BIOGRAPHICAL SKETCH

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NAME	POSITION TITLE
Lauren O. Bakaletz, Ph.D.	Professor of Pediatrics Director, Center for Microbial Pathogenesis
eRA COMMONS USER NAME BAKALETL	

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
The Ohio State University, Columbus, OH	B.S.	1979	Microbiology
The Ohio State University, Columbus, OH	M.S.	1981	Microbiology
The Ohio State University, Columbus, OH	Ph.D.	1984	Microbiology

A. Positions and Honors

Employment and Experience

1985 – 1986 Post-doctoral Researcher, Dept. of Otolaryngology, The Ohio State University
1986 – 1987 Senior Research Assoc., Dept. of Otolaryngology, The Ohio State University
1987 – 1993 Assistant Professor, Dept. of Otolaryngology, The Ohio State University
1993 – 1998 Associate Professor, Dept. of Otolaryngology, The Ohio State University
1998 – 2000 Associate Professor, Dept. of Pediatrics; Children's Research Institute, The Ohio State University College of Medicine
2000 – present Professor, Dept. of Pediatrics, The Research Institute at Nationwide Children's Hospital, The Ohio State University College of Medicine
2003 – present Director, Center for Microbial Pathogenesis, The Research Institute at Nationwide Children's Hospital
2006 – present Vice President for Basic Science Research, The Research Institute at Nationwide Children's Hospital
2008 Professor, Dept. of Otolaryngology, The Ohio State University College of Medicine

Profession Societies

American Society for Microbiology; American Association for the Advancement of Science; Association for Research in Otolaryngology; Sigma Xi; Honor Society of Phi Kappa Phi; Centurions of the Deafness Research Foundation; Ohio Branch ASM; Society for Pediatric Research

Other Experience

Editorial Board: Infection & Immunity

Ad hoc Reviewer: Infection & Immunity; Science; Proceedings of National Academy of Sciences, USA; Journal of the American Medical Association; Journal of Infectious Diseases; Journal of Bacteriology; Vaccine;; Antimicrobial Agents & Chemotherapy; Clinical and Diagnostic Laboratory Immunology; Microbial Pathogenesis; European Journal of Epidemiology; The Laryngoscope; Annals of Otology, Rhinology and Laryngology; Otolaryngology – Head and Neck Surgery; American Journal of Otolaryngology; Ear, Nose and Throat Journal; Pharmacological Research, Journal of Clinical Microbiology; Applied and Environmental Microbiology; PLoS Pathogens; Journal of Virology, Trends in Microbiology, Clinical Microbiology and Infection.

Ad hoc Reviewer: Small Grant Program, NIDCD/NIH, 1991; Multidisciplinary Pilot Program Seed Grant, SUNY at Buffalo, 1994; Integrative, Functional and Cognitive Neuroscience (IFCN-6) Study Section, NIDCD/NIH, 10/1998; Program Grant Review, NIDCD/NIH, 03/1999; John Sealy Grant Program, UTMB at Galveston, 01/2000; Joint CDC Initiative, NICHHD/NIH, 10/2000; Working Group on Concept Clearance, NIDCD/NIH, 05/2001; Immunological Sciences Study Section, NIH, 02/2002; Thrasher Foundation, 09/2003, 01/2004; Special Emphasis Panel – NIH/NIAID, 03/2004, 07/2004, 06/2005; Small Grants R03 – NIH/NIDCD, 06/2006.

Inventor: U.S. Patent #5,766,608 "DNA Molecules which Encode the Fimbrin Protein of *Haemophilus influenzae*" issued 6/16/98; U.S. Patent #5,843,464 "Synthetic Chimeric Fimbrin Peptides" issued 12/1/98; Patent application #WO9964067 "Vaccine", filed 6/11/98 in the U.K., published 12/16/99; U.S. Patent #6,030,626 "Method for Preparing the Fimbrin Protein of *Haemophilus influenzae*, issued 2/29/2000; U.S. Patent # 6,436,405 "Synthetic Chimeric Fimbrin Peptides", issued 8/20/02; U.S. Patent #6,537,265 "Method for Nasal Application of a Medicinal Substance" issued 3/25/03; U.S. Patent #6,562,349 "Otitis media vaccine", issued 5/13/03; U.S. Patent #7,229,622 "Synthetic Chimeric Fimbrin Peptides", issued 6/12/07; U.S. Patent

7,241,867 “Polypeptide encoded by a nucleotide sequence of a nontypeable strain of *Haemophilus influenzae* genome”, issued 7/10/07; U.S. Patent #7,306,805 “Nontypable *Haemophilus influenzae* virulence factors” issued 12/11/07.

B. Selected peer-reviewed publications (in chronological order) (Selected from 84 publications)

Bakaletz LO. (**1995**). Viral potentiation of bacterial superinfection of the airway. Trends Microbiol, 3:110-114.

Bakaletz LO, Leake ER, Billy JJ, Kaumaya PTP. **(1997)**. Relative immunogenicity and efficacy of two synthetic chimeric peptides of fimbrin as vaccinogens against nasopharyngeal colonization by nontypeable *Haemophilus influenzae* in the chinchilla. Vaccine, 15(9):955.

Holmes K, **Bakaletz LO. (1997)**. Adherence of nontypeable *H. influenzae* promotes reorganization of the actin cytoskeleton in human or chinchilla epithelial cells *in vitro*. Microbial Path, *23*:157.

Bakaletz LO, Kennedy BJ, Novotny LA, Dequesne G, Cohen J, Lobet Y. **(1999)**. Protection against development of otitis media induced by nontypeable *Haemophilus influenzae* by both active and passive immunization in a chinchilla model of virus-bacterium superinfection. Infect Immun, 67(6):2746.

Novotny LA, Jurcisek JA, **Bakaletz LO. (2000)**. Epitope mapping the OMP P5-homologous fimbrin adhesin of nontypeable *Haemophilus influenzae*. Infect Immun, 68(4):2119.

Kennedy B, Novotny LA, Jurcisek JA, Lobet Y, **Bakaletz LO. (2000)**. Passive transfer of antiserum specific for immunogens derived from a nontypeable *Haemophilus influenzae* adhesin and lipoprotein D prevents otitis media after heterologous challenge. Infect Immun, 68(5):2756.

Novotny LA, Pichichero ME, Denoël PA, Neyt C, Vanderschrick S, Dequesne G, **Bakaletz LO. (2002)**. Detection and characterization of pediatric serum antibody to the OMP P5-homologous adhesin of nontypeable *Haemophilus influenzae* during acute otitis media. Vaccine, *20*(29-30):3590.

Jurcisek JA, Durbin JA, Kusewitt DF, **Bakaletz LO. (2003)**. Anatomy of the nasal cavity in the chinchilla. Cells, Tissues, Organs, 174(3):36.

Mason KM, Munson RS Jr, **Bakaletz LO. (2003)**. Gene expression induced *in vivo* in a chinchilla model of otitis media due to nontypeable *Haemophilus influenzae* (NTHi). Infect Immun, 71(6):3454.

Novotny LA, **Bakaletz LO. (2003)**. The fourth surface-exposed region of the OMP P5-homologous adhesin of NTHI is an immunodominant but non-protective decoy epitope. J. Immunol, 171(4):1978.

Kyd JM, Cripps AW, Novotny LA, **Bakaletz LO. (2003)**. Efficacy of OMP26 and two P5-fimbrin derived immunogens to induce clearance of nontypeable *Haemophilus influenzae* from the rat middle ear and lungs as well as from the chinchilla middle ear and nasopharynx. Infect Immun, 71(8):4691.

Munson RS Jr, Harrison A, Gillaspy A, Ray WC, Carson M, Armbruster D, Gipson J, Gipson M, Johnson L, Lewis L, Dyer DW, **Bakaletz LO. (2004)**. Partial Analysis of the genomes of two nontypeable *Haemophilus influenzae* otitis media isolates. Infect Immun, 72(5):3002.

Harris RH, Wilk D, Bevins CL, Munson RS Jr, **Bakaletz LO. (2004)**. Identification and characterization of mucosal antimicrobial peptides expressed by the chinchilla airway. J Biol Chem, 279(19):20250.

Bakaletz LO. (2004). Developing animal models for polymicrobial diseases. Nat Rev Microbiol, 2(7):552.

Mason KM, Munson RS Jr, **Bakaletz LO. (2005)**. A mutation in the *sap* operon attenuates survival of NTHI in a chinchilla model of otitis media. Infect Immun, 73(1):599.

Novotny LA, Mason KM, **Bakaletz LO. (2005)**. Development of a chinchilla model to allow direct continuous biophotonic imaging of bioluminescent NTHI during experimental otitis media. Infect Immun, 73(1):609.

Bakaletz LO, Baker BD, Jurcisek JA, Harrison A, Novotny LA, Bookwalter JE, Mungur R, Munson RS Jr. **(2005)**. Demonstration of type IV pilus expression and a twitching phenotype by *Haemophilus influenzae*. Infect Immun, 73(3):1635.

Murphy TF, **Bakaletz LO**, Kyd JM, Watson B, Klein DL. **(2005)**. Vaccines for otitis media: proposals for overcoming obstacles to progress. Vaccine, 23(21):2696.

Gitiban N, Jurcisek JA, Harris RH, Mertz S, Durbin RK, **Bakaletz LO**, Durbin JE. **(2005)**. Chinchilla and murine models of upper respiratory tract infection with RSV. J Virol, 79(10):6035.

Jurcisek JA, Greiner L, Watanabe H, Zaleski A, Apicella MA, **Bakaletz LO. (2005)**. The role of sialic acid and complex carbohydrate biosynthesis in biofilm formation by nontypeable *Haemophilus influenzae* in the chinchilla middle ear. Infect Immun 73(6):3210.

Harrison A, Dyer DW, Gillaspy A, Ray WC, Mungur R, Carson MB, Zhong H, Gipson J, Gipson M, Johnson LS, Lewis L, **Bakaletz LO**, Munson RS Jr. **(2005)**. The genomic sequence of an otitis media isolate of nontypeable *Haemophilus influenzae*: a comparative study with *Haemophilus influenzae* serotype d, strain KW20. J Bacteriol, 187(13):4627.

Avadhanula V, Rodriguez CA, Ulett GC, **Bakaletz LO**, Adderson EE. **(2006)**. Nontypeable *Haemophilus influenzae* adheres to intercellular adhesion molecule 1 (ICAM-1) on respiratory epithelial cells and upregulates ICAM-1 expression. Infect Immun, 74(2):830.

Novotny LA, Jurcisek JA, Godfroid F, Poolman J, Denoel P, **Bakaletz LO. (2006)**. Passive immunization with human anti-protein D antibodies induced by polysaccharide protein D conjugates protects chinchillas against OM after intranasal challenge with *H. influenzae*. Vaccine, 24(22):4804.

Mason KM, Bruggeman ME, Munson RS Jr, **Bakaletz LO. (2006)**. The nontypeable *Haemophilus influenzae* Sap transporter provides a mechanism of antimicrobial peptide resistance and SapD-dependent potassium acquisition. Mol Micro, 65(2):1357.

McGillivary G, Ray WC, Bevins CL, Munson RS Jr, **Bakaletz LO. (2007)**. A member of the cathelicidin family of antimicrobial peptides is produced in the upper airway of the chinchilla and its mRNA expression is altered by common viral and bacterial co-pathogens of otitis media. Mol Immunol, 44:2446.

Harrison A, Ray WC, Baker BD, Armbruster DW, **Bakaletz LO**, Munson RS Jr. **(2007)**. The OxyR regulon in nontypeable *Haemophilus influenzae*. J Bacteriol, 189(3):1004.

Hong W, Mason KM, Jurcisek JA, Novotny LA, **Bakaletz LO**, Swords WE. **(2007)**. Phosphorylcholine decreases early inflammation and promotes establishment of stable biofilm communities of NTHI strain 86-028NP in the chinchilla models of otitis media. Infect Immun, 75(2):958.

Jurcisek JA, **Bakaletz LO. (2007)**. Biofilms formed by nontypeable *Haemophilus influenzae in vivo* contain both dsDNA as well as type IV pilin protein. J Bacteriol, 189(10):3868. PMCID:PMC1913342

Jurcisek JA, Bookwalter JE, Baker BD, Fernandez S, Novotny LA, Munson RS Jr, **Bakaletz LO. (2007)**. The PilA protein of nontypeable *Haemophilus influenzae* plays a role in biofilm formation, adherence to epithelial cells and colonization of the mammalian upper respiratory tract. Mol Micro, 65(5):1288.

Jewell NA, Vaghefi N, Mertz SE, Akter P, Peebles RS Jr., **Bakaletz LO**, Durbin RK, Flano E, Durbin JE. **(2007)**. Differential type I interferon induction by respiratory syncytial virus and influenza a virus *in vivo*. J Virol, 81(18):9790. PMCID: PMC2045394

Luke N, Jurcisek JA, **Bakaletz LO**, Campagnari A. **(2007)**. Contribution of *Moraxella catarrhalis* type-IV to nasopharyngeal colonization and biofilm formation. Infect Immun, 75(12):5559-64. PMCID: PMC2168369

Bookwalter JE, Jurcisek JA, Gray-Owen SD, Fernandez S, McGillivary G, **Bakaletz LO. (2008)**. A CEACAM-1 homologue plays a pivotal role in nontypeable *Haemophilus influenzae* colonization of the chinchilla nasopharynx via the outer membrane protein P5-homologous adhesin. Infect Immun, 76(1):48-55. PMCID:PMC2223670

Novotny LA, Partida-Sanchez S, Munson RS Jr, **Bakaletz LO. (2008)**. Differential uptake and processing of an OMP P5-derived immunogen by chinchilla dendritic cells. Infect Immun, 76(3):967-77. PMCID:PMC2258844

Murphy, T.F., Faden, H., **Bakaletz, L.O.**, Kyd, J.M., Forsgren, A., Campos, J., Virgi, M., Pelton, S.I. (*in press* 2008). Nontypeable *Haemophilus influenzae* as a pathogen in children. Pediatr Infect Dis J.

C. Research Support

ONGOING

R01 (DC003915) Lauren O. Bakaletz, Ph.D. 9/30/99 – 8/31/09
NIH/NIDCD
"Determinants of *H. influenzae* Virulence in Otitis Media"

The major goals of this project are to identify, investigate and characterize virulence-associated NTHI genes and their role in the pathogenesis of otitis media and to assign a role to those as yet undefined determinants.

R01 (DC05847) Lauren O. Bakaletz, Ph.D. 9/20/02 – 8/31/13
NIH/NIDCD
"Antimicrobial Peptides & Innate Immunity in Otitis Media"

The major goals of this project are to define and study the innate immune system of the uppermost airway using chinchilla models of human OM. Specifically, we will investigate the role of APs in bacterial colonization of the nasopharynx and determine if their expression is up- or down-regulated in response to the predominant viral and bacterial pathogens of OM.

R01 DC005837 (Campagnari) 12/1/07 – 11/30/12
NIH/NIDCD
"Genetics & Biology of *M. catarrhalis* LOS in Otitis Media"

The major goal of the subproject (Bakaletz – PI) is to determine both the relative contribution of LOS to colonization by *M. catarrhalis* and the protective efficacy of LOS-derived vaccine candidates *in vivo* assays.

N01-AI-30040 Michael A. Apicella, M.D. 7/1/03 – 6/30/10
NIH/NIAID/DMID
"Studies on the Biology and Immunogenicity of NTHi"

The major goal of this sub-project (Bakaletz - PI) is to characterize the immune response of adults, healthy children and otitis prone children to both colonization of the upper airway by NTHI as well as (in the latter population), during otitis media caused by NTHI.

R01 (DC007464) Robert S. Munson Jr., Ph.D. 12/1/05 – 11/30/10
NIH/NIDCD
"NTHI Type IV pili: expression and vaccine potential"

The major goal of our laboratory's effort on this grant subproject (Bakaletz – Co-Investigator) is to perform all TEM studies, interpret data acquired in all animal modeling, conduct all pre-clinical vaccine efficacy studies as well as perform all related histological evaluations and confocal imaging techniques.

R01 (DC006468) Lauren O. Bakaletz, Ph.D. & 1/1/04 – 12/31/10
NIH/NIDCD Joan Durbin, M.D., Ph.D.
"RSV Upper Airway Infection & Otitis Media"

The major goal of the initiative is to determine how RSV predisposes the middle ear to bacterial invasion and specifically, by which microorganisms.

R01 DC007153 Anthony A. Campagnari, Ph.D. 4/1/06 – 3/31/09
NIH/NIDCD
"*Moraxella catarrhalis* pili: Role in Colonization"

The major goal of the subproject (Bakaletz – PI) is to conduct all chinchilla modeling studies relevant to the Specific Aims of this grant application which are to define the role of the type IV pilus in colonization of the upper respiratory tract by *M. catarrhalis*.

Lauren O. Bakaletz, Ph.D. 6/1/07 – 5/31/09
GlaxoSmithKline Biologicals
"Identification and Assessment of Several Targeted and Novel Candidate Antigens for the Prevention of NTHI-induced Otitis Media"

The nature of this collaborative agreement is broad in scope and largely developmental in nature with the intent of utilizing multiple molecular techniques, in vitro methodologies and animal model systems to identify 'new' (limited pre-clinical evaluation to date) NTHI antigens that could be included in a vaccine to prevent NTHI-induced infection of the respiratory tract.

COMPLETED

CRI #504805 Lauren O. Bakaletz, Ph.D. 6/1/06 – 5/31/07
GlaxoSmithKline Biologicals
"Assessment of the Relative Ability of Pediatric Immune Serum Pools Directed Against Either the P.O.E.T. or STREPTORIX® Formulations of GSK's Pneumococcal Polysaccharide-Protein D Conjugate Vaccine to Protect Against Ascending Otitis Media in a Chinchilla Passive Transfer-Superinfection Model"

The major goal of this is project is as stated in the title, to compare the relative protective efficacy of two proprietary formulations of a vaccine designed to prevent bacterial otitis media using the chinchilla ascending disease model.

R01 (AI029611) Terrence L. Stull, M.D. 7/1/05 – 6/30/06
NIH/NIAID
"*Haemophilus influenzae* Hemoglobin/Hemoglobin-Haptoglobin Binding"

The major goal of the subproject (Bakaletz - PI) is to determine the role of a family of NTHi hemoglobin and hemoglobin/haptoglobin binding proteins in the pathogenesis of otitis media in the chinchilla model.