



Hugh O'Brodovich

Arline and Pete Harman Professor for the Chair in the Department of Pediatrics in the School of Medicine, Emeritus

Pediatrics - Operations

CONTACT INFORMATION

- **Alternate Contact**

Eunice Delumen - Executive Assistant

Email edelumen@stanford.edu

Tel 650-723-5104

Bio

BIO

Hugh O'Brodovich, MD FRCP(C) is the Arline and Pete Harman Professor of Pediatrics (Emeritus) at the Stanford School of Medicine. He was the chair of the Department of Pediatrics at Stanford University School of Medicine and the Adalyn Jay Physician in Chief at Lucile Packard Children's Hospital from January 2008 through June 2016. Prior to his arrival at Stanford University he was the Chair of Paediatrics at the University of Toronto and the Paediatrician in Chief at the Hospital for Sick Children (SickKids) during which time he was the inaugural President of the Pediatric Chairs of Canada. In 2010 he became the inaugural Director of the Stanford Child Health Research Institute. His laboratory conducted research on how the lung's airspaces become fluid filled (mechanisms of pulmonary edema) and how airspace fluid is cleared under both physiologic (fetal lung liquid at birth) and pathophysiologic (pulmonary edema) conditions. Most recent research involved population-based studies to discover genetic influences on the development of bronchopulmonary dysplasia and the long term outcomes of neonatal lung disease. Dr. O'Brodovich has been the Chair of the Pediatric Pulmonology Sub-Board of the American Board of Pediatrics, an Associate Editor of the American Review of Respiratory Disease, Editor of Pediatric Research, member of the editorial board of the American Journal of Physiology and President of the Fleischner Society. He served on the Council of the American Pediatric Society from 2011 to 2016. He has published 176 peer reviewed manuscripts and 23 book chapters and was elected as a Fellow of both the Canadian Academy of Health Sciences and the American Association for the Advancement of Science. He is a consultant for Shire Human Genetics Inc., serves on the Scientific Advisory Board of AIT Therapeutics and is a member of the Boards of Directors for Headwaters Health Care Centre and Cystic Fibrosis Canada.

ACADEMIC APPOINTMENTS

- Honorary Faculty Emeritus, Pediatrics - Operations
- Member, Maternal & Child Health Research Institute (MCHRI)

ADMINISTRATIVE APPOINTMENTS

- Director (Inaugural), Stanford Child Health Research Institute, Stanford University, (2010-2016)
- Chair of Pediatrics, Stanford University, (2008-2016)
- Physician in Chief, Lucile Packard Children's Hospital Stanford, (2008-2016)
- Chair of Pediatrics, University of Toronto, (1996-2006)
- Paediatrician in Chief, Hospital for Sick Children (SickKids), (1996-2006)

HONORS AND AWARDS

- Hugh O'Brodovich Scholar Award Lecture, SickKids (Hospital for Sick Children), Toronto, Canada (2019)
- Hugh O'Brodovich Excellence in Scholarship Award, Lucile Packard Children's Hospital Stanford Pediatric Residency Program, Stanford California (2016)
- Fellow, American Association for the Advancement of Science (2015)
- President, Fleischner Society (2007)
- Fellow, Canadian Academy of Health Sciences (2006)
- Edwin L Kendig Award, American Academy of Pediatrics/American College of Chest Physicians (2005)
- Inaugural President, Pediatric Chairs of Canada (2002-2004)
- Scientific Accomplishment Award, American Thoracic Society (2001)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Member, Board of Directors, Headwaters Health Care Centre (2019 - present)
- Member, Board of Directors, Cystic Fibrosis Canada (2018 - present)
- Member, Board of Directors, Province of Ontario's Central West Local Health Integration Network (2017 - 2019)
- Member, Scientific Advisory Board, AIT Therapeutics (2013 - present)
- Council Member, American Pediatric Society (2011 - 2016)
- Member, Board of Directors, Lucile Packard Children's Hospital Stanford (2008 - 2016)
- President, Fleischner Society (2007 - 2008)
- Member of Advisory Board of Institute of Human Development, Child & Youth Health, Canadian Institutes of Health Research (2003 - 2006)
- Member of Steering Committee of the Ontario Child Health Network, Ministry of Health & Long Term Care, Province of Ontario (2003 - 2006)
- Member of Specialized Pediatric Coordinating Council, Ministry of Health & Long Term Care, Province of Ontario (2002 - 2006)
- President (Inaugural), Pediatric Chairs of Canada (2002 - 2004)
- Member of the Board, Canadian Pediatric Society (2002 - 2003)
- Member of the Minister of Health's Specialized Pediatric Services Review, Ministry of Health & Long Term Care, Province of Ontario (2001 - 2002)
- Editorial Board, American Journal of Physiology (Lung) (2000 - 2005)
- Executive Committee, Association of Medical School Pediatric Department Chairs Inc (AMSPDC) (2000 - 2004)
- Editor, Pediatric Research (1999 - 2001)
- Vice-Chair, Pediatric Respiratory Medicine Examination Board, Royal College of Physicians and Surgeons of Canada (1996 - 1998)
- Chair of the Sub-Board Pediatric Pulmonology, American Board of Pediatrics (1992 - 1995)
- Associate Editor, American Review of Respiratory Disease (now Am. J. Respir. Crit. Care Med) (1989 - 1994)

PROFESSIONAL EDUCATION

- FRCPC, Royal Coll Phys & Surg , Paediatric Respiratory Medicine (1989)
- FRCPC, Royal College Phys & Surg , Paediatrics (1980)
- MD, University of Manitoba , Medicine (1975)
- BSc, University of Manitoba , Science (1971)

LINKS

- Department of Pediatrics Stanford University: <http://pediatrics.stanford.edu/>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

I am interested in the mechanisms resulting in, and new therapies to prevent and treat, the respiratory distress syndrome (RDS) and its sequelae, bronchopulmonary dysplasia (BPD).

Previous research focused on how the lung's airspaces become fluid filled (mechanisms of pulmonary edema) and how airspace fluid is cleared under both physiologic (fetal lung liquid at birth) and pathophysiologic (pulmonary edema) conditions. Since the rate limiting step in airspace fluid clearance is the active transport of Na⁺ by distal lung epithelium, our studies investigated the effect of lung maturity, mediators and hormones on the pre and post-translational regulation of the epithelial Na⁺ channel (ENaC). More recent research focused on:

- perinatal risk factors that are associated with long term clinical outcomes of infants and children with BPD.
- identifying the genetic factors that explain the heritability of BPD, currently estimated to explain 50-80% of the risk for BPD. Population based studies have used both Genome Wide Association Studies (GWAS) and exome sequencing to identify genetic risk factors for this significant long term pulmonary disorder.

Publications

PUBLICATIONS

- **A genome-wide association study identifies only two ancestry specific variants associated with spontaneous preterm birth** *SCIENTIFIC REPORTS*
Rappoport, N., Toung, J., Hadley, D., Wong, R. J., Fujioka, K., Reuter, J., Abbott, C. W., Oh, S., Hu, D., Eng, C., Huntsman, S., Bodian, D. L., Niederhuber, et al
2018; 8: 226
- **The genetic predisposition to bronchopulmonary dysplasia** *CURRENT OPINION IN PEDIATRICS*
Yu, K., Li, J., Snyder, M., Shaw, G. M., O'Brodovich, H. M.
2016; 28 (3): 318-323
- **Maternal characteristics and mid-pregnancy serum biomarkers as risk factors for subtypes of preterm birth.** *BJOG : an international journal of obstetrics and gynaecology*
Jelliffe-Pawlowski, L. L., Baer, R. J., Blumenfeld, Y. J., Ryckman, K. K., O'Brodovich, H. M., Gould, J. B., Druzin, M. L., El-Sayed, Y. Y., Lyell, D. J., Stevenson, D. K., Shaw, G. M., Currier, R. J.
2015; 122 (11): 1484-1493
- **Maternal Asthma, Preterm Birth, and Risk of Bronchopulmonary Dysplasia.** *journal of pediatrics*
Gage, S., Kan, P., Lee, H. C., Gould, J. B., Stevenson, D. K., Shaw, G. M., O'Brodovich, H. M.
2015; 167 (4): 875-880 e1
- **Exome Sequencing of Neonatal Blood Spots and the Identification of Genes Implicated in Bronchopulmonary Dysplasia.** *American journal of respiratory and critical care medicine*
Li, J., Yu, K., Oehlert, J., Jelliffe-Pawlowski, L. L., Gould, J. B., Stevenson, D. K., Snyder, M., Shaw, G. M., O'Brodovich, H. M.
2015; 192 (5): 589-596
- **Determinants of chronic lung disease severity in the first year of life; A population based study.** *Pediatric pulmonology*
Gage, S., Kan, P., Oehlert, J., Gould, J. B., Stevenson, D. K., Shaw, G. M., O'Brodovich, H. M.
2015; 50 (9): 878-888
- **NEW INSIGHTS INTO BRONCHOPULMONARY DYSPLASIA**
O'Brodovich, H.
WILEY.2015: S3-S4
- **PULMONARY EDEMA IN INFANTS AND CHILDREN**
O'Brodovich, H.
WILEY-BLACKWELL.2015: S39-S41
- **Hospital variation and risk factors for bronchopulmonary dysplasia in a population-based cohort.** *JAMA pediatrics*

Lapcharoensap, W., Gage, S. C., Kan, P., Profit, J., Shaw, G. M., Gould, J. B., Stevenson, D. K., O'Brodovich, H., Lee, H. C.
2015; 169 (2)

- **Prediction of early spontaneous preterm birth using placental, lipid, and immune related markers**
Jelliffe-Pawlowski, L., Ryckman, K., Bedell, B., Baer, R., O'Brodovich, H., Gould, J., Currier, R., Shaw, G., Murray, J., Stevenson, D.
MOSBY-ELSEVIER.2015: S292
- **Evaluation of a cumulative first trimester characteristic and serum marker risk score for predicting early spontaneous preterm birth**
Jelliffe-Pawlowski, L. L., Baer, R., Blumenfeld, Y., Chambers, C., Druzin, M., El-Sayed, Y., Kuppermann, M., Lyell, D., Norton, M., O'Brodovich, H., Ryckman, K., Shaw, G., Stevenson, et al
MOSBY-ELSEVIER.2015: S142
- **Copy Number Variation in Bronchopulmonary Dysplasia** *AMERICAN JOURNAL OF MEDICAL GENETICS PART A*
Hoffmann, T. J., Shaw, G. M., Stevenson, D. K., Wang, H., Quaintance, C. C., Oehlert, J., Jelliffe-Pawlowski, L. L., Gould, J. B., Witte, J. S., O'Brodovich, H. M.
2014; 164 (10): 2672–75
- **Combined elevated midpregnancy tumor necrosis factor alpha and hyperlipidemia in pregnancies resulting in early preterm birth.** *American journal of obstetrics and gynecology*
Jelliffe-Pawlowski, L. L., Ryckman, K. K., Bedell, B., O'Brodovich, H. M., Gould, J. B., Lyell, D. J., Borowski, K. S., Shaw, G. M., Murray, J. C., Stevenson, D. K.
2014; 211 (2): 141 e1-9
- **Combined elevated midpregnancy tumor necrosis factor alpha and hyperlipidemia in pregnancies resulting in early preterm birth.** *American journal of obstetrics and gynecology*
Jelliffe-Pawlowski, L. L., Ryckman, K. K., Bedell, B., O'Brodovich, H. M., Gould, J. B., Lyell, D. J., Borowski, K. S., Shaw, G. M., Murray, J. C., Stevenson, D. K.
2014; 211 (2): 141 e1-9
- **Maternal Characteristics and Mid-Pregnancy Serum Markers in Spontaneous and Medically Indicated Preterm Birth**
Jelliffe-Pawlowski, L. L., Baer, R. J., O'Brodovich, H. M., Stevenson, D. K., Gould, J. B., Shaw, G. M., Currier, R. J.
SAGE PUBLICATIONS INC.2014: 239A
- **Elevated mid-pregnancy tumor necrosis factor-alpha (TNF-alpha) and lipid patterns suggestive of hyperlipidemia in pregnancies resulting in early preterm birth**
Jelliffe-Pawlowski, L., Ryckman, K., Bedell, B., O'Brodovich, H., Gould, J., Lyell, D., Shaw, G., Murray, J., Stevenson, D.
MOSBY-ELSEVIER.2014: S375–S376
- **A Genome-Wide Association Study (GWAS) for Bronchopulmonary Dysplasia.** *Pediatrics*
Wang, H., St Julien, K. R., Stevenson, D. K., Hoffmann, T. J., Witte, J. S., Lazzeroni, L. C., Krasnow, M. A., Quaintance, C. C., Oehlert, J. W., Jelliffe-Pawlowski, L. L., Gould, J. B., Shaw, G. M., O'Brodovich, et al
2013; 132 (2): 290-297
- **Association of early-preterm birth with abnormal levels of routinely collected first- and second-trimester biomarkers** *AMERICAN JOURNAL OF OBSTETRICS AND GYNECOLOGY*
Jelliffe-Pawlowski, L. L., Shaw, G. M., Currier, R. J., Stevenson, D. K., Baer, R. J., O'Brodovich, H. M., Gould, J. B.
2013; 208 (6)
- **Progress in understanding the genetics of bronchopulmonary dysplasia** *SEMINARS IN PERINATOLOGY*
Shaw, G. M., O'Brodovich, H. M.
2013; 37 (2): 85-93
- **High Quality Genome-Wide Genotyping from Archived Dried Blood Spots without DNA Amplification.** *PloS one*
St Julien, K. R., Jelliffe-Pawlowski, L. L., Shaw, G. M., Stevenson, D. K., O'Brodovich, H. M., Krasnow, M. A.
2013; 8 (5): e64710
- **Risk of bronchopulmonary dysplasia by second-trimester maternal serum levels of alpha-fetoprotein, human chorionic gonadotropin, and unconjugated estriol** *PEDIATRIC RESEARCH*
Jelliffe-Pawlowski, L. L., Shaw, G. M., Stevenson, D. K., Oehlert, J. W., Quaintance, C., Santos, A. J., Baer, R. J., Currier, R. J., O'Brodovich, H. M., Gould, J. B.
2012; 71 (4): 399-406
- **Risk of bronchopulmonary dysplasia by second trimester maternal serum levels of alpha-fetoprotein, human chorionic gonadotrophin and unconjugated Estriol** *Pediatric Research*
Jelliffe-Pawlowski LL, Shaw G, Stevenson D, Oehlert JW, Quaintance C, Santos AJ, Baer RJ, Currier RJ, O'Brodovich H, Gould JB

2012; 71 (4): 399-406

- **Lung-derived soluble mediators are pathogenic in ventilator-induced lung injury** *Am J Physiol Lung Cell Mol Physiol*
Jaecklin T, Engelberts D, Otulakowski G, O'Brodovich H, Post M, Kavanagh BP
2011; 300: L648-L658
- **Long-term terbutaline exposure stimulates alpha(1)-Na+K+-ATPase expression at posttranscriptional level in rat fetal distal lung epithelial cells** *AMERICAN JOURNAL OF PHYSIOLOGY-LUNG CELLULAR AND MOLECULAR PHYSIOLOGY*
Rahman, M. S., Gandhi, S., Otulakowski, G., Duan, W., Sarangapani, A., O'Brodovich, H.
2010; 298 (1): L96-L104
- **NHLBI Training Workshop Report: The Vanishing Pediatric Pulmonary Investigator and Recommendations for Recovery** *PEDIATRIC PULMONOLOGY*
Ferkol, T., Zeitlin, P., Abman, S., Blaisdell, C. J., O'Brodovich, H.
2010; 45 (1): 25-33
- **A Scientist Track Investigator Program to Support Early Career Outcomes for Clinician Scientists** *JOURNAL OF PEDIATRICS*
Rosenblum, N. D., Bazett-Jones, D. P., O'Brodovich, H.
2009; 155 (5): 603-U25
- **Global and Gene-Specific Translational Regulation in Rat Lung Development** *AMERICAN JOURNAL OF RESPIRATORY CELL AND MOLECULAR BIOLOGY*
Otulakowski, G., Duan, W., O'Brodovich, H.
2009; 40 (5): 555-567
- **Glucocorticoid-Mediated Repression of REDD1 mRNA Expression in Rat Fetal Distal Lung Epithelial Cells** *PEDIATRIC RESEARCH*
Otulakowski, G., Duan, W., Sarangapani, A., Gandhi, S., O'Brodovich, H.
2009; 65 (5): 514-519
- **Pulmonary Neuroendocrine Cell-Secreted Factors May Alter Fetal Lung Liquid Clearance** *PEDIATRIC RESEARCH*
Gandhi, S. G., Law, C., Duan, W., Otulakowski, G., O'Brodovich, H.
2009; 65 (3): 274-278
- **PROTEASE-ACTIVATED RECEPTOR (PAR)1 ALTERS BIOELECTRIC PROPERTIES OF DISTAL LUNG EPITHELIA WITHOUT COMPROMISING BARRIER FUNCTION** *EXPERIMENTAL LUNG RESEARCH*
Moraes, T. J., Rafii, B., Niessen, F., Suzuki, T., Martin, R., Vachon, E., Vogel, W., Ruf, W., O'Brodovich, H., Downey, G. P.
2009; 35 (2): 136-154
- **Visualizing water clearance in the lung with MRI** *MAGNETIC RESONANCE IN MEDICINE*
Vidarsson, L., Helm, E., O'Brodovich, H., Macgowan, C. K.
2008; 60 (1): 230-235
- **Amiloride-insensitive Na+ and fluid absorption in the mammalian distal lung** *AMERICAN JOURNAL OF PHYSIOLOGY-LUNG CELLULAR AND MOLECULAR PHYSIOLOGY*
O'Brodovich, H., Yang, P., Gandhi, S., Otulakowski, G.
2008; 294 (3): L401-L408
- **Steroid and oxygen effects on eIF4F complex, mTOR, and ENaC translation in fetal lung epithelia** *AMERICAN JOURNAL OF RESPIRATORY CELL AND MOLECULAR BIOLOGY*
Otulakowski, G., Duan, W., Gandhi, S., O'Brodovich, H.
2007; 37 (4): 457-466
- **Purification and characterization of a recombinant rat prohapoglobin expressed in baculovirus-infected Sf9 insect cells** *PROTEIN EXPRESSION AND PURIFICATION*
Hillar, A., Otulakowski, G., O'Brodovich, H.
2007; 55 (2): 246-256
- **Effects of cardiogenic edema fluid on ion and fluid transport in the adult lung** *AMERICAN JOURNAL OF PHYSIOLOGY-LUNG CELLULAR AND MOLECULAR PHYSIOLOGY*
Gandhi, S. G., Rafii, B., Harris, M. S., Garces, A., Mahuran, D., Chen, X., Bao, H., Jain, L., Eaton, D. C., Otulakowski, G., O'Brodovich, H.
2007; 293 (3): L651-L659

- **The role of alpha-, beta-, and gamma-ENaC subunits in distal lung epithelial fluid absorption induced by pulmonary edema fluid** *AMERICAN JOURNAL OF PHYSIOLOGY-LUNG CELLULAR AND MOLECULAR PHYSIOLOGY*
Elias, N., Rafii, B., Rahman, M., Otulakowski, G., Cutz, E., O'Brodovich, H.
2007; 293 (3): L537-L545
- **Amiloride-insensitive nasal potential difference varies with the menstrual cycle in cystic fibrosis** *PEDIATRIC PULMONOLOGY*
Swezey, N. B., Smith, D., Corey, M., Ellis, L., Carpenter, S., Tullis, D. E., Durie, P., O'Brodovich, H. M.
2007; 42 (6): 519-524
- **Performance of a career development and compensation program at an academic health science center** *PEDIATRICS*
O'Brodovich, H., Beyene, J., Tallett, S., MacGregor, D., Rosenblum, N. D.
2007; 119 (4): E791-E797
- **Thyroid hormone and Na⁺-K⁺-ATPase: more than simple transcription** *AMERICAN JOURNAL OF PHYSIOLOGY-LUNG CELLULAR AND MOLECULAR PHYSIOLOGY*
Otulakowski, G., O'Brodovich, H.
2007; 292 (1): L4-L5
- **Clinical and education workload measurements using personal digital assistant-based software** *PEDIATRICS*
MacGregor, D. L., Tallett, S., MacMillan, S., Gerber, R., O'Brodovich, H.
2006; 118 (4): E985-E991
- **Oxygen and glucocorticoids modulate alpha ENaC mRNA translation in fetal distal lung epithelium** *AMERICAN JOURNAL OF RESPIRATORY CELL AND MOLECULAR BIOLOGY*
Otulakowski, G., Rafii, B., Harris, M., O'Brodovich, H.
2006; 34 (2): 204-212
- **Fluid clearance from the lungs of newborns, infants and children** *PAEDIATRIC RESPIRATORY REVIEWS*
O'Brodovich, H.
2006; 7: S62-S63
- **Fitness to fly in an infant with congenital lobar emphysema** *AVIATION SPACE AND ENVIRONMENTAL MEDICINE*
MacLean, J. E., Manson, D., Gray, G., O'Brodovich, H.
2005; 76 (10): 989-991
- **Pulmonary edema in infants and children** *CURRENT OPINION IN PEDIATRICS*
O'Brodovich, H.
2005; 17 (3): 381-384
- **Pediatric chairs of Canada: Academic pediatric workforce** *JOURNAL OF PEDIATRICS*
Scott, B., Frewen, T., O'Brodovich, H.
2004; 145 (4): 425-426
- **Expression of epithelial sodium channel alpha-subunit mRNAs with alternative 5'-untranslated regions in the developing human lung** *AMERICAN JOURNAL OF PHYSIOLOGY-LUNG CELLULAR AND MOLECULAR PHYSIOLOGY*
Banasikowska, K., Post, M., Cutz, E., O'Brodovich, H., Otulakowski, G.
2004; 287 (3): L608-L615
- **Differential translational efficiency of ENaC subunits during lung development** *AMERICAN JOURNAL OF RESPIRATORY CELL AND MOLECULAR BIOLOGY*
Otulakowski, G., Rafii, B., O'Brodovich, H.
2004; 30 (6): 862-870
- **Low expression of human epithelial sodium channel in airway epithelium of preterm infants with respiratory distress** *PEDIATRICS*
Helve, O., Pitkanen, O. M., Andersson, S., O'Brodovich, H., Kirjavainen, T., Otulakowski, G.
2004; 113 (5): 1267-1272
- **Acquisition of competencies during the pediatric residency: A Canadian perspective** *JOURNAL OF PEDIATRICS*
Tallett, S., O'Brodovich, H.
2004; 144 (3): 289-290

- **Airspace fluid clearance in the normal and edematous newborn lung: Cardiogenic pulmonary edema fluid alters the clearance of airspace fluid** *PEDIATRIC PULMONOLOGY*
O'Brodovich, H.
2004; 121-122
- **Deficient Na⁺ channel expression in newborn respiratory distress syndrome** *PEDIATRIC PULMONOLOGY*
O'Brodovich, H.
2004; 141-142
- **Evaluation of a peer-reviewed career development and compensation program for physicians at an academic health science center** *PEDIATRICS*
O'Brodovich, H., Pleinys, R., Laxer, R., Tallett, S., Rosenblum, N., Sass-Kortsak, C.
2003; 111 (1)
- **Pulmonary oedema fluid induces non-alpha-ENaC-dependent Na⁺ transport and fluid absorption in the distal lung** *JOURNAL OF PHYSIOLOGY-LONDON*
Rafii, B., Gillie, D. J., Sulowski, C., Hannam, V., Cheung, T., Otulakowski, G., Barker, P. M., O'Brodovich, H.
2002; 544 (2): 537-548
- **Pulmonary interstitial glycogenosis - A new variant of neonatal interstitial lung disease** *AMERICAN JOURNAL OF RESPIRATORY AND CRITICAL CARE MEDICINE*
Canakis, A. M., Cutz, E., Manson, D., O'Brodovich, H.
2002; 165 (11): 1557-1565
- **Promoter analysis of the gene encoding the beta-subunit of the rat amiloride-sensitive epithelial sodium channel** *AMERICAN JOURNAL OF PHYSIOLOGY-LUNG CELLULAR AND MOLECULAR PHYSIOLOGY*
Bremner, H. R., Freywald, T., O'Brodovich, H. M., Otulakowski, G.
2002; 282 (1): L124-L134
- **Pulmonary edema fluid movement within the lung** *AMERICAN JOURNAL OF PHYSIOLOGY-LUNG CELLULAR AND MOLECULAR PHYSIOLOGY*
O'Brodovich, H.
2001; 281 (6): L1324-L1326
- **Translational activation and repression by distinct elements within the 5'-UTR of ENaC alpha-subunit mRNA** *AMERICAN JOURNAL OF PHYSIOLOGY-LUNG CELLULAR AND MOLECULAR PHYSIOLOGY*
Otulakowski, G., Freywald, T., Wen, Y. X., O'Brodovich, H.
2001; 281 (5): L1219-L1231
- **Career development and compensation: Strategies for physicians in academic health science centers - A perspective from a Canadian academic health science center** *JOURNAL OF PEDIATRICS*
O'Brodovich, H.
2001; 139 (2): 171-172
- **Fetal lung liquid secretion - Insights using the tools of inhibitors and genetic knock-out experiments** *AMERICAN JOURNAL OF RESPIRATORY CELL AND MOLECULAR BIOLOGY*
O'Brodovich, H.
2001; 25 (1): 8-10
- **Expression of alpha-, beta-, and gamma-hENaC mRNA in the human nasal, bronchial, and distal lung epithelium** *AMERICAN JOURNAL OF RESPIRATORY AND CRITICAL CARE MEDICINE*
Pitkanen, O. M., Smith, D., O'Brodovich, H., Otulakowski, G.
2001; 163 (1): 273-276
- **Transplant immunosuppression increases and prolongs transgene expression following adenoviral-mediated transfection of rat lungs** *JOURNAL OF HEART AND LUNG TRANSPLANTATION*
Cassivi, S. D., Liu, M. Y., Boehler, A., Pierre, A., Tanswell, A. K., O'Brodovich, E., Mullen, J. B., Slutsky, A. S., Keshavjee, S. H.
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- **Preventing endotoxin-stimulated alveolar macrophages from decreasing epithelium Na⁺ channel (ENaC) mRNA levels and activity** *PEDIATRIC RESEARCH*
Dickie, A. J., Rafii, B., Piovesan, J., Davreux, C., Ding, J. W., Tanswell, A. K., Rotstein, O., O'Brodovich, H.
2000; 48 (3): 304-310

- **Epithelial Na⁺ channel (ENaC) expression in the developing normal and abnormal human perinatal lung** *AMERICAN JOURNAL OF RESPIRATORY AND CRITICAL CARE MEDICINE*
Smith, D. E., Otulakowski, G., Yeager, M., Post, M., Cutz, E., O'Brodovich, H. M.
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- **Oxygen induction of epithelial Na⁺ transport requires heme proteins** *AMERICAN JOURNAL OF PHYSIOLOGY-LUNG CELLULAR AND MOLECULAR PHYSIOLOGY*
Rafii, B., Coutinho, C., Otulakowski, G., O'Brodovich, H.
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Chow, Y. H., Wang, Y., Plumb, J., O'Brodovich, H., Hu, J.
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- **Alternate funding arrangements to compensate physicians at Academic Health Science Centers** *JOURNAL OF PEDIATRIC GASTROENTEROLOGY AND NUTRITION*
O'Brodovich, H.
1999; 29 (1): 8-9
- **Structure and hormone responsiveness of the gene encoding the alpha-subunit of the rat amiloride-sensitive epithelial sodium channel** *AMERICAN JOURNAL OF RESPIRATORY CELL AND MOLECULAR BIOLOGY*
Otulakowski, G., Rafii, B., Bremner, H. R., O'Brodovich, H.
1999; 20 (5): 1028-1040
- **Metabolic instability of plasmid DNA in the cytosol: a potential barrier to gene transfer** *GENE THERAPY*
Lechardeur, D., Sohn, K. J., Haardt, M., Joshi, P. B., Monck, M., Graham, R. W., Beatty, B., Squire, J., O'Brodovich, H., LUKACS, G. L.
1999; 6 (4): 482-497
- **Regulation of an amiloride-sensitive Na⁺-permeable channel by a beta(2)-adrenergic agonist, cytosolic Ca²⁺ and Cl⁻ in fetal rat alveolar epithelium** *JOURNAL OF PHYSIOLOGY-LONDON*
Marunaka, Y., Niisato, H., O'Brodovich, H., Eaton, D. C.
1999; 515 (3): 669-683
- **Roles of Ca²⁺ and protein tyrosine kinase in insulin action on cell volume via Na⁺ and K⁺ channels and Na⁺/K⁺/2Cl⁻ cotransporter in fetal rat alveolar type II pneumocyte** *JOURNAL OF MEMBRANE BIOLOGY*
Marunaka, Y., Niisato, N., O'Brodovich, H., Post, M., Tanswell, A. K.
1999; 168 (1): 91-101
- **Sodium channels in alveolar epithelial cells: Molecular characterization, biophysical properties, and physiological significance** *ANNUAL REVIEW OF PHYSIOLOGY*
Matalon, S., O'Brodovich, H.
1999; 61: 627-661
- **HSC clinical trials controversy continues** *NATURE MEDICINE*
Buchwald, M., O'Brodovich, H.
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