CURRICULUM VITAE

Name: Matthew Philip Hoffman

Education:

1986	BDS, University of Otago School of Dentistry Dunedin, New Zealand, Awarded with Credit
1991	MS, Microbiology and Immunology, University of Rochester School of Medicine and Dentistry, Rochester, NY
1994	PhD, Microbiology and Immunology, University of Rochester School of Medicine and Dentistry, Rochester, NY

Brief Chronology of Employment:

1987	Dental House Surgeon (1st Year) Wellington Hospital Board, Wellington, NZ
1988	Dental House Surgeon (2nd Year) Wellington Hospital Board, Wellington, NZ
1989	Research Assistant, Dental Research Unit, NZ Medical Research Council, Wellington, NZ
1994-1997	Visiting Fellow, Cell Biology Section, Laboratory of Developmental Biology, NIDR, NIH
1997-2000	Visiting Associate, Cell Biology Section, Craniofacial Developmental Biology and Regeneration Branch, NIDCR, NIH
2000-2003	Staff Scientist, Cell Biology Section, Craniofacial Developmental Biology and Regeneration Branch, NIDCR, NIH
2004	Chief, Matrix and Morphogenesis Unit, LCDB, NIDCR, NIH

Honors and Awards:

J. Lee-Jones Prize in Preclinical Dentistry, University of Otago, 1983
O.V. Davies Memorial Prize in Basic Dental Surgery, University of Otago, 1984
Leask Memorial Medal for Clinical Dentistry, University of Otago
Dental Research Foundation Prize, New Zealand Dental Research Foundation, 1986
Fulbright Travel Scholarship, NZ/US Fulbright Commission, 1989-93
NZDA. Award for Research, New Zealand Dental Association, 1990
NIDR, NIH Cash Award for Innovative Research, 1995
Poster Award at the 3rd Pan Pacific Connective Tissue Societies Symposium, 1996
NIDR, NIH Cash Award for Research Excellence, 1996
NASA award to fund the project “Salivary gland cell differentiation in the RWV Bioreactor.”for 2 years, 1996-97
NIDCR, NIH Cash Award for Research Excellence, 1998
NIDCR, NIH Royalty Cash Award for Research Initiative, 1999
NIDCR Travel Award, 2002
NIDCR, NIH Cash Award for Excellence in Mentoring, 2002
Elected Vice Chair (2009) and Chair (2011) of Gordon Conference on Salivary Glands and Exocrine Secretions, 2007

Editorial Responsibilities

2003-present	Biotechnic and Histochemistry Journal
2004-present	Developmental Dynamics

Invited Talks and Presentations

1997 The role of extracellular matrix in salivary gland acinar cell differentiation. Gordon Conference on Salivary Glands and Saliva. February 23-28, Ventura CA.

1997 Basement membranes in organ development. August 20, Deans Lecture, Wellington School of Medicine, Otago University, Wellington, New Zealand.

1997 The role of laminin in cell differentiation. August 21, Malaghan Institute Research Seminar, Wellington, New Zealand.

1997 Pathways to organogenesis. August 28, Terry Cutress Symposium: Interactions between epidemiology and basic research in oral health. Dunedin, New Zealand.

1997 Laminin G-domain synthetic peptides bind to syndecans and promote acinar-like development of a human submandibular gland (HSG) cell line. September 17, RCOB Seminar, University of Pennsylvania Dental School, Philidelphia, USA

1997 Laminin-1 and laminin-2 alpha chain peptides are involved in salivary gland cell differentiation via a syndecan-1 surface receptor. December 13, Three Dimensional Tissue Culture: A new dynamic in cell biology. (Special Interest Subgroup meeting) ASCB 37th Annual meeting, Washington, DC.

1998 The Role of Laminin and Syndecans in Salivary Gland Cell Differentiation. February 3, Dental Research Seminar, Oregon Health Sciences University Dental School, Portland, OR.

1998 Growth Factor-Matrix Synergy in Cell Differentiation. NIH Research Festival, October 7-9.

1998 The role of basement membrane components in salivary acinar cell differentiation in vitro. One of two invited lectures on Extracellular Matrix, at the VI research Meeting of the School of Dentistry at the University of Sao Paulo, Brazil. October 26-28.

1998 Basement Membranes: Structure, function and role in development. One of two invited lectures on Extracellular Matrix, at the VI research Meeting of the School of Dentistry at the University of Sao Paulo, Brazil. October 26-28.

1999 Extracellular Matrix/Growth Factor Synergy Promotes HSG Cell Acinar Differentiation. . Gordon Conference on Salivary Glands and Saliva. February 21-26, Ventura CA

1999 Growth factor/matrix synergy in salivary acinar cell differentiation. Seminar, Pulmonary Critical Care Medicine Branch, NHLBI, NIH, Bethesda MD.

1999 PKC and MAP kinase signaling regulate the amylase promoter activity in a human salivary cell line. Seminar, Clinical Research Branch , NIDCR, NIH. May 24.

2000 Gene expression profiles of developing mouse salivary glands. 16th International Conference on Oral Biology. Saliva in Health and Disease. April 9-12, Chantilly VA.

2001 Array Analysis of Salivary Gland Development: Where do we go from here? Gordon Conference on Salivary Glands and Saliva. February 11-16, Ventura CA.

2001 Functional Genomics and Salivary Gland Development. Student Research Group Annual Research Symposium. Baltimore College of Dental Surgery, UMD Dental School. April 18, Baltimore MD.

2001 Fibroblast growth factor receptor 2 (IIIb) regulates branching morphogenesis of developing mouse submandibular glands. International Association of Dental Research Symposium on Repair of Salivary Glands. June 27-30, Chiba, Japan.

2001 Invited for 2 week Mini-Sabbatical to Department of Oral Pathology, November 16-December 2, Sao Paulo, Brazil.

2001 Fibroblast growth factor receptors and laminin 10 are important regulators of branching morphogenesis of embryonic salivary glands. The Brazilian Society for Cell Biology, Symposium on Cytoskeleton and Cell Differentiation. November 29-30. Sao Paulo, Brazil

2002 Career Paths in Dentistry. 38th Annual Dental Students Conference on Research. March 16-19. NIDCR, NIH, Bethesda MD.

2002 Branching morphogenesis of mouse salivary glands: regulation by growth factors and the basement membrane. Biological Stain Commission, Annual Meeting, June 7-8. Rockville, MD.

2003 FGFs regulate branching morphogenesis of embryonic submandibular glands. Seminar, Gene Therapy and Therapeutics branch , NIDCR, NIH. March 17.

2003 Branching morphogenesis of mouse submandibular glands is regulated by FGF signaling. Seminar, Laboratory of Cell Biology, NHBLI, NIH. April 22.

2003 Branching morphogenesis of mouse submandibular glands is regulated by Matrix Metalloproteinases and Fibroblast Growth Factor signaling. Department of Cell and Molecular Biology, Distinguished Scientist Seminar Series, Boston University Dental School. May 8.

2003 Matrix Metalloproteinase (MMP) Activity Is Required for Branching Morphogenesis of Developing Mouse Submandibular Salivary Glands. Pan Pacific Connective Tissues Symposium. Yamaguchi, Japan, June 7.

2003 FGF7 and FGF10 Regulate Branching Morphogenesis of Developing Mouse Submandibular Glands in vitro through FGFR2b and FGFR1b. International Association for Dental Research, Goteborg, Sweden. June 27.

2003 Branching morphogenesis is regulated by Fibroblast Growth Factor signaling and Matrix Metalloproteinases activity. Shriners Hospital for Children-Portland Research Center. Monday Seminar Series. August 18.

2004 FGFs and MMPs regulate branching morphogenesis of mouse submandibular glands, Branch Seminar, LCCTP Lab, NCI, NIH. March 5.

2004 FGF7 and FGF10 signaling through FGFR2b regulates ex vivo mouse submandibular gland branching morphogenesis through MMP-dependent mechanisms. Keystone Meeting on Signaling in Vertebrate Organogenesis. Feb 26-Mar 2, 2004.

2004 FGF and extracellular matrix regulation of submandibular gland branching morphogenesis. OPCB Seminar, NIDCR, NIH. November.

2005 An Overview of Functional Genomic Approaches in Salivary Gland Research. Keynote address in the Salivary Gland Development and Regeneration Symposium, International Association of Dental Research Meeting, Baltimore MD, March 10.

2005 Salivary gland development: Implications for therapeutic gland regeneration Keynote speaker for Science Day, Predoctoral Research Program at Boston University School of Dental Medicine, Boston MA. March 24.

2005 Keynote Lecture on Salivary Gland Development, in a session on Structure and Functions of Salivary Glands. 7th European Symposium on Saliva, Egmond aan Zee, Netherlands, May 11.

2005 Salivary gland development: Implications for therapeutic gland regeneration. Oral Health Sciences Seminar, University of Michigan School of Dentistry, October 13.

2005 Salivary Gland Branching Morphogenesis. Focus Group on Tube and Branching Morphogenesis Seminar, Weill Medical College, Cornell University. November 10.

2005 FGF10 function during submandibular gland branching morphogenesis, in a session on Growth Factors, 6th Pan Pacific Connective Tissue Societies Symposium, Hawaii December 2.

2006 FGF regulation of submandibular gland branching morphogenesis, Gordon Research Conference on Fibroblast Growth Factors In Development & Disease, Ventura, CA March 12-17.

2006 Matrix remodeling during branching morphogenesis, Gordon Research Conference on Basement Membranes, Il Ciocco, Barga, Italy June 18-23.

2006 Heparan sulfate regulation of FGF10 function during salivary gland branching morphogenesis, Gordon Research Conference on Proteoglycans, Andover, NH, July 9-14.

2006 FGF10 regulation of branching morphogenesis in salivary glands, Department of Pharmacology, School of Medicine, Yale University, New Haven, CT, July 25.

2006 Growth factor modulation of submandibular salivary gland branching morphogenesis: Implications for therapeutic gland regeneration. Salivary Gland Symposium-Development and Disease. The Department of Craniofacial Development, Kings College London, University of London, UK. Sept 11.

2006 FGF10 regulates branching morphogenesis during salivary gland development. 3rd International Symposium on Salivary Glands, Okazaki, Japan, October 20-24.

2006 Laminin and FGF regulation of salivary gland branching morphogenesis, Department of Cell and Molecular Biology, Northwestern University, Chicago, IL, December 5.

2007 MT2-MMP regulates epithelial morphogenesis and collagen IV expression during mouse submandibular gland (SMG) development. XIIIth International Symposium on Basement Membranes, Cologne Germany, Sept 19-22.

2007 FGF10 and extracellular matrix regulation of salivary gland branching morphogenesis. Department Seminar, Faculty of Medicine, University of Gottingen, Gottingen, Germany, Sept 24

2007 FGF and ECM regulation of salivary gland branching morphogenesis. Department Seminar, University Medical Center Groningen, Dept. of Cell Biology, Groningen, Netherlands, Sept 25th

2007 Specific heparan sulfate structures modulate FGF10 biological activity during submandibular gland branching morphogenesis. 7th Pan Pacific Connective Tissue Societies Symposium. Cairns, Australia, October 28-November 1.

2008 Heparan sulfate regulation of FGF10-mediated submandibular gland branching morphogenesis Gordon Research Conference on Fibroblast Growth Factors In Development & Disease, Il Ciocco, Barga, Italy March 2-7.

Bibliography

1. Hoffman, M.P., Cutress, T.W. & Tomiki, S. Prevalence of developmental defects of enamel in children in the Kingdom of Tonga. *N Z Dent J* 84, 7-10 1988.
2. Hoffman, M.P., Cutress, T.W. & Crooks, M.C. Some epidemiological and scanning electron microscopic features of crazing of the dental enamel of Polynesians. *N Z Dent J* 85, 86-90 1989.
3. Sissons, C.H., Cutress, T.W., Hoffman, M.P. & Wakefield, J.S. A multi-station dental plaque microcosm artificial mouth) for the study of plaque growth, metabolism, pH, and mineralization. *J Dent Res* 70, 1409-16 1991.
4. Hoffman, M.P. & Haidaris, C.G. Analysis of Candida albicans adhesion to salivary mucin. *Infect Immun* 61, 1940-9 1993.

5. Hoffman, M.P. & Haidaris, C.G. Identification and characterization of a Candida albicans-binding proteoglycan secreted from rat submandibular salivary glands. *Infect Immun* 62, 828-36 1994.
6. Hoffman, M.P., Kibbey, M.C., Letterio, J.J. & Kleinman, H.K. Role of laminin-1 and TGF-beta 3 in acinar differentiation of a human submandibular gland cell line HSG. *J Cell Sci* 109 Pt 8), 2013-21 1996.
7. Nomizu, M. et al. Identification of cell binding sequences in mouse laminin gamma1 chain by systematic peptide screening. *J Biol Chem* 272, 32198-205 1997.
8. Webber, M.M., Bello, D., Kleinman, H.K. & Hoffman, M.P. Acinar differentiation by non-malignant immortalized human prostatic epithelial cells and its loss by malignant cells. *Carcinogenesis* 18, 1225-31 1997.
9. Hoffman, M.P. Pathways to organogenesis: from coconut crazed teeth in Tonga to salivary glands in space. *N Z Dent J* 94, 117-18 1998.
10. Hoffman, M.P. et al. Laminin-1 and laminin-2 G-domain synthetic peptides bind syndecan-1 and are involved in acinar formation of a human submandibular gland cell line. *J Biol Chem* 273, 28633-41 1998.
11. Nomizu, M. et al. Cell binding sequences in mouse laminin alpha1 chain. *J Biol Chem* 273, 32491-9 1998.
12. Zheng, C., Hoffman, M.P., McMillan, T., Kleinman, H.K. & O'Connell, B.C. Growth factor regulation of the amylase promoter in a differentiating salivary acinar cell line. *J Cell Physiol* 177, 628-35 1998.
13. Ponce, M.L. et al. Identification of endothelial cell binding sites on the laminin gamma 1 chain. *Circ Res* 84, 688-94 1999.
14. Jung, D.W. et al. PKC and ERK1/2 regulate amylase promoter activity during differentiation of a salivary gland cell line. *J Cell Physiol* 185, 215-25 2000.
15. Nielsen, P.K. et al. Identification of a major heparin and cell binding site in the LG4 module of the laminin alpha 5 chain. *J Biol Chem* 275, 14517-23 2000.
16. Nomizu, M. et al. Cell adhesive sequences in mouse laminin beta1 chain. *Arch Biochem Biophys* 378, 311-20 2000.
17. Hoffman, M.P. et al. Cell type-specific differences in glycosaminoglycans modulate the biological activity of a heparin-binding peptide RKRLQVQLSIRT) from the G domain of the laminin alpha1 chain. *J Biol Chem* 276, 22077-85 2001.
18. Engbring, J.A., Hoffman, M.P., Karmand, A.J. & Kleinman, H.K. The B16F10 cell receptor for a metastasis-promoting site on laminin-1 is a heparan sulfate/chondroitin sulfate-containing proteoglycan. *Cancer Res* 62, 3549-54 2002.
19. Hecht, D. et al. Metallothionein promotes laminin-1-induced acinar differentiation in vitro and reduces tumor growth in vivo. *Cancer Res* 62, 5370-4 2002.
20. Hoffman, M.P. et al. Gene expression profiles of mouse submandibular gland development: FGFR1 regulates branching morphogenesis in vitro through BMP- and FGF-dependent mechanisms. *Development* 129, 5767-78 2002.
21. Kleinman, H.K., Philp, D. & Hoffman, M.P. Role of the extracellular matrix in morphogenesis. *Curr Opin Biotechnol* 14, 526-32 2003.
22. Larsen, M. et al. Role of PI 3-kinase and PIP3 in submandibular gland branching morphogenesis. *Dev Biol* 255, 178-91 2003.
23. Laurent, M. et al. NOVH increases MMP3 expression and cell migration in glioblastoma cells via a PDGFR-alpha-dependent mechanism. *Faseb J* 17, 1919-21 2003.
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26. Freitas, V.M., Scheremeta, B., Hoffman, M.P. & Jaeger, R.G. Laminin-1 and SIKVAV a laminin-1-derived peptide, regulate the morphology and protease activity of a human salivary gland adenoid cystic carcinoma cell line. *Oral Oncol* 40, 483-9 2004.

27. Hibino, S. et al. Laminin alpha5 chain metastasis- and angiogenesis-inhibiting peptide blocks fibroblast growth factor 2 activity by binding to the heparan sulfate chains of CD44. *Cancer Res* 65, 10494-501 2005.
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29. Cid, M.C. et al. Association between increased CCL2 MCP-1) expression in lesions and persistence of disease activity in giant-cell arteritis. *Rheumatology Oxford)* 45, 1356-63 2006.
30. Fukumoto, S. et al. Laminin alpha5 is required for dental epithelium growth and polarity and the development of tooth bud and shape. *J Biol Chem* 281, 5008-16 2006.
31. Patel, V.N., Rebustini, I.T. & Hoffman, M.P. Salivary gland branching morphogenesis. *Differentiation* 74, 349-64 2006.
32. Philp, D. et al. Thymosin beta4 promotes matrix metalloproteinase expression during wound repair. *J Cell Physiol* 208, 195-200 2006.
33. Freitas, V.M. et al. SIKVAV, a laminin alpha1-derived peptide, interacts with integrins and increases protease activity of a human salivary gland adenoid cystic carcinoma cell line through the ERK 1/2 signaling pathway. *Am J Pathol* 171, 124-38 2007.
34. Patel, V.N. et al. Heparanase cleavage of perlecan heparan sulfate modulates FGF10 activity during ex vivo submandibular gland branching morphogenesis. *Development* 134, 4177-86 2007.
35. Rebustini, I.T. et al. Laminin alpha5 is necessary for submandibular gland epithelial morphogenesis and influences FGFR expression through beta1 integrin signaling. *Dev Biol* 308, 15-29 2007.
36. Vag, J. et al. Morphological and functional differentiation of HSG cells: role of extracellular matrix and trpc 1. *J Cell Physiol* 212, 416-23 2007.
37. Wei, C., Larsen, M., Hoffman, M.P. & Yamada, K.M. Self-organization and branching morphogenesis of primary salivary epithelial cells. *Tissue Eng* 13, 721-35 2007.
38. Patel, V.N. et al. Specific Heparan Sulfate Structures Modulate FGF10-mediated Submandibular Gland Epithelial Morphogenesis and Differentiation. *J Biol Chem* 283, 9308-17 2008.
39. Knox, S.M. & Hoffman, M.P. Salivary gland development. Chapter in Saliva Diagnostics. Blackwell Publications. Editor D.T. Wong. 2008 *In press*.
40. Rebustini, I.T. & Hoffman, M.P. Analysis of protease activity during salivary gland epithelial morphogenesis I.T Rebustini and M. P. Hoffman.. Extracellular Matrix Protocols. Humana Press. Editors S. Evan-Ram and V. Artym. 2008 *In Press*)