C.A.** (2013) "Transmission and Epidemiology of Protozoal Zoonoses of Companion Animals." Clinical Microbiology Reviews, 26(1), 58-85.
10. Gibson-Corley, K. N., Boggiatto, M.P., **Petersen, C.A.**, Waldschmidt, T.J, Jones, D.E. (2012) "B cell germinal center response but not IL-21 production leads to differential healing after *Leishmania* co-infection." American Journal of Pathology, Vol. 180(5), 2009-17. (PMC3349825).
11. Huang, J.W., Young, S., Gordon, D., Claborn, D., **Petersen, C.**, Ramalho-Ortigao, M. (2012) "First report and bionomics of Phlebotomine sand flies (Diptera:Psychoididae) in Kansas and Missouri." Journal of Medical Entomology, 49(6):1460-5.
12. Osanya A, Song EH, Metz K, Shimak RM, Boggiatto PM, Huffman E, Johnson C, Hostetter JM, Pohl NL, **Petersen CA.** (2011) "Pathogen-derived oligosaccharides improve innate immune response to intracellular parasite infection." American Journal of Pathology, Vol. 179(3), 1329-37.
13. E. Song, A. Osanya, P. Boggiatto, **C. Petersen** and N. Pohl. (2010) "Synthesis of multivalent *Leishmania*-associated capping carbohydrates and evaluation of structure-dependent immune responses." Journal of the American Chemical Society, Vol. 132 (33): 11428-30. (PubMed PMID: 20669964).
14. Boggiatto, M. P., Ghosh, M., Gibson-Corley, K. N., Jie, F., Ramer-Tait, A. E., Jones, D. E., **Petersen, C. A.** (2009) "Altered dendritic cell phenotype in response to *L. amazonensis* is mediated by MAP kinase ERK." Am. J. Path., Vol. 174(5), 1818-1826. (PMC2671270)
15. Mukbel, R. M., **Petersen C. A.**, and Jones D. E. (2006) "Soluble factors from *Leishmania major*-specific CD4+ T cells and B cells limit *L. amazonensis* amastigote survival within infected macrophages." Microbes Infect., Vol 8(9-10), 2547-2555. (PMID: 16934514- free online).

## D. Research Support

### Ongoing Research Support

Morris Animal Foundation                      Petersen (PI)                      03/01/2013-11/30/14

\$36,000 (annual direct costs)

Vaccine Candidates for US Foxhound Canine Visceral Leishmaniasis.

The focus of these studies is analysis of series of polypeptide vaccine candidates on ex vivo canine immunogenicity. *No overlap with this proposal.*

University of Iowa                      Petersen (PI)                      06/01/2013-05/31/15

\$200,000 (annual direct costs)

Epidemiology of Zoonoses including Visceral Leishmaniasis.

The focus of these studies is analysis of transmission and zoonotic disease incidence within canine and human populations. *No overlap with this proposal.*

9T35 OD012199-11                      Petersen (co-I)                      05/01/13-4/30/18

\$77,000 (annual direct costs)

Summer Research Opportunity for veterinary students

The goal of the work proposed within this training grant is to provide opportunities for veterinary students to learn about career opportunities as biomedical research scientists. *No overlap with the proposed project.*

Maddie's Fund®                      Baldwin (PI)                      03/01/2013-06/30/15

\$161,000 (annual direct costs)

Maddies Animal Shelter Medicine Educational Program

The focus of this award is teaching and outreach focused on maintaining animal health within animal shelters.

Dr. Petersen's role on this award is to provide scientific oversight and assist with epidemiologic studies of parasitic and respiratory diseases within the collaborating shelter population. *No overlap with this proposal.*

Role: co-PI

### **PENDING:**

NSF/Fogarty                      Petersen (PI)                      09/01/2015-08/31/20

\$500,000 (annual direct costs)

Epidemiology and Ecology of Visceral Leishmaniasis in Peri-urban Brazil (Petersen co-PI)

The focus of these studies is analysis of the role of canine vertical transmission of *L. infantum* to maintain infection within the Brazilian periurban ecosystem. *No overlap with this proposal.*