

## Curriculum Vitae

### **Jennifer Lynn Edwards**

Date of Preparation: October 2015  
US Citizen

#### **Contact Information:**

The Research Institute at Nationwide Children's Hospital  
Center for Microbial Pathogenesis, W503  
700 Children's Drive  
Columbus, OH 43205  
(614) 772-2915  
e-mail: edwards.629@osu.edu

#### **Current Appointments:**

##### Principal Investigator:

2004-present

Center for Microbial Pathogenesis, The Research Institute at Nationwide Children's Hospital

##### Academic Appointment at The Ohio State University:

2012-present

Courtesy Appointment, Department of Microbial Infection and Immunity

2010-present

Associate Professor, Department of Pediatrics, College of Medicine

Associate Professor, Biomedical Sciences Graduate Program (previously the Integrated Biomedical Graduate Program)

Associate Professor, Medical Scientist Training Program

## **EDUCATION AND TRAINING**

#### **Degrees Awarded:**

2002

*Ph.D. in Microbiology*, The University of Iowa, Iowa City, IA 52242

Mentor: Michael A. Apicella

Thesis: "Complement Opsonization and Direct Adherence of *Neisseria gonorrhoeae* to Complement Receptor Type 3 Mediates Cervical Cell Invasion."

\* *Deans' Distinguished Dissertation Award*

1997

*M.A. in Biology*, Bemidji State University, Bemidji, MN 56661

Mentor: Patrick Guilfoile (GPA: 4.00/4.00)

Thesis: "The Utility of Thiostrepton for Genetic Analysis of Mycobacteria"

**Fellowships Awarded:**

- 2003-2004            *Post-doctorate Research Fellowship*, National Institutes of Health and the University of Iowa, College of Medicine; Mechanisms of Parasitism Training Program
- 2002-2003            *Post-doctorate Research Fellowship*, National Institutes of Health and the University of Iowa, Department of Internal Medicine; Infectious Diseases Training Program
- 2000-2002            *Pre-doctorate Research Fellowship*, National Institutes of Health and the University of Iowa, College of Medicine; Graduate Research Training Program

**Previous Positions and Experience:**

- 2005-2010            *Assistant Professor*, Integrated Biomedical Graduate Program, Graduate College, The Ohio State University
- Assistant Professor*, Medical Scientist Training Program, The Ohio State University College of Medicine
- 2004-2010            *Assistant Professor*, Department of Pediatrics, College of Medicine The Ohio State University
- 2002-2004            *Post Doctoral Fellow*, Department of Microbiology, University of Iowa, Iowa City, IA
- 1997-2002            *Graduate Research Assistant*, Department of Microbiology, University of Iowa, Iowa City, IA
- 1996-1997            *Graduate Teaching Assistant*, Department of Biology, Bemidji State University, Bemidji, MN
- Research Assistant*, Department of Biology, Bemidji State University, Bemidji, MN
- 1996                    *Research Technician*, NASA Biological Research Projects, Brookhaven National Laboratory, NY; Mentor: Dr. A. Lindgren
- 1994-1996            *Laboratory Technician*, Bemidji State University, Bemidji, MN

**TEACHING AND STUDENT MENTORING****Formal Teaching:**

- 2014-present            *Co-instructor (Team instructed course)*, Molecular Biology of Bacterial Pathogens, Microbiology (Microbiol:7724/IBGP7240) Ohio State University. Subject: Neisserial pathogenesis

- 2013-present      *Co-instructor (Team instructed course), BSGP 7040 (previously IBGP 7040), Ohio State University Biomedical Sciences Program.*
- 2013      *Co-instructor (Team instructed course), MVIMG 8010, Select Topics in Advanced Immunology, Ohio State University Department of Molecular Virology, Immunology, and Medical Genetics.*
- 2011      *Presenter, Selected Topics in Microbial Pathogenesis, Integrated Biomedical Science Graduate Program (IBGP:740), Ohio State University*
- 2008      *Presenter, Presentation Skills for Biomedical Researchers, Integrated Biomedical Science Graduate Program (IBGP:780), Ohio State University*
- 2007-2011      *Co-instructor (Team instructed course), Molecular Biology of Bacterial Pathogens, Microbiology (Microbiol:724) Ohio State University. Subjects covered: sexually-transmitted pathogens, molecular mechanisms of phase and antigenic variation*
- 2007      *Presenter, Seminars for Graduate Students, Integrated Biomedical Science Graduate Program (IBGP:797), Ohio State University*
- 2005-present      *Presenter, Host-Pathogen Interactions, Integrated Biomedical Science Graduate Program (IBGP:795), Ohio State University*
- 2005      *Course leader, Host-Microbial Interactions, Integrated Biomedical Science Graduate Program (IBGP:851), Ohio State University*
- 2004      *Presenter, Pathogenic Bacteriology (Microbiol. 061:259), The University of Iowa  
Subjects covered: Pathogenic mechanisms of *Haemophilus spp.* and *Neisseria spp.**
- Presenter, Perspectives in Biotechnology (Microbiol. 061:275), The University of Iowa  
Subject covered: difficulties associated with the development of vaccines against highly variable organisms*
- 2002-2003      *Supervisor and Discussion Leader, Integrated Topics in Infectious Disease (Microbiol. 061-217), The University of Iowa*
- 1999-2001      *Graduate Assistant, Department of Microbiology, The University of Iowa: Pathogenic Bacteriology (Microbiol. 061:159), Principles of Infectious Disease (Microbiol. 061-103), Microbiology for Nursing (Microbiol. 061:164)*
- 1996-1997      *Graduate Teaching Assistant; Instructor, General Biology, Department of Biology, Bemidji State University*

**Teaching Related Experience**

- 2012-present*                      *Presenter/Participant*, Infectious Diseases (ID) Consortium, The Research Institute at Nationwide Children's Hospital Columbus OH
- 2011-2014*                        *Presenter/Participant*, Biofilms in Human Disease Group, The Center for Microbial Interface Biology, Ohio State University, Columbus OH
- 2007-2015*                        *Initiator/Organizer, Presenter/Participant*, Bench to Outcomes Seminar Series (BOSS), The Research Institute at Nationwide Children's Hospital, Columbus OH
- 2007-2008*                        *Discussion Leader/Supervisor*, Center for Microbial Pathogenesis Journal Club, The Research Institute at Nationwide Children's Hospital, Columbus OH
- 2006-present*                    *Participant*, Center for Microbial Pathogenesis Journal Club, The Research Institute at Nationwide Children's Hospital, Columbus OH
- 2005-present*                    *Presenter/Participant*, Center for Microbial Pathogenesis Work in Progress Meeting, The Research Institute at Nationwide Children's Hospital, Columbus OH
- 1994-1996*                        *Tutor*, Biology and Genetics; The Department of Biology, Bemidji State University, Bemidji MN

**Curriculum Development:****Bench to Outcomes Seminar Series (BOSS):**

The BOSS is a monthly forum for all faculty and staff of (The Research Institute at) Nationwide Children's Hospital ((TRI)NCH) and the Ohio State University. The seminar integrates the clinical and basic sciences into a joint format presentation. A clinician presents a case study of interest that is then followed by a complementary presentation explaining the science behind that disease/condition (given by a research scientist). I conceived of, and proposed, the idea for BOSS; however, the seminar was organized through the joint efforts of the BOSS organizing committee. Faculty peer evaluations, seminar evaluations, and CME credit are provided and recorded. The BOSS has been very well received at TRINCH and provides a unique forum by which to foster collaboration.

**Student Mentoring:****Post-doctorate Research Scientists:**

- 2013-present*                    *J. A. Gawthorne*. Ph.D. awarded from the University of Queensland, St. Lucia; Brisbane, Australia  
 Post-doctorate at the University of Glasgow; Glasgow, Scotland  
 Post-doctorate at the Institut Pasteur; Paris, France  
 Visiting Post-doctoral Research Scientist
- 2010-2012*                        *E. K. Butler*, Ph.D. awarded from the University of Chicago

First Year Faculty Advisor:

2014	R. Hardison, Biomedical Sciences Graduate Program, Ohio State University (OSU)
2013	A. Adamovich, Biomedical Sciences Graduate Program, Ohio State University (OSU)
2012-2013	M. Muccigrosso, Integrated Biomedical Science Graduate Program, OSU
2006-2007	L. Franz, Integrated Biomedical Science Graduate Program, OSU

Member, Faculty Advisory Committee for First Year IBGP Students:

2006-2007	R. Allen, Integrated Biomedical Science Graduate Program, OSU
2006-2007	C. Bolyard, Integrated Biomedical Science Graduate Program, OSU
2006-2007	S. Luong, Integrated Biomedical Science Graduate Program, OSU
2005-2006	S. Richards, Integrated Biomedical Science Graduate Program, OSU

Graduate Rotation Students:

2007, Spring	B. Anthony, Integrated Biomedical Science Graduate Program, OSU
2006, Winter	A. Nagy, Integrated Biomedical Science Graduate Program, OSU
2006, Autumn	A. Beltramini, Integrated Biomedical Science Graduate Program, OSU
2005, Spring	S. Richards, Integrated Biomedical Science Graduate Program, OSU

Undergraduate Research Students:

2011-2012	A. Dutko, Ohio State University
2010-2011	V. Tann, Ohio State University
2005	R. Hard, Ohio Northern University
	S. Maturu, University of Cincinnati
	T. Edwards, University of Maine

Member Candidate Dissertation Committee:

2015-	R. Hardison, Biomedical Sciences Graduate Program, Ohio State University (OSU) Mentor: Drs. K. Mason and S. Justice
2009-2013	F. Raffel, Integrated Biomedical Science Graduate Program, OSU Mentor: Dr. K. Mason
2006-2010	S. Richards, Integrated Biomedical Science Graduate Program, OSU Mentor: Dr. J. Gunn
2006-2007	A. Burnaugh, Integrated Biomedical Science Graduate Program, OSU (Transferred to the Department of Pathology, Masters Graduate Program, November 2007) Mentor: Dr. S. King
2005-2009	C. Clay, Medical Scientist Training Program, OSU Mentors: Dr. L. Schlesinger, Dr. J. Gunn

Member Doctorate Examination Committee:

2013	F. Raffel, Integrated Biomedical Science Graduate Program, OSU
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Mentor: Dr. K. Mason

- 2010 S. Richards, Integrated Biomedical Science Graduate Program, OSU  
Mentor: Dr. J. Gunn
- 2009 C. Clay, Medical Scientist Training Program, OSU  
Mentors: Dr. L. Schlesinger, Dr. J. Gunn

Doctorate Examination Committee Graduate Faculty Representative

- 2015 S. Cruz, Department of Spanish and Portuguese
- 2013 A. Zampaulo, Department of Spanish and Portuguese
- 2011 A. R. Blisset, Biophysics Graduate Program
- 2009 G. L. Beamer, Veterinary Biosciences
- 2008 A. J. Toole, Vision Science Graduate Program
- 2006 L. Rivers, Environmental Science Graduate Program

Exit Seminar Committee Member Substitute

- 2009 R. Matta, Integrated Biomedical Science Graduate Program, OSU  
Mentor: Dr. Y. Liu

Member Master's Graduate Examination Committee:

- 2007 A. Burnaugh, Department of Pathology, OSU  
Mentor: Dr. S. King

Bodies Capstone Research Program:

- 2015 J. Brown, Metro High School, Columbus OH

Summer Scientist Internship Program:

- 2013 M. Berry, East High School, Columbus OH  
Poster Competition Winner  
Recipient of the Nationwide Children's Hospital Tomorrow's Scientist Award

**SERVICE AND MEMBERSHIPS**

**Service and Participation:**

- 2015 - *Member*, Institutional Biological and Chemical Safety Committee, The Research Institute at Nationwide Children's Hospital
- Finance and Sponsored Projects Committee, The Research Institute at Nationwide Children's Hospital
- 2015 *Judge*, oral presentations, ID (Infectious Diseases) Consortium Research Day, The Research Institute at Nationwide Children's Hospital
- Participant*, Lab Supply Bid Committee, The Research Institute at Nationwide Children's Hospital

- 2013*                      *Abstract Reviewer*, Center for Clinical & Translational Science (CCTS) Annual Research Meeting, Ohio State University
- 2012-present*            *Member*, Professional Development and Mentoring Committee. The Department of Microbial Infection and Immunity, Ohio State University
- 2012-2014*                *Abstract Reviewer and Oral presentation Judge*, Biomedical Sciences Graduate Program Annual Research Meeting, Ohio State University
- 2012-2013*                *Member*, The Research Institute at Nationwide Children's Hospital Retreat Planning Committee, The Research Institute at Nationwide Children's Hospital
- 2012*                        *Participant*, Office of Diversity and Inclusion's Graduate School Visit Day (Integrated Biomedical Science Graduate Program Graduate Studies Committee Representative)
- 2011-2015*                *Member*, Integrated Biomedical Science Graduate Program Graduate Studies Committee, Ohio State University
- 2011-2013*                *Member*, Center for Microbial Interface Biology Research Retreat Organizing Committee, Ohio State University
- 2010-2012*                *Member*, Center Director Search Committee for the Center for Molecular and Human Genetics, The Research Institute at Nationwide Children's Hospital
- 2009-present*            *Judge*, The Research Institute at Nationwide Children's Hospital Scientific Retreat, The Research Institute at Nationwide Children's Hospital
- 2009-2010*                *Participant*, Shared Equipment Oversight Committee, The Research Institute at Nationwide Children's Hospital
- 2007-present*            *Organizer*, Bench to Outcomes Seminar Series (BOSS) Organizing Committee, The Research Institute at Nationwide Children's Hospital
- Judge*, The Center for Microbial Interface Biology Scientific Retreat, Ohio State University
- 2007-2009*                *Member*, The Research Institute at Nationwide Children's Hospital Retreat Planning Committee, The Research Institute at Nationwide Children's Hospital
- 2005-present*            *Judge*, Annual Ohio State University Medical College Graduate and Postgraduate Research Day, Ohio State University
- 2005-2011*                *Contact and Coordinator*, Field Emission-Scanning Electron Microscope acquisition, installation, and training

- 2005-2009* Judge, College of Medicine Future Physician Scientist Award, Ohio State University
- 2005-2008* Interviewer, Integrated Biomedical Science Graduate Program student applicants, Ohio State University
- Member*, Center for Microbial Pathogenesis Faculty Search Committee, The Research Institute at Nationwide Children's Hospital
- 2005-2007* Participant, Girls are Great! The Research Institute at Nationwide Children's Hospital (formerly Columbus Children's Hospital)

**Professional Affiliations:**

- 2013-present* American Sexually Transmitted Diseases Association
- 2011-present* Ohio Branch of the American Society for Microbiology
- 2004-present* Center for Microbial Interface Biology, The Ohio State University
- 1999-2005* Microscopy Society of America  
Iowa Microscopy Society
- 1995 to present* American Society for Microbiology

**Editorial Service:**

Ad hoc Reviewer for the following Journals:

- |                                   |  |
|-----------------------------------|--|
| Nature Mucosal Immunology         | Nature Scientific Reports                |
| PLoS Pathogens                    | PLoS One                                 |
| Cellular Microbiology             | Antimicrobial Agents and Chemotherapy    |
| Molecular Microbiology            | The Application of Clinical Genetics     |
| Infection and Immunity            | Journal of Basic Microbiology            |
| Clinical and Vaccine Immunology   | Infection and Drug Resistance            |
| Journal of General Microbiology   | Journal of Clinical Microbiology         |
| Journal of Inflammation Research  | African Journal of Microbiology Research |
| Journal of Visualized Experiments |  |

**Review Editor:**

- 2015-present* Critical Reviews in Microbiology, associate editor, CRC Press, Taylor and Francis Group, Informa PLC, Oxford, UK
- 2010-present* Frontiers in Cellular and Infection Microbiology, review editor, Frontiers Research Foundation, Parc Scientifique, Lausanne | Switzerland



Ad hoc Grant Reviewer:

- 2015 Endocrinology, Metabolism, Nutrition, and Reproductive Sciences (EMNR) - Pregnancy and Neonatology (PN) Study Section  
National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)  
  
Center for Clinical and Translational Science, Ohio State University  
College of Medicine *Dean's Discovery Grant Program & Nationwide/COM Cross-Campus Collaborative Pilot Program*,  
Review Panel
- 2013-present Oklahoma Center for the Advancement of Science and Technology's (OCAST) Health Research Program, Invited to Review Panel
- 2013 Endocrinology, Metabolism, Nutrition, and Reproductive Sciences (EMNR) - Pregnancy and Neonatology (PN) Study Section  
National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)  
  
Center for Clinical and Translational Science, Ohio State University  
Pilot and Collaborative Studies Program RFA, *The William H. Davis Endowment for Basic Medical Research and Richard P. and Marie R. Bremer Medical Research Fund* Review Panel
- 2012 External Reviewer; Ohio University Research Committee, Ohio University, Athens, OH
- 2011 Center for Clinical and Translational Science, Ohio State University  
General Focus Pilot RFA
- 2010 RFA-OD-10-005 (RC4) Director's Opportunity in 5 Themes  
National Institute of Diabetes and Digestive and Kidney Diseases  
Endocrinology, Metabolism and Digestive and Urological Systems -  
Pregnancy and Neonatology  
Study Section: Cellular, Molecular and Integrative Reproduction (CMIR)  
  
Center for Clinical and Translational Science, Ohio State University  
Pilot and Collaborative Studies Program RFA  
Reviewer: Track 1 – Allied Medical Professionals; Track 5 – Veterinary Science; and Track 6 – Perinatal Research
- 2009 RFA OD-09-003 Challenge Grants Panel 15  
National Institute of Diabetes and Digestive and Kidney Diseases  
Endocrinology, Metabolism, Nutrition, and Reproductive Sciences -  
Pregnancy and Neonatology  
Study Section: Integrative Nutrition and Metabolic Processes (INMP)  
ZRG1 EMNR-C (58)

**National and International Professional Service:**Member

2014 - present

*Gonococcal Vaccine Consortium (GVC)* - “Core Groups” of active involvement: 1) Antigen discovery, 2) Pre-clinical Testing and Assay Development, and 3) Epidemiology and Computational Modeling

Participant

2015

*Invited participant*, National Institute of Allergy and Infectious Diseases (NIAID) workshop entitled “Gonorrhea Vaccines: the Way Forward”, Bethesda, MD

2014

*Neisseria gonorrhoeae* Antibiotic Resistance and Spread Workshop, The 19th International Pathogenic *Neisseria* Conference, Asheville, NC

Gonorrhea Vaccines Workshop, The 19th International Pathogenic *Neisseria* Conference, Asheville, NC

2012

Gonococcal Vaccines Workshop, The 18th International Pathogenic *Neisseria* Conference, Wurzburg, Germany

**Service related to External Professional Meetings:**Presentation Judge

2011-present

*Oral and/or Poster Presentation Judge*, The Ohio Branch of the American Society for Microbiology Spring Meeting. Ohio University, Athens, OH.

Abstract Review Panels

2015-2016

The Twentieth International Pathogenic *Neisseria* (biennial) Meeting, Molecular and Cellular Biology Section, Abstract Selection Committee

2013

STI & AIDS World Congress, Social and Behavioral Sciences Track Abstract Review Panel

2010

The Seventeenth International Pathogenic *Neisseria* (biennial) Meeting, Host Response, Immunology, and Experimental Therapy Abstract Selection Committee (invitation declined to chair another session)

*Chair*, The Seventeenth International Pathogenic *Neisseria* (biennial) Meeting; Cellular Microbiology Section Abstract Selection Committee

Plenary Session Moderator

2010

The International Pathogenic *Neisseria* (biennial) Meeting; Cellular Microbiology Section, (1<sup>st</sup> session moderator)

**HONORS AND AWARDS**

**Honors and Awards:**

- 2011 1<sup>st</sup> European Conference of Microbiology and Immunology. Budapest, Hungary. Abstracts (2) selected for plenary session presentation
- Invitational Honorary Member of the Latin American Association of Immunology (ALAI) and the Cuban Society for Immunology (CSI). Investiture May, 2011.
- The 7th Immunology Congress Vaccines and Adjuvants Workshop dedicated to *Neisseria* Vaccines. Havana, Cuba. Abstracts (2) selected for plenary session presentation.
- 2010 International Pathogenic *Neisseria* Conference; Banff, AB Canada; Abstracts (2) selected for plenary session presentations
- 2007 Young Investigator Award, Columbus Children's Research Institute Intramural Research Support Award
- 2006 International Pathogenic *Neisseria* Conference; Cairns, QLD, Australia Abstract selected for plenary session presentation
- 2004 International Pathogenic *Neisseria* Conference; Milwaukee, WI, USA Abstract selected for plenary session presentation
- Igor Stojiljkovic/Raoul Rosenthal Memorial Travel Award  
International Pathogenic *Neisseria* Conference Organizing Committee
- 2003-2005 NIH Loan Repayment Program Recipient
- 2003 Deans' Distinguished Dissertation Award, University of Iowa, Graduate College, "...a special, occasional, award presented to scholars who have submitted superior dissertations..."
- 2001-2003 D. C. Spriestersbach Dissertation Prize Department of Microbiology nominee for The University of Iowa "...a precursory award to the Council of Graduate Schools/University Microfilms International Distinguished Dissertation Award..."
- NIH Post-doctoral Fellowship, University of Iowa, Department of Internal Medicine
- 2002 International Pathogenic *Neisseria* Conference; Oslo, Norway Abstract selected for plenary Session presentation
- NIH Post-doctoral Fellowship, University of Iowa, College of Medicine, Division of Infectious Diseases
- 2001 First place poster competition, University of Iowa, College of Medicine Research Week

*First place poster*, James F. Jakobsen Graduate College Conference, the University of Iowa Graduate College

*Richard and Mary Finkelstein Student Travel Grant*, American Society for Microbiology General Meeting, Orlando, FL; "...one of six awards given annually to students demonstrating excellence in the area of microbial pathogenesis."

2000

International Pathogenic *Neisseria* Conference; Galveston, TX  
Abstract *selected for plenary session* presentation

*Pre-doctoral Research Fellowship* National Institutes of Health Training Grant, the University of Iowa, Department of Internal Medicine

Abstract *selected for Meeting Press Release*; American Society for Microbiology General Meeting

Rachel Mason Travel Grant, University of Iowa, Department of Microbiology

First place poster competition, Iowa Microscopy Society Annual Meeting, Iowa City, IA

1999

Iowa Microscopy Society Annual Meeting, Guest Speaker in Recognition of Outstanding Performance as a Student Researcher

1996-1997

Graduate Teaching Assistantship, Bemidji State University, Department of Biology

1995

Fishing for Fun Scholarship, Biology Departmental Merit Scholarship, Bemidji State University, Department of Biology

1994-1995

Biology Departmental Merit Award, Bemidji State University, Department of Biology

Alliss Educational Foundation Scholarship, Bemidji State University, Bemidji, MN

### ***Highlighted Manuscripts and Abstracts:***

#### ***Editor Selected Spotlight and Highlighted Manuscripts:***

2013

Jen, F. E.-C., M. J. Warren, B. L. Schulz, P. M. Power, W. E. Swords, J. N. Weiser, M. A. Apicella, **J. L. Edwards**, and M. P. Jennings. (2013) Dual pili post-translational modifications synergize to mediate meningococcal adherence to platelet activating factor receptor on human airway cells. *PLoS Pathogens* 9:e1003377. (Editor selected Featured Research)

Jen and Warren contributed equally to this work; **Edwards** and Jennings are joint senior/corresponding authors

- 2011 Jennings, M. P., F. Jen, L. Roddam, M. A. Apicella, and J. L. Edwards (2011) Pilin glycosylation modulates CR3-mediated *Neisseria gonorrhoeae* infection of primary, human, cervical epithelial cells.
- Subject of editor-invited commentary:* Kahler, CM (2011) Sticky and Sweet: The role of post-translational modifications on neisserial pili. *Front Cell Infect Microbiol.* Doi:10.3389/fmicb.2011.00087.
- Denoted as a “top article” by *Cellular Microbiology* Online Early website
- 2010 Edwards, JL *Neisseria gonorrhoeae* survival during primary, human, cervical epithelial cell infection requires nitric oxide and is augmented by progesterone. *Infect. Immun.* 78:1202-1213. (*Spotlight*)
- 2008 Lim, KHL. *et al.* Metal binding specificity of the MntABC permease system of *Neisseria gonorrhoeae* and its role in cell growth and survival. *Infect. Immun.* 76:3569-3576. (*Spotlight*)
- 2006 Edwards, JL and MA Apicella. *Neisseria gonorrhoeae* PLD directly interacts with Akt kinase upon infection of primary, human, cervical epithelial cells. *Cell. Microbiol.* 8:1253-1271. (*Cover Highlight*)
- 2001 Edwards, JL *et al.* The role of complement receptor 3 (CR3) in *Neisseria gonorrhoeae* infection of human cervical epithelia. *Cell. Microbiol.* 3:611-622. (*Cover Highlight*)

#### Recommended Papers:

- 2008 Edwards, JL . The role of complement in gonococcal infection of cervical epithelia. *Vaccine* 26S:156-161. (*Recommended by the BioInfoBank Institute*)
- 2004 Edwards, JL and MA Apicella. *Neisseria gonorrhoeae*: The molecular mechanisms that initiate infection differ between men and women. *Clin. Microbiol. Rev.* 17:965-981. (*Recommended by the BioInfoBank Institute*)

#### Meeting Highlights:

- 2000 Ruffles and ribbons: studies of gonococcal infection in a model of the lower female genital tract. 100th General Meeting of the American Society for Microbiology, Los Angeles, CA. (*Press Release*)

#### **SCHOLARSHIP**

#### **Bibliometric Indices:**

(Published average h-index for the field of microbiology is 14)

*h-index*: 24

*g-index*: 25

### **Published Manuscripts:**

**1. Edwards, J. L.**, M. P. Jennings, M. A. Apicella, and K. L. Seib (2015) Is gonococcal disease preventable? Importance of understanding immunity and pathogenesis in vaccine development. *Crit Rev Microbiol*. DOI: 10.3109/1040841X.2015.1105782

**Edwards**, and Seib are joint senior authors

**2. Craig, A. P.**, R.T. Gray, **J.L. Edwards**, M. A. Apicella, M. P. Jennings, D. P. Wilson, and K. L. Seib (2015) The potential impact of vaccination on the prevalence of gonorrhea. *Vaccine* 33:4520-4525.

**3. Atack, J. M.**, I. Ibranovitch, C.-L. Y. Ong, K. Y. Djoko, N. H. Chen, R. vanden Hoven, M. P. Jennings, **J. L. Edwards**, and A. G. McEwan (2014) A role for lactate dehydrogenases in the survival of *Neisseria gonorrhoeae* in human polymorphonuclear leukocytes and cervical epithelial cells. *J Infect Dis*. 210:1311-1318. DOI: 10.1093/infdis/jiu230. PMID: 24737798

Jennings, **Edwards**, and McEwan are joint senior authors

**4. Jen, F. E.-C.**, M. J. Warren, B. L. Schulz, P. M. Power, W. E. Swords, J. N. Weiser, M. A. Apicella, **J. L. Edwards**, and M. P. Jennings. (2013) Dual pili post-translational modifications synergize to mediate meningococcal adherence to platelet activating factor receptor on human airway cells. *PLoS Pathogens* 9:e1003377. PMID: 23696740 (Editor selected Featured Research Paper)

Jen and Warren contributed equally to this work; **Edwards** and Jennings are joint senior/corresponding authors

**5. Atack, J. M.**, Y. N. Srikantha, J. P. Welch, C. T. Steichen, R. N. vanden Hoven, S. M. Grimmond, D. S. M. P. Othman, U. Kappler, M. A. Apicella, M. P. Jennings, **J. L. Edwards**, and A. G. McEwan (2013) Characterization of an *ntrX* mutant of *Neisseria gonorrhoeae* reveals a response regulator that controls expression of respiratory enzymes in oxidase positive proteobacteria. *J Bacteriol*. 195:2632-2641. PMID: 23564168

**6. Djoko, K. Y.**, J. A. Franiek **J. L. Edwards**, M. L. Falsetta, S. P. Kidd, A. J. Potter, N. H. Chen, M. A. Apicella, M. P. Jennings, and A. G. McEwan (2012) Phenotypic characterization of a *copA* mutant of *Neisseria gonorrhoeae* identifies a link between copper and nitrosative stress. *Infect. Immun*. 80:1065-1071. PMID: 22184419

**7. Butler, E. K.** and **J. L. Edwards** (2011) The pathobiology of *Neisseria gonorrhoeae* lower female genital tract infection. *Front in Cell Infect Microbiol*. 2(120): 1-12. Doi: 10.3389/fmicb.2011.00102 PMID: 21747805 (Invited review)

**8. Jennings, M.P.**, F. Jen, L. Roddam, M. A. Apicella, and **J. L. Edwards** (2011) Pilin glycosylation modulates CR3- mediated *Neisseria gonorrhoeae* infection of primary, human, cervical epithelial cells. *Cell Microbiol* 13:885-896. PMID: 21371235 (Denoted as a "top article" by Cellular Microbiology Online Early website)

- 9. Edwards, J. L.** (2010) *Neisseria gonorrhoeae* survival during primary, human, cervical epithelial cell infection requires nitric oxide and is augmented by progesterone. *Infect. Immun.* 78:1202-1213. PMID: 20048043 (*Spotlight article as selected by the editors*)
- 10.** Wu, H.-J., K. L. Seib, Y. N. Srikhanta, **J. L. Edwards**, S. P. Kidd, T. L. Maguire, A. Hamilton, K.-T. Pan, H.-H. Hsiao, C.-W. Yao, S. M. Grimmond, M. A. Apicella, A. G. McEwan, A. H.-J. Wang, and M. P. Jennings (2010) Systematic analysis of manganese regulation of virulence factors and oxidative stress resistance in *Neisseria gonorrhoeae*. *J. Proteomics* 73:899-916. PMID: 20004262
- 11.** Achard, M. E. S., A. J. Hamilton, T. Dankowski, B. Heras, M. S. Schembri, **J. L. Edwards**, M. P. Jennings, and A. G. McEwan (2009) A periplasmic thioredoxin-like protein plays a role in defense against oxidative stress in *Neisseria gonorrhoeae*. *Infect. Immun.* 77:4934-4939. PMID: 19687198
- 12.** Srikhanta, Y.N., S.J. Dowideit, **J.L. Edwards**, M.L. Falsetta, O.B. Harrison, K.L. Fox, K.L. Seib, T.L. Maguire, M.C. Maiden, S.M. Grimmond, M.A. Apicella, and M.P. Jennings (2009) Phasevarions mediate random switching of gene expression in pathogenic *Neisseria*. *PLoS Pathogens* 5(4): e1000400. doi:10.1371/journal.ppat.1000400 PMID: 19390608
- 13.** Potter, A. J., S. P. Kidd, **J. L. Edwards**, M. Falsetta, M. A. Apicella, M. P. Jennings and A. G. McEwan (2009) Esterase D is essential for protection of *Neisseria gonorrhoeae* against nitrosative stress and for bacterial growth during interaction with cervical epithelial cells. *J. Infect. Dis.* 200:273-278. PMID: 19527171
- 14.** Potter, A. J., S. P. Kidd, **J. L. Edwards**, M. Falsetta, M. A. Apicella, M. P. Jennings and A. G. McEwan (2009) Thioredoxin reductase is essential for protection of *Neisseria gonorrhoeae* against killing by nitric oxide and for bacterial growth during interactions with cervical epithelial cells. *J. Infect. Dis.* 199:227-235 PMID: 19032106
- 15.** **Edwards, J. L.** (2008) The role of complement in gonococcal infection of cervical epithelia. *Vaccine* 26S:156-161. PMID: 19388166
- 16.** Lim, K. H. L, C. E. Jones, R. N. vanden Hoven, **J. L. Edwards**, M. A. Apicella, M. P. Jennings and A. G. McEwan (2008) Metal binding specificity of the MntABC permease system of *Neisseria gonorrhoeae* and its role in cell growth and survival. *Infect. Immun.* 76:3569-3576. PMID: 18426887 (*Spotlight article as selected by the editors*)
- 17.** Seib, K. L., H.-J. Wu, Y. Srikhanta, **J. L. Edwards**, M. L. Falsetta, A. J. Hamilton, T. L. Maguire, S. M. Grimmond, M. A. Apicella, A. G. McEwan, and M. P. Jennings (2007) Characterization of the OxyR regulon of *N. gonorrhoeae*. *Mol. Microbiol.* 63:54-68. PMID: 17140413
- 18.** **Edwards, J. L.** and M. A. Apicella. (2006) *Neisseria gonorrhoeae* PLD directly interacts with Akt kinase upon infection of primary, human, cervical epithelial cells. *Cell. Microbiol.* 8:1253-1271. PMID: 16882030 (*Cover highlight article as selected by the editors*)
- 19.** Wu, H.-J. , K. L. Seib, Y. N. Srikhanta, S. P. Kidd, **J. L. Edwards**, T. L. Maguire, S. M. Grimmond, M. A. Apicella, A. G. McEwan, and M. P. Jennings (2006) The PerR regulon controls Mn-dependent resistance to oxidative stress in *Neisseria gonorrhoeae*. *Mol. Microbiol.*

60:401-416. PMID: 16573689

**20.** Wu, H.-J. , K. L. Seib, **J. L. Edwards**, M. A. Apicella, A. G. McEwan, and M. P. Jennings (2005) Azurin of pathogenic *Neisseria* is involved in defense against hydrogen peroxide and survival within cervical epithelial cells. *Infect. Immun.* 73:8444-8448. PMID: 16299348

**21. Edwards, J. L.** and M. A. Apicella. (2005) I-domain-containing integrins serve as pilus receptors for *Neisseria gonorrhoeae* adherence to human epithelial cells. *Cell. Microbiol.* 7:1197-1211. PMID: 16008586

**22.** L. L. Greiner, **J. L. Edwards**, C. A. Rabinak, J. Q. Shao, and M. A. Apicella. (2005) Biofilm formation by *Neisseria gonorrhoeae*. *Infect. Immun.* 73:1964-1970. PMID: 15784536

Greiner and **Edwards** contributed equally to this work and are co-first authors

**23. Edwards, J. L.** and M. A. Apicella (2004) *Neisseria gonorrhoeae*: The molecular mechanisms that initiate infection differ between men and women. *Clin. Microbiol. Rev.* 17:965-981. PMID: 15489357

**24. Edwards, J. L.**, D. D. Entz, and M. A. Apicella (2003) Gonococcal phospholipase D modulates the expression and function of complement receptor 3 in primary cervical epithelial cells. *Infect. Immun.* 71:6381-6391. PMID: 14573659

**25. Edwards, J. L.** and M. A. Apicella (2002) The role of lipooligosaccharide in *Neisseria gonorrhoeae* pathogenesis of cervical epithelia: lipid A serves as a C3 acceptor molecule. *Cell. Microbiol.* 4: 584-598. PMID: 12390351

**26. Edwards, J. L.**, E. J. Brown, S. Uk-Nham, J. G. Cannon, M. S. Blake, and M. A. Apicella (2002) A co-operative interaction between *Neisseria gonorrhoeae* and complement receptor 3 mediates infection of primary cervical epithelial cells. *Cell. Microbiol.* 4: 571-584. PMID: 12390350

**27. Edwards, J. L.**, E. J. Brown, K. A. Ault, and M. A. Apicella (2001) The role of complement receptor 3 (CR3) in *Neisseria gonorrhoeae* infection of human cervical epithelia. *Cell. Microbiol.* 3:611-622. PMID: 11553013 (*Cover highlight article as selected by the editors*)

**28. Edwards, J. L.**, J. Q. Shao, K. A. Ault, and M. A. Apicella (2000) *Neisseria gonorrhoeae* elicits membrane ruffling and cytoskeletal rearrangements upon infection of primary human endocervical and ectocervical cells. *Infect. Immun.* 68: 5354-5363. PMID: 10948165

**29.** Wen, K.-K., P. C. Giardina, M. S. Blake, **J. L. Edwards**, M. A. Apicella, and P. A. Rubenstein (2000) Interaction of the gonococcal porin P.IB with G- and F-actin. *Biochem.* 39: 8638-8647. PMID: 10913272

**Manuscripts in Preparation, Submitted, or Under Revision:**

**30.** Gawthorne, J. A., T. J. Edwards, A. Folley, and **J. L. Edwards**. Identification of complement receptor 4 expression by human amniochorionic epithelia and its potential role in *Neisseria gonorrhoeae*-induced adverse pregnancy outcomes (*Submitted*)



- 31.** Poole, J., C. Day, F. E-C. Jen, V. J. Torres, **J. L. Edwards**, and M. P. Jennings. Multiple high-affinity lectin functions within the I-domain of CD11b mediate interactions of the MAC-1 (CR3) complex with glycans. (*In preparation*) \***Edwards** and Jennings are joint senior authors
- 32.** Jen, F. E-C., **J. L. Edwards**, and M. P. Jennings. PAFr-dependent signaling: Mucosal pathogens trigger distinct signaling pathways following their engagement of common receptor. (*In preparation*) \***Edwards** and Jennings are joint senior authors
- 33.** Edwards, T. J., A. G. McEwan, and **J. L. Edwards**. Nitric oxide respiratory and detoxification mechanisms contribute to gonococcal survival during infection of primary cervical epithelial cells. (*In revision*)
- 34.** Edwards, T. J. and **J. L. Edwards**. Physiological levels of estrogen and progesterone modulate CR3 expression on, and *Neisseria gonorrhoeae* infection of, primary, human, cervical epithelial cells. (*In revision*)
- 35.** Baker B. and **J. L. Edwards**. The utility of AR-12 as an alternative approach to multidrug-resistant gonorrhea treatment. (*In preparation*)

### **Book Chapters:**

**Edwards, J. L.** (2007) Gender Differences in *Neisseria gonorrhoeae* Pathogenesis, p. 149-173, in Virulence Mechanisms of Bacterial Pathogens, 4<sup>th</sup> Ed, American Society for Microbiology Press, Washington D. C., K. Brogden, Editor.

**Edwards, J. L.**, H. A. Harvey, and M. A. Apicella. (2004) *Neisseria gonorrhoeae*: The varying mechanism of pathogenesis in males and females, p. 203-238, in Bacterial Invasion of Host Cells, Cambridge University Press, Richard Lamont, Editor.

### **Other Pertinent Publications:**

#### **Symposia:**

**Edwards, J. L.**, J. A. Gawthorne, and T. J. Edwards (2013) Insights into maternal gonorrhea: human primary cervical and amniochorionic epithelial cell responses to *Neisseria gonorrhoeae* infection. *Sex Transm Infect.* 89 Suppl 1:A13 doi: 10.1136/sextrans-2013-051184.0038

#### **Press Release:**

**Edwards, J. L.** and M. A. Apicella. (2000) Ruffles and ribbons: studies of gonococcal infection in a model of the lower female genital tract. Press Release for the 100th General Meeting of the American Society for Microbiology, Los Angeles, CA.

#### **Patents:**

**Edwards, J. L.** and A. Zukiwski. Compositions and Methods for Inhibiting the Growth of *Neisseria gonorrhoeae*. Provisional Patent, US Patent and Trademark Office #62233723. Oct. 2015.

Apicella, M.A., **J. L. Edwards**, B. W. Gibson, and K. Scheffler. Vaccine and Compositions for the Prevention and Treatment of Neisserial Infections. US Patent # 7250172. Issue date: July

2007.

Apicella, M.A. and **J. L. Edwards**. Vaccine and Compositions for the Prevention and Treatment of Gonococcal Infections. US Patent # 7261901. Issue date: August 2007. WO Patent # 2,005,010,036. Issue date: February 2005.

Apicella, M.A., **J. L. Edwards**, B. W. Gibson, K. Scheffler, and E. Brown. Vaccine and Compositions for the Prevention and Treatment of Neisserial Infections. WO Patent # 2,002,060,936. Issue date: August 2002.

Abstracts:

Poole, J., C. Day, F. E-C. Jen, L. Hartley-Tassell, V. J. Torres, **J. L. Edwards**, and M. P. Jennings (2015) *Neisseria gonorrhoeae* and CR3: probing the lectin functions of the I-domain of CD11b. BacPath 13: Molecular Analysis of Bacterial Pathogens, Phillip Island, Australia. September 2015.

Seib, K. L., A. P. Craig, R. T. Gray, **J. L. Edwards**, M. A. Apicella, M. P. Jennings, and D. P. Wilson (2015) The potential impact of vaccination on the prevalence of gonorrhoea. The STI & AIDS World Congress, joint with the Australasian HIV & AIDS Conference, Brisbane, Australia. September 2015.

Poole, J., C. Day, F. E-C. Jen, L. Hartley-Tassell, V. J. Torres, **J. L. Edwards**, M. P. Jennings (2014) *Neisseria gonorrhoeae* and CR3: Probing the lectin functions of the I-domain of CD11b. Nineteenth International Pathogenic *Neisseria* Conference, Asheville, NC. October 2014.

Chen, N. P., K. Y. Djoko, **J. L. Edwards**, M. A. Apicella, J. Atack, M. J. Jennings, and A. G. McEwan (2014) The two-component system NtrXY is a key regulator of respiratory gene expression in *Neisseria gonorrhoeae*. Nineteenth International Pathogenic *Neisseria* Conference, Asheville, NC. October 2014. \*Selected for plenary session presentation

Craig, A. P., R. T. Gray, **J. L. Edwards**, M. A. Apicella, M. P. Jennings, and K. L. Seib (2014) Modeling the potential impact of gonococcal vaccines. Nineteenth International Pathogenic *Neisseria* Conference, Asheville, NC. October 2014. \*Selected for plenary session presentation

Gawthorne, J. A., T. J. Edwards, A. Folley, and **J. L. Edwards** (2014) *Neisseria gonorrhoeae* infection of primary human cervical and amniochorionic epithelial cells: a physiologically relevant cell model for bacterial-induced adverse pregnancy outcomes. The Gordon Research Conferences: Microbial Toxins and Pathogenicity. Waterville Valley, NH. July 2014.

Gawthorne, J. A., M. M. Berry, and **J. L. Edwards** (2013) Understanding the pathobiology of *Kingella kingae* as it relates to infection of human pharyngeal cells. The Research Institute at Nationwide Children's Hospital Annual Retreat, Columbus, OH.

Gawthorne, J. A., T. J. Edwards, A. Folley, and **J. L. Edwards** (2013) Cellular and molecular mechanisms underlying *Neisseria gonorrhoeae* infection of primary human cervical and amniochorionic epithelial cells: a physiologically relevant cell model for bacterial-induced adverse pregnancy outcomes. BacPath 12: Molecular Analysis of Bacterial Pathogens, The Australian Society for Microbiology, Queensland, Australia. September 2013. \*Selected for plenary session presentation

Gawthorne, J. A., M. M. Berry, and **J. L. Edwards** (2013) Cellular studies of *Kingella kingae* infection of cells derived from human pharyngeal and respiratory epithelia. 20<sup>th</sup> Annual Midwest Microbial Pathogenesis Conference, Columbus, OH.

Berry, M. M., J. A. Gawthorne, and J. L. Edwards (2013) Studies of the interaction of *Kingella kingae* with human pharyngeal cells. Nationwide Children's Hospital Summer Scientist Internship Program Poster Competition, Columbus OH \* 1st Place Poster\*

Gawthorne, J. A., T. J. Edwards, A. Folley, and **J. L. Edwards** (2013) Contributing factors for adverse pregnancy outcomes: cellular studies of *Neisserial gonorrhoeae* infection of primary human cervical and amniochorion epithelial cells. 113<sup>th</sup> General Meeting of the American Society for Microbiology, Denver, CO.

Gawthorne, J. A., T. J. Edwards, A. Folley, and **J. L. Edwards** (2013) Human cervical and amniochorionic epithelial cell responses to *Neisserial gonorrhoeae* infection. The Center for Microbial Interface Biology Research Retreat. Ohio State University, Columbus, OH. \*Selected for oral presentation

Jennings, M. P., F. E.-C. Jen, M. J. Warren, B. L. Schulz, P. M. Power, W. E. Swords, J. N. Weiser, M. A. Apicella, **J. L. Edwards** (2013) Dual pili post-translational modifications synergize to mediate meningococcal adherence to the platelet activating factor receptor on human airway cells. The Gordon Research Conferences: Glycobiology. Ventura Beach, CA.

Jennings, M.P., F. Jen, L. Roddam, M. A. Apicella, and **J. L. Edwards** (2013) The O-linked diacetamido glycan of neisserial pilin dictates the activation state of complement receptor 3 on primary cervical epithelial cells during gonococcal challenge. The Gordon Research Conferences: Glycobiology. Ventura Beach, CA.

McEwan, A., Y. Djoko, **J. L. Edwards**, N. H. Chen, and M. P. Jennings (2012) Phenotypic characterization of a copA mutant of *Neisseria gonorrhoeae* reveals the interplay between copper homeostasis and nitrosative stress. 8th International Biometals Symposium. Brussels, Belgium.

Jennings, M.P., F. Jen, L. Roddam, M. A. Apicella, and **J. L. Edwards** (2012) The neisserial pilin glycan contributes to the activation of the leukocyte cell adhesion molecule, CR3 (CD11b/CD18, integrin  $\alpha_M\beta_2$ ), during challenge of primary cervical epithelial cells. Gordon Research Conferences: Signaling by Adhesion Receptors. Waterville, ME.

Jen, F.E., M.J. Warren, B.L. Schulz, P.M. Power, W.E. Swords, J.N. Weiser, M.A. Apicella, **J.L. Edwards**, and M.P. Jennings (2012) Pili-linked phosphorylcholine of *N. meningitidis* is influenced by phase-variation of the pili-linked glycan, and both factors are required for efficient cell association via the platelet activating factor receptor on human airway epithelial cells. Keystone Symposia on Molecular and Cellular Biology: G Protein-Coupled Receptors. Banff, Alberta Canada.

Butler, E. K. and **J. L. Edwards** (2011) Characterization of gonococcal GdhA and investigation of its potential role in *Neisseria gonorrhoeae* pathogenesis. The Center for Microbial Interface Biology Retreat, The Ohio State University College of Medicine, Columbus OH

Jennings, M.P., F. Jen, L. Roddam, M. A. Apicella, and **J. L. Edwards** (2011) A Requirement

for the *Neisseria gonorrhoeae* Pilin Glycan in Triggering Complement Receptor 3 Activation During Primary Cervical Epithelial Cell Challenge. FASEB Summer Research Conference: Microbial Pathogenesis: Mechanisms of Infectious Disease. Snowmass, CO.

**Edwards, J. L.** (2011) The effect of steroid hormones and oxygen availability on complement-mediated infection of primary cervical cells. The 7th Immunology Congress Vaccines and Adjuvants Workshop dedicated to *Neisseria* Vaccines. Havana, Cuba. *\*Selected for plenary session presentation*

**Edwards, J. L.** (2011) Nitric oxide promotes *Neisseria gonorrhoeae* infection of primary cervical epithelial cells. The 7th Immunology Congress Vaccines and Adjuvants Workshop dedicated to *Neisseria* Vaccines. Havana, Cuba. *\*Selected for plenary session presentation*

Jennings, M.P., F. Jen, L. Roddam, M. A. Apicella, and **J. L. Edwards** (2011) Complement receptor 3 activation during cervical infection requires an interaction with the *Neisseria gonorrhoeae* pilin glycan. 1<sup>st</sup> European Conference of Microbiology and Immunology. Budapest, Hungary. *\*Selected for plenary session presentation*

**Edwards, J. L.** (2011) Gonococcal challenge of primary human epithelial cells: steroid hormones and nitric oxide, friends or foes? 1<sup>st</sup> European Conference of Microbiology and Immunology. Budapest, Hungary. *\*Selected for plenary session presentation*

Tann, T. and **J. L. Edwards** (2011) The role of steroid hormone receptors in gonococcal infection. The Richard J. and Martha D. Denman Undergraduate Research Forum. The Ohio State University, Columbus, OH.

Butler, E. K. and **J. L. Edwards** (2011) Engineering of reporter and complementation vectors for use in *N. gonorrhoeae* infection studies. The Ohio Branch of the American Society for Microbiology Spring Meeting. Ohio University, Athens, OH.

Tann, T. and **J. L. Edwards** (2011) The role of steroid hormone receptors in gonococcal infection. The Ohio Branch of the American Society for Microbiology Spring Meeting. Ohio University, Athens, OH.

**Edwards, J. L.** Gonococcal cervical and amniochorionic infections as potential factors contributing to adverse pregnancy outcomes (2010) Seventeenth International Pathogenic *Neisseria* Conference, Banff, Alberta Canada. *\*Selected for plenary session presentation (Cellular Microbiology section)*

Jennings, M. P., F. E.-C. Jen, L. F. Roddam, M. A. Apicella, and **J. L. Edwards** (2010) The gonococcal pilin glycan mediates primary cervical epithelial cell challenge. Seventeenth International Pathogenic *Neisseria* Conference, Banff, Alberta Canada. *\*Selected for plenary session presentation (Surface Structures section)*

McEwan, A., K. Djoko, N. Chen, J. Franiek, M. J. Jennings, M. A. Apicella, and **J. L. Edwards** (2010) The NmlR regulon and stress defense in *Neisseria gonorrhoeae* Seventeenth International Pathogenic *Neisseria* Conference, Banff, Alberta Canada. *\*Selected for plenary session presentation (Genetics, Physiology, and Metabolism section)*

Srikhanta, Y. N., **J. L. Edwards**, M. Falsetta, O. B. Harrison, S. J. Dowideti, H.-J. Wu, T. Maguire, A. H.-J. Wang, M. C. Maiden, S. Grimmond, M. A. Apicella, and M. P. Jennings (2010)

Phasevarions mediate random switching of gene expression in pathogenic *Neisseria*. Seventeenth International Pathogenic *Neisseria* Conference, Banff, Alberta Canada.

Warren, M. J., F. E. Jen, **J. L. Edwards**, B. L. Schulz, C. E. Jones, J. T. Blanchfield, P. M. Power, W. E. Swords, J. N. Weiser, M. A. Apicella, and M. P. Jennings (2010) Accessibility to pili-linked phosphorylcholine of *N. meningitidis* is influenced by phase-variation of the pili-linked glycan and both factors are required for efficient cell association via the PAF receptor on human airway epithelial cells. Seventeenth International Pathogenic *Neisseria* Conference, Banff, Alberta Canada. \*Selected for plenary session presentation (*Surface Structures section*)

Butler, E. K., and **J. L. Edwards** (2010) *Neisseria gonorrhoeae* infection as a potential factor contributing to adverse pregnancy outcomes. The Research Institute at Nationwide Children's Hospital, Columbus OH.

McEwan A.G., A. J. Potter, S. P. Kidd, **J. L. Edwards**, M. A. Apicella, and M. P. Jennings. (2008) The NmlR regulon and defense against nitrosative stress in *Neisseria gonorrhoeae*. Sixteenth International Pathogenic *Neisseria* Conference, Rotterdam, The Netherlands.

Srikhanta, Y. N., **J. L. Edwards**, M. L. Falsetta, T. L. Maguire, S. M. Grimmond, M. A. Apicella, and M. P. Jennings (2008) Phasevarion mediated differentiation of *Neisseria gonorrhoeae*. Sixteenth International Pathogenic *Neisseria* Conference, Rotterdam, The Netherlands

**Edwards, J. L.** (2006) Hormonal Modulation of CR3-mediated *Neisseria gonorrhoeae* Infection of Primary, Human, Cervical Epithelial Cells. 13<sup>th</sup> Annual Midwest Microbial Pathogenesis Meeting, Cincinnati, OH.

Dominguez, N. M., H. L. Hamilton, **J. L. Edwards**, M. A. Apicella, and J. P. Dillard (2005) Integration and Excision of the Gonococcal Genetic Island of *Neisseria gonorrhoeae*. 105<sup>th</sup> General Meeting of the American Society for Microbiology, Atlanta, GA.

**Edwards, J. L.** and M. A. Apicella. (2004) I-domain-containing alpha integrins serve as pilin receptors for *Neisseria gonorrhoeae* adherence to human epithelial cells. Fourteenth International Pathogenic *Neisseria* Conference, Milwaukee, WI.

Dominquez, N. M., H. L. Hamilton, **J. L. Edwards**, M. A. Apicella, and J. P. Dillard (2004) The gonococcal genetic island of *Neisseria gonorrhoeae*: a mobile genetic element. Fourteenth International Pathogenic *Neisseria* Conference, Milwaukee, WI.

Hamilton, H. L., **J. L. Edwards**, M. A. Apicella, and J. P. Dillard (2004) The gonococcal genetic island-encoded type IV secretion system is involved in infection. Fourteenth International Pathogenic *Neisseria* Conference, Milwaukee, WI.

**Edwards, J. L.** and M. A. Apicella. (2004) Signal Transduction Events Triggered by *Neisseria gonorrhoeae* Engagement of CR3 on Cervical Epithelia are Modulated by Gonococcal PLD. 104<sup>th</sup> General Meeting of the American Society for Microbiology, New Orleans, LA.

Hamilton, H. L., N. M. Dominquez, **J. L. Edwards**, M. A. Apicella, and J. P. Dillard (2004) Interactions of *Neisseria gonorrhoeae* with the host: a role for the gonococcal genetic island-encoded type IV secretion system in infection. 104<sup>th</sup> General Meeting of the American Society for Microbiology, New Orleans, LA.

**Edwards, J. L.**, D. Entz, and M. A. Apicella (2003) The modulatory role of *Neisseria gonorrhoeae* PLD in complement receptor 3-mediated pathogenesis of primary, human, cervical epithelia. Tenth Annual Midwest Microbial Pathogenesis Meeting, Iowa City, IA.

Hamilton, H. L., **J. L. Edwards**, M. A. Apicella, and J. P. Dillard (2003) The type IV secretion system of *Neisseria gonorrhoeae* is involved in DNA secretion and bacteria-host cell interactions. Tenth Annual Midwest Microbial Pathogenesis Meeting, Iowa City, IA.

Hamilton, H. L., J. M. Skarie, **J. L. Edwards**, M. A. Apicella, and J. P. Dillard (2003) The Type IV secretion system of *Neisseria gonorrhoeae* secretes DNA and is involved in host cell interactions. 103<sup>rd</sup> General Meeting of the American Society for Microbiology, Washington, DC.

**Edwards, J. L.**, D. Entz, and M. A. Apicella (2002) *Neisseria gonorrhoeae* specifically release a phospholipase D homolog that augments CR3-mediated cervical cell infection. Ninth Annual Midwest Microbial Pathogenesis Meeting, Indianapolis, IN.

Hamilton, H. L., J. M. Skarie, **J. L. Edwards**, M. A. Apicella, and J. P. Dillard (2002) Type IV secretion system mutants of *Neisseria gonorrhoeae* are deficient in DNA secretion and show altered interactions with host cells. Thirteenth International Pathogenic *Neisseria* Conference, Oslo, Norway. \**Highlighted poster*

**Edwards, J. L.**, E. J. Brown, S. Uk-Nham, J. G. Cannon, M. S. Blake, and M. A. Apicella (2002) Opsonic and non-opsonic interactions occur between *Neisseria gonorrhoeae* and complement receptor 3 on primary cervical epithelial cells. 102<sup>nd</sup> General Meeting of the American Society for Microbiology, Salt Lake City, UT.

Dillard, J. P., H. L. Hamilton, K. A. Cloud, K. J. Schwartz, **J. L. Edwards**, and M. A. Apicella (2002) Sequence and mutational analysis of the 60 kb gonococcal genetic island. Molecular Genetics of Bacteria and Phages Annual Meeting, Cold Spring Harbor Laboratory, NY.

**Edwards, J. L.** and M. A. Apicella (2001) The specific interaction of *Neisseria gonorrhoeae* with complement receptor type 3 (CR3) on primary cervical epithelial cells. Eighth Annual Midwest Microbial Pathogenesis Meeting, Champaign/Urbana, IL.

**Edwards, J. L.**, J. Shao, K. Ault, E. J. Brown, M. A. Apicella (2001) Complement receptor type 3 (CR3) on primary cervical epithelial cells serves as a receptor for *Neisseria gonorrhoeae*. 101<sup>st</sup> General Meeting of the American Society for Microbiology, Orlando, FL.

**Edwards, J. L.**, J. Shao, K. Ault, and M. A. Apicella (2000) Studies on the invasion of primary human cervical epithelial cells by *Neisseria gonorrhoeae*. 100<sup>th</sup> General Meeting of the American Society for Microbiology, Los Angeles, CA.

## **SEMINARS and SYMPOSIA**

### ***Invited Seminars and Symposia:***

#### *Local Meetings and Venues:*

Neisserial pilin post-translational modifications and their role in pathogenesis. The Center for

Microbial Interface Biology, Ohio State University, Columbus, OH. March 2014.

Insights into meningococcal disease. The Bench to Outcomes Seminar Series. The Research Institute at Nationwide Children's Hospital, Columbus OH. March, 2014.

Gonococcal infections in adolescent women. The Bench to Outcomes Seminar Series. Nationwide Children's Hospital and Research Institute, Columbus OH. October 2008.

Progesterone and nitric oxide augment gonococcal cervical infection. Children's Health Research Center Seminar Series. Columbus, OH. October 2007.

Hormonal *Aktions* in gonococcal cervicitis. Children's Research Institute Annual Retreat. Newark, OH. April 2005.

Estrogen and Akt kinase contribute to CR3-mediated *Neisseria gonorrhoeae* infection of primary human cervical epithelial cells. Molecular Virology, Immunology, and Medical Genetics Graduate Program Seminar. April 2005.

Challenges associated with the study of gonococcal disease. Student Fellow Research Training Seminar Series. Columbus Children's Research Institute. December 2005.

The role of the alternative complement pathway in the interaction of the gonococcus with CR3 on primary cervical epithelial cells. The Department of Internal Medicine Inflammation Group Seminar Series, Iowa City, IA. May 2001.

#### National and Regional Meetings and Venues

Complement receptor 4 mediates *Neisseria gonorrhoeae* infection of human amnion epithelia. Midwest Microbial Pathogenesis Conference, Indianapolis, IN. August 2015.

Pilin post-translational modifications mediate *Neisseria meningitidis* adherence to the platelet activating factor receptor (PAFr) on human airway epithelia. The Ohio Branch of the American Society for Microbiology Annual Meeting, Ashland, OH. April 2013.

Gonococcal nitric oxide respiratory and detoxification mechanisms contribute to infection of primary cervical epithelial cells. The Department of Microbiology and Molecular Genetics, Michigan State University, East Lansing, MI. October 2007.

Nitric oxide promotes *Neisseria gonorrhoeae* infection of primary cervical epithelial cells. 14th Annual Midwest Microbial Pathogenesis Meeting, Chicago, IL. September 2007.

The Modulatory Role of *Neisseria gonorrhoeae* PLD in Complement Receptor 3-mediated Pathogenesis of Primary, Human, Cervical Epithelia. Children's Research Institute. Columbus, OH. November 2003.

Gonococcal PLD modulates CR3-dependent infection of cervical epithelia. Wyeth Vaccines Research. Rochester, NY. July 2003

Studies of the interaction of *Neisseria gonorrhoeae* with primary human cervical epithelial cells. Iowa Microscopy Society Annual Meeting, Iowa City, IA. September 1999.

International Meetings and Venues

The STI & AIDS World Congress: the 14th International Union against Sexually Transmitted Infections (IUSTI) and the 20th International Society for Sexually Transmitted Disease Research (ISSTD) Joint World Congress, Vienna, Austria. July 2013. Insights into maternal gonorrhoea: human primary cervical and amniochorionic epithelial cell responses to *Neisseria gonorrhoeae* infection.

General Meeting of the Australian Society for Microbiology, Women's and Children's Microbiology Symposium, Adelaide, Southern Australia. July 2013.

Insights into the Gonococcal-Cervical Dynamic as Determined using a Primary Human Epithelial Cell Model of Infection. The Schools of Molecular & Microbial Sciences and Chemistry & Molecular Bioscience. The University of Queensland. Brisbane, QLD Australia. December 2011.

Gonococcal infection of primary cervical epithelial cells: the complement system and beyond. Cell and Molecular Biosciences Program, Queensland University of Technology. Brisbane, QLD Australia. September 2011.

Cellular analyses of gonococcal infection of primary human cervical epithelial cells under conditions reflective of the *in vivo* environment. BacPath 11: Molecular Analysis of Bacterial Pathogens, The Australian Society for Microbiology, New South Wales, Australia. September 2011.

The effect of steroid hormones and oxygen availability on complement-mediated infection of the primary cervical cells. The 7th Immunology Congress Vaccines and Adjuvants Workshop dedicated to *Neisseria* Vaccines. Havana, Cuba. June 2011.

Nitric oxide promotes *Neisseria gonorrhoeae* infection of primary cervical epithelial cells. The 7th Immunology Congress Vaccines and Adjuvants Workshop dedicated to *Neisseria* Vaccines. Havana, Cuba. June 2011.

Gonococcal challenge of primary human epithelial cells: steroid hormones and nitric oxide, friends or foes? 1<sup>st</sup> European Conference of Microbiology and Immunology. Budapest, Hungary. May 2011.

Complement receptor 3 activation during cervical infection requires an interaction with the *Neisseria gonorrhoeae* pilin glycan. 1<sup>st</sup> European Conference of Microbiology and Immunology. Budapest, Hungary. May 2011.

Gonococcal cervical and amniochorionic infections as potential factors contributing to adverse pregnancy outcomes. Seventeenth International Pathogenic *Neisseria* Conference, Banff, Alberta Canada. September 2010.

The gonococcal pilin glycan mediates primary cervical epithelial cell challenge. Seventeenth International Pathogenic *Neisseria* Conference, Banff, Alberta Canada. September 2010.

*Neisseria gonorrhoeae* phospholipases in amniochorionic infections. FASEB Summer Research



Conference: Phospholipid Metabolism: Disease, Signal Transduction, and Membrane Dynamics. Steamboat Springs, CO USA. July 2010

Host-derived nitric oxide is required for *Neisseria gonorrhoeae* survival during cervical infection. The Schools of Molecular & Microbial Sciences and Chemistry & Molecular Bioscience. The University of Queensland. Brisbane, QLD Australia. October 2009.

The glycan on *Neisseria gonorrhoeae* pilin triggers CR3 activation during challenge of primary cervical epithelial cells. The Institute for Glycomics. Griffith University. Gold Coast, QLD Australia. October 2009.

The role of complement in gonococcal infection of cervical epithelia. Complement: The First Barrier of Innate Immunity Workshop. Siena, Italy. September 2008.

The role of *Neisseria gonorrhoeae* PLD in cervical cell infection. FASEB Summer Research Conference: Phospholipid metabolism: disease, signal transduction, and membrane dynamics. New Haven, CT USA. July 2008.

Hormonal Modulation of CR3-mediated *Neisseria gonorrhoeae* Infection of Primary, Human, Cervical Epithelial Cells. Fifteenth International Pathogenic *Neisseria* Conference, Cairns, QLD Australia. September 2006.

Gonococcal PLD and signaling events triggered by *Neisseria gonorrhoeae* infection of primary cervical epithelial cells. Fourteenth International Pathogenic *Neisseria* Conference, Milwaukee, WI USA. September 2004.

*Neisseria gonorrhoeae* directly binds to the I-domain of complement receptor 3 on primary cervical epithelial cells. Thirteenth International Pathogenic *Neisseria* Conference, Oslo, Norway. September 2002.

Cellular studies on the invasion of primary cervical epithelial cells by *Neisseria gonorrhoeae*. Twelfth International Pathogenic *Neisseria* Conference, Galveston, TX. USA. November 2000.

### **Additional Seminars:**

Gonorrhea: Taking it to the mattresses. Center for Microbial Pathogenesis, The Research Institute at Nationwide Children's Hospital, Columbus OH. November 2015.

Project runway, science style: Tips to look and sound your best. Center for Microbial Pathogenesis, The Research Institute at Nationwide Children's Hospital, Columbus OH. April 2015.

Something old, something new, something borrowed, nothing blue. Center for Microbial Pathogenesis, The Research Institute at Nationwide Children's Hospital, Columbus OH. November 2014.

Plan C: Colonization of the human airway by *N. meningitidis*. Center for Microbial Pathogenesis, The Research Institute at Nationwide Children's Hospital, Columbus OH. March 2012.

Biofilm development by *Neisseria gonorrhoeae*. Biofilms in Human Disease Group, The Center for Microbial Interface Biology, Ohio State University. Columbus, OH. March 2011.

Clap on, clap off: remote control of gonococcal pathogenicity of primary chorioamniotic epithelial cells. Center for Microbial Pathogenesis, The Research Institute at Nationwide Children's Hospital, Columbus OH. September 2009.

Cellular studies of primary cervical and placental epithelial cell infection by *Neisseria gonorrhoeae*. Center for Microbial Interface Biology, Ohio State University, Columbus OH. April 2009.

*Neisseria gonorrhoeae* cervical infection and beyond. Center for Microbial Pathogenesis, The Research Institute at Nationwide Children's Hospital, Columbus OH. January 2009.

Pilus glycosylation modulates CR3-mediated *Neisseria gonorrhoeae* infection of cervical epithelial cells. Center for Microbial Pathogenesis, The Research Institute at Nationwide Children's Hospital, Columbus OH. July 2008.

Hormonal modulation of CR3-mediated *Neisseria gonorrhoeae* infection of primary, human, cervical epithelial cells. Center for Microbial Interface Biology, Ohio State University; Columbus, OH. August 2006.

Gonococcal cervicitis: an intimate host-pathogen interplay. Center for Microbial Pathogenesis, The Research Institute at Nationwide Children's Hospital; Columbus, OH. November 2005.

Gonococcal PLD Plays a Direct Role in Pilfering Signaling Events Triggered upon Infection of Primary Cervical Epithelial Cells, in part, through a Direct Association with Akt Kinase. Center for Microbial Interface Biology, Ohio State University; Columbus OH. February 2005.