

CURRICULUM VITAE

Thomas J. Lawton MD

EDUCATION

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| 1982-1986 | University of Michigan College of Literature Science and the Arts |
| 1986-1990 | University of Michigan Medical School |

DEGREES

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| 1986 | Bachelor of Science with Honors in Cellular and Molecular Biology |
| 1990 | Doctor of Medicine |

POSTGRADUATE TRAINING

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| 1990-1991 | Postdoctoral Fellow, Howard Hughes Medical Institute and Department of Pathology, University of Michigan |
| 1991-1993 | Resident, Anatomic Pathology, Hospital of the University of Pennsylvania, Philadelphia, PA |
| 1993-1995 | Resident, Anatomic Pathology, Stanford University Hospital, Stanford, CA |
| 1995-1996 | Fellow, Surgical Pathology, Stanford University Hospital, Stanford, CA |

FACULTY POSITIONS

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| 1996-1999 | Assistant Professor, Department of Pathology and Laboratory Medicine, University of Pennsylvania School of Medicine, Philadelphia, PA |
| 1999-2005 | Assistant Professor, Department of Pathology, University of Washington School of Medicine, Seattle, WA |
| 2005-2008 | Associate Professor, Department of Pathology, University of Washington School of Medicine, Seattle, WA |
| 2008 – present | Director, Seattle Breast Pathology Consultants
Seattle, WA |

BOARD CERTIFICATIONS

1996 Diplomate in Anatomic Pathology, American Board of Pathology

LICENSURE

1999-present Washington

PROFESSIONAL ORGANIZATIONS

American Society of Breast Disease
United States and Canadian Academy of Pathology

TEACHING RESPONSIBILITIES

1996-1999 Pathology 200/Curriculum 2000, University of Pennsylvania School of Medicine, lecturer (Breast Pathology lecture and lab instructor for Renal, Endocrine/Reproduction sections)

1999-2008 Human Biology 546, University of Washington School of Medicine, lecturer (Breast Pathology and Breast Tumor Board)

1999-2008 Resident didactic lectures in Breast Pathology (4/year), Department of Pathology Residency Program

NATIONAL RESPONSIBILITIES

2002-2008 Fred Hutchinson Cancer Research Center/ Seattle Cancer Care Alliance Representative, National Comprehensive Cancer Network Committee for Breast Cancer Risk Reduction

LOCAL RESPONSIBILITIES

1999-2008 Standing member, Breast Cancer Research Program Executive Committee

2000-2008 Pathology representative, University of Washington Medical Center/Seattle Cancer Care Alliance Clinical Cancer Committee

MANUSCRIPTS PUBLISHED

1. Burdi AR, *Lawton TJ*, Grosslight J. Prenatal Pattern Emergence in Early Human Facial Development. *The Cleft Palate Journal* 25(1):3-8, 1988.
2. Wong M, *Lawton TJ*, Goetinck PF, Kuhn JL, Goldstein SA, Bonadio J. Aggrecan Core Protein is Expressed in Membranous Bone of the Chick Embryo: Molecular and Biomechanical Studies of Normal and Nanomelia Embryos. *The Journal of Biological Chemistry* 267(8):5592-5598, 1992.
3. Carmeci D, deConinck EC, *Lawton T*, Bloch DA, Weigel RJ. Analysis of Estrogen Receptor mRNA in Breast Carcinomas from Archival Specimens is Predictive of Tumor Biology. *American Journal of Pathology* 150(5):1563-1570, 1997.
4. *Lawton TJ*, Feldman M, LiVolsi VA. Lymphocytic Infiltrates in Solitary Parathyroid Adenomas: A Report of Four Cases with Review of the Literature. *International Journal of Surgical Pathology* 6(1):5-9, 1998.
5. Perez-Jaffe LA, Furth EE, Minda JM, Unger LD, *Lawton TJ*. Massive Macrophage Lipid Accumulation Presenting as Hepatosplenomegaly and Lymphadenopathy Associated with Long Term Parenteral Nutrition Therapy for Short Bowel Syndrome. *Human Pathology* 29:651-655, 1998.
6. Reynolds C, Mick R, Donohue JD, Grant CS, Farley DR, Callans LS, Orel SG, Keeney GL, *Lawton TJ*, Czerniecki BJ. Sentinel Lymph Node Biopsy with Metastasis: Can Axillary Dissection be Avoided in Some Patients with Breast Cancer? *Journal of Clinical Oncology* 17(6):1720-1726, 1999.
7. Goldstein SM, Syed NA, Milam AH, Maguire AM, *Lawton TJ*, Nichols CW. Cancer-Associated Retinopathy. *Archives of Ophthalmology* 117(12): 1641-1645, 1999.
8. Komisarof JF, Olthoff K, Siegelman ES, *Lawton TJ*, Furth EE. Focal Nodular Hyperplasia Contiguous with an Echinococcal Cyst. *American Journal of Gastroenterology* 95(4): 1078-1081, 2000.
9. Yu GH, *Lawton TJ*, Pasha TL, Reynolds C. Intercellular Adhesion Molecule Expression in Ductal Carcinoma of the Breast. *Diagnostic Cytopathology* 23(2): 73-76, 2000.
10. Weinstein SP, Conant EF, Orel SG, Zuckerman JA, Czerniecki BJ, *Lawton TJ*. Retrospective Review of Palpable Breast Lesions After Negative Mammography and Sonography. *Journal of Women's Imaging* 2(1): 15-18, 2000.
11. Bedrosian I, Reynolds C, Mick R, Callans LS, Grant CS, Donohue JH, Farley DR, Heller R, Conant E, Orel SG, *Lawton T*, Fraker DL, Czerniecki BJ. Accuracy of Sentinel Lymph Node Biopsy in Patients with Large Primary Breast Tumors. *Cancer* 88(11): 2540-2545, 2000.
12. Acs G, *Lawton TJ*, Rebbeck TR, LiVolsi VA, Zhang PJ. Differential Expression of E-cadherin In Lobular and Ductal Neoplasms of the Breast and its Biologic and Diagnostic Implications. *American Journal of Clinical Pathology* 115(1): 85-98, 2001.

13. Georgian-Smith D and *Lawton TJ*. Calcifications of Lobular Carcinoma in Situ of the Breast: Radiologic-Pathologic Correlation. *American Journal of Roentgenology* 176(5): 1255-1259, 2001.
14. Weinstein SP, Conant EF, Orel SG, Zuckerman JA, *Lawton TJ*, Acs G. Diabetic Mastopathy in Men: Imaging Findings in Two Patients. *Radiology* 219(3): 797-799, 2001.
15. Chang JH, Vines E, Bertsch H, Fraker D, Czerniecki B, Rosato E, *Lawton T*, Conant EF, Orel SG, Schuchter L, Fox, KR, Zieber N, Glick J, Solin LJ. The Impact of a Multidisciplinary Breast Cancer Center on Recommendations for Patient Management: The University of Pennsylvania Experience. *Cancer* 91(7): 1231-1237, 2001.
16. Moskovitz AH, Anderson BO, Yeung, RS, Byrd DR, *Lawton TJ*, Moe RE. Axillary Web Syndrome After Axillary Dissection. *The American Journal of Surgery* 181(5): 434-439, 2001.
17. Weinstein SP, Orel SG, Collazzo L, Conant EF, *Lawton TJ*, Czerniecki B. Cyclosporine A-Induced Fibroadenomas of the Breast: Report of Five Cases. *Radiology* 220 (2): 465-468, 2001.
18. Georgian-Smith D, *Lawton TJ*, Moe RE, Couser WG. Lupus Mastitis: Radiologic and Pathologic Features. *American Journal of Roentgenology* 178(5): 1233-1235, 2002.
19. Mankoff DA, Dunnwald LK, Gralow JR, Ellis GK, Charlop A, *Lawton TJ*, Schubert EK, Tseng J, Livingston RB. Blood Flow and Metabolism in Locally Advanced Breast Cancer: Relationship to Response to Therapy. *Journal of Nuclear Medicine* 43(4): 500-509, 2002.
20. Yen TW, Anderson BO, Mann GN, *Lawton TJ*, Livingston RB. An Axillary Recurrence of Breast Cancer Following a Negative Sentinel Lymph Node Biopsy. *Breast Journal* 9(3): 234-236, 2003.
21. Mankoff DA, Dunnwald LK, Gralow JF, Ellis GK, Schubert EK, Tseng J, Charlop AW, *Lawton TJ*, Linden HM, Livingston RB. Changes in Blood Flow and Metabolism in Locally Advance Breast Cancer (LABC) Treated with Neo-Adjuvant Chemotherapy. *Journal of Nuclear Medicine* 44(11): 1806-1814, 2003.
22. Agoff SN, Swanson PE, Linden H, Hawes SE, *Lawton TJ*. Androgen Receptor Expression In Estrogen Receptor-Negative Breast Cancer. Immunohistochemical, Clinical, and Prognostic Associations. *American Journal of Clinical Pathology* 120(5): 725-731, 2003.
23. Agoff SN and *Lawton TJ*. Papillary Lesions of the Breast With and Without Atypical Ductal Hyperplasia: Can We “Accurately Predict Benign Behavior From Core Needle Biopsy? *American Journal of Clinical Pathology* 122(3): 440-443, 2004.

24. Chen X, Moore MO, Lehman CD, Mankoff DA, *Lawton TJ*, Peacock S, Schubert EK, Livingston RB. Combined Use of MRI and PET to Monitor Response and Assess Residual Disease for Locally Advanced Breast Cancer Treated with Neoadjuvant Chemotherapy. *Academic Radiology* 11(10): 1115-1124 2004.
25. Dunnwald LK, Gralow JR, Ellis GK, Livingston RB, Linden HM, *Lawton TJ*, Barlow WE, Schubert EK, Mankoff DA. Residual Tumor Uptake of [(99m)Tc]-Sestamibi After Neoadjuvant Chemotherapy for Locally Advanced Breast Carcinoma Predicts Survival. *Cancer* 103 (4): 680-688, 2005.
26. Bevers TB, Armstrong DK, Arun B, Carlson RW, Cowan KH, Daly MB, Fleming I, Garber JE, Gemignani M, Gradishar WJ, Krontiraas H, Kulharni S, Laronga C, *Lawton T*, Loftus L, Macdonald DJ, Mahoney MC, Merajver SD, Seewaldt V, Sellin RV, Shapiro CL, Singletary, E, Ward JH: National Comprehensive Cancer Network (NCCN). Breast Cancer Risk Reduction. *J Natl Compr Canc Netw* 5(8): 676-701, 2007.
27. Li CL, Malone KE, Porter PL, *Lawton TJ*, Voigt LF, Cushing-Haugen KL, Lin MG, Yuan, X, Daling JR. Relationship Between Menopausal Hormone Therapy and Risk of Ductal, Lobular, and Ductal-Lobular Breast Carcinomas. *Cancer Epidemiol Biomarkers Prev* 17(1): 43-50, 2008.
28. Peterson LM, Mankoff DA, *Lawton T*, Yagle K, Schubert EK, Stekhova S, Gown A, Link JM, Tewson T, Krohn KA. Quantitative Imaging of Estrogen Receptor Expression in Breast Cancer with PET and 18F-fluoroestradiol. *J Nucl Med* 49(3): 367-74, 2008.
29. Dunnwald LK, Gralow JR, Ellis GK, Livingston RB, Linden HM, Specht JM, Doot RK, *Lawton TJ*, Barlow WE, Kurland BF, Schubert EK, Mankoff DA. Tumor Metabolism and Blood Flow Changes by Positron Emission Tomography: Relation to Survival in Patients Treated with Neoadjuvant Chemotherapy for Locally Advanced Breast Cancer. *J Clin Oncol* (Jul 14 epub).

BOOK CHAPTERS

1. Anderson BO, Rinn, K, Georgian-Smith D, *Lawton T*, Li CI, Moe R. Lobular Carcinoma in Situ. In: Silverstein MJ, ed. *Ductal Carcinoma in Situ of the Breast* (2nd Edition). Philadelphia: Lippincott Williams & Wilkins, 2002: pp.614-634.
2. Anderson BO, *Lawton T*. Diagnosis and Management of LCIS. In: Peltecu GC, ed. *Conservative Treatment of Early Breast Cancer* (translated form Romanian). Bucharest: Carol Davila University Press, 2003: pp. 167-177.
3. Anderson BO, Li CI, Rinn K, *Lawton T*, Moe RE. Clinical Management of Lobular Carcinoma in Situ. In: Singletary SE, Robb GL, Hortobagyi GN, eds. *Advanced Therapy of Breast Disease* (2nd Edition). Hamilton, Ont: BC Decker, Inc., 2004: pp. 269-280.
4. Anderson BO, *Lawton TJ*, Lehman CD, Moe R. Phyllodes Tumors. In: Harris JR, Lippman ME, Morrow M, Osborne CK, eds. *Diseases of the Breast* (3rd Edition). Philadelphia: Lippincott Williams & Wilkins, 2004: pp. 991-1006.

5. Calhoun, K.E., Lawton, T.J., Anderson, B.O.: Carcinoma lobulillar in situ (Lobular carcinoma in situ). In: Tratado de Enfermedades de la Glandula Mamaria, Sanchez-Basurto, C., Sanchez-Forgach, E., editors. Editorial Alfil, in press, 2007.
6. *Lawton TJ*, editor. Illustrated Surgical Pathology of the Breast. Cambridge University Press, in press, 2008.

ABSTRACTS

1. Wong M, *Lawton TJ*, Pasternak A, Jepsen, K, Goetinck PF, Kuhn JL, Goldstein SA, Bonadio J (1991). Aggrecan Core Protein is Expressed in Membranous Bone of the Chick Embryo. Workshop on Osteobiology; Brindisi, Italy.
2. Wong M, *Lawton TJ*, Geotinck PF, Goldstein SA, Bonadio J (1992). The Contribution of Aggrecan to the Functional Properties of Membranous Bone of the Chick Embryo. 38th Annual Meeting of the Orthopaedic Research Society; Washington, DC.
3. Ingle RR, Tomaszewski JE, Roberts S, *Lawton TJ*. An Immunohistochemical Study of Langerhans' Cell Distribution in Myasthenic and Non-Myasthenic Thymuses. *Modern Pathology* 11(1):120A, 1998.
4. Minda, JM, *Lawton, TJ*, van de Rijn M. Ultrastructural Localization of CD34 in Soft Tissue Tumors. *Microscopy and Microanalysis Proceedings* 56: 1084, 1998.
5. Jabs K, *Lawton TJ*, Brayman K. The Role of Early and Late Renal Allograft Biopsies in Children. *Pediatric Transplantation* 2:43, 1998.
6. Foster MH and *Lawton TJ*. Unexpected Renal Pathology in Ig Transgenic Mice. *Journal of the American Society of Nephrology* 9:388A, 1998.
7. Hunt JL, *Lawton TJ*, Caron RJ, Gannon FH. Bone Morphogenic Protein Expression During Development of the Human Fetus. *Modern Pathology* 12(1):6A, 1999.
8. Perez-Jaffe LA, Furth EE, Minda JM, Unger LD, *Lawton TJ*. Massive Macrophage Lipid Accumulation Presenting as Hepatosplenomegaly and Lymphadenopathy Associated with Long Term Parenteral Nutrition Therapy: A Series of Five Patients With a Unique Clinical Syndrome. *Modern Pathology* 12(1):166A, 1999.
9. Faries MB, Bedrosian I, Ngyuen HQ, Alavi A, Reynolds C, Scheff, AM, *Lawton TJ*, Czerniecki BJ. Active Uptake of Macromolecule Tracers in Sentinel Nodes. *Journal of Nuclear Medicine* 40(5): 252P, 1999.
10. Orel SG, Schnall MD, Czerniecki BJ, *Lawton TJ*, Reynolds C. MRI-guided Needle Localization: Indications and Clinical Efficacy. *Radiology* 213(P): 454.
11. Conant EF, Orel SG, Weinstein SP, Zuckerman JA, *Lawton TJ*, Czerniecki BJ. Ultrasound Guided Injection of Radioisotope for Sentinel Node Biopsy: A Technique to Improve the Accuracy of Nodal Dissection. *Radiology* 213(P): 107.

12. Zuckerman JA, Orel SG, *Lawton TJ*, Weinstein SP, Conant EF. Nonspecific Fibroepithelial Histology on Core Biopsy: Is Excisional Biopsy Necessary? *Radiology* 213(P): 409.
13. Acs G, *Lawton TJ*, LiVolsi VA, Zhang, PJ. Differential Expression of E-Cadherin in Ductal and Lobular Carcinoma of the Breast (Stowell-Orbison award winner). *Modern Pathology* 13(3): 17A, 2000.
14. Li MK and *Lawton TJ*. The Accuracy of Nottingham Grading of Core Biopsy in Directing Patient Management. *American Journal of Clinical Pathology* 114:630, 2000.
15. Li M, Adem C, Reynolds C, *Lawton T*. Morphologic Features in Recurrent and Non-Recurrent Fibroepithelial Lesions in Young Females. *Modern Pathology* 14(1): 30A, 2001.
16. Agoff SN, Swanson PE, Hawes SE, *Lawton TJ*. Clinical and Immunohistochemical Associations with Androgen Receptor Expression in Breast Cancer, with an Emphasis on Estrogen Receptor Negative Tumors. *Modern Pathology* 16(1): 20A, 2003.
17. Tseng J, Dunnwald LK, Schubert EK, Gralow JR, Ellis GK, Linden HM, Livingston RB, *Lawton TJ*, Mankoff DA. Blood Flow Changes are Predictive of Pathologic Tumor Response and Lymph Node Status After Neo-Adjuvant Chemotherapy in Locally Advanced Breast Cancer. *Journal of Nuclear Medicine* 44(5S): 78P, 2003.
18. Tseng J, Dunnwald LK, Schubert EK, Minoshima S, Gralow JR, Ellis GK, Linden HM, Livingston RB, *Lawton TJ*, Mankoff DA. Metabolism and Blood Flow in Treated Locally Advanced Breast Cancer. *Journal of Nuclear Medicine* 44(5S): 367P, 2003.
19. *Lawton TJ*, Hawes SE, Agoff SN. The Amount of Atypical Ductal Hyperplasia (ADH) on Core Biopsy of the Breast Correlates with Need for Surgical Excision. *Modern Pathology* 17(1S): 38A, 2004.
20. *Lawton TJ*, Agoff SN. Can Papillary Lesions of the Breast Be Adequately Diagnosed on Core Needle Biopsy? *Modern Pathology* 17(1S): 38A, 2004.
22. *Lawton TJ*, Agoff SN. Histologic Features of Fibroepithelial Lesions of the Breast on Core Needle Biopsy That Require Surgical Excision. *Modern Pathology* 17(1S): 38A, 2004.
23. Love JE, *Lawton TJ*. Diabetic Mastopathy in Patients with Non-Diabetic Autoimmune Disease. *Modern Pathology* 18(1S): 41A, 2005.
24. Allison KA, Swanson PE, *Lawton TJ*. Hormone Receptor and Her2/neu Status Pre and Post Neoadjuvant Chemotherapy in Breast Cancer: Should Immunohistochemical Studies Be Repeated? (platform session) *Modern Pathology* 19(1S): 20A, 2006.
25. Bohling SD, *Lawton TJ*, Allison KH. Immunosuppressive Regulatory T Cells are Associated with More Aggressive Breast Cancer Phenotypes: A Potential Therapeutic Target. *Modern Pathology* 21(1S), 2008.

COURSES/LECTURES BY INVITATION

“DCIS: Pathologic Features” and “Pathologic Evaluation of Needle Localization and Core Biopsies.” *Practical Breast Imaging: An Update*; Philadelphia, PA: April 2-4, 1998.

“Diagnostic Problems in Surgical Pathology.” *American Society of Clinical Pathologists Fall Meeting-Anatomic Pathology Council panel presentation*; Washington, DC: October 21, 1998.

“Pathology of Sentinel Lymph Nodes and Micrometastases.” *The Biology and Technique of Sentinel Node Biopsy: Theory and Practice for Melanoma and Breast (CME Course)*; University of Pennsylvania Medical Center; Philadelphia, PA: monthly, May 1998 - May 1999.

“Sentinel Lymph Node Biopsy for Breast and Melanoma.” *Minimally Invasive Selective Lymphadenectomy and Sentinel Node Biopsy (CME Course)*; University of Washington Medical Center; Seattle, WA: March 10-11, 2000.

“Practical Correlations in the Diagnostic Radiology and Pathology of Breast Cancer” and “The Pathologist and Surgeon Interaction in the Diagnosis and Surgical Treatment of Breast Cancer: Case Presentations.” *Breast Cancer Update 2000 (CME course)*; Seattle, WA: October 5-6, 2000. Course Co-Director.

“Non-epithelial Tumors of the Breast.” *American Society of Clinical Pathologists Fall 2000 meeting*; San Diego, CA: October, 2000. Short Course Co-Director.

“Classic Versus Pleomorphic LCIS.” *Breast Cancer Update 2001 (CME course)*; Seattle, WA: October 4-5, 2001.

“Problematic Issues in Core Needle Biopsy of the Breast.” *Pathology Update at Whistler 2002*; Whistler, BC; August 7-9, 2002. Course Co-Director.

“Lobular Carcinoma in Situ: Old and New Paradigms (w/ Drs. Anderson and Moe).” Seattle Cancer Care Alliance Breast Cancer Seminar Series; Seattle, WA; June 11, 2004.

“Introduction to Basic Breast Pathology.” *Western Washington Mammography Society 2004*; Seattle, WA; October 23, 2004.

“Interpretation of the Image-Detected Breast Biopsy.” International Society of Breast Pathology at the American Society for Clinical Pathology Meeting; Seattle, WA; October 7, 2005.

“Controversies in Breast Pathology.” Pacific Northwest Society of Pathology Annual Meeting; Seattle, WA; May 20, 2006.

“Introduction of Breast Pathology” and “Controversies in Breast Pathology.” National Consortium of Breast Centers Annual Meeting; Las Vegas, NV; February 26/27th, 2007.

“Is There an Optimal Way to Stain for Estrogen Receptor?” Challenges and Controversies in Breast Cancer. University of Washington CME course; Seattle, WA; October 25-26, 2007.