

## Curriculum Vitae

- 1) Date of preparation of CV: June 1, 2010
  
- 2) Personal data:
  - a) Name **Charles A. Powell, M.D.**
  - b) Birthplace New York, New York
  - c) Citizenship U.S.
  - d) Home Address 727 Beechcrest Drive, River Vale, NJ 07675
  - e) Spouse Name: Stacey M. Linwood, M.D.
  - f) Business Address Columbia University  
Pulmonary and Critical Care Medicine  
622 West 168<sup>th</sup> Street, PH8E-101  
New York, NY 10032
  - g) Mail Address cap6@columbia.edu
  - h) Business Phone 212-305-3584
  - i) Business Fax 212-305-8464
  
- 3) Education:
  - 1985 B.A. University of Pennsylvania
  - 1989 M.D. University of Chicago
  
- 4) Postdoctoral Training:
  - 1989-1990 Intern; Internal Medicine; Columbia Presbyterian Medical Center
  - 1990-1992 Resident; Internal Medicine; Columbia Presbyterian Medical Center
  - 1992-1993 Chief Resident; Internal Medicine; Columbia Presbyterian Medical Center
  - 1993-1996 Postdoctoral Fellow, Boston University Pulmonary Center
  - 1997-1998 Postdoctoral Research Fellow, Boston University School of Medicine
  
- 5) Licensure and Board qualification:
  - 1990 Diplomate, National Board of Medical Examiners
  - 1991 New York License Registration No. 184576
  - 1992 Diplomate, American Board of Internal Medicine, Internal Medicine, Certificate No. 145565. Recertification 2002
  - 1993 Massachusetts License Registration No. 77641
  - 1996 Diplomate, American Board of Internal Medicine, Pulmonary Disease, Recertification 2006
  - 1997 Diplomate, American Board of Internal Medicine, Critical Care Medicine
  
- 6) Professional organizations and societies:
  - 1994 American Thoracic Society
  - 1997 American Association for Cancer Research
  - 1999 Southwestern Oncology Group (SWOG)
  
- 7) Academic appointments:
  - 1997-1998 Instructor in Medicine; Boston University
  - 1999-2001 Assistant Professor of Clinical Medicine; Columbia University

2001 Florence Irving Assistant Professor of Clinical Medicine; Columbia University  
2009 Associate Professor of Medicine; Columbia University  
2010 Associate Division Chief, Division of Pulmonary, Allergy, and Critical Care Medicine

8) Hospital appointments:

1997-1998 Attending, Boston Veterans Administration Medical Center  
1997-1998 Assistant Attending, Boston University Medical Center, Boston, MA.  
1998- Attending, New York Presbyterian Hospital  
2005- Director, Pulmonary and Critical Care Medicine Fellowship, New York Presbyterian Hospital, Columbia University Medical Center  
2008- Medical Director, High Risk Lung Assessment Program NYPH

9) Honors:

1985 *Summa cum laude*, Phi Beta Kappa; University of Pennsylvania  
1999 NIH Mentored Patient Oriented Research Award  
2000 American Cancer Society Katherine and Roland Douglass Trust Research Fellow  
2001 Florence Irving Scholar, Columbia University Medical Center  
2005 American Cancer Society Research Scholar Award  
2010 Fleischner Society

10) Fellowship and grant support:

Past:

1999-2004 K23ES00354, Mentored Patient Oriented Research Award. “Susceptibility to Molecular Alterations in Epithelial Cells”; Role: Principal Investigator; \$597,875; NIH  
2000-2003 Clinical Research Training Grant for Junior Faculty, “Lung Cancer Susceptibility in Women”; Role: Principal Investigator; \$450,000; American Cancer Society  
2001-2003 “Lung Cancer CT Screening in Northern Manhattan: New York Early Lung Cancer Action Project Study” (PI: J Austin); Role: Co-Investigator; \$452,679; Academic Medicine Development Corporation  
2005-2006 “Biomarkers of Lung Adenocarcinoma Invasion”; Role: Principal Investigator; \$100,000; American Thoracic Society/Lungevity Foundation  
2006-2007 “Acquisition of Invasiveness in Lung Adenocarcinoma”; Role: Principal Investigator; \$100,000; Joan’s Legacy Foundation

Present:

2006-2011 1R01CA120174, “Lung Epithelial-Mesenchymal Interactions in Adenocarcinoma Invasiveness”; Role: Principal Investigator; \$1,298,015; NIH

- 2006-2011 U54 CA126513 Tumor Microenvironment Network (PI: TC Wang) “The role of stroma in Digestive Cancer”; Role: Co-PI Project 4; \$4,400,000; NIH
- 2008-2013 1R01HL093081, “Pulmonary Vascular Changes in Early Chronic Obstructive Pulmonary Disease”; (PI: RG Barr); Role: Co-Investigator; \$2,495,000; NIH
- 2009-2011 Young Clinical Scientist Award, “Inflammation and Bone Marrow Derived Progenitor Cells in Cigarette Smoke Induced Lung Carcinogenesis” (PI: R. Toonkel); Role: Mentor; \$150,000; Flight Attendant Medical Research Institute.
- 2010-2012 Young Investigator Research Grant, “Chromosome 7q Copy Number and Lung Adenocarcinoma Invasion. (PI M. Wilgus): Role: Mentor; \$100,000; National Lung Cancer Partnership.
- 2009-2012 RSGT-07-162-01-CPHPS (J. Wisnivesky) Determinants of Disparities in Diagnosis and Treatment of Lung Cancer. Role, site PI. American Cancer Society.
- 2008-2010 “Poor Prognosis Gene Expression Signatures Suggest Molecular Pathways of Mesothelioma Progression and Potential Therapeutic Targets”; (PI: AC Borczuk); Role: Co-Investigator; \$100,000; Mesothelioma Applied Research Foundation.

11) Departmental and University Committees:

- 2008-2009 Search Committee, Environmental Health Sciences Department Chair, Mailman School of Public Health, Columbia University

12) Teaching experience and responsibilities:

- 1995-1998 Faculty, *Biology of Disease*, Boston University School of Medicine,  
1997-1998 Preceptor, *Introduction to Clinical Medicine*, Boston University School of Medicine
- 1999-2002 Faculty, *Physiology*, Columbia College of Physicians & Surgeons,  
1999- Faculty, Lecturer and Preceptor, *Pathophysiology II*, Columbia College of Physicians & Surgeons, New York, NY
- 2001- Faculty, Harkness Report, Columbia University Medical Center

13) Other professional activities:

a) Editorial

- Editorial Board: American Journal of Respiratory and Critical Care Medicine  
Cancer  
ACCP Lung Cancer Guidelines III, Editor “Lung Biology”

- Adhoc Reviewer: Journal of Clinical Investigation  
Oncogene  
Journal of Clinical Oncology  
Cancer Research  
PLoS Medicine  
American Journal of Respiratory Cell and Molecular Biology  
Chest  
Journal of Thoracic Oncology

b) Consultative

Federal:

- 2004 NIH-Special Emphasis Panel for “Strategic Partnerships to Evaluate Cancer Signatures”
- 2005-present NIH-Special Emphasis Panels for “Applications of Emerging Technologies for Cancer Research”
- 2005-2006: American Lung Association Research Training Fellowship Committee Reviewer
- 2006: American Lung Association/Lungevity Foundation Cancer Discovery Award Reviewer
- 2007: NIH-Special Emphasis Panel Reviewer: “Lung Cancer and Inflammation”
- 2009: NHLBI RO3 “Small Grants for Lung Tissue Research” Reviewer
- 2009: NCI Grand Opportunitites (GO) Grants in Human Cancer Proteomics Reviewer.
- 2009: Department of Defense Lung Cancer Research Program Concept Award Reviewer.
- 2010: NCI PAR-09-026 “Collaborative Research in Integrative Cancer Biology and the Tumor Microenvironment” Reviewer
- 2010: NCI PAR 10-126 “Strategic Partnering to Evaluate Cancer Signatures (SPECS II)” Reviewer

Local:

- 2004-2009 Mayor’s Health Advisory Board, River Vale, New Jersey

Private:

- 2007-2009 Chair, Program Committee, Respiratory Cell and Molecular Biology Assembly, American Thoracic Society
- 2007- Co-Chair, Molecular Working Group, International Lung Adenocarcinoma Classification Consortium
- 2009- Chair, Section of Thoracic Oncology of the American Thoracic Society

14) Invited Lectures and Presentations

Regional

- 2005 “Translational Applications of Gene Expression Profiling in Lung Cancer”, Thoracic Oncology Department, Valley Hospital, Ridgewood, NJ
- 2005 “Lung Cancer Prevention and Early Diagnosis”, Department of Medicine Grand Rounds, St. Vincent’s Medical Center, Bridgeport, CT
- 2005 “Lung Cancer Update: Prevention, Screening, Genomics”, Department of Medicine Grand Rounds, Mercy Medical Center, Rockville Centre, NY.
- 2006 “TGF-Beta mediated Invasion of Lung Adenocarcinoma” Featured Speaker, Columbia University Center for Radiological Sciences Colloquium, Columbia University, NY

- 2007 “Lung Adenocarcinoma: Progression and Prognosis” Pulmonary  
Medicine Grand Rounds  
Memorial Sloan Kettering Cancer Center, New York, NY
- 2008 “Lung Cancer Update” Department of Medicine Grand Rounds  
New York Downtown Hospital, New York, NY
- 2008 "Screening for Lung Cancer", 2nd Annual Pri-Med Conference, New  
York, NY
- 2008 “Acquisition of Invasiveness in Lung Adenocarcinoma”. Department  
of Pathology Grand Rounds, Stony Brook University Medical Center,  
Stony Brook, NY
- 2009 “Lung Cancer Early Detection: Why is it so Complicated?” Gilda’s  
Club, New York, NY
- 2009 “Lung Cancer Detection: Early, Late, or Never”. Keynote Speaker,  
27<sup>th</sup> Annual Pulmonary Symposium, Stamford Hospital, Stamford, CT
- 2010 “Lung Cancer”. New York State Thoracic Society Annual Scientific  
Assembly, West Point, NY
- 2010 “Lung Cancer Update”. Department of Medicine Grand Rounds,  
Valley Hospital, Ridgewood, NJ
- 2010 “Lung Cancer”. 1199SEIU League Interdisciplinary Symposium,  
“Lung Health 2010- The International Year of the Lung”, New York  
Times Conference Center, NY
- National  
2005 Chair of Symposium: “Targeting Lung Cancer: Novel  
Molecular Targets and Treatment Strategies.”  
(Lecture: Lung Cancer Genomics: Target Discovery  
And Applications), American Thoracic Society International  
Conference, San Diego, CA
- Chair of Postgraduate Course: “Molecular Mechanisms of Lung  
Carcinogenesis.” (Lecture: Molecular Signatures of  
Lung Carcinogenesis), American Thoracic Society International  
Conference, San Diego, CA
- 2005 “Preventing Lung Cancer: Smoking Cessation and Chemoprevention”  
Geriatric Oncology Consortium  
Advancing Cancer Care in the Elderly Conference, Washington DC.
- 2006 Visiting Professor: “Lung Cancer Genomics: Translational  
Applications”  
Mayo Clinic, Rochester, MN

- 2006 Visiting Professor: "Lung Cancer Genomics: Translational Applications"  
University of Pennsylvania Division of Pulmonary and Critical Care Medicine, Philadelphia, PA
- 2006 Featured Speaker: "Acquisition Of Invasiveness In Lung Adenocarcinoma: Role of Inflammation Pathways", ATS Minisymposium Intersection of Lung Cancer and Inflammation, American Thoracic Society International Conference, San Diego CA
- 2007 "Lung Adenocarcinoma: Progression and Prognosis"  
American Thoracic Society Symposium Lecture, San Diego
- 2008 Visiting Professor "Lung Adenocarcinoma Genomics"  
University of Miami, Miami, FL.
- 2008 Visiting Professor "Lung Cancer Genomics Translational Science"  
University of Washington Division of Pulmonary and Critical Care Medicine, Seattle, WA.
- 2008 "Lung Cancer Year in Review"  
American Thoracic Society International Conference, Toronto, ON
- Chair of Postgraduate Course: "Biomarkers in the Omics Age: Focus on Lung Cancer." American Thoracic Society International Conference, Toronto, ON
- Chair of Symposium: "Lung Cancer Translational Research: Integrating Innovations for Diagnosis and Treatment." (Lecture: Genomic Predictors of Lung Adenocarcinoma Progression and Outcome," American Thoracic Society International Conference, Toronto, ON
- 2008 "Lung Cancer in Nonsmokers: The Impact of Gender", CHEST 2008, Philadelphia, PA
- 2008 Lung Adenocarcinoma: Acquisition of Invasiveness. Department of Medicine Grand Rounds, National Jewish Health Center, Denver, CO.
- 2009 Chair of Postgraduate Course: "Risky Business: The Scientific and Clinical Basis of Lung Cancer Risk Assessment." American Thoracic Society International Conference, San Diego, CA.
- Chair, "Scientific Breakthroughs of the Year: Deciphering Lung Disease in the Genomic Era", Scientific Symposium, American Thoracic Society International Conference, San Diego, CA.
- "Molecular Subsets According to the New Classification", Scientific Symposium: "International Multi-Disciplinary Classification of Lung Adenocarcinoma, American Thoracic Society International Conference, San Diego, CA.

- Chair, Minisymposium, “Lung Tumorigenesis: Insights from Animal Models”, American Thoracic Society International Conference, San Diego, CA, May 2009.
- 2009 Visiting Professor. Department of Medicine Grand Rounds “Lung Adenocarcinoma Classification: Molecular Correlates” University of Missouri, Columbia, MO, December 2009
- 2010 Visiting Professor. Pulmonary Medicine Grand Rounds: “Lung Adenocarcinoma Genomics” University of Iowa, Iowa City, IA. February, 2010
- 2010 “COPD and Lung Cancer: What Does the Link Mean for Future Treatment Strategies”, Scientific Symposium, “The Missing Links: Chronic Obstructive Pulmonary Disease and Lung Cancer, New Insights for Pathogenesis, Prediction, Prevention, and Treatment.” American Thoracic Society International Conference, New Orleans
- “Microrarrays in Classification of Histologic Types”, Chair Scientific Symposium: The Influence of Histology and Molecular Analysis on the Treatment of Non-Small Cell Lung Cancer: Tailored Therapy, American Thoracic Society International Conference, New Orleans
- “Understanding Lung Cancer Local Tumor Invasion and Metastasis” Post Graduate Course: “The Translational Biology of Lung Cancer”, American Thoracic Society International Conference, New Orleans.
- International
- 2005 Visiting Professor: “Lung Cancer Genomics: Translational Applications”, Istituto Dermatologico dell' Immacolata- (IDI) IRCCS Rome, Italy
- 2006 Symposium Chair, “Acquisition of Invasiveness in Lung Adenocarcinoma: Molecular mediators of signaling and remodeling”, Symposium: Epithelium-to-mesenchyme Transition in Lung, 46<sup>th</sup> Annual Meeting of the Japanese Respiratory Society, Tokyo, Japan
- 2006 Featured Speaker: “Lung Cancer Genomics: Translational Applications”, The 5<sup>th</sup> Japan Sea International Lung Conference, Kanazawa, Japan
- 2009 “Genetic and Molecular Pathogenesis of Tumor and Host Interactions: Towards Cancer Biomarker and Target Discovery”, 49<sup>th</sup> Annual Meeting of the Japanese Respiratory Society, Tokyo, Japan
- 2009 Visiting Professor, Tottori University Department of Multidisciplinary Internal Medicine, Tottori, Japan

- 2009 Visiting Professor. Open Medical Institute/American Austrian Foundation “Internal Medicine Review Course” Salzburg, Austria
- 2009 Visiting Professor. Istituto Dermopatico dell'Immacolata – Roma, Italy

15) Publications:

A. Original, Peer Reviewed Articles (Senior Author)

1. Powell CA, Klares S, O’Connor G, Brody JS. Loss of Heterozygosity in Epithelial Cells Obtained by Bronchial Brushings: Clinical Utility in Lung Cancer. *Clinical Cancer Research* 1999; 5: 2025-2034.
2. Li C, Guo M, Borczuk A, Powell CA, Wei M, Thaker HM, Friedman R, Klein U, and Tycko B. Gene Expression in Wilms Tumors Mimics the Earliest Committed Stage in the Metanephric Mesenchymal-Epithelial Transition. *American Journal of Pathology* 2002; 160: 2181-2190.
3. Powell CA, Caracta C, Bueno R, Richards WG, Sugarbaker DJ, Brody JS Distinct Patterns of Allelic Loss in Lung Adenocarcinoma of Non-Smokers. *Lung Cancer* 2003; 39: 23-29
4. Powell CA, Spira A, Derte A, DeLisi C, Sugarbaker DJ, Bueno R, Richards W, Brody JS. Gene Expression in Lung Adenocarcinoma of Smokers and Nonsmokers. *American Journal of Respiratory Cell and Molecular Biology* 2003; 29: 157-162.
5. Borczuk AC, Gorenstein L, Walter KL, Assaad AA, Wang L, Powell CA. Non-small cell lung cancer molecular signatures recapitulate lung developmental pathways. *American Journal of Pathology* 2003; 163: 1949-1960.
6. Kim H, Xu G, Borczuk A, Busch S, Filmus J, Capurro M, Brody JS, Lange J, D’Armiento JM, Rothman PB, Powell CA. The Heparan Sulfate Proteoglycan *GPC3* is a Potential Lung Tumor Suppressor. *American Journal of Respiratory Cell and Molecular Biology* 2003, 29: 694-701.
7. Borczuk AC, Shah L, Pearson GDN, Walter KL, Wang L, Austin JHM, Friedman RA, Powell CA. Molecular Signatures in Biopsy Specimens of Lung Cancer, *American Journal of Respiratory and Critical Care Medicine*, 170: 167-174.
8. Shah L, Walter KL, Borczuk AC, Kawut SM, Powell CA. Expression of Syndecan-1 and EGFR is associated with survival in non-small-cell lung cancer. *Cancer* 2004, 101: 1632-1638.
9. Mazziotta RM, Borczuk AC, Powell CA, Mansukhani M. CDX2 Immunostaining as a gastrointestinal marker: Expression in lung carcinomas is a potential pitfall. *Applied Immunohistochemistry & Molecular Morphology* 2005; 13: 55–60.



10. Saqi A, Yun SS, Yu GH, Alexis D, Taub RN, Powell CA, Borczuk AC. Utility of CD138 (Syndecan-1) in Distinguishing Carcinomas from Mesotheliomas. *Diagnostic Cytopathology* 2005; 33: 65-70.
11. Foronjy RF, Mercer BA, Maxfield MW, Powell CA, D'Armiento J. Structural emphysema does not correlate with lung compliance: Lessons from the mouse smoking model. *Experimental Lung Research* 2005; 31: 547-562.
12. Borczuk AC, Taub RN, Hesdorffer M, Hibshoosh H, Chabot JA, Keohan ML, Alsberry R, Alexis D, Powell CA. P16 loss and mitotic activity predict poor survival in patients with peritoneal malignant mesothelioma. *Clinical Cancer Research* 2005; 11: 3303-3308.
13. Borczuk AC, Kim HK, Yegen HA, Friedman RA, Powell CA. Lung adenocarcinoma global profiling identifies Type II TGF- $\beta$  receptor as a repressor of invasiveness. *American Journal of Respiratory and Critical Care Medicine* 2005; 172: 729-737.
14. Shao G, Berenguer J, Borczuk AC, Powell CA, Hei TK, Zhao Y. Epigenetic inactivation of Betaig-h3 in human cancer cells. *Cancer Research* 2006; 66: 4566-4573.
15. Mujoomdar A, Austin JH, Malhotra R, Powell CA, Pearson GDN, Shiau MC, Raftopoulos H. Clinical predictors of metastatic disease to the brain from non-small cell carcinoma of the lung: Size of the primary tumor, cell type, and lymph node metastases. *Radiology* 2007; 242: 882-888.
16. Borczuk AC, Cappellini GCA, Kim HK, Hesdorffer M, Taub RN, Powell CA. Molecular Profiling of Malignant Peritoneal Mesothelioma Identifies the Ubiquitin-Proteasome Pathway as a Therapeutic Target in Poor Prognosis Tumors. *Oncogene* 2007; 26: 610-617.
17. Bruce B, Khanna G, Ren L, Landberg G, Jurstrom K, Powell C, Borczuk A, Keller ET, Wojno KJ, Meltzer P, Baird K, McClatchey A, Bretscher A, Hewitt SM. Expression of the Cytoskeleton Linker Protein Ezrin in Human Cancers. *Clinical Experimental Metastasis* 2007; 24: 69-78.
18. Vachani A, Nebozhyn M, Singhal S, Alila L, Wakeam E, Muschel R, Powell CA, Gaffney P, Singh B, Brose MS, Litzky LA, Kucharczuk J, Kaiser LR, Marron JS, Showe MK, Albelda SM, Showe LC. A 10-gene classifier for distinguishing head and neck squamous cell carcinoma and lung squamous cell carcinoma. *Clinical Cancer Research* 2007; 10: 2905-2915.
19. Yaeger R, Nolan PC, Avila-Bront A, Wang X, Cheung YKK, Lu H, Rangarajan VS, Hibshoosh H, Powell CA, Joe AK. 17HSD-2 may be Higher in African-American Breast Cancer and is Associated with Estrogen Receptor-Negative Tumors. *Cancer Genomics and Proteomics* 2007; 4: 329-340.
20. Yeh, CC Barr RG, Powell CA, Mesia-Vela S, Wang Y, Hamade NK, Austin JH, Santella RP. No Effect of Cigarette Smoking Dose on Oxidized Plasma Proteins. *Environmental Research* 2008; 106: 219-225.

21. Borczuk AC, Papanikolaou N, Toonkel RL, Sole M, Gorenstein LA, Ginsburg ME, Sonett JS, Friedman RA, Powell CA. Lung Adenocarcinoma Invasion in *TGF $\beta$ RII* Deficient Cells is Mediated by CCL5/RANTES. *Oncogene* 2008; 27: 557-564.
22. Borczuk AC, Qian F, Eleazar J, Assaad A, Kazeros A, Powell CA. Invasive Size is an Independent Predictor of Survival in Pulmonary Adenocarcinoma, *American Journal of Surgical Pathology* 2009; 33: 462-469.
23. Wisnivesky JP, Halm E, Bonomi M, Powell C, Bagiella E. Effectiveness of radiation therapy for elderly patients with unresected stage I and II non-small cell lung cancer. *Am J Respir Crit Care Med*. 2010 Feb 1;181(3):264-9. Epub 2009 Nov 5. PubMed PMID: 19892859; PubMed Central PMCID: PMC2817815.

B. Reviews, Chapters and Editorials

1. Powell CA, Caplan CE. Pulmonary Function Tests in Preoperative Pulmonary Evaluation. *Clinics in Chest Medicine* 2001; 22: 703-714.
2. Mercer BA, Lemaitre V, Powell CA, D'Armiento. The Epithelial Cell in Lung Health and Emphysema Pathogenesis. *Current Respiratory Medicine Reviews* 2006; 2:101-142.
3. Borczuk AC, Powell CA. Expression Profiling and Lung Cancer Development. *Proceedings of the American Thoracic Society* 2007; 4:127-132.
4. Dubey S, Powell CA. Update in Lung Cancer 2006. *American Journal of Respiratory and Critical Care Medicine* 2007; 175: 868-874.
5. Powell CA. Waiting to Exhale. *American Journal of Respiratory and Critical Care Medicine* 2008; 177:246-247.
6. Dubey S, Powell CA. Update in Lung Cancer 2007. *American Journal of Respiratory and Critical Care Medicine* 2008; 177: 941-946.
7. Borczuk AC, Toonkel R, Powell CA. Genomics of Lung Cancer. *Proceedings of the American Thoracic Society* 2009; 15: 152-158.
8. Dubey S, Powell CA. Update in Lung Cancer 2008. *American Journal of Respiratory and Critical Care Medicine* 2009; 179:860-868.
9. Powell, CA. Rounding up Apoptosis Resistance Targets in Lung Cancer. *American Journal of Respiratory Cell and Molecular Biology*, 2009; 41:7-8.
10. Borczuk AC, Toonkel R, Powell CA. TGF- $\beta$  Signaling Pathway in Lung Adenocarcinoma Invasion. *Journal of Thoracic Oncology* 2010; 5:153-157.
11. Travis WD, Rekhtman N, Riley GJ, Geisinger KR, Asamura H, Brambilla E, Garg K, Hirsch FR, Noguchi M, Powell CA, Rusch VW, Scagliotti G, Yatabe Y. Pathologic diagnosis of advanced lung cancer based on small biopsies and cytology: a paradigm shift., *Journal of Thoracic Oncology* 2010; 5:411-414.

## C. Patents

1. 070050.3113. GENE PROFILES CORRELATING WITH HISTOLOGY AND PROGNOSIS; Columbia University, Co-Inventor US Patent Serial No. 11/404,715 Filed April 14, 2006.
2. 88800730-0093. PREDICTION OF CANCER INVASIVENESS; Columbia University, Co-Inventor. Filed 3/208
3. System and Method for Computer-Aided Diagnosis of Pulmonary Nodules. Philips Research, USA; Co-Inventor (Status-Filed)

## 16). Training: Pre- and Postdoctoral Trainees

Past / Current Trainee	Trainee Name (Where Training Occurred)	Pre / Post Level	Training Period	Prior Academic Degree(s)	Prior Academic Degree Year(s)	Prior Academic Degree Institution	Title of Research Project	Current Position of Past Trainees / Source of Support of Current Trainees
Past	Xu, Guoliang*	Post	00-02	PhD	1993	Max Planck Inst.	Lung Cancer Genomics	Professor, Shanghai Institutes for Biological Sciences, Chinese Academy of Sciences
Past	Walter, K.	Post	02-03	MD	1997	Harvard	Lung cancer genomic signatures of survival	Physician, Chicago, IL
Past	Kim, Han*	Post	02-04	PhD	2001	Columbia	Lung Cancer Genomics	Scientist, PDL Biopharma
Past	Shah, L.*	Post	03-04	MD	1998	SUNY Downstate	Lung cancer genomic signatures of survival	Asst Professor, Columbia
Past	Yegen, H.	Post	03-04	MD	2003	Columbia	Lung adenocarcinoma microenvironment	Pulmonary Fellow, Columbia
Past	Antonini Capellini, GC	Post	03-04	MD	1998	University of Rome, Sapienza	Genomics of Chemotherapy Response	Oncology, Istituto Dermatologico dell'Immacolata, Rome
Past	Caplan-Shaw, C.	Post	04-05	MD	98	McGill	Lung cancer susceptibility in women	Assistant Professor, New York University
Past	Kazeros, A	Post	04-05	MD	2001	SUNY Downstate	Lung cancer genomic signatures of survival	Assistant Professor, New York University
Past	Papanikolaou, N	Post	04-06	PhD	1999	NY Medical College	Lung adenocarcinoma microenvironment	Group Leader, Ludwig Inst. Cancer Research

<b>Past / Current Trainee</b>	<b>Trainee Name (Where Training Occurred)</b>	<b>Pre / Post Level</b>	<b>Training Period</b>	<b>Prior Academic Degree(s)</b>	<b>Prior Academic Degree Year(s)</b>	<b>Prior Academic Degree Institution</b>	<b>Title of Research Project</b>	<b>Current Position of Past Trainees / Source of Support of Current Trainees</b>
Past	Sole, M.	Pre	06-08	BS	2005	Davidson	Lung adenocarcinoma microenvironment	DVM Candidate, Glasgow School of Veterinary Medicine
Past	Bulman, W.	Post	07-08	MD			Lung cancer genomic predictors of survival	Assistant Professor, Columbia
Past	Zhou, W*	Post	07-09	PhD	2003	Hokkaido Univ.	Lung adenocarcinoma microenvironment	Senior Research Associate, Columbia
Current	Toonkel, R.	Post	07-	MD	04	Johns Hopkins U School Of Medicine	Lung adenocarcinoma microenvironment	Postdoctoral Fellow, Columbia
Current	Wilgus, M.	Post	08-	MD	2005	Texas Southwestern	Lung adenocarcinoma genomics	Postdoctoral Fellow, Columbia