

# CURRICULUM VITAE

## BIOGRAPHICAL

**Name:** Jodi K. Craigo, Ph.D. **E-mail:** jcraigosteckbeck@gmail.com  
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Pittsburgh, PA 15261

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## EDUCATION and TRAINING

### UNDERGRADUATE:

Dates Attended	Name and Location of Institution	Degree Received and Year	Major Subject
1988-1992	Hiram College, Hiram OH 44234	B.A., 1992	Biology

### GRADUATE:

1992-1997	Northeastern Ohio Universities College of Medicine / Kent State University, Rootstown, OH 44272	Ph.D., 1997	Cell & Molec Biol / Minor: Microbiology
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### POST GRADUATE:

Dates Attended	Name and Location of Institution	Program Director, Discipline & Title
1998-2000	University of Pittsburgh School of Medicine, Pittsburgh, PA 15261	Ronald Montelaro, Ph.D. Virol / Biochem / Molec Biol / Immunol Postdoctoral Research Associate
2000-2003	University of Pittsburgh School of Medicine, Pittsburgh, PA 15261	Ronald Montelaro, Ph.D. Virol / Biochem / Molec Biol / Immunol Senior Research Associate

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## APPOINTMENTS and POSITIONS

### Academic

Years Inclusive	Name and Location of Institution	Position
1989-1992	Hiram College Hiram, OH 44234	Research Assistant / Lab Instructor Molec Biol / Genetics & Microbiol

1992-1997	Northeastern Ohio Universities College of Medicine/Kent State University, Rootstown, OH 44272	Medical Microbiology Laboratory Instructor
2004-2005	University of Pittsburgh School of Medicine, Pittsburgh, PA 15261	Research Instructor Dept Molec Genetics & Biochem
2006-2008	University of Pittsburgh School of Medicine, Pittsburgh, PA 15261	Research Assistant Professor Dep. Molec Genetics & Biochem
2008-2011	University of Pittsburgh School of Medicine, Pittsburgh, PA 15261	Research Assistant Professor Dept Microbiol & Molec Genetics
2007-present	University of Pittsburgh Pittsburgh, PA 15261	Director of Operations Center for Vaccine Research
2011-present	University of Pittsburgh School of Medicine, Pittsburgh, PA 15261	Research Associate Professor Dept Microbiol & Molec Genetics

### Non-Academic

1999-2007	Intervet, Inc. Millsboro, DE 19966	Research Consultant
2003-2009	Intervet, Inc. Millsboro, DE 19966	Scientific Advisor Akzo Nobel Pharma Patent Dept

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### ADMINISTRATION EXPERIENCE

Designed and implemented a use plan for research groups and core facilities, and hired core staff to transform 20,000 square feet of empty space into an operational research facility

Promote the evolving needs of the CVR to maintain problem-free daily operations through regular communication and productive relationships with the University's Facilities Management, Safety, and Senior Vice Chancellor's offices

Manage daily operations of CVR vaccine research facilities, flow cytometry and biosensor core instrumentation operations, and core research and support staff

Managed the transition/establishment and integration of 10 new research groups into the CVR

Develop and implement operating and safety policies as well as training requirements for the CVR to remain compliant with University and federal guidelines

Conceive and design effective compromises to maintain an equitable balance between faculty and staff needs and requests with the overall goals and administrative requirements of the CVR

Promote the CVR through the establishment of, and content generation for, a social media marketing presence (Twitter: @PittCVR and Facebook: [www.facebook.com/PittCVR](http://www.facebook.com/PittCVR)) and collaboration with University Marketing and the Office of Enterprise Development to construct CVR marketing materials

Collaborated with laboratory planning consultants from Jacobs Consultancy, architects from HOK architecture firm, and UPMC Corporate Real Estate office to consult on design, develop a plan to equip, and source equipment for UPMC/Pitt-sponsored vaccine research center that is part of the Ri.MED Biomedical Research and Biotechnology Center in Carini, Italy.

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## COMMERCIALIZATION / ENTREPRENEURIAL ACTIVITIES

Developed and maintained projects with industry partners (Bayer Animal Health, and Intervet, Inc.), through contract negotiation, progress reports, and annual meetings, as well as work in intellectual property development, specifically identifying potential intellectual property for patent publication submissions in conjunction with company(ies) IP attorneys

Drafted patent claims and worked as scientific advisor to corporate IP attorneys at Bayer Animal Health and Intervet, Inc.: Patents #6,461,616 and #6,727,078 and application publication numbers: 09/659029, PCT/US2001/027599, WO/2002/020049, AU2001287103, EP20001966602, and 10/627568 (more detail provided on page 11, under publication section of CV)

Responded to UPSTO office actions for Intervet, Inc.

Drafted responses to office actions for patent application PCT/US2008/069776 in conjunction with the University's Office of Technology Management

Audited University of Pittsburgh School of Law's Patent Law class

Attended University of Pittsburgh's Academic Entrepreneurship: The Business of Commercial Innovation

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## MEMBERSHIPS in PROFESSIONAL and SCIENTIFIC SOCIETIES

Organization	Years Inclusive
Pennsylvania Committee for Virology	1998-present
American Society for Biochemistry & Molecular Biology	1999-present
American Society for Microbiology	1999-present
American Society for Virology	1999-present
AAAS	2007-present
American Biophysical Society	2008-present

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## HONORS

Title of Award	Year
B.A. cum laude with Departmental Honors	1992
Alpha Honor Society	1992
NIH Postdoctoral Fellowship in AIDS Research (University of Pittsburgh)	1998-1999 (Grant ended in 1999)

10<sup>th</sup> Conference on Retroviruses and Opportunistic Infections 2003  
Travel Award  
11<sup>th</sup> Conference on Retroviruses and Opportunistic Infections 2004  
Travel Award

Global AIDS Vaccine 2007 Meeting, Travel Award 2007

Pittsburgh Life Sciences Greenhouse Funded Scholar 2008 - present

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## PUBLICATIONS

### 1. Refereed Articles:

1. **Craigo, J.**, Hopkins, M., and A.DeLucia. (1995) Uterine Cervix Adenocarcinoma with both Human Papillomavirus Type 18 and Tumor Suppressor Gene p53 Mutation from a Woman Having an Intact Hymen. *Gynecologic Oncology* 59:423-426.
2. Lichtenstein, D., **Craigo, J.K.**, Leroux, C., Rushlow, K.E., Cook, R.F., Cook, S.J., Issel, C.J. and Montelaro, R.C. (1999) Effects of Long Terminal Repeat Sequence Variation on Equine Infectious Anemia Virus Replication *In Vitro* and *In Vivo*. *Virology*. 263(2):408-417.
3. Li, F., Leroux, C., **Craigo, J.K.**, Cook, S.J., Issel, C.J., and Montelaro, R.C. (2000) The S2 Gene of Equine Infectious Anemia Virus is a Highly Conserved Determinant of Viral Replication and Virulence Properties in Experimentally Infected Ponies. *J of Virology*. 74(1):573-579.
4. **Craigo, J.**, Callahan, M., Huang, R-C., and A. DeLucia. (2000) Inhibition of human papillomavirus type 16 gene expression by nordihydroguaiaretic acid plant lignan derivatives. *Antiviral Research*. 47:19-28.
5. Leroux, C., **Craigo, J.K.**, Issel, C., and Montelaro, R.C. (2001) Equine infectious anemia virus genomic evolution in progressor and nonprogressor ponies. *J of Virology*. 75: 4570-4583.
6. **Craigo, J. K.**, Leroux, C., Howe, L., Steckbeck, J.D., Cook, S.J., Issel, C. J., and Montelaro, R.C. (2002) Transient immune suppression of inapparent carriers infected with a principal neutralizing domain-deficient equine infectious anemia virus induces neutralizing antibodies and lowers steady-state replication. *J of General Virology*. 83:1353-1359.
7. Paranipe, S.G., **Craigo, J.**, Patterson, B., Ding, M., Barroso, P., Harrison, L., Montelaro, R.C., and Gupta, P. (2002) Subcompartmentalization of HIV-1 quasispecies between seminal cells and seminal plasma indicates their origin in distinct genital tissues. *AIDS Research and Human Retroviruses*. 17: 1271-1280.
8. **Craigo, J.K.**, Reis, J.K.P., Cook, S.J., Issel, C.J. and Montelaro, R.C. (2003) Characterization of EIAV LTR variability and compartmentalization in various reservoir tissues of long term inapparent carrier ponies. *Virology*. 311: 169-180.
9. Li, F., **Craigo, J.K.**, Howe, L., Steckbeck, J.D., Cook, S., Issel, C., and Montelaro, R. (2003) A live attenuated EIAV proviral vaccine with a modified S2 gene provides protection from detectable infection by intravenous virulent virus challenge of experimentally inoculated horses. *J of Virology*. 77: 7244-7253.

10. **Craig, J.K.**, Patterson, B., Parani, S.G., Ding, M., Kulka, K., Montelaro, R.C., Mellors, J., and Gupta, P. (2004) Characterization Of Persistent Viral Infection In Semen And Blood Compartments In HIV-Infected Patients Following Long-term Potent Antiretroviral Therapy. *AIDS Res and Human Retroviruses*. 20:1196-1209.
11. Howe, L., **Craig, J.K.**, Issel, C.J., and Montelaro, R.C. (2005) Specificity Of Serum Neutralizing Antibodies Induced By Transient Immune Suppression of Inapparent Carrier Ponies Infected With A Neutralization Resistant EIAV Envelope Strain. *J of General Virology*. 86:139-149.
12. **Craig, J.K.**, Li, F., Steckbeck, J.D., Durkin, S., Howe, L., Cook, S.J., Issel, C., and Montelaro, R.C. (2005) Discerning An Effective Balance Between Equine Infectious Anemia Virus Attenuation And Vaccine Efficacy. *J of Virology*. 79: 2666-2677.
13. Deslouches, B., Islam, K., **Craig, J.K.**, Phadke, S.M., Montelaro, R.C., and Mietzner, T.A. (2005) Activity of the *De Novo* Engineered Antimicrobial Peptide WLBU2 against *Pseudomonas Auerignosa* in Human Serum and Whole Blood: Implications for Systemic Applications. *Antimicrobial Agents and Chemotherapy*. 49: 3208-3216
14. **Craig, J.K.**, Sturgeon, T. J., Cook, S., Issel, C., Leroux, C., and Montelaro, R.C. (2006) Apparent Elimination of Ancestral Quasispecies in EIAV Long-Term Inapparent Carriers. *Virology*. 344: 340-353.
15. Rodriguez, M.A., Chen, Y., **Craig, J.K.**, Chatterjee, R., Ratner, D., Tatsumi, M., Roy, P., Neogi, D., and Gupta, P. (2006) Construction and Characterization of an Infectious Molecular Clone of HIV-1 Subtype A of Indian Origin. *Virology*. 345:328-336.
16. **Craig, J.K.** and Gupta, P. (2006) HIV-1 in Genital Compartments: Vexing Viral Reservoirs. *Current Opinion in HIV and AIDS*. 1:97-102.
17. Chen, Y., **Craig, J.K.**, Ding, M., Shen, S., Zhou, Y., Wu, Y., and Gupta, P. (2006) Characterization of the HIV-1 gp120 of CRF15 in a group of infected Chinese blood donors with asymptomatic and symptomatic stages of the disease. *AIDS Research and Human Retroviruses*. 22:1167-1171.
18. **Craig, J.K.**, Durkin, S., Sturgeon, T., Cook, S., Issel, C., and Montelaro, R.C. (2007) Immune suppression of challenged vaccinates as a rigorous assessment of sterile protection by lentiviral vaccines. *Vaccine*. 25:834-835.
19. Toapanta FT, **Craig JK**, Montelaro RC, Ross TM. (2007) Co-immunization of DNA Vaccines Expressing HIV-1 gp120 Reduces Immune Responses to HIV-1 Gag Gene Products. *Curr HIV Res*. 5:199-209.
20. Tagmyer, T.L., **Craig, J.K.**, Cook, S.J., Issel, C., and Montelaro, R.C. (2007) Envelope-specific T-helper and CTL responses associated with protective immunity to equine infectious anemia virus. *J of General Virology*. 88:1324-1336
21. **Craig, JK**, Zhang, B, Barnes, S, Tagmyer, T, Cook, SJ, Issel, CJ, Montelaro, RC. (2007) Envelope variation as a primary determinant of lentiviral vaccine efficacy. *PNAS*. 104:15105-15110.
22. Tagmyer, T.L., **Craig, J.K.**, Cook, S.J., Issel, C., and Montelaro, R.C. (2008) Envelope determinants of EIAV vaccine protection and the effects of sequence variation on immune recognition. *Journal of Virology*. 82:4052-4063.

23. Fidalgo-Carvalho, I, **Craigo, J.K.**, Barnes, S, Costa-Ramos, C, Montelaro, RC. (2009) Characterization of an equine macrophage cell line: application to studies of EIAV infection. *Vet Micro.* 136: 8-19.
24. **Craigo, J.K.**, Barnes, S, Zhang, B., Cook, S.J., Howe, L., Issel, C., and Montelaro, R.C. (2009) An EIAV field isolate reveals much higher levels of subtype variability than currently reported for the equine lentivirus family. *Retrovirology* 6: 95.
25. Faith, S.A., Wu, Y., Kuhrt, D., Steckbeck, J., **Craigo, J.K.**, Clements, J.E., Cole, K.S. (2010) The role of envelope variation in SIV V1/V2 and V3 on the specificity of neutralizing monoclonal antibody responses. *Virology* 400:86-92.
26. Shen, C., Ding, M., **Craigo, J.K.** Tarwater, P., Chatterjee, R., Roy, P., Guha, S.K., Saha, B., Dolonchapa, M., Neogi, D., Chen, Y., Gupta, P. (2010) Genetic characterization of HIV-1 from semen and blood from clade C-infected subjects from India and effect of therapy in these body compartments. *Virology* 401:190-196.
27. **Craigo, J.K.**, Barnes, S., Issel, C.J., Montelaro, R.C. (2010) Divergence, not diversity of an attenuated equine lentivirus vaccine strain correlates with protection from disease. *Vaccine* 28:8095-8104.
28. Qin, S., Alcorn, J.F., **Craigo, J.K.**, Tjoeng, C., Kolls, J.K., Reinhart, T.A. (2011) Epigallocatechin-3-Gallate reduces airway inflammation in mice through binding to proinflammatory chemokines and inhibiting inflammatory cell recruitment. *J. Immunology* 186: 3693-3700.
29. **Craigo JK**, Steckbeck JD, Barnes CO, Montelaro RC. (2011) Highly conserved structural properties of the C-terminal tail of HIV-1 gp41 protein despite substantial sequence variation among diverse clades: implications for functions in viral replication. *J. Biol. Chem.* 286: 27156-27166
30. Shen C, **Craigo J**, Ding M, Chen Y, Gupta P. (2011) Origin and dynamics of HIV-1 subtype C infection in India. *PLoS One.* 6: e25956.
31. Giles BM, Bissel SJ, **Craigo JK**, Dealmeida DR, Wiley CA, Tumpey TM, Ross TM. (2012) Elicitation of anti-1918 influenza virus immunity early in life prevents morbidity and lower levels of lung infection by 2009 pandemic H1N1 influenza virus in aged mice. *J Virol.* 86:1500-1513.
32. Liu C, Cook FR, Cook SJ, **Craigo JK**, Even DL, Issel CJ, Montelaro RC, Horohov DW. (2012) The determination of in vivo envelope-specific cell-mediated immune responses in equine infectious anemia virus-infected ponies. *Vet Immunol Immunopathol.* 148: 302-310.
33. **Craigo JK**, Ezzelarab C, Montelaro RC. (2012) Development of a high throughput, semi-automated, infectious center cell-based ELISA for equine infectious anemia virus. *J Virol Methods.* 185: 332-227.
34. Issel CJ, Scicluna MT, Cook SJ, Cook RF, Caprioli A, Ricci I, Rosone F, **Craigo JK**, Montelaro RC, Autorino GL. (2013) Challenges and proposed solutions for more accurate serological diagnosis of equine infectious anaemia. *Vet Record.* 172:210.
35. Carter DM, Bloom CE, Nascimento EJ, Marques ET, **Craigo JK**, Cherry JL, Lipman DJ, Ross TM. (2013) Sequential Seasonal H1N1 Influenza Virus Infections Protect Ferrets Against Novel 2009 H1N1 Influenza. *J. Virol.* 87:1400-1410.

36. Qin, S, Klamar CR, Fallert Junecko BA, Alcorn, **Craig, JK**, Fuller DH, Reinhart, TA (2013) Functional Characterization of Ferret CCL20 and CCR6 and Identification of Chemotactic Inhibitors. *Cytokine*. 61:924-932.
37. Deslouches B, Steckbeck JD, **Craig JK**, Doi Y, Mietzner TA, Montelaro RC. (2013) Rational Design of Engineered Cationic Antimicrobial Peptides Consisting Exclusively of Arginine and Tryptophan: WR eCAP Activity against Multidrug-Resistant Pathogens. *Antimicrobial Agents and Chemotherapy*. 57:2511-2521.
38. Eugene HS, Pierce-Paul BR, **Craig JK**, Ross TM. (2013) Rhesus macaques vaccinated with consensus envelopes elicit partially protective immune responses against SHIV SF162p4 challenge. *Viol. J.* Apr 2;10:102. doi: 10.1186/1743-422X-10-102.
39. **Craig JK**, Ezzelarab C, Cook SJ, Chong L, Horohov D, Issel CJ, Montelaro RC. (2013) Envelope determinants of equine lentiviral vaccine protection. *PLoS One*. Jun 13;8(6):e66093. doi: 10.1371/journal.pone.0066093. Print 2013.
40. Kuhlmann AS, Steckbeck JD, Sturgeon TJ, **Craig JK**, Montelaro RC. (2014) Unique Functional Properties of Conserved Arginine Residues in the Lentivirus Lytic Peptide Domains of the C-terminal Tail of HIV-1 gp41. *J. Biol. Chem.* 289:7630-7640.
41. Zhu X, Ng HP, Lai YC, **Craig JK**, Nagilla PS, Raghani P, Nagarajan S. (2014) Scavenger Receptor Function of Mouse Fcγ Receptor III Contributes to Progression of Atherosclerosis in Apolipoprotein E Hyperlipidemic Mice. *J Immunol*. 193: 2483-2495.
42. Moroco JA, **Craig JK**, Jacob RE, Wales TE, Engen JR, Smithgall TE. (2014) Differential Sensitivity of Src-Family Kinases to Activation by SH3 Domain Displacement. *PLoS One*. 9(8):e105629. doi: 10.1371/journal.pone.0105629.
43. Liu C, Cook SJ, **Craig JK**, Cook FR, Issel CJ, Montelaro RC, Horohov DW. (2014) Epitope shifting of gp90-specific cellular immune responses in EIAV-infected ponies. *Vet Immunol Immunopathol*. 161:161-169.
44. **Craig JK**, Ezzelarab C, Cook SJ, Liu C, Horohov D, Issel CJ, Montelaro RC. (2015) Protective efficacy of centralized and polyvalent envelope immunogens in an attenuated equine lentivirus vaccine. *PLoS Pathog*. 11:e1004610. doi: 10.1371/journal.ppat.1004610.
45. Deslouches B, Steckbeck JD, **Craig JK**, Doi Y, Burns JL, Montelaro RC. (2015) Engineered Cationic Antimicrobial Peptides To Overcome Multidrug Resistance by ESKAPE Pathogens. *Antimicrob Agents Chemother*. 59:1329-33.

## 2. Invited Reviews and Book Chapters

1. **Craig, J.K.** and Gupta, P. (2006) HIV-1 in Genital Compartments: Vexing Viral Reservoirs. *Current Opinion in HIV and AIDS*. 1:97-102.
2. **Craig, J.K.** and Montelaro, R.C. (2008) Equine Infectious Anemia Virus (Retroviridae). Academic Press. *Encyclopedia of Virology*, Third Edition, vol 2: 167-174.

3. **Craigo, J.K.**, Leroux, C., and Montelaro, R.C. (2008) Latent Infection by Ungulate Lentiviruses. Latent Infection by HIV and Other Lentiviruses: New Approaches and Treatment Challenges. Transworld Research Network: 1-20.
4. **Craigo, J.K.** and Ross, T.M. (2010) Animal Lentiviruses. *Curr HIV Res.* 8:1.
5. **Craigo, J.K.** and Montelaro, R.C. (2010) EIAV Envelope Diversity: Shaping Viral Persistence and Encumbering Vaccine Efficacy. *Curr HIV Res.* 8:81-86.
6. **Craigo, J.K.**, and Montelaro, R.C. (2010) Lentivirus Tropism and Disease. Lentiviruses and Macrophages: Molecular and Cellular Interactions. Horizon Scientific Press: 1-23.
7. **Craigo, J.K.** and Montelaro, R.C. (2011) Equine infectious anemia virus infection and immunity: lessons for AIDS vaccine development. *Future Virology.* 6: 139-142.
8. **Craigo JK**, and Montelaro RC. (2013) Lessons In AIDS Vaccine Development Learned From Studies of Equine Infectious Anemia Virus Infection and Immunity. *Viruses.* 5:2963-2976.

### 3. Abstracts and Conference Proceedings:

1. **Craigo, J.** and A. DeLucia. Uterine Cervix Adenocarcinoma with Both Human Papillomavirus Type 18 and Tumor Suppressor Gene p53 Mutation. October 1994. Page-Wood Cleveland Virology Group Symposium.
2. **Craigo, J.** and A. DeLucia. Uterine Cervix Adenocarcinoma with Both Human Papillomavirus Type 18 and Tumor Suppressor Gene p53 Mutation. March 1995. Kent State University School of Biomedical Sciences Annual Meeting.
3. Goel, N., **Craigo, J.**, and A. DeLucia. Human Papillomavirus Type 16 E2 Protein Function In Cell Lines Endogenously Expressing E2 mRNA. September 1995. The 14<sup>th</sup> International Papillomavirus Conference.
4. **Craigo, J.**, Huang, R.C. and A. DeLucia. Inhibition of HPV-16 Transcription by the Potent Antiviral Plant Lignan Nordihydroguaiaretic Acid (NDGA). November 1996. Kent State University School of Biomedical Sciences Annual Meeting.
5. **Craigo, J.** and A. DeLucia. Control of Human Papillomavirus Type 16 Gene Expression by the Major Regulator- The E2 Protein. November 1996. Kent State University School of Biomedical Sciences Annual Meeting.
6. **Craigo, J.**, Gray, H. and A. DeLucia. Human Papillomavirus Type 16 E2 Protein Transactivation and Repression Functions. August 1997. The 17<sup>th</sup> International Congress of Biochemistry and Molecular Biology / 1997 Annual Meeting of the American Society of Biochemistry and Molecular Biology.
7. DeLucia, A. and **Craigo, J.** Transactivation and Repression Properties of the Human Papillomavirus Type 16 E2 Protein and Analysis of the E1 Protein ATPase Activity. September 1997. The 16<sup>th</sup> International Papillomavirus Conference.



8. Li, F., Leroux, C., **Craigo, J.K.**, Cook, S.J., Issel, C.J., and R.C. Montelaro. The S2 Gene of Equine Infectious Anemia Virus is a Highly Conserved Determinant of Viral Replication Properties in Experimentally Infected Ponies. May 1999 Cold Spring Harbor 1999 Retrovirus Meeting
9. **Craigo, J.K.**, Lichtenstein, D., Leroux, C., Rushlow, K.E., Cook, R.F., Cook, S.J., Issel, C.J. and R.C. Montelaro. Effects of Long Terminal Repeat Sequence Variation on Equine Infectious Anemia Virus Replication *In Vitro* and *In Vivo*. May 1999 Cold Spring Harbor 1999 Retrovirus Meeting
10. **Craigo, J.K.**, Gupta, P. and Montelaro, R.C. Evolutionary Relationships of Human Immunodeficiency Virus Type 1 Quasispecies in genital Tissues. March 2001 HIV Pathogenesis and AIDS Vaccines in the New Millennium Keystone Symposia 2001.
11. **Craigo, J.K.**, Patterson, B., Ding, M., Montelaro, R.C., Mellors, J. and Gupta, P. Analysis of Latent HIV Infection and Sequence Evolution Post Therapy in Semen and Blood Compartments. February 2003 10th Conference on Retroviruses and Opportunistic Infections.
12. **Craigo, J.K.**, Patterson, B., Paranjpe, S., Kulka, K., Ding, M., Montelaro, R.C., Mellors, J. and Gupta, P. Persistent Viral Infection and Sequence Evolution in Semen and Blood Compartments in HIV-Infected Patients Following Long-Term Potent Antiretroviral Therapy. February 2004 11<sup>th</sup> Conference on Retroviruses and Opportunistic Infections.
13. **Craigo, J.K.**, Patterson, B., Paranjpe, S., Kulka, K., Ding, M., Mellors, J., Montelaro, R.C. and Gupta, P. Characterization Of Persistent Viral Infection In Semen And Blood Compartments In HIV Infected Patients Following Long-term Potent Antiretroviral Therapy. April 2004, "Molecular Mechanisms of HIV Pathogenesis" Keystone Symposia.
14. Chen, C., Jin, J., Stolz, D.B., **Craigo, J.K.**, Weisz, O.A., and Montelaro, R.C. November 2004, "Nucleocapsid mediated association of gag Polyproteins with F-actin during retrovirus assembly and budding," 44<sup>th</sup> American Society of Cell Biology Annual Meeting.
15. **Craigo, J.K.**, Sturgeon, T., Issel, C., Leroux, C., and Montelaro, R.C. Elimination of Ancestral Quasispecies in EIAV Long-Term Inapparent Carriers. April 2005, "Molecular Mechanisms of HIV Pathogenesis" Keystone Symposia.
16. **Craigo, J.K.**, Durkin, S., Sturgeon, T., Cook, S.J., Issel, C., and Montelaro, R.C. Novel Insights into Vaccine Safety and Protection from a Live-Attenuated Lentiviral Vaccine Through Immune Suppression of Challenged Vaccinates. September 2005, International AIDS Vaccine 2005 Meeting.
17. **Craigo, J.K.**, Durkin, S., Sturgeon, T.J., Washko, T., Cook, S.J., Issel, C., and Montelaro, R.C. Novel Insights into Measures of Vaccine Efficacy by Immune Suppression of Challenged Vaccinates. March 2006, "HIV Vaccines" Keystone Symposia.
18. Tagmyer, T.L., **Craigo, J.K.**, Cook, S.J., Issel, C., and Montelaro, R.C. Envelope determinants of EIAV vaccine protection and the effects of sequence variation on immune recognition August 2007, International AIDS Vaccine 2007 Meeting.
19. **Craigo, J.K.**, Zhang, B., Barnes, S., Tagmyer, T.L., Cook, S.J., Issel, C., and Montelaro, R.C. Envelope variation as a primary determinant of vaccine efficacy. August 2007, International AIDS Vaccine 2007 Meeting (Platform Presentation).
20. **Craigo, J.K.** Vaccination and Infection: Utilizing SPR to Dissect the Antibody Response. September 2008, Vaccine Developments 2008 Conference (Platform Presentation).

21. Fidalgo-Carvalho, I, **Craig, J.K.**, Barnes, S, Costa-Ramos, C, Montelaro, RC. Characterization of an equine macrophage cell line: application to studies of EIAV infection. September 2009, VII World Congress on Alternatives & Animal Use in Life Sciences.
22. **Craig, J.K.**, Issel, C., and Montelaro, R.C. The relationship of envelope evolution in lentiviral persistence and vaccine efficacy. October 2009, International AIDS Vaccine 2009 Meeting (Platform Presentation).
23. Qin, S., Alcorn, J.F., **Craig, J.K.**, Tjoeng, C., Kolls, J.K., and Reinhart, T.A. EGCG inhibits CXCR3+ cell migration, binds proinflammatory chemokines and reduces inflammatory cell recruitment in vivo: potential opportunities for the treatment of HIV/SIV infection. October 2009, 27<sup>th</sup> Annual Symposium on Nonhuman Primate Models for AIDS.
24. Qin, S., Alcorn, J.F., Fallert-Junecko, B.A., Klamar, C., Flores, C., **Craig, J.K.**, Nyaundi, J., Murphey-Corb, M.A., and Reinhart, T.A. Epigallocatechin-3-Gallate (Egcg) Reduces SIV Replication and Proinflammatory Cytokine And Chemokine Expression in the Lymphoid Tissues of SIV-Infected Cynomolgus Macaques. October 2010, 28<sup>th</sup> Annual Symposium on Nonhuman Primate Models for AIDS.
25. **Craig, J.K.**, Barnes, S., Issel, C.J., Montelaro, R.C. Divergence, not diversity of an attenuated equine lentivirus vaccine strain correlates with protection from disease. March 2011, "Protection from HIV: Targeted Intervention Strategies" Keystone Symposia.
26. Gearhart TL, Steckbeck JD, Montelaro RC, **Craig JK**. Antigenicity of soluble HIV gp140 trimers reveals differences in solution conformation for differing HIV strains. September 2012, AIDS Vaccine Conference 2012.
27. Gearhart TL, Steckbeck JD, Montelaro RC, **Craig JK**. Rate and Affinity Binding Constants Determined by SPR Spectroscopy Reveal Differential Antigenicity of HIV gp120 and gp140. September 2012, AIDS Vaccine Conference 2012.
28. Kuhlmann AS, Steckbeck JD, **Craig JK**, Montelaro RC. The C-terminal tail of HIV-1 envelope: lentivirus lytic peptides and arginines. September 2012, AIDS Vaccine Conference 2012.
29. Deslouches B, Steckbeck JD, **Craig JK**, Montelaro RC. Trp and Arg as determinants of activity of engineered antimicrobial peptides; the influence of length on cytotoxicity, and antimicrobial activity. September 2012, ICAAC 2012.
30. Steckbeck JD, Deslouches B, **Craig JK**, Montelaro RC. Determination of Structure-Activity Correlations for Rational Design of Engineered Cationic Antimicrobial Peptides. September 2012, ICAAC 2012.
31. Moroco JA, **Craig JK**, Gray NS, Smithgall TE. Diversity in Individual Src-Family Kinase Regulation: Opportunities for Selective Inhibitor Discovery. November 2012, 24th EORTC-NCI-AACR Symposium on Molecular Targets and Cancer Therapeutics.
32. Kuhlmann AS, Steckbeck JD, Sturgeon T, **Craig JK**, Montelaro RC. The C-terminal tail of HIV-1 Envelope: a unique role for conserved LLP arginines in Env functional properties. May 2013, Cold Spring Harbor 2013 Retrovirus Meeting.

33. **Craig JK**, Ezzelarab C, Cook SJ, Liu C, Horohov D, Issel C, Montelaro RC. Ancestral vs Consensus vs Polyvalent: Envelope Effects on Vaccine Efficacy in an Equine Lentiviral Attenuated Vaccine Model. October 2013, AIDS Vaccine Conference 2013.
34. Deslouches B, Steckbeck JD, Doi Y, Burn J, **Craig JK**, Montelaro RC. Rationally Engineered Cationic Antibiotic Peptides Improve Bacterial Drug Resistance Properties Compared to Colistin and LL37. September 2014, ICAAC 2014.
35. Steckbeck JD, Deslouches B, **Craig JK**, Montelaro RC. Structure-Activity Correlations Identification to Guide Design of Engineered Cationic Antimicrobial Peptides. September 2014, ICAAC 2014.

#### 4. Other Publications

**Craig, J.K.** (1997) Studies on The Human Papillomavirus Type 16 Early Promoter and Its Major Regulatory Factor, The Viral E2 Protein. Ph.D. Thesis, Northeastern Ohio Universities College of Medicine and Kent State University, Rootstown, Ohio.

#### 5. Patents

*Inventor, assisted in specification writing, drafting claims and responses to USPTO office actions*

*"EIAV p26 Deletion Vaccine and Diagnostic,"* R.C. Montelaro, **J.K. Craig**, C. Issel, B. Puffer, K. Hennessy, and K. Brown.

U.S. Patent Number **6,461,616** (Issued October 8, 2002)

U.S. Patent Number **6,727,078** (Issued April 27, 2004)

U.S. Patent Application Number 10/125086 (Published October 24, 2002)

U.S. Patent Application Number 10/178109 (Published January 30, 2003)

U.S. Patent Application Number 10/125087 (Published February 6, 2003)

PCT Patent Application Number PCT/US2001/027600 (WO/2002/020050, Published March 14, 2002)

Licensed by Akzo Nobel for Intervet, Inc.

*"EIAV Chimeric Vaccine and Diagnostic,"* R.C. Montelaro, **J.K. Craig**, C. Issel, B. Puffer, K. Hennessy, and K. Brown.

U.S. Patent Application Number 09/659029 (Submitted September 11, 2000)

PCT Patent Application Number PCT/US2001/027599 (WO/2002/020049, Published March 14, 2002)

Australian Patent Number **AU2001287103** (Issued February 1, 2007)

European Patent Application Number EP20001966602 (Published September 24, 2003)

Licensed by Akzo Nobel for Intervet, Inc.

*"EIA Vaccine and Diagnostic,"* R.C. Montelaro, **J. Craig**, and K. Hennessy.

U.S. Patent Application Number 10/627568 (Published November 4, 2004)

### PROFESSIONAL ACTIVITIES

## TEACHING

### 1. Mentorship

#### *Postdoctoral Training*

Sha Jin	2002 - 2005
Baoshan Zhang	2003 – 2007
Anne-Sophie Kuhlman	2010 – 2014
Berthony Deslouches	2011 – 2015
Tricia Gearhart	2010 – present

#### *Graduate Student Training*

Jennifer Rowles	(Mol. Virol. Microbiol., School of Medicine, University of Pittsburgh)
Laryssa Howe	(Infect. Dis. Microbiol., Grad. School of Public Health, University of Pittsburgh)
Tara Tagmyer	(Mol. Virol. Microbiol., School of Medicine, University of Pittsburgh)
Isabel Carvalho	(University of Portugal International Collaborative Student)
Isabelle Viana	(University Salo Paulo Brazil)

#### *Graduate Thesis Committee Membership*

Isabel Carvalho	2008, Ph.D., University of Portugal
Hermancia Eugene	2012, Ph.D., Mol.Virol.Micro., School of Med., University of Pittsburgh

## RESEARCH

### 1. Grant Funding

#### *Current Grant Support*

“Topology, Antigenicity, and Immunogenicity of the C-terminal Tail (CTT) of HIV-1 gp41,”  
NIH/NIAID 1R01AI087533, 04/01/10 - 03/31/15: \$569,670  
Ronald Montelaro, P.I. (Univ. Pittsburgh). J.K. Craigo, Co-Principal investigator, (25% effort:  
\$37,754).

This proposal evaluates the structure of C-Terminal Tail segment of the HIV-1 envelope and examines its role as a determinant of viral neutralization its potential as a vaccine to enhance the production of neutralizing antibodies.

### *Prior Grant Support*

“Mucosal chemokines and inflammation in SIV transmission and pathogenesis,”  
NIH/NIAID 1R56AI104713-01, 09/01/2013 – 08/31/2014: \$704,473  
Todd Reinhart, P.I. (Univ. Pittsburgh), J.K. Craigo, Co-investigator, (10% effort: \$25,000).  
This proposal evaluates the role of CCL20 in SIV mucosal transmission and viral control.

“EIAV envelope variation and vaccine efficacy,” NIH/NIAID 5R01AI025850-25,  
04/01/09 - 03/31/14: \$697,023  
Ronald Montelaro, P.I. (Univ. Pittsburgh). J.K. Craigo, Co-Principal investigator, (30% effort:  
\$45,303).  
The objective of this project is to examine the role of natural EIAV envelope variation in  
influencing viral antigenic and immunogenic properties and as a determinant of vaccine  
efficacy.

“Semen in transmission of HIV,” NIH/NIAID 5R01HD052436-04,  
08/20/06-07/31/11: \$465,797  
Phalguni Gupta, P.I. (Univ. Pittsburgh). J.K. Craigo, Co-investigator, (30% effort: \$37,988).  
The objective of this project is to determine whether cell-free or cell-associated HIV-1 in semen is  
involved in heterosexual transmission while also investigating the effect of short-term and long-  
term therapy on cell-associated and cell-free HIV-1 in semen.

“Virus-Like Particle Vaccines for Pandemic Influenza,” NIH/NIAID 5U01AI077771-01,  
05/15/08-04/30/11: \$2,725,841  
Ted Ross, P.I. (Univ. Pittsburgh). J.K. Craigo, Co-investigator, (15% effort: \$46,739)  
The objective of this project is to develop a new generation of pandemic influenza vaccines based  
upon current circulating strains of highly pathogenic avian influenza (HPAI) H5N1 isolates and  
involves the development of virus-like particles (VLPs) for the elicitation of immune responses in the  
respiratory mucosa of non-human primates.

“Elicitation of broad immunity using VLPs with consensus envs,” NIH/NIAID  
5R01AI068507-03, 09/28/07-08/31/10: \$687,125  
Ted M. Ross, P.I. (Univ. Pittsburgh). J.K. Craigo, Co-investigator, (5% effort).  
This project is designed to assess the efficacy of combination DNA-VLP vaccines expressing  
consensus envelope genes in producing broadly neutralizing and protective immunity in the  
SHIV/monkey model.

“Development of a commercial vaccine for EIAV,” Intervet, Inc./Akzo Nobel, 01/01//96-  
12/31/07. Ronald Montelaro, P.I. (Univ. Pittsburgh). J.K. Craigo, Co-investigator, (30% effort).  
The goal of this project is to develop a commercial EIAV vaccine based on virus-like particles  
that is compatible with current USDA regulatory policies.

“HIV in Semen From Infected Subjects From India,” NIH/NIAID  
1R21 AI653921, 07/01/05 – 06/30/07. Phalguni Gupta, P.I. (Univ. Pittsburgh). J.K. Craigo, Co-  
investigator, (30% effort).

The objective of this project is to characterize longitudinal population dynamics between HIV-1 in blood and semen during infection and after drug treatment in Clade C infected patients from India.

## 2. Seminars and Invited Lectureships

Department of Microbiology and Immunology Seminar Series, Northeastern Ohio Universities College of Medicine, Rootstown, OH. August 1999

Department of Molecular Genetics and Biochemistry Annual Retreat, University of Pittsburgh School of Medicine, Pittsburgh, PA. September 2000

Department of Molecular Genetics and Biochemistry Seminar Series, University of Pittsburgh School of Medicine, Pittsburgh, PA. March 2004

Molecular Virology and Microbiology Program, University of Pittsburgh School of Medicine Contemporary Topics in Molecular Virology and Microbiology, Guest Lecturer, Phylogenetics and Virology, Pittsburgh, PA. February 2005

Northeastern Ohio Universities College of Medicine/Kent State University School of Biomedical Sciences Annual Research Day Keynote Speaker, Rootstown, OH. May 2006

International AIDS Vaccine 2007 Annual Conference, Seattle, WA. August 2007

Vaccine Developments 2008 Conference, Pittsburgh, PA. September 2008

## 3. Collaborators

Ronald Montelaro, Ph.D.	MMG, School of Medicine, University of Pittsburgh
Ernesto Marques, M.D., Ph.D.	IDM, Grad School of Public Health, University of Pittsburgh
Shan Nagarajan, Ph.D.	Pathology, School of Medicine, University of Pittsburgh
Kelly Stefano Cole, Ph.D.	Immunology, School of Medicine, University of Pittsburgh
Phalguni Gupta, Ph.D.	IDM, Grad School of Public Health, University of Pittsburgh
Todd Reinhart, Ph.D.	IDM, Grad School of Public Health, University of Pittsburgh
Cristian Apetrei, M.D., Ph.D.	MMG, School of Medicine, University of Pittsburgh
Ivona Pandrea, M.D., Ph.D.	Pathology, School of Medicine, University of Pittsburgh
Tom Smithgall, Ph.D.	MMG, School of Medicine, University of Pittsburgh
Thomas Kodadek, Ph.D.	Chemistry, Scripps Research Institute, Florida
Ted Ross, Ph.D.	Vaccine & Gene Therapy Institute, Florida

## 4. Other Research Related Activities

*Director, Center for Vaccine Research Social Media Marketing*  
*Director, Center for Vaccine Research Photographic Media Marketing*

*Scientific Reviewer (ad hoc) for:*

Nature Communications

Journal of Virology  
Retrovirology  
Virology  
Virus Genes  
Current HIV Research  
Archives of Virology  
Journal of Clinical Microbiology  
Veterinary Microbiology  
Journal of Virological Methods

***Grant Reviewer (ad hoc) for:***

U.S. Civilian Research and Development Foundation (CRDF): 2006 Cooperative Grants Program Competition

2012 NIH S10 Special Emphasis Panel- PAR-12-017: Shared Instrumentation Grant: Surface Plasmon Resonance Instruments

2013 NIH S10 Special Emphasis Panel- PAR-13-008: Biomolecular Interaction Analysis Instruments

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**LIST of CURRENT RESEARCH INTERESTS**

- Development of novel antimicrobial peptides
- Characterization of viral persistence and pathogenesis mechanisms
- Virus:host immune system interactions
- Development of novel assays of immune analysis
- SPR characterization of antibody
- Characterization of protective/non-protective humoral and innate immune system responses
- Viral evolution
- Viral population characterizations through sequence analyses including determinations of phenotypic differences of conserved and immunodominant regions of protein variation utilizing multiple computational avenues including: phylogenetics, divergence and selection analyses, and compartmentalization analyses (including Slatkin-Maddison, Mantel and GeneFlow computations)
- Viral antigenic variation
- Vaccine candidate development in various modalities such as live attenuated, viral vector and virus like particle vaccines
- Creation of new, rigorous virus challenge models
- SPR analysis of molecular interactions including virus and viral protein interactions
- Immunogen development via SPR evaluation of the kinetics of antigen:antibody interactions

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**SERVICE**

**1. University of Pittsburgh**

- 2003 – present Recombinant DNA (rDNA) Safety Committee, Pittsburgh Development Center, Magee-Women’s Research Institute, Voting Member
- 2006 – present Director, Biosensor Core, University of Pittsburgh School of Medicine
- 2010 – 2013 University of Pittsburgh Biohazards Committee, Alternate Voting Member
- 2010 – 2014 University of Pittsburgh Regional Biocontainment Laboratory Utilization Committee, Voting Member
- 2011 – 2012 University of Pittsburgh Center for Vaccine Research Seminar Committee
- 2011 – present University of Pittsburgh Center for Vaccine Research IT Committee, Chair
- 2011 – present University of Pittsburgh Center for Vaccine Research Internal IACUC Review Committee
- 2015 – present University of Pittsburgh IACUC Committee, voting member