

BIOGRAPHICAL SKETCH

NAME Andrew M. Hoffman, DVM, DVSc, DACVIM	POSITION TITLE Professor,
eRA COMMONS USER NAME	Director, Regenerative Medicine Laboratory, Department of Clinical Sciences

EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
University of Delaware, Newark, DE	B.A. (Honrs)	1981	Biology
Cornell University, Ithaca, NY	D.V.M.	1985	Veterinary Medicine
University of Guelph, Ontario, Canada	D.V.Sc.	1990	Pharmacology
University of Guelph, Ontario, Canada	Postdoctoral	1992	Epidem. Infectious Dis.
Hebrew University, Rehovot, Israel	Postdoctoral	1994	Pulmonary mechanics

A. Personal Statement

As Director of the Regenerative Medicine Laboratory at Tufts University Cummings School of Veterinary Medicine, Dr. Hoffman has extensive experience, publications (~100), and patents (4) concerning novel methods of evaluation or therapies in spontaneous and experimental disease models in large animals. He also has ~15 yrs experience specifically in the development of pre-clinical large animal models in accordance with Good Laboratory Practices (GLP), including as PI/PD in a current study funded by NIH (RO1-HL112987-01A1) "Autologous Lung Derived Mesenchymal Stromal Cell Therapy for Emphysema". Importantly this active study includes GLP-like pre-clinical studies in a large animal (sheep) model of emphysema followed by the first-in-human Phase 1 investigation of autologous LMSCs therapy for advanced emphysema in years 4-5, the latter under the direction of Edward P. Ingenito MD, PhD (PD/PI, Brigham and Womens Hospital). Previously Drs. Hoffman and Ingenito developed major advances in human emphysema therapy, specifically non-surgical methods for lung volume reduction which are currently in Phase III again successfully linking pre-clinical large animal models with human studies. In addition, Dr. Hoffman's laboratory serves as a **Regenerative Medicine / Stem Cell core** and project leader on several studies involving canine, feline, and avian species funded by a variety of Foundations and industry partners. These multifaceted experiences have given the PD/PI the experience to lead multi-disciplinary projects involving stem cell implantations, bioengineering technologies, large animal experimental or spontaneous models, cell-molecular biology, biomarker analyses, clinical trial design, and FDA (GLP, GCP, GMP) compliance.

B. Positions and Honors

Positions and Employment

1987-1991	Residency / DVSc (Doctor of Veterinary Science) combined program, University of Guelph, Ontario Veterinary College, Ontario, Canada.
1991-1992	Fellow, EP Taylor Foundation of Ontario, University of Guelph
1992-1994	Fellow, Lady Davis Foundation of Montreal, Hebrew University
1994-2001	Assistant Professor, Tufts University School of Veterinary Medicine (TUCSVM).
1995-	Director, Lung Function Testing Laboratory, TUCSVM.
1996-2001	Director, Equine Sports Medicine Signature Program
2001-2009	Associate Professor, Director, Lung Function Testing Laboratory (TUCSVM).
2005-2009	Director Stem Cell Laboratory
2009-	Professor, Director, Regenerative Medicine Laboratory, (TUCSVM).

Other experiences and professional memberships

- 1989- American Thoracic Society
- 1991- American College of Veterinary Internal Medicine
- 2003- International Society of Stem Cell Research
- 1988- Veterinary Comparative Respiratory Society (President 2001-2002)
- 2003- 2004 USDA Study Section, Animal Protection Grant Panel 44.0.
- 2013 NIH (PPG) study panel (NHLBI)

Honors

- 1995 Clinician of the Year Award (TUCSVM)
- 2002 Pfizer Award for Excellence in Research (TUCSVM)
- 2002 Veterinary Comparative Respiratory Society President
- 2010 Niemeyer Lecturer (April 16, 2010), University of Missouri
- 2012 Penseger Lecture (April 20, 2012), University of Illinois
- 2013 Exceptional Service Award for a Faculty in 2013 (TUVSCM)

C. Selected publications (from ~100)

1. Ingenito EP, Bergen RL, Henderson AC, Reilly JJ, Tsai L, and Hoffman AM (2003). Bronchoscopic lung volume reduction using tissue engineering principles. ***Am J Resp Crit Care Med*** 167:771-778; PMID 12406835
2. Bellardine C, Hoffman AM, Tsai L, Arold S, Ingenito EP, Suki B, and Lutchen K (2006) Comparison of variable and conventional ventilation in a sheep saline lavage lung injury model, ***Crit Care Med*** 34:439-445; PMID 16424726
3. Nolen-Walston RD, Kim CF, Mazan MR, Ingenito EP, Gruntman AM, Tsai L, Boston R, Woolfenden AE, Jacks T, and Hoffman AM (2008). Cell kinetics and modeling of bronchioalveolar stem cell proliferation during lung regeneration in mice. ***Am J Physiol: Lung Cell Mol Biol***;294: L1158-L1165; PMID 18375744
4. Paxson J, Parkin C, Iyer L, Mazan MR, Ingenito EP, and Hoffman AM (2009). Global gene expression patterns during post-pneumectomy lung regeneration in adult mice. ***Resp Research*** 10:92; PMID 19804646
5. Ingenito EP, Sen E, Tsai L, Murthy S, Hoffman AM (2010). Design and testing of biological scaffolds for delivery reparative cells to target sites in the lung. ***J Tiss Eng Reg Med*** 4:259-272; PMID: 20020503
6. Hoffman AM, Shifren A, Mazan MR, Gruntman AM, Lascola K, Nolen-Walston R, Kim CF, Tsai L, Pierce RA, Mecham R, and Ingenito EP (2010). Matrix modulation of compensatory lung regrowth and progenitor cell proliferation in mice ***Am J Physiol: Lung Cell Mol Physiol*** 298:L158-68; PMID 19915155
7. Ingenito EP, Tsai L, Murthy S, Mazan MR, and Hoffman AM (2011). Autologous lung mesenchymal stem cell transplantation in an emphysema model. ***Cell Transplant***, Feb 3, ePub ahead of print; PMID 21294955.
8. Hoffman AM, Paxson J, Mazan M, Davis A, Tyagi S, Murthy S, and Ingenito EP (2011). Lung mesenchymal stromal cell post-transplantation survival, persistence, paracrine expression, and repair of elastase injured lung. ***Stem Cells Develop***, DOI: 10.1089/scd.2011.0105; PMID 21585237
9. Paxson J, Gruntman A, Parkin C, Mazan M, Davis A, Ingenito E, and Hoffman AM (2011). Age dependent decline in lung regeneration with loss of clonogenicity and myofibroblast differentiation of lung fibroblasts. ***PlosOne***, published 30 Aug 2011 10.1371/journal.pone.0023232; PMID 21912590.

10. Hoffman AM, Ingenito EP. (2012) Invited Review. Alveolar epithelial stem and progenitor cells: emerging roles in lung regeneration. ***Clinical Medicinal Chemistry: Special Issue on Stem Cells, Regenerative Medicine, and Cancer***. 2012;19(35):6003-8; PMID 23016551.
11. Eisenhauer P, Earle B, Loi R, Sueblinvong V, Goodwin M, Allen G, Lundblad L, Mazan M, Hoffman AM, Weiss DJ. Endogenous Distal Airway Progenitor Cells, Lung Mechanics, and Disproportionate Lobar Growth following Long-Term Post-Pneumonectomy in Mice. ***Stem Cells***, Mar 26. doi: 10.1002/stem.1377. [Epub ahead of print]; PMID: 23533195
12. Darcy E. Wagner, Ryan Bonvillain, Todd Jensen, Eric D. Girard, Bruce A. Bunnell, Christine M. Finck, Andrew M. Hoffman, Daniel J. Weiss. Invited Review: Can Stem Cells be Used to Generate New Lungs? Ex Vivo Lung Bioengineering with Decellularized Whole Lung Scaffolds. ***Respirology***, in press. DOI: 10.1111/resp.12102; PMID: 23614471.
13. Dino Sokocevic, Nicholas Bonenfant,, Zachary D. Borg, Darcy Wagner, Melissa Lathrop, Ying Wai Lam, Ph.D., Bin Deng, Michael DeSarno, Taka Ashikaga, Roberto Loi, Andrew M. Hoffman, Daniel J. Weiss. The Effect of Age and Emphysematous and Fibrotic Injury on the Re-Cellularization of De-Cellularized Lungs, ***Biomaterials***, 34(13):3256-3269; PMID: 23384794.
14. Michael A. Matthay, Piero Anversa, Jahar Bhattacharya, Bruce K. Burnett, Harold A. Chapman, Joshua M. Hare, Derek J. Hei, Andrew M. Hoffman, Stella Kourembanas, David H. McKenna, Luis A. Ortiz, Harald Ott, William Tente, Bernard Thébaud, Bruce C. Trapnell, Daniel J. Weiss, Jason X.-J. Yuan, Carol J. Blaisdell. Cell Therapy for Lung Disease. Report from an NIH-NHLBI Workshop November 13-14 2012. ***Am J Resp Crit Care Med***. 2013, ePub; PMID 23713908.
15. Paxson J, Gruntman AM, Davis AM, Parkin CM, Ingenito EP, and Hoffman AM. Age Dependence of Lung Mesenchymal Stromal Cell Dynamics Following Pneumonectomy, ***Stem Cells Develop***, 2013 ePub; PMID 23895415.
16. Thane K, Ingenito EP, and Hoffman AM. Invited Review: Lung regeneration and translational implications of the post-pneumonectomy model. ***Transl Res***. 2013 Nov 21. pii: S1931-5244(13)00427-1.

D. Research Support

Current support

NIH: 1 R01 HL112987-01A1

2013 - 2018

Autologous Lung Multipotent Stromal Cell (MSCs) Therapy for Emphysema

Role: PI (MPI with EP Ingenito)

The objective of this grant is to evaluate lung parenchymal MSCs for their capacity to stimulate regenerative processes (neo-alveolarization, neo-angiogenesis) in a sheep model of localized emphysema.

Advanced Cell Technology

2012-2014

Pluripotent stem cell derived MSCs for treatment of several canine spontaneous disease (primarily autoimmune disease) models.

Role: PI

The objective of these studies is to evaluate in vivo the effects of ESC or iPSC derived MSCs for immunomodulatory and anti-inflammatory effects in canines with naturally occurring diseases analogous to chronic viral hepatitis, auto-immune glomerulonephritis, enterocutaneous Crohn's disease, multiple sclerosis, osteoarthritis, and intervertebral disk disease.

Past support (within last 3 yrs)

NIH: 1RC4HL106625-01 Weiss, D (PD/PI) 2010 - 2013

Bioengineering new lungs from cadaveric lung scaffolds

Role: co-I

The objective of these studies was to develop repopulation assays involving lung stem and progenitor cells in decellularized lung scaffolds of large animals.

NIH: 5R01HL090145-01 Ingenito, EP (PD/PI) 2008 - 2012

Pneumografting: a novel cell-based therapy for emphysema

Role: co-I

The objective of these studies was to evaluate the concept that autologous LR-MSCs are safe and effective for treatment of emphysema using a sheep model.