

CURRICULUM VITAE

Dr. Jeffrey O. Langland
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EDUCATION:

Arizona State University, Tempe, Arizona
B.S. in Microbiology, *Cum Laude*, May 1986; GPA: 3.6
Ph.D. in Microbiology, December 1990; GPA: 4.0

TEACHING EXPERIENCE:

- 8/07-present **Associate Professor (Joint faculty appointment)**
Southwest College of Naturopathic Medicine, Basic Sciences (Tempe, Arizona)
Instructor:
MICR 605/610 *Medical Microbiology* (30-80 students/quarter)
General principles of the role of microorganisms in health and disease
RSCR 610/620 *Concepts in Research* (30-40 students/quarter)
General principles in research design and methodology
RSCH 660 *Research Project* (10-20 students/quarter)
Design and implementation of research projects
Vice-chair appointment (8/07-8/09):
Research department
Co-chair appointment (8/09-present):
Research department
- 8/95-present **Research Assistant Professor**
The Biodesign Institute and Arizona State University, Microbiology Dept (Tempe, Arizona)
Instructor:
MIC 394 *Biology of HIV* (30 students/semester)
Molecular biology of HIV replication and the impact of AIDS on society.
MIC485/585 *General Virology* (40 students/semester)
Fundamental nature of viruses (replication, pathogenesis and ecology).
MIC 484 *BioREACH Internship* (10 students/semester)
Provide students with the opportunity to instruct elementary level students in the area of biotechnology.
MIC 591 *Molecular Virology* (10 students/semester)
Seminar based course dealing with current topics in virology.
MIC 498 *Molecular Biology Techniques* (15 students/semester)
Team-instructed course. Principles and techniques associated with molecular biology research.
MBB 245 *Cellular and Molecular Biology* (10 students/semester)
The role of molecular biology, cellular biology and biotechnology in society. (*Guest lecturer*)
PLB 194 *Our Marvelous World: Engineering and Evolution* (10 students/sem.)
Provide students with an understanding of how technology influences today's society. (*Guest lecturer*)
MIC 401 *Research Paper* (1-2 students/semester)
Students prepare a research paper based on a current topic in virology.
BioREACH Program Director:
BioREACH (Biotechnology Resource for Educational Advancement of Curriculum in High schools). Instruction and training of middle- and high-school teachers and students in laboratory uses and methods in biotechnology and molecular biology: the impact of biotechnology in health disease and society. (300+ classroom contact hours).

1/92-1/95

Instructor

Maricopa Community College District, Glendale Community College; Department of Biological Sciences; (Glendale, Arizona)

Course load: 1-2 courses/semester

BIO 205 *Microbiology* (30 students/semester)

General principles of the role of microorganisms in health, ecology, and related applied fields.

BIO 206 *Microbiology Laboratory* (30 students/semester)

Principles and laboratory techniques used in identifying and handling microorganisms.

BIO 181 *General Biology* (30 students/semester)

Biological concepts and the interplay of structure and function at the molecular, cellular, organismal, and population levels of organization. (lecture and laboratory)

3/94-12/94

Instructor (currently Adjunct Faculty)

Southwest College of Naturopathic Medicine (Scottsdale, Arizona)

Medical Microbiology (50 students/semester)

General principles of the role of microorganisms in health and disease

9/86-12/90

Teaching Assistant

Arizona State University, Microbiology Dept (Tempe, Arizona)

Courses instructed:

MIC 486 *Virology Laboratory* (20 students/semester)

An introduction to the growth, assay, and detection of viruses.

MIC 421 *Experimental Immunology* (20 students/semester)

An introduction to the basic techniques, methods, and assays used in immunology.

MIC 206 *Microbiology Laboratory* (20 students/semester)

Principles and laboratory techniques used in identifying and handling microorganisms.

COURSE CURRICULM DEVELOPMENT:

- Medical Microbiology
- Concepts in Research
- Biology of HIV
- Microbiology (lecture and laboratory)
- Virology (lecture and laboratory)
- Molecular/Cellular Biology Techniques
- BioREACH Internship

RESEARCH EXPERIENCE:

- 10/95-present **Research Assistant Professor (Joint faculty appointment)**
The Biodesign Institute and Arizona State University, Microbiology Dept (Tempe, Arizona)
Research Areas:
Alterations in cellular gene expression in response to immuno-modulatory botanicals.
Characterization of a novel anti-poxviral herbal extract: implications as a counterbioterrorism agent and treatment for emerging monkeypox virus infections
Use of botanicals as adjuvants to increase safety and efficacy of vaccines.
Characterization of the anti-microbial activity associated with colloidal silver and botanical extracts.
Encephalomyocarditis virus and mouse hepatitis coronavirus resistance to host defenses via specific proteolytic-induced degradation of host antiviral proteins.
Vaccinia virus regulation of host gene expression (using microarray analysis) and signal transduction cascades: the role of double-stranded RNA and Z-DNA binding.
Improved smallpox and recombinant vaccines based on attenuation of vaccinia virus (cowpox) by mutation of the E3L gene.
Double-stranded RNA induced apoptotic killing of cancer cells by developing viruses which express antisense transcripts to cancer-cell specific mRNAs.
Construction of attenuated poxviruses as potential vaccine and gene therapy vectors.
Viral regulation of the anti-viral interferon system in mammalian cells: the role of the vaccinia virus E3L and K3L gene products in the regulation of the double-stranded RNA-dependent protein kinase, PKR and 2'5'-oligoadenylate synthetase.
The role of the transcriptional factor, Nuclear Factor of Activated T-cells (NFAT/NF90), regulation by double-stranded RNA-binding protein and the dsRNA dependent protein kinase.
Kidney cell regulation of the interferon system: isolation and characterization of a novel interferon inhibitor and the role of vaccinia virus regulatory proteins.
Characterization of a viral/cellular regulated double-stranded RNA-dependent protein kinase in plant cells: viral, viroid and cellular regulators, role in viral and cellular metabolism.
Developing broad spectrum virus resistance in plant crops through the expression of double-stranded RNA-binding proteins.
- 8/91-9/95 **Post-Doctoral Researcher**
University of Wyoming / Arizona State University (dual appointment)
Identification and characterization of a plant-encoded double-stranded RNA binding protein kinase with properties similar to the mammalian protein kinase, PKR; regulation of plant virus and viroid pathogenesis and cellular metabolism.
Interaction of double-stranded RNA with the interferon-induced protein kinase and other viral-induced enzymes (Rotavirus NSP3 protein).
- 1/91-7/91 **Post-Doctoral Researcher**
University of California, Davis
Functional analysis of the avian erythroblastosis virus *v-erbB* oncogenic protein
- 9/86-12/90 **Research Assistant**
Arizona State University
Purification and characterization of the interferon-induced protein kinase, PKR.
- 9/85-8/86 **Laboratory Assistant**
Arizona State University
Maintain bacterial cultures under varying pH, temperature, and oxygen conditions.
Purification of chlorophyll-protein complexes and quinones of *Heliobacterium chlorum*.

PATENTS:

- The use of double-stranded RNA-binding proteins in developing broad spectrum virus and viroid resistance plant crops and RNA-virus resistance in animals (1995).
- Poxviruses containing novel genes for PKR inhibitors in place of E3L as vaccine and gene therapy vectors (2000).
- Mutants of vaccinia virus as oncolytic agents (2003).
- Mutated Poxviruses Which Affect DsRNA-Binding As Vaccine And Gene Therapy Vectors. Patent No.: 6,750,043; 6,942,955 (2005)
- Method and Compositions for use of Carnivorous Plant Extracts in the Treatment of Poxvirus Infections, M9-087L, Patent disclosure (2009).
- A Method for Inserting Genetic Material into Genomic DNA, M10-168L, Patent disclosure (2010).

FINANCIAL AWARDS/SUBMISSIONS

- Characterization of a 19th century cure for smallpox (2010), NIH RO1 (\$1,000,000), status: pending
- Comparative evaluation of the efficacy of turmeric in the treatment of Alzheimer's disease (2009), NIH Challenge Grant (\$1,000,000), status: Not funded.
- Improving Vaccine Efficacy Using Immunomodulatory Botanicals (2008), Gates Foundation (\$100,000), status: Not funded.
- Mechanistic Characterization Of Immuno-Modulating Botanicals (2008), NIH, NCCAM RO1 (1,500,000): status: Scored, but not funded.
- Mechanistic Characterization Of Immuno-Modulating Botanicals (2008), NIH, NCCAM RO1 (1,800,000): status: Not funded.
- Genetic Expression Analysis on Immuno-modulating Botanicals Southwest College of Naturopathic Medicine (matching funds from ASU Biodesign Institute) (\$30,000) status awarded.
- Comparative Clinical Analysis of the Immune Response Induced by the Medicinal Herb, Astragalus membranaceus; Biodesign New Frontiers Initiative; (\$107,000) status: Not funded.
- Innate Immune Evasion Regulated by the Ranavirus eIF2 α Homolog (6/2007 submission), NIH RO1: status: Not funded.
- Poxviral Regulation of Host Gene Expression (2/03, 11/03 resubmission), NIH (\$200,000): status: not funded.
- Embracing Infinite Possibilities, BioREACH Program (3/04), ASU (\$20,000): status: not funded.
- Development of a Chimeric Vaccinia-Virus Vaccine With Protection Against Smallpox and Anthrax (11/03), ADCRC; status: funded (Co-PI on program project with 5 investigators)
- The E3L Gene of Poxviruses and Its Role in Pathogenesis (10/02), NIH; status: funded (PI is Dr. B. Jacobs, Arizona State University; listed as collaborative investigator for which funding would be contracted)
- Enhance Biology Education in Arizona High Schools by Providing Services to Teachers, Flinn Foundation (\$30,000) status: funded (12/00)
- Biology Instructional Outreach for Teachers: Expanding Classroom Horizons (12/97) Eisenhower Foundation (\$50,000) status: not funded
- Integration of Molecular and Cellular Biology into the Maricopa County High School Curriculum (2/97) Arizona State University (\$8,000) status: funded
- Developmental Expression of a Wheat-Encoded Regulator of Translation (6/96) NSF (\$429,886) status: not funded
- Resistance to Citrus Tristeza Virus Using Double-Stranded RNA Binding Proteins (2/96) California Tristeza Research Coalition (\$25,000) status: not funded

COMMITTEE SERVICE:

- SCNM Naturopathic Conversation Alive (faculty mentor), 2010
- SCNM Human Biology Curriculum committee, 2010
- SCNM Strategic Planning committee, 2010
- SCNM Direct Report Group 2009/2010
- CNME accreditation annual update committee, 2010
- Research and Assessment Subcommittee, SCNM CNME accreditation 2009
- Institutional Review Board member, SCNM 2008-present
- Research Advisory Board member, SCNM 2008-present
- Microbiology Faculty Search, Assistant/Associate Professor in Virology (2001)
- Arizona Bioengineering Collaborative, Arizona Science Center, design team member (2001)
- Biodesign Institute seminar coordinator
- Biodesign Institute facilities redesign

SCNM STUDENT MENTORING in RESEARCH (at the Biodesign Institute):

Jessica Moore (2010)
Daniel Leek (2010)
Heather Harrington (2010)

GRADUATE STUDENT COMMITTEE SERVICE/ STUDENTS MENTORED:

Yue Zhang	MNS, Microbiology (1998)
Cameron Zeman	MS, Microbiology (1998)
Brandee Hughes	MNS, Microbiology (1999)
Paige Wagner	MNS, Biology (1999)
Cara Gallaher	MS, Microbiology (1999)
Seth Dobrin	PhD, Molecular Biology (1999)
Anne Nicholson	MS, Microbiology (2002)
Neeraja Parameswaran	MS, Microbiology (2002)
Jessica Classen	MS, Biology (2001)
Latha Talasela	MS, Microbiology (2002)
Garilyn Jentarra	PhD, Microbiology (2004)
Chandra Mitnik	PhD, Molecular Biology (2004)
Matt Pearcy	PhD, Molecular Biology (2006)
Kip Conwell	MS, Microbiology (2006)
Mark Zubrinski	PhD, Microbiology (2007)
Kelly Trainor	PhD, Microbiology (2008)
Jason Cameron	MS, Molecular Biology (2008)
Monasha Sharma	MNS, Microbiology (2010)
Jeff Liao	PhD, Molecular Biology*
Bill Ardnt	PhD, Molecular Biology*

*In progress

UNDERGRADUATE STUDENTS MENTORED:

Bernardo Mainou
Kassi White
Simone Raess
Tamara Flys
Kevin Hauns
Merideth Hall
Seth Dobrin
Cara Libby
Alon Unger
Renee Wulff

OTHER STUDENT MENTORING:

- Foreign Exchange Graduate student (Universite' Joseph Fourier, France)
- High School-level laboratory research students (3)
- Undergraduate Student Research Program (1 student) "Effective Biology Instruction in the High School"

AWARDS/CERTIFICATES:

- Protecting Human Research Participants" certification. NIH course, August, 2008.
- Maricopa County Community College Teaching Certificate; 1992
- Regents Graduate Academic Scholarship; 1986/87, 1988/89, 1989/90, 1990/91
- Achievement Rewards for College Scientists Fellowship; 1988/89, 1989/90
- Army National Guard Educational Assistance Grant; 1982-1986
Member of Arizona Army National Guard (1982-1988)
Rank: Sergeant
Training: Intelligence Analyst / Still Photographic Specialist

PUBLICATIONS:

- Arndt, W., Mitnik, C., Denzler, K.L., Waters, R.F., Jacobs, B.L., Rochon, Y., and Langland, J.O. (2010). Rediscovery of a 19th century cure for smallpox. *Nature* (manuscript in preparation).
- Willis, K.L., Langland, J.O., and Shisler, J.L. (2010). Viral dsRNA from vaccinia virus early or intermediate gene transcripts possess PKR activating function, resulting in NF-KB activation, when the K1 protein is absent or mutated. (submitted).
- Waters, R.F., Langland, J.O., Woffinden, S., Worsham, A., Leek, D., Orian, M., Gelinas, B., Rezaie, S., and Russell, T., (2010). A Mathematical Comparison of Multiple Linear Regression Analysis with Inductive Rule Extraction in the Analysis of Data in Alternative Medicine (submitted).
- White, S.D., Conwell, K., Langland, J.O. and Jacobs, B.L. (2010). Use of a Negative Selectable Marker for Rapid Selection of Recombinant Vaccinia Virus. *Biotechniques* (submitted).
- Denzler, K.L., Waters, R.F., Jacobs, B.L., Rochon, Y., and Langland, J.O. (2010). Regulation of inflammatory gene expression by immunostimulatory botanicals. *PLoS ONE* (in press).
- Morrill, K., May, K., Leek, D., Langland, N., Jeane, L., Ventura, J., Skubisz, C., Scherer, S., Lopez, E., Crocker, E., Peters, R., Oertle, J., Nguyen, K., Just, S., Phair, M., Humphrey, M., Payne, D., Jacobs, B., Waters, R., Langland, J. (2010). Spectrum of antimicrobial activity associated with colloidal silver. *J. Med. Micro.* (submitted).
- Jacobs, B., Langland, J., Kibler, K., Denzler, K., Holecheck, S., White, S., Lanzter, S., Huynh, T., and Baskin, C. (2009). Vaccinia virus vaccines: past, present and future *Antiviral Res.*
- Zhang P, Langland JO, Jacobs BL, Samuel CE. (2009) Protein kinase PKR-dependent activation of mitogen-activated protein kinases occurs through mitochondrial adapter IPS-1 and is antagonized by vaccinia virus E3L. *J Virol.* **83**:5718-25
- Jentarra, G.M., Heck, M.C., Youn, J.W., Kibler, K., Langland, J.O., Baskin, C.R., Ananieva, O., Chang, Y., and Jacobs, B.L. (2008) Vaccinia viruses with mutations in the E3L gene as potential replication-competent, attenuated vaccines: Scarification vaccination. *Vaccine*, **26**:2860-72
- Langland, J., Waters, R., and Rochon, Metabolic genetic expression analysis of Astragalus sp. herbal extract on ex vivo immuno-stimulated human peripheral blood mononuclear cells Y. *Int. J. Nat. Med.*, AANP Convention Proceedings, 2008, 316-319.
- Ye, Y., Hauns, K, Langland, J.O., Jacobs, B.L. and Hogue, B.G. (2007). Mouse hepatitis coronavirus A59 nucleocapsid protein is a type I interferon antagonist. *J. Virol.* **81**:2554-2563.
- Langland, J.O., Kash, J.C., Carter, V., Thomas, M.J., Katze, M.G., and Jacobs, B.L. (2006). Suppression of Proinflammatory Signal Transduction and Gene Expression by the Dual Nucleic Acid Binding Domains of the Vaccinia Virus E3L Proteins. *J. Virology* **80**: 10083-10095.
- Langland, J.O., Cameron, J.M, Heck, M.C., Jancovich, J.K. and Jacobs, B.L. (2006). Inhibition of PKR by RNA and DNA Viruses. *Virus Research* **119**: 100-110.
- Langland, J.O., Lancaster, V., and Jacobs, B.L. (2005). Viral Countermeasures to the Host Interferon Response: Role of the Vaccinia Virus E3L and K3L Genes. *Antiviral Drug Discovery for Emerging Diseases and Bioterrorism Threats*. Editor: P.A. Torrence; John Wiley and Sons, Inc.
- Langland, J.O. and Jacobs, B.L. (2004). Inhibition of PKR by Vaccinia Virus: Role of the N- and C-Terminal Domains of E3L. *J. Virology* **324**: 419-429.
- Langland, J.O. Kao, P., and Jacobs, B.L. (2003). Regulation of IL-2 Gene Expression and Nuclear Factor-90 Translocation in Vaccinia Virus-Infected Cells. *J. Interferon Cytokine Res.* **23**:489-500.
- Vijaysri, S., Talasela, L., Mercer, A.A., Mcinnes, C.J., Jacobs, B.L., and Langland, J.O., (2003). The Orf Virus E3L Homologue is Able to Complement Deletion of the Vaccinia Virus E3L Gene in vitro but no in vivo. *Virology* **15**:305-314.
- Langland, J.O., and Jacobs, B.L. (2002). The Role of the PKR Inhibitory Genes, E3L and K3L, in Determining Vaccinia Virus Host Range. *Virology* **299**:133-141.

- He, Y., Tan, S.L., Tareen, S.U., Vijaysri, S., Langland, J.O., Jacobs, B.L. and Katze, M.G. (2001). Regulation of mRNA Translation and Cellular Signaling by Hepatitis C Virus Nonstructural Protein NS5A. *J. Virol.* **75**: 5090-5098.
- Langland, J.O., Kao, P.N. and Jacobs, B.L. (1999). Nuclear Factor-90 of Activated T-Cells: A Double-Stranded RNA-Binding Protein and Substrate for the Double-Stranded RNA-Dependent Protein Kinase, PKR. *Biochemistry* **38**:6361-6368.
- Langland, J.O., Langland, L.A. and Roth, D.A. (1998). Differential Location and Accumulation of the Plant Double-Stranded RNA Dependent Protein Kinase During Virus Infection *Plant Physiology and Biochemistry*, **36**:395-400.
- Jacobs, B.L. and Langland, J.O. (1998). Reovirus Sigma3 Protein: dsRNA-Binding and Inhibition of PKR. *CTMI*, Springer-Verlag, Berlin, pp 185-196.
- Jacobs, B.L., Langland, J.O. and Brandt, T. (1998). Characterization of Double-stranded RNA-Binding Proteins. *Methods*, **15**, 225-232.
- Rager, K.J., Langland, J.O., Jacobs, B.L., Marsh, D.G. and Imani, F. (1998) Activation of Anti-Viral Protein Kinase (PKR) Leads to IgE Class Switching in Human B Cells. *J. Virology*, **72**:1171-1176.
- Langland, J.O., Langland, L.A., Gupta, N. and Roth, D.A. (1997). Developmental Regulation of a Plant-Encoded Inhibitor of eIF-2 *Plant Journal*, **12**, 393-400.
- Langland, J.O. and Jacobs, B.L. (1997). Viral inhibitors of interferon action: inhibitors of the PKR and 2'5' oligoadenylate synthetase/RNase L pathways. In: "Gamma Interferon in Antiviral Defense". G. Karupiah, ed. R.G. Landes, Texas.
- Kibler, K., Shors, T, Perkins, K.B. Zeman, C.C., Banaszak, M.P. Biesterfeldt, J., Langland, J.O., and Jacobs, B. (1997). Double-Stranded RNA as a Trigger for Apoptosis in Vaccinia Virus Infected Cells. *J. Virology*, **71**: 1922-2005.
- Langland, J.O., Langland, L.A., Browning, K.S. and Roth, D.A. (1996). Phosphorylation of the Plant Eukaryotic Initiation Factor-2 by the Plant-Encoded Double-Stranded RNA-Dependent Protein Kinase, pPKR, and Inhibition of Protein Synthesis *In Vitro*. *J. Biol. Chem.*, **271**: 4539-4544.
- Langland, J.O., Langland, L.A. and Roth, D.A. (1996). Polyanion Regulation of the Plant-Encoded dsRNA-Dependent Protein Kinase, pPKR. *Plant Phys. and Biochem*, **34**: 521-526.
- Roth, D.A. and Langland, J.O. (1996). Functional Significance of Plant Encoded dsRNA Dependent Protein Activity in the Regulation of Protein Synthesis. *Current Top. in Plant Biochem. Mol. Biol.*, **15**: 77-78.
- Jacobs, B. and Langland, J.O. (1996). When Two Stands are Better Than One: The Modulators and Mediators of Double-Stranded RNA. *Virology*, **219**: 339-349.
- Langland, J.O., Jacobs, B.L. and Roth, D.A. Identification of a Plant-Encoded Analog of PKR, the Mammalian Interferon-Induced, Double-Stranded RNA-Dependent Protein Kinase. (1995). *Plant Physiol*, **108**: 1259-1267.
- Langland, J.O., Pettiford, S., Jiang, B. and Jacobs, B.L. (1994). Products of the Porcine Rotavirus Group C NSP3 Gene Bind Specifically to Double-Stranded RNA and Regulate Activation of the Interferon-Induced Protein Kinase, PKR. *J. Virology* **68**:3821-3829.
- Langland, J.O., Pettiford, S. and Jacobs, B.L. (1994). Nucleic Acid Affinity Chromatography: Preparation and Characterization of Double-Stranded RNA Agarose. *Protein Expression and Purification* **6**: 25-32.
- Park, H., Davies, M.V., Langland, J.O., Chang, H.W., Nam, Y.S., Tartaglia, J., Paoletti, E., Jacobs, B.L. Kaufman, R.J. and Venkatesan, S. (1994). A Cellular Protein That Binds Several Structured Viral RNAs is an Inhibitor of the Interferon-induced PKR Protein Kinase *in vitro and in vivo*. *Proc. Natl. Acad. Sci. USA* **91**: 4713-4717.
- Langland, J.O. and Jacobs, B.L. (1992). Cytosolic Double-stranded RNA-dependent Protein Kinase Is Likely a Dimer of Partially Phosphorylated Mr=66,000 Subunit. *J. Biol. Chem.* **267**: 10729-10736.
- Langland, J.O., and Jacobs, B.L. Kidney Cell Expression of an Endogenous Inhibitor of the PKR-Mediated Antiviral Response. *Virology* (in preparation).

OTHER PUBLICATIONS:

Langland, J.O. and Waters, R.F. (2010). Rediscovery of a 19th Century Cure for Smallpox. *SCNM Now* Spring 2010, 16-17.

Langland, J.O. and Waters, R.F. (2009). Breaking news in research. *SCNM Now* Fall 2009, 14-16.

Langland, J.O. and Waters, R.F. (2008). SCNM Research Department Collaborates with Arizona State University/Biodesign Institute, Translational Genomics Institute and the University of Arizona; SCNM Students First in the Profession to Perform Genetic Expression Analysis. *SCNM Now* 4: 1-8.

PRESENTATIONS:

- Leek, D., Morrill, K., Denzler, K., Waters, R., Jacobs, B., Rochon, Y., and Langland, J. (2010). AANP 2010 Convention (Portland, Oregon). Correlation of gene expression with physiological responses by immunostimulatory botanicals. (NOTE: Award for outstanding achievement: Best Student Research)
- Morrill, K., Leek, D., Langland, J., Arndt, W., Denzler, K., Jacobs, B., Waters, R., Rochon, Y. (2010). AANP 2010 Convention (Portland, Oregon). Rediscovery of a 19th century treatment for smallpox.
- Langland, J., Arndt, W., Jacobs, B., Waters, R., Rochon, Y. (2010). International Poxvirus Conference (Sedona, AZ). Rediscovery of a 19th century treatment for smallpox.
- Langland, J. and Waters, R. (2010) Southwest College of Naturopathic Medicine and Health Sciences Community Forum: Research in Natural Medicine.
- Lasku, A., Waters, R., and Langland, J. (2010). Experimental Biology (Anaheim, California). Regulation of immune gene expression by immuno-modulatory botanicals.
- Morrill, K., May, K., Leek, D., Langland, N., Jeane, L., Ventura, J., Skubisz, C., Scherer, S., Lopez, E., Crocker, E., Peters, R., Oertle, J., Nguyen, K., Just, S., Phair, M., Humphrey, M., Payne, D., Jacobs, B., Waters, R., Langland, J. (2009). AANP 2009 Convention (Tacoma, Washington). Quantitative evaluation of the broad-spectrum anti-microbial activity of colloidal silver.
- Wong, S., Cameron, J., Langland, J. and Jacobs, B. (2009) American Society for Virology, Vancouver, Canada. Characterization of Vaccinia Virus E3L Mutants in Primary Epidermal Cells.
- Langland, J., Waters, R., and Rochon, Y., (2008) AANP 2008 Convention (Scottsdale, Arizona). Metabolic Genetic Expression Analysis of Astragalus sp. Herbal Extract on ex vivo Immuno-Stimulated Human Peripheral Blood Mononuclear Cells.
- Langland, J. and Waters, R. (2008) SCNM Research Overview. Formal presentation on the role of naturopathic medicine to Legislators/MDs from Virginia and Colorado
- Langland, J. (2008) SCNM Research Night: April, 11, 2008, September 8, 2008
- Langland, J.O., White, S., and Jacobs, B.L. (2007). Ubiquitin and Ubiquitin-like Modifications in Viral Infection and Immunity, Bethesda, MD. Viral Regulation of the PKR Innate Immune Response by Specific Proteolytic Processing.
- Langland, J.O., and Jacobs, B.L. (2007). Cytokines in Health and Disease, San Francisco, CA. Viral Regulation of the PKR Innate Immune Response by Specific Proteolytic Processing.
- Langland, J.O., and Jacobs, B.L. (2007). Keystone Symposia: Jaks, Stats and Immunity, Steamboat Springs, CO. Poxvirus Sequestration of Pathogen-Associated Molecular Patterns and the Host Response.
- Langland, J.O., Kash, J., Katze, B. and Jacobs, B.L. (2006). Cytokines 2006, Vienna, Austria. Poxvirus Sequestration of Pathogen-Associated Molecular Patterns and the Host Response.
- Cameron, J., Langland, J.O., and Jacobs, B.L. (2006). Cytokines 2006, Vienna, Austria. The Keratinocyte Response to Vaccinia Virus Induced Pathogen Associated Molecular Patterns.
- Langland, J.O. and Jacobs, B.L. (2004). Translational Control: Cold Spring Harbor Laboratory, Cold Spring Harbor, NY. Poxviral Regulation of Cellular Translation and Signal Transduction.
- Langland, J.O. and Jacobs, B.L. (2004). Signal Transduction in Viral Systems: ASM Conference, Savannah, GA. Poxviral Regulation of MAPK and IKK Signal Transduction in Response to Double-Stranded RNA.
- Mitnik, C., Jentarra, G., Langland, J.O. and Jacobs, B.L. (2003). American Society of Virology: Davis, CA. Ras Dependent Oncolysis by Vaccinia Virus.
- Langland, J.O., Kash, J., Katze, M., and Jacobs, B.L. (2003). American Society of Virology: Davis, CA. Poxviral Regulation of Host Gene Expression.
- Muralinath, M., Langland, J.O., Brandt, T., and Jacobs, B.L. (2001) American Society of Virology: Madison, WI. The Role of Z-DNA Binding of the Poxvirus E3L Gene Related to Pathogenesis

- Langland, J.O. and Jacobs, B.L. (2000) Poxvirus Meeting: Mt. Pelier, France. Complimentary Roles of the Vaccinia Virus Interferon-Resistance Genes, E3L and K3L.
- Langland, J.O. and Jacobs, B.L. (2000) Cold Spring Harbor Translation Control Meeting: CSH, NY. The Requirement of the Vaccinia Virus Interferon-Resistance Genes, E3L and K3L, for Viral Replication.
- Langland, J.O. and Jacobs, B.L. (2000) Cold Spring Harbor Translation Control Meeting: CSH, NY. Regulation of eIF2 α Phosphorylation by Distinct Amino- and Carboxyl-Domains of the Vaccinia Virus Interferon – Resistance gene, E3L.
- Langland, J.O. and Jacobs, B.L. (2000) American Society of Virology: Ft. Collins, CO. Regulation of PKR Activity by the Amino- and Carboxyl-Domains of the Vaccinia Virus Interferon-Resistance Gene, E3L.
- Zeman, C., Langland, J.O. and Jacobs, B.L. (2000) American Society of Virology: Ft. Collins, CO. Expression of the Cellular PKR-Inhibitor, p67, Rescues Translation of an Interferon-Sensitive Vaccinia Virus Mutant.
- Perkins, K., Langland, J.O., Brandt, T. and Jacobs, B.L. (1999) American Society of Virology: Amhurst, MA. Inhibition of dsRNA-Induced Apoptosis by the Baculovirus Caspase Inhibitor p35 but not the Vaccinia Virus Caspase Inhibitor SPI-2.
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