

Ian Arthur York

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Present Appointment: Head of the Pandemic Preparedness and Vaccine Team, Molecular Virology and Vaccines Branch, Influenza Division, NCIRD, Centers for Disease Control and Prevention, Atlanta, GA

Personal: Canadian citizen (Green Card)
Married, two children

Research positions:

2010-present: Senior Service Fellow, Molecular Virology & Vaccines Branch, Influenza Division, Centers for Disease Control, Atlanta, GA. *Surveillance of potential pandemic influenza strains; risk assessment; vaccine design and development; viral pathogenesis*

2006-2010: Assistant Professor, Department of Microbiology & Molecular Genetics, Michigan State University. *Viral immune evasion; viral pathogenesis; vaccine design; cell & molecular biology of antigen presentation; antigen presentation in autoimmune disease*

2003-2006: Research Assistant Professor, Department of Pathology, University of Massachusetts Medical School. *Cell & molecular biology of antigen processing; viral immune evasion*

2001-2003: Instructor, Department of Pathology, University of Massachusetts Medical School (lab of Kenneth L. Rock). *Cell & molecular biology of antigen processing & presentation; viral immune evasion.*

1997-2001: Post-doctoral Research Fellow, Department of Pathology, University of Massachusetts Medical School (lab of Kenneth L. Rock). *Cell & molecular biology of antigen presentation of class I and class II major histocompatibility complexes.*

1994-1997: Post-doctoral Research Fellow, Harvard University and Dana-Farber Cancer Institute (lab of Kenneth L. Rock). *Cell & molecular biology of antigen presentation of class I and class II major histocompatibility complexes.*

Education:

1990-1994: Ph.D., Molecular Virology and Immunology Program, McMaster University, Hamilton, Ontario (Mentor: Dr. David C. Johnson. Thesis: "Evasion of the Cellular Immune Response by Herpes Simplex Virus.") *Molecular mechanisms of immune evasion by herpesviruses*

1988-1990: M.Sc., Dept. of Veterinary Microbiology and Immunology, University of Guelph, Guelph, Ontario (Mentor: Dr. Jan Thorsen. Thesis: "A Subunit Vaccine for Bovine Adenovirus Serotype 3.") *Design and characterization of a subunit vaccine against bovine adenovirus*

1979-1985: D.V.M., Ontario Veterinary College, University of Guelph, Guelph, Ontario

Publications:

Georgiadou, D, Hearn, A, Evnouchidou, I, Chroni, A, Leondiadis, L, York, IA, Rock, KL, Stratikos, E (2010) Placental Leucine Aminopeptidase Efficiently Generates Mature Antigenic Peptides In Vitro but in Patterns Distinct from Endoplasmic Reticulum Aminopeptidase 1. *J Immunol.* 185:1584-92

Dang, Y, Wang, X, York, IA, Zheng, YH (2010) Identification of a critical T[Q/D/E]_x5AD_x2[I/L] motif from primate lentivirus Vif proteins that regulate APOBEC3G and APOBEC3F neutralizing activity. *J Virol.* 84:8561-70

Hearn, A., York, I.A., Bishop, C., and Rock, K.L. (2010) Characterizing the Specificity and Cooperation of Aminopeptidases in the Cytosol and Endoplasmic Reticulum during MHC Class I Antigen Presentation. *J. Immunol* 184:4725-32

Dang, Y., Davis, R.W., York, I.A., and Zheng, Y.H. (2010) Identification of ⁸¹LGxGVxIxW⁸⁹ and ¹⁷¹EDRWN¹⁷⁵ domains from human immunodeficiency virus type 1 virus Vif that regulate APOBEC3G and APOBEC3F neutralization activity. *J. Virol.* 84:5741-50

Kawahara, M., York, I.A., Hearn, A., Farfan, D., and Rock, K.L. (2009) Analysis of the role of tripeptidyl peptidase II in MHC class I antigen presentation in vivo. *J. Immunol* 183:6069-77

Hearn, A., York, I.A., and Rock, K.L. (2009). The specificity of trimming of MHC Class I-presented peptides in the endoplasmic reticulum. *J. Immunol* 183: 5526–5536.

Dang, Y., Wang, X., Zhou, T., York, I.A., and Zheng, Y.H. (2009) Identification of a novel WxSLVK motif in the N terminus of human immunodeficiency virus and simian immunodeficiency virus Vif that is critical for APOBEC3G and APOBEC3F neutralization. *J Virol* 83:8544–8552.

Towne, C., F., York, I., A., Neijssen, J., Karow, M., L., Murphy, A., J., Valenzuela, D., M., Yancopoulos, G., D., Neefjes, J., J., and Rock, K., L. (2008). Puromycin-Sensitive Aminopeptidase Limits MHC Class I Presentation in Dendritic Cells but Does Not Affect CD8 T Cell Responses during Viral Infections. *J Immunol* 180, 1704-1712.

Towne, C. F., York, I. A., Watkin, L. B., Lazo, J. S., and Rock, K. L. (2007). Analysis of the role of bleomycin hydrolase in antigen presentation and the generation of CD8 T cell responses. *J Immunol* 178, 6923-6930.

York, I. A., Bhutani, N., Zendzian, S., Goldberg, A. L., and Rock, K. L. (2006). Tripeptidyl peptidase II is the major peptidase needed to trim long antigenic precursors, but is not required for most MHC class I antigen presentation. *J Immunol* 177, 1434-1443.

York, I. A., Brehm, M. A., Zendzian, S., Towne, C. F., and Rock, K. L. (2006). Endoplasmic

reticulum aminopeptidase 1 (ERAP1) trims MHC class I-presented peptides in vivo and plays an important role in immunodominance. *Proc Natl Acad Sci U S A* *103*, 9202-9207.

Towne, C. F., York, I. A., Neijssen, J., Karow, M. L., Murphy, A. J., Valenzuela, D. M., Yancopoulos, G. D., Neefjes, J. J., and Rock, K. L. (2005). Leucine aminopeptidase is not essential for trimming peptides in the cytosol or generating epitopes for MHC class I antigen presentation. *J Immunol* *175*, 6605-6614.

Towne, C., York, I., Neijssen, J., Karow, M., Murphy, A., Valenzuela, D., Yancopoulos, G., Neefjes, J., and Rock, K. (2005). Leucine aminopeptidase is not essential for trimming peptides in the cytosol or generating epitopes for MHC class I antigen presentation. *Journal of immunology (Baltimore, Md.: 1950)* *175*, 6605-6614.

York, I. A., Grant, E. P., Dahl, A. M., and Rock, K. L. (2005). A mutant cell with a novel defect in MHC class I quality control. *J Immunol* *174*, 6839-6846.

Rock, K. L., York, I. A., and Goldberg, A. L. (2004). Post-proteasomal antigen processing for major histocompatibility complex class I presentation. *Nat Immunol* *5*, 670-677.

York, I. A., Mo, A. X., Lemerise, K., Zeng, W., Shen, Y., Abraham, C. R., Saric, T., Goldberg, A. L., and Rock, K. L. (2003). The cytosolic endopeptidase, thimet oligopeptidase, destroys antigenic peptides and limits the extent of MHC class I antigen presentation. *Immunity* *18*, 429-440.

Saric, T., Chang, S. C., Hattori, A., York, I. A., Markant, S., Rock, K. L., Tsujimoto, M., and Goldberg, A. L. (2002). An IFN-gamma-induced aminopeptidase in the ER, ERAP1, trims precursors to MHC class I-presented peptides. *Nat Immunol* *3*, 1169-1176.

York, I. A., Chang, S. C., Saric, T., Keys, J. A., Favreau, J. M., Goldberg, A. L., and Rock, K. L. (2002). The ER aminopeptidase ERAP1 enhances or limits antigen presentation by trimming epitopes to 8-9 residues. *Nat Immunol* *3*, 1177-1184.

Rock, K. L., York, I. A., Saric, T., and Goldberg, A. L. (2002). Protein degradation and the generation of MHC class I-presented peptides. *Adv Immunol* *80*, 1-70.

York, I. A., Goldberg, A. L., Mo, X. Y., and Rock, K. L. (1999). Proteolysis and class I major histocompatibility complex antigen presentation. *Immunol Rev* *172*, 49-66.

Russell, H. I., York, I. A., Rock, K. L., and Monaco, J. J. (1999). Class II antigen processing defects in two H2d mouse cell lines are caused by point mutations in the H2-DMA gene. *Eur J Immunol* *29*, 905-911.

York, I. A., and Rock, K. L. (1996). Antigen processing and presentation by the class I major histocompatibility complex. *Annual review of immunology Annu Rev Immunol* *14*, 369-396.

Tomazin, R., Hill, A., Jugovic, P., York, I., van Endert, P., Ploegh, H., Andrews, D., and Johnson,

D. (1996). Stable binding of the herpes virus ICP47 protein to the peptide binding domain of TAP. *EMBO J.* *15*, 3256-3266.

York, I. A. (1996). Immune evasion strategies of the herpesviruses. *Chem. Biol.* *3*, 331-335.

York, I. A., and Rock, K. L. (1996). Antigen processing and presentation by the class I major histocompatibility complex. *Ann. Rev. Immunol.* *14*, 369-396.

York, I. A., and Johnson, D. C. (1995). Inhibition of humoral and cellular immune recognition by herpes simplex viruses. In *Viroceptors, Virokines and Related Immune Modulators Encoded by DNA Viruses*, McFadden, G., ed. (Austin, TX: R.G. Landes Co.), pp. 89-110.

Hill, A., Jugovic, P., York, I., Russ, G., Bennink, J., Yewdell, J., Ploegh, H., and Johnson, D. (1995). Herpes simplex virus turns off the TAP to evade host immunity. *Nature* *375*, 411-415.

Levatte, M., Weaver, L., York, I., Johnson, D., and Dekaban, G. (1995). Delivery of a foreign gene to sympathetic preganglionic neurons using recombinant herpes simplex virus. *Neuroscience* *66*, 737-750.

York, I. A., Roop, C., Andrews, D. W., Riddell, S. R., Graham, F. L., and Johnson, D. C. (1994). A cytosolic herpes simplex virus protein inhibits antigen presentation to CD8+ T lymphocytes. *Cell* *77*, 525-535.

York, I., and Johnson, D. (1993). Direct contact with herpes simplex virus-infected cells results in inhibition of lymphokine-activated killer cells because of cell-to-cell spread of virus. *The Journal of infectious diseases* *168*, 1127-1132.

York, I. A., and Thorsen, J. (1992). Evaluation of a subunit vaccine for bovine adenovirus type 3. *Am. J. Vet. Res.* *53*, 180-183.

Previous Research Support.

Title	Source	Investigator(s)	Dates	Amount
ER-localized aminopeptidases in ankylosing spondylitis	NIH R01	Ian York	2010-2015	\$1,250,000 (Declined)
Marek's Disease Virus: Vaccine Development and Immune Evasion	Rackham Foundation	Ian York	2010-2013	\$87,000 (Declined)
MSU Center for Vaccine Development and Deployment	Strategic Partnership Grant	Andrea Amalfitano (co-PI: Ian York)	2008-2011	\$325,000
Immune evasion by feline herpesvirus: pathogenesis and development of an attenuated vaccine	Companion Animal Fund, Michigan State University	Ian York (co-PI: Roger Maes)	2007-2007	\$25,000

Internal laboratory start-up package	Michigan State University	Ian York	2006-2010	\$570,000
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Honors and Awards:

1994-1997: Junior Research Fellowship, National Cancer Institute of Canada

1994: Medical Research Council of Canada Fellowship (declined)

1993-1994: W. Rawls Memorial Scholarship, McMaster University

1990-1991: Centennial Scholarship, McMaster University

1980: Early In-course Scholarship, University of Guelph

1979: Early In-course Scholarship, University of Guelph

Patents:

U.S. 5,858,376: HSV proteins for inhibiting cell recognition by cytotoxic T lymphocytes.

Johnson, David C., York, Ian A.

U.S. 5,750,398: Vector, element and method for inhibiting immune recognition. Johnson, David

C., York, Ian A.

Employment history:

1988-1992: Part-time veterinary practice, Toronto/Hamilton/Guelph area

1985-1987: Full-time veterinary practice, Napanee, Ontario and Willowdale, Ontario