

## **Sanjay Mukhopadhyay, MD**

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### **ACADEMIC RANK AND POSITION**

3/1/19-11/29/23	Director, Pulmonary Pathology Department of Pathology Cleveland Clinic Cleveland, Ohio
7/1/13-present	Staff Pathologist Department of Pathology Robert J. Tomsich Pathology and Laboratory Medicine Institute Cleveland Clinic Cleveland, Ohio (Joint appointment, Respiratory Institute, 12/2/14-present)
3/1/11-6/30/13	Associate Professor (tenured) Department of Pathology State University of New York (SUNY) Upstate Medical University Syracuse, New York
6/30/07-2/28/11	Assistant Professor Department of Pathology State University of New York (SUNY) Upstate Medical University Syracuse, New York

### **APPOINTMENTS**

3/1/19-11/27/23	Director, Pulmonary Pathology Department of Pathology Cleveland Clinic Cleveland, Ohio
8/1/16-4/16/19	Director, Frozen Section Service Department of Pathology Cleveland Clinic Cleveland, Ohio
10/5/10-6/30/13	Associate Director of Surgical Pathology Department of Pathology State University of New York (SUNY) Upstate Medical University

Syracuse, New York

### **TRAINING**

- 7/1/06-6/29/07      Fellow, Pulmonary Pathology  
Mayo Clinic  
Rochester, Minnesota
- 7/1/02-6/30/06      Resident, Anatomic Pathology and Clinical Pathology  
State University of New York (SUNY) Upstate Medical University  
Syracuse, New York  
Chief Resident, 7/04-6/05  
Board Certified in Anatomic and Clinical Pathology, 2007
- 1/8/99-1/7/02      Resident, Anatomic Pathology and Clinical Pathology  
All India Institute of Medical Sciences (AIIMS)  
New Delhi, India  
Board Certified in Pathology, 2002
- 7/1/97-3/19/98      Intern, Internal Medicine  
Englewood Hospital and Medical Center  
Englewood, New Jersey

### **MEDICAL EDUCATION**

- 1/1/95-1/1/96      Rotating clinical clerkships  
Loknaya Hospital  
New Delhi, India
- 7/1/90-12/31/94      Medical School  
Maulana Azad Medical College  
University of Delhi  
New Delhi, India

### **BOARD CERTIFICATION**

American Board of Pathology (Anatomic Pathology and Clinical Pathology): August 21, 2007.  
Maintenance of Certification (MOC) Part III examination in Anatomic Pathology and Clinical Pathology passed: December 4, 2017.

### **MEDICAL LICENSURE**

Ohio (license number 35.120172)

### **WORK EXPERIENCE**

7/1/13-present	Staff Pathologist Department of Pathology Cleveland Clinic Cleveland, Ohio
6/30/07-6/30/13	Attending Pathologist Department of Pathology State University of New York (SUNY) Upstate Medical University Syracuse, New York
2/1/02-6/15/02	Research Associate Department of Pathology All India Institute of Medical Sciences New Delhi, India
7/13/98-1/6/99	Resident (Non-teaching) Department of Internal Medicine Apollo Indraprastha Hospital New Delhi, India
3/3/97-6/10/97	Resident (Non-teaching) Department of Internal Medicine Loknaya Hospital New Delhi, India

### **HONORS AND AWARDS**

1. Named to “The Pathologist 2021 Power List” by The Pathologist magazine, in the “Leading Roles” category, in recognition of “active teaching and pathology advocacy”.
2. Shields Warren Lecturer, Beth Israel Deaconess Medical Center. 10<sup>th</sup> Annual Shields Warren Lecture, Beth Israel Deaconess Medical Center (Harvard Medical School). Boston, MA, October 2020.
3. Named to “The Pathologist 2020 Power List” by The Pathologist magazine, in recognition of contributions to the pathology Twitter community and for creating #PathTweetAward, an annual competition to find powerful educational posts.
4. Named to “The Pathologist 2019 Power List” by The Pathologist magazine, honoring “100 of the Industry’s top Trailblazers”.
5. Named to “The Pathologist 2018 Power List” by The Pathologist magazine, honoring “100 of the most influential people in pathology”.
6. Dr. Atul C. Mehta Editorial Excellence Award in the Outstanding Original Investigation for 2016 Category, awarded by the American Association for Bronchology and Interventional Pulmonology (AABIP), October 2016, at the AABIP 24th Annual

Scientific Symposium, Los Angeles, CA, for a study entitled: CD4/CD8 Ratio in Mediastinal Lymph Nodes Involved by Sarcoidosis: Analysis of Flow Cytometry Data Obtained by Endobronchial Ultrasound-Guided Transbronchial Needle Aspiration (EBUS-TBNA). Authors: Sory J. Ruiz, MD, Yaxia Zhang, MD, PhD, Sanjay Mukhopadhyay, MD.

7. Third Place Award to Kelsey McHugh, MD, awarded by the Cleveland Society of Pathologists (CSP), May 2016, at the Annual Resident/Fellow Abstract Competition, Cleveland, OH, for an original study entitled: Does Strong and Diffuse PAX-8 Positivity Exclude Primary Lung Carcinoma? An Immunohistochemical Study of Whole-Tissue Sections from 418 Resected Primary Lung Carcinomas, and Review of 34 PAX-8-Positive Carcinomas in Lung Specimens. Authors: Kelsey McHugh, MD, Arrossi AV, MD, Carol Farver, MD, Sanjay Mukhopadhyay, MD.
8. Best Teacher in Pathology: for outstanding service in education as voted by students of SUNY Upstate Medical University College of Medicine Class of 2015
9. Achievement Award for Excellence in Pathology 201 Teaching, State University of New York Upstate Medical University, Syracuse, NY, 2008-2009, 2010-2011, 2012-2013
10. Nominated speaker, Gold Humanism Honor Society Ceremony, SUNY Upstate Medical University Class of 2014, Syracuse, NY, July 8, 2012
11. Certificate of Appreciation, Best Teacher in Pathology Residency Program, 2008-2009
12. Honorary Mention, awarded by the Pulmonary Pathology Society, for poster entitled "Occult aspiration of gastric contents in biopsy/resection specimens: an often unrecognized cause of lung infiltrates and nodules" presented at: United States and Canadian Academy of Pathology (USCAP) Annual Meeting, Atlanta, GA, 2006
13. Pulmonary Pathology Society Travel Award, awarded at United States and Canadian Academy of Pathology (USCAP) Annual Meeting, Atlanta, GA, 2006
14. National Talent Scholarship Examination Scholarship, India, 1988
15. Junior Science Talent Search Scholarship, India, 1986

## **PUBLICATIONS**

1. Wang AY, Lin S, Tran C, Homer RJ, Wilsdon D, Walsh JC, Goebel EA, Sansano I, Sonawane S, Cockenpot V, **Mukhopadhyay S**, Taskin T, Zahra N, Cima L, Semerci O, Ozamrak BG, Mishra P, Vennavalli NS, Chen PC, Cecchini MJ. Assessment of pathology domain-specific knowledge of ChatGPT and comparison to human performance. *Arch Pathol Lab Med* 2024; Online ahead of print.
2. Tasnim S, Raja S, **Mukhopadhyay S**, Blackstone EH, Toth AJ, Barron JO, Raymond DP, Bribriescio AC, Schraufnagel DP, Murthy SC, Sudarshan M. Preoperative predictors of spread through air spaces (STAS) in lung cancer. *J Thorac Cardiovasc Surg* 2023;S0022-5223(23)01106-6.

3. **Mukhopadhyay S.** Differential diagnosis of IgG4-positive plasma cells in the lung. *Sem Diagn Pathol* 2023;S0740-2570(23)00099-0.
4. Xing J, Yadav R, Ntiamoah P, Gillespie CT, Mehta AC, Raymond DP, **Mukhopadhyay S.** Airway injury caused by aspiration of iron sulfate pills: a series of eleven cases. *Mod Pathol* 2023;36(12):100347.
5. Berglund F, Ali A, Sankar P, Karmali R, Majid M, Kumar A, Mudra S, **Mukhopadhyay S,** Klein A. Pericardial mesothelioma presenting as constrictive pericarditis. *Echocardiography* 2023;40(10):1147-1150.
6. Vehar SJ, Yadav R, **Mukhopadhyay S,** Nathani A, Tolle LB. Smoking-related interstitial fibrosis (SRIF) in patients presenting with diffuse parenchymal lung disease. *Am J Clin Pathol* 2023;159(2):146-157.
7. Undi RB, Larabee JL, Filiberti A, et al. Targeting doublecortin-like kinase 1 (DCLK1)-regulated SARS-CoV-2 pathogenesis in COVID-19. *J Virol* 2022; Aug9:e0096722. PMID: 35943255
8. Thangaiah JJ, Booth CN, Brainard JA, et al. Oil red O staining of pulmonary macrophages in bronchoalveolar lavage specimens is not specific for vaping-associated lung injury: a study of 50 non-vaping-related cases. *Am J Clin Pathol*, 2022. Online ahead of print PMID 36222561.
9. Zalles N, Mukhopadhyay S. Infections that mimic malignancy in the lung. *Diagnostic Histopathology* 2022;28(10):449-455.
10. Dinnon KH 3rd, Leist SR, Okuda K, et al. SARS-CoV-2 infection produces chronic pulmonary epithelial and immune cell dysfunction with fibrosis in mice. *Sci Transl Med* 2022 Jul 7;eabo5070. Online ahead of print.
11. Ribeiro Neto ML, Arrossi AV, Yadav R, et al. Prospective cohort of cryobiopsy in interstitial lung diseases: a single center experience. *BMC Pulm Med* 2022 Jun 2;22(1):215.
12. Viswanathan VS, Toro P, Corredor G, **Mukhopadhyay S,** Madabhusi A. The state of the art for artificial intelligence in lung digital pathology. *J Pathol* 2022;257(4):413-429.
13. Esendagli D, Ntiamoah P, Küpeli E, et al. Recurrence of primary disease following lung transplantation. *ERJ Open Res*, 2022;8(2):00038-2022.
14. Almamlouk R, Kashour T, Obeidat S, et al. COVID-19-associated cardiac pathology at post-mortem evaluation: a collaborative systematic review. *Clin Microbiol Infect*, 2022. Online ahead of print. PMID 35339672.
15. Ntiamoah P, **Mukhopadhyay S,** Marshall T, et al. Giant cell interstitial pneumonia in native, transplanted and re-transplanted lungs 8 years apart without known hard metal exposure. *Int J Surg Pathol* 2022;30(8):926-930.

16. **Mukhopadhyay S.** UIP: a clinically significant pathologic diagnosis. *Mod Pathol*, 2022. Online ahead of print. PMID 35228663.
17. Rakheja D, Treat K, Timmons C, et al. SARS-CoV-2 immunohistochemistry in placenta. *Int J Surg Pathol*, Dec 2021, online ahead of print. PMID 34939436.
18. **Mukhopadhyay S,** Sudarshan M. Spread through air spaces (STAS): too much, too soon. *Mod Pathol* 2022;35(2):140-141.
19. Corredor, Toro P, Bera K, et al. Computational pathology reveals unique spatial patterns of immune response in H&E images from COVID-19 autopsies: preliminary findings. *J Med Imaging (Bellingham)* 2021;8(Suppl 1): Epub 2021 Jul 13.
20. Sawal N, **Mukhopadhyay S,** Rayancha S, Moore A, Garcha P, Kumar A, Kaul V. A narrative review of interstitial lung disease in antisynthetase syndrome: a clinical approach. *J Thorac Dis* 2021;13(9):5556-5571.
21. Ntiamoah P, Mehta AC, **Mukhopadhyay S,** Ghosh S. Recycling plastic: diagnosis and management of plastic bronchitis among adults. *Eur Respir Rev* 2021;30(161):210096.
22. Ashour S, Reynolds JP, **Mukhopadhyay S,** McKenney JK. SMARCA4-deficient undifferentiated tumor diagnosed on adrenal sampling: report of 6 cases emphasizing diagnostic distinction from adrenocortical carcinoma. *Am J Clin Pathol* 2022;157:140-145.
23. Baratchian M, McManus JM, Berk MP, Nakamura F, **Mukhopadhyay S,** Xu W, Erzurum S, Drazba J, Peterson J, Klein EA, Gaston B, Sharifi N. Androgen regulation of pulmonary AR, TMPRSS2 and ACE2 with implications for sex-discordant COVID-19 outcomes. *Scientific Reports* 2021; 11(1):11130.
24. Bruehl FK, Doxtader EE, Cheng YW, Farkas DH, Farver C, **Mukhopadhyay S.** Does histologic assessment accurately distinguish separate primary lung adenocarcinoma from intrapulmonary metastases? A study of paired resected lung nodules in 32 patients using a routine next-generation sequencing panel for driver mutations. *J Clin Pathol*, March 2021; Online ahead of print.
25. Wiles S, Mireles-Cabodevila E, Neuhofs S, **Mukhopadhyay S,** Reynolds JP, Hatipoglu U. Endotracheal tube obstruction among patients mechanically ventilated for ARDS due to COVID-19: a case series. *J Intensive Care Med* 2021;36(5):604-611.
26. Aesif SW, Bribriescio AC, Yadav R, Nugent SL, Zubkus D, Tan CD, Mehta AC, **Mukhopadhyay S.** Pulmonary pathology of COVID-19 following 8 weeks to 4 months of severe disease: a report of three cases, including one with bilateral lung transplantation. *Am J Clin Pathol* 2021;155(4):506-514.
27. **Mukhopadhyay S,** Kanakis C, Golab K, Hermelin D, Crane GM, Mirza KM. The network that never sleeps. *Lab Med* 2021;52(4):e83-103.

28. Mohanty SK, Satapathy A, Naidu MM, et al. Severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) and coronavirus disease 19 (COVID-19) – anatomic pathology perspective on current knowledge. *Diagn Pathol* 2020;15(1):103.
29. **Mukhopadhyay S**, Aesif SW, Sansano I. 5 simple reasons to discard DIP, or why we should stop calling dolphins big fish. *J Clin Pathol* 2020;73(11):762-768.
30. Chams N, Chams S, Badran R, et al. COVID-19. A multidisciplinary review. *Front Public Health* 2020;8:383.
31. Best Rocha A, Stroberg E, Barton L, et al. Detection of SARS-CoV-2 in formalin fixed paraffin embedded tissue sections using commercially available reagents. *Lab Invest* 2020;100(11):1485-1489.
32. Deeken AH, **Mukhopadhyay S**, Jiang XS. Social media in academics and research: 21<sup>st</sup> century tools to turbocharge education, collaboration, and dissemination of research findings. *Histopathology* 2020;77(5):688-699.
33. **Mukhopadhyay S**, Booth AL, Calkins SM, et al. Leveraging technology for remote learning in the era of COVID-19 and social distancing: tips and resources for pathology educators and trainees. *Arch Pathol Lab Med* 2020;144(9):1027-1036.
34. Bin Saedan M, MacMurdo M, **Mukhopadhyay S**, et al. Radiologic review with pathology correlation of e-cigarette or vaping product-associated lung injury. *J Thorac Imaging* 2020;35(5):277-284.
35. Aravena C, Almeida FA, **Mukhopadhyay S**, et al. Idiopathic subglottic stenosis: a review. *J Thorac Dis* 2020;12(3):1100-1111.
36. Barton LM, Duval EJ, Stroberg E, Ghosh S, **Mukhopadhyay S**. COVID-19 autopsies, Oklahoma, USA. *Am J Clin Pathol* 2020;153(6):725-733.
37. Schaumberg A, Juarez-Nicanor W, Choudhury S, et al. Interpretable multimodal deep learning for real-time pan-tissue pan-disease pathology search on social media. *Mod Pathol* 2020;33(11):2169-2185.
38. Cecchini M, **Mukhopadhyay S**, Arrossi AV, et al. E-cigarette or vaping product use-associated lung injury: a review for pathologists. *Arch Pathol Lab Med* 2020;144(12):1490-1500.
39. Culver DA, **Mukhopadhyay S**, Behr J, Kim H. Reply to Sanyal et al: overlooked role of histopathology in evaluations for occupational/environmental exposures. *Am J Respir Crit Care Med* 2020;201(12):1581-1583.
40. MacMurdo M, Lin C, Bin Saedan M, et al. E-cigarette, or vaping product use-associated lung injury: clinical, radiologic and pathologic findings of 15 cases. *Chest* 2020;157(6):e181-187.

41. Saqi A, **Mukhopadhyay S**, Butt Y, et al. E-cigarette or vaping product use-associated lung injury: what is the role of cytologic assessment? *Cancer Cytopathol* 2020;128(6):371-380.
42. Gonzalez RS, **Mukhopadhyay S**, Fine SW, Jiang XS. Conducting a pathology research study, from start to finish: a guide for residents and fellows. *Arch Pathol Lab Med* 2020;144(9):1131-1138.
43. Bin Saeedan M, **Mukhopadhyay S**, Lane CR, Renapurkar RD. Imaging indications and findings in evaluation of lung transplant graft dysfunction and rejection. *Insights Imaging* 2020;11(1):2
44. McHugh KE, **Mukhopadhyay S**, Doxtader EE, Allende DS. INSM1 is a highly specific marker of neuroendocrine differentiation in primary neoplasms of the gastrointestinal tract, appendix, and pancreas: an immunohistochemical study of 179 cases. *Am J Clin Pathol* 2020;153(6):811-820.
45. Lepe M, Oltulu P, Canepa M, et al. #EBUSTwitter: novel use of social media for conception, coordination, and completion of an international, multi-center pathology study. *Arch Pathol Lab Med* 2020;144:878-882.
46. Dermawan JK, Ghosh S, **Mukhopadhyay S**. Expanding the spectrum of chronic necrotizing (semi-invasive) aspergillosis: a series of 8 cases presenting as radiologically solid lung nodules mimicking malignancy. *Histopathology* 2020;76(5):685-697.
47. **Mukhopadhyay S**, Mehrad M, Dammert P, et al. Lung biopsy findings in severe pulmonary illness associated with e-cigarette use (vaping): a report of eight cases. *Am J Clin Pathol* 2020;153(1):30-39.
48. Dermawan JK, **Mukhopadhyay S**, Shah AA. Frequency and extent of cytokeratin expression in paraganglioma: an immunohistochemical study of 60 cases from 5 anatomic sites and review of the literature. *Hum Pathol* 2019;93:16-22.
49. Lehman B, Leal SM, Procop GW, et al. Disseminated metacestode *Versteria* Sp. infection in woman, Pennsylvania, USA. *Emerg Infect Dis* 2019;25(7):1429-1431.
50. Khanna A, Alshabani K, **Mukhopadhyay S**, Lam L, Ghosh S. Sclerosing pneumocytoma: a rare endobronchial presentation. *Medicine (Baltimore)* 2019;98(15):e15038.
51. Reid M, Choi H, Han X, et al. Development of a risk prediction model to estimate the probability of malignancy in pulmonary nodules being considered for biopsy. *Chest* 2019;156(2):367-75.
52. Doxtader EE, Pijuan L, Lepe M, et al. Displaced cartilage within lymph node parenchyma is a novel biopsy site change in resected mediastinal lymph nodes following EBUS-TBNA. *Am J Surg Pathol* 2019;43(4):497-503.
53. **Mukhopadhyay S**, Dermawan JK, Lanigan CP, et al. Insulinoma-associated protein 1 (INSM1) is a sensitive and highly specific marker of neuroendocrine differentiation in



primary lung neoplasms: an immunohistochemical study of 345 cases, including 292 whole-tissue sections. *Mod Pathol* 2019;32(1):100-109.

54. **Mukhopadhyay S**, Mehta AC. Utility of core needle biopsies and transbronchial biopsies for diagnosing nonneoplastic lung disease. *Arch Pathol Lab Med* 2018; 142(9):1054-1068.
55. Lewis AJ, Jagadeesh D, **Mukhopadhyay S**, Budev M, Mehta AC. Post-transplant lymphoproliferative disorder presenting on post-transplant day 35 as a pulmonary parenchymal infiltrate - a case report. *Oxford Med Case Rep* 2018;8:237-239.
56. Asah D, Raju S, Ghosh S, **Mukhopadhyay S**, Mehta AC. Non-thrombotic pulmonary embolism from inorganic particulate matter and foreign bodies. *Chest* 2018 Mar 1;S0012-3692(18)30308-8.
57. Singh J, Inaty H, **Mukhopadhyay S**, Mehta AC. Chronic pulmonary silicone embolism from breast augmentation is not a common finding in explanted lungs. *Pulm Med* 2018; 287072. eCollection 2018.
58. Doxtader EE, **Mukhopadhyay S**. Insulinoma-associated protein 1 is a sensitive and specific marker of neuroendocrine lung neoplasms in cytology specimens. *Cancer Cytopathol* 2018;126(4):243-252.
59. Dermawan JK, Ghosh S, Keating MK, Gopalakrishna KV, **Mukhopadhyay S**. Candida pneumonia with severe clinical course, recovery with antifungal therapy and unusual pathologic findings. A case report. *Medicine* 2018;97(2):e9650.
60. **Mukhopadhyay S**, Feldman MD, Abels E, et al. Whole slide imaging versus microscopy for primary diagnosis in surgical pathology: a multicenter blinded randomized non-inferiority study of 1992 cases (pivotal study). *Am J Surg Pathol* 2018;42(1):39-52.
61. Mazer BL, Fuller MY, Lepe M, et al. Social media in pathology: continuing a tradition of dialogue and education. *Arch Pathol Lab Med* 2018;142(8):889-890.
62. McHugh KE, Arrossi AV, Farver CF, **Mukhopadhyay S**. Does strong and diffuse PAX-8 positivity occur in primary lung carcinoma? An immunohistochemical study of 418 cases and review of the literature. *Appl Immunohistochem Mol Morphol* 2019;27(2):140-146.
63. Dermawan JK, **Mukhopadhyay S**. Insulinoma-associated protein 1 (INSM1) differentiates carcinoid tumorlets of the lung from pulmonary meningothelial-like nodules. *Histopathology* 2018;72(6):1067-1069.
64. **Mukhopadhyay S**. Introduction to “pathology of infections of the lung”. *Semin Diagn Pathol* 2017;34(6):497.
65. Jain D, Ghosh S, Teixeira L, **Mukhopadhyay S**. Pathology of pulmonary tuberculosis and non-tuberculous mycobacterial lung disease: facts, misconceptions, and practical tips for pathologists. *Semin Diagn Pathol* 2017;34(6):518-529.

66. **Mukhopadhyay S**, Arrossi AV, Farver CF. To the editor: fungal organisms in the brain. *Cleve Clin J Med* 2017;84(6):428.
67. Khunger M, Hernandez AV, Pasupuleti V, et al. Programmed cell death 1 (PD-1) ligand (PD-L1) expression in solid tumors as a predictive biomarker of benefit from PD-1/PD-L1 axis inhibitors: a systematic review and meta-analysis. *JCO Precision Oncology*, published online May 18, 2017.
68. **Mukhopadhyay S**, Patil P, Roma AA. Metastasis to the lung from carcinomas of non-pulmonary sites after prolonged disease-free intervals. *J Bronchol Interv Pulmonol* 2017;24(3):216-224.
69. Inaty H, Artiles C, Garcha P, et al. Diffuse large B-cell lymphoma presenting as diffuse bilateral ground glass opacities and diagnosed on transbronchial lung biopsy. *Ann Am Thorac Soc* 2017;14(4):605-607.
70. Velcheti V, Thawani R, Khunger M, et al. FRMD4A/RET: a novel oncogenic fusion variant in non-small cell lung carcinoma. *J Thorac Oncol* 2017;12(2):e16.
71. Sehgal S, Velcheti V, **Mukhopadhyay S**, Stoller JK. Focal lung infiltrate complicating PD-1 inhibitor use: A new pattern of drug-associated lung toxicity? *Resp Med Case Rep* 2016;19:118-120.
72. Fuller MY, **Mukhopadhyay S**, Gardner JM. Using the Periscope live video-streaming application for global pathology education: a brief introduction. *Arch Pathol Lab Med* 2016;140:1273-1280.
73. Sturgis CD, Ataya D, Calhoun BC, Velcheti V, **Mukhopadhyay S**. Breast mass in a woman with recurrent thymoma. *Ann Am Thorac Soc* 2016;13(11):2097-2098.
74. Panchabhai TS, **Mukhopadhyay S**, Sehgal S, Bandyopadhyay D, Erzurum SC, Mehta AC. Plugs of the air passages: a clinicopathologic review. *Chest* 2016;150(5):1141-1157.
75. Ruiz SJ, Zhang Y, **Mukhopadhyay S**. CD4/CD8 ratio in mediastinal lymph nodes involved by sarcoidosis: analysis of flow cytometry data obtained by endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA). *J Bronchol Interv Pulmonol* 2016.23(4):288-297.
76. Kalanjeri S, Kumar A, **Mukhopadhyay S**, Mehta AC. Lobular capillary hemangioma (“pyogenic granuloma”) of the trachea. *Am J Respir Crit Care Med* 2016; 193(12):1429-1430.
77. Arora A, Inaty H, **Mukhopadhyay S**, Abu-Hijleh M, Mehta AC. Chronic pulmonary silicone embolism related to saline breast implants. *Ann Am Thorac Soc* 2016; 13(1):139-141.
78. Doxtader EE, **Mukhopadhyay S**, Prayson R. Solitary metastasis to lung from intracranial hemangiopericytoma 18 years after initial resection. *J Clin Neurosci* 2015; 22(7):1210-1212.

79. **Mukhopadhyay S**, Pennell N, Ali SM, et al. Brief Report: RET-rearranged lung adenocarcinomas with lymphangitic spread, psammoma bodies, and clinical responses to cabozantinib. *J Thorac Oncol* 2014; 9(11):1714-1719.
80. Velur VA, Zhang G, Farver C, **Mukhopadhyay S**, Raymond DP, Velcheti V. Coexistent pulmonary granular cell tumor and adenocarcinoma of the lung. *Translational Lung Cancer Research* 2014; 3(4):262-264.
81. Pandey S, **Mukhopadhyay S**, Iannuzzi MC, et al. New brain lesions in a patient with sarcoidosis: is it neurosarcoidosis? *Sarcoidosis Vasc Diffuse Lung Dis* 2014; 31(1):62-66.
82. **Mukhopadhyay S**, Doxtader EE. Visibility of *Histoplasma* within histiocytes on H&E distinguishes disseminated histoplasmosis from other forms of pulmonary histoplasmosis. *Hum Pathol* 2013; 44(10): 2346-2352.
83. **Mukhopadhyay S**, Wilcox B, Myers JL, et al. Pulmonary necrotizing granulomas of unknown etiology: clinical and pathologic analysis of 131 patients with completely resected nodules. *Chest* 2013; 144(3):813-824.
84. **Mukhopadhyay S**, Gujral M, Abraham JL, et al. A case of hut lung: SEM/EDS analysis of a domestically acquired form of pneumoconiosis. *Chest* 2013; 144(1):323-327.
85. **Mukhopadhyay S**, Aubry MC, Pulmonary granulomas: differential diagnosis, histologic features and algorithmic approach. *Diagnostic Histopathology* 2013; 19(8):288-297.
86. Doxtader EE, **Mukhopadhyay S**, Katzenstein, A-L A. Biopsy site changes in lung adenocarcinoma with prior core needle biopsy: a potential pitfall in the assessment of stromal invasion. *Am J Surg Pathol* 2013; 37(3):443-446.
87. **Mukhopadhyay S**, Katzenstein AL. Comparison of monoclonal napsin A, polyclonal napsin A and TTF-1 for determining lung origin in metastatic adenocarcinomas. *Am J Clin Pathol* 2012; 138(5):703-711.
88. **Mukhopadhyay S**, Parambil JG. Acute interstitial pneumonia (AIP): relationship to Hamman-Rich syndrome, diffuse alveolar damage (DAD) and acute respiratory distress syndrome (ARDS). *Semin Respir Crit Care Med* 2012; 33(5):476-485.
89. **Mukhopadhyay S**. Utility of small biopsies for diagnosis of lung nodules: doing more with less. *Mod Pathol* 2012;25(S1):S43-S57.
90. **Mukhopadhyay S**, Farver CF, Vaszar LT, Dempsey OJ, Popper HH, Mani H, Capelozzi VL, Fukuoka J, Kerr KM, Zeren EH, Iyer VK, Tanaka T, Narde I, Nomikos A, Gumurdulu D, Arava S, Zander DS, Tazelaar HD. Causes of pulmonary granulomas: a retrospective study of 500 cases from seven countries. *J Clin Pathol* 2012; 65(1):51-57.
91. **Mukhopadhyay S**, Katzenstein A-L A. Subclassification of non-small cell lung carcinomas lacking morphologic differentiation on biopsy specimens: utility of an immunohistochemical panel containing TTF-1, napsin A, p63 and CK5/6. *Am J Surg Pathol* 2011; 35(1):15-25.

92. **Mukhopadhyay S.** Role of histology in the diagnosis of infectious causes of granulomatous lung disease. *Curr Opin Pulm Med* 2011; 17(3):189-196.
93. **Mukhopadhyay S, Gal AA.** Granulomatous lung disease. An approach to the differential diagnosis. *Arch Pathol Lab Med* 2010; 134(5):667-690.
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95. **Mukhopadhyay S, Eckardt S, Scalzetti EM.** Diagnosis of pulmonary Langerhans cell histiocytosis by CT-guided core biopsy of lung: a report of 3 cases. *Thorax* 2010; 65(9):833-835.
96. Doxtader EE, **Mukhopadhyay S, Katzenstein, A-L A.** Incidence and significance of benign diagnoses on core needle biopsies of lung. *Hum Pathol* 2010; 41(11):1430-1535.
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### **PRESENTATIONS: ABSTRACTS**

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14. Lehman B, Leal S, Procop G, Jones S, O'Connell, Braunthal S, Cruise M, **Mukhopadhyay S**, Banzon J. Disseminated cysticercosis due to an unknown *Versteria* species. Infectious Disease Society of America (IDSA) Annual Meeting
15. Alshabani K, **Mukhopadhyay S**, Lam L. Rare presentation of sclerosing pneumocytoma manifesting as an endobronchial lesion. Poster presentation at: American Thoracic Society (ATS) International Conference, San Diego, CA, 2018.
16. Doxtader EE, Yachimiak T, **Mukhopadhyay S**, Almeida F, Cicienia J, Brainard JA, Reynolds JP. Rapid on-site evaluation (ROSE) of endobronchial ultrasound-guided fine-needle aspiration (EBUS-TBNA) optimizes tissue for evaluation of PD-L1 expression on formalin-fixed non-small cell lung carcinoma. Poster presentation at American Society of Cytopathology (ASC) 65th Annual Scientific Meeting, Phoenix, AZ, 2018.
17. Wang X, **Mukhopadhyay S**. PET-positivity in benign lung lesions: a series of 120 resected nodules with correlation between PET and pathologic features. Poster presentation at United States and Canadian Academy of Pathology (USCAP) 107th Annual Meeting, Vancouver, BC, 2018.
18. Doxtader EE, **Mukhopadhyay S**. INSM1, a novel nuclear marker of neuroendocrine neoplasms, can be applied to lung cytology specimens. Platform presentation at United States and Canadian Academy of Pathology (USCAP) 107th Annual Meeting, Vancouver, BC, 2018.
19. **Mukhopadhyay S**, Dermawan J, Farver CF. Is Insulinoma-Associated Protein 1 (INSM1) a reliable neuroendocrine marker in lung pathology? An Immunohistochemical study of 324 cases. Platform presentation at United States and Canadian Academy of Pathology (USCAP) 107th Annual Meeting, Vancouver, BC, 2018.
20. Doxtader EE, **Mukhopadhyay S**, Brainard J, Cicienia J, Coleman JJ, Reynolds JP. Evaluation of PD-L1 expression of non-small cell lung carcinoma on non-formalin-fixed cell blocks with comparison to paired formalin-fixed surgical pathology specimens. Presented at United States and Canadian Academy of Pathology (USCAP) 107th Annual Meeting, Vancouver, BC, 2018.

21. Pannunzio A, **Mukhopadhyay S**. Are respiratory bronchiolitis, emphysema and smoking-related interstitial fibrosis (SRIF) accurate markers of smoking status? A histologic study of 119 surgically resected lung specimens. Poster presentation at United States and Canadian Academy of Pathology (USCAP) 106th Annual Meeting, San Antonio, TX, 2017.
22. **Mukhopadhyay S**, Jain D, Arrossi AV, et al. Ultrasensitive ALK (D5F3) immunohistochemistry in inflammatory myofibroblastic tumor of the lung and trachea: a multi-institution series of 34 cases. Poster presentation at United States and Canadian Academy of Pathology (USCAP) 106th Annual Meeting, San Antonio, TX, 2017.
23. Reid M, Choi H, **Mukhopadhyay S**, Morgan L, Khawaja A, Mazzone P. A malignancy risk prediction model for high-risk pulmonary nodules. Poster presentation at: American Thoracic Society (ATS) International Conference, Washington, DC, 2017.
24. Begany J, **Mukhopadhyay S**. Hydatid cyst of the lung. Poster presentation at: American Association of Pathologist Assistants (AAPA) Continuing Education Conference, San Diego, CA, 2016.
25. **Mukhopadhyay S**, Lakis N, Akindipe O, Ghosh S, Abraham JL. Mixed-dust pneumoconiosis in a steel foundry core maker mimicking idiopathic pulmonary fibrosis: occupational history, radiologic and pathologic findings, and demonstration of zirconium and steel in an explant lung by SEM/EDS. Poster presentation at: American Thoracic Society (ATS) International Conference, San Francisco, CA, 2016.
26. **Mukhopadhyay S**, Arrossi AV, Farver CF. Venous infarcts and pathologic changes mimicking pulmonary venoocclusive disease caused by pulmonary vein obstruction outside the lungs. Platform presentation at: United States and Canadian Academy of Pathology (USCAP) 105th Annual Meeting, Seattle, WA, 2016.
27. McHugh KE, Arrossi AV, Farver CF, **Mukhopadhyay S**. Does strong and diffuse PAX-8 positivity exclude primary lung carcinoma? An immunohistochemical study of whole-tissue sections from 337 resected primary lung carcinomas, and review of 27 PAX-8-positive carcinomas in lung specimens. Platform presentation at: United States and Canadian Academy of Pathology (USCAP) 105th Annual Meeting, Seattle, WA, 2016.
28. Mannan R, Liu X, **Mukhopadhyay S**. Lung metastasis from composite adenocarcinoma-carcinoid of the small bowel presenting as interstitial lung disease after a 14-year recurrence-free interval. Poster presentation at: American Society of Clinical Pathology (ASCP) Annual Meeting, Long Beach, CA, 2015.
29. McHugh KE, Li Y, He J, Ali S, Ross J, Velcheti V, **Mukhopadhyay S**. High yield of oncogenic drivers in lung adenocarcinomas with psammoma bodies: comprehensive molecular profiling of 10 resected cases using next-generation sequencing. Poster presentation at: College of American Pathologists (CAP) Annual Meeting, Nashville, TN, 2015.
30. **Mukhopadhyay S**, Roma A. Metastases to the lung from non-pulmonary carcinomas after recurrence-free intervals of greater than 5 years. Poster presentation at: United

States and Canadian Academy of Pathology (USCAP) 104th Annual Meeting, Boston, MA, 2015.

31. Li Y, Shen X, Wang R, Hu H, Chen H, **Mukhopadhyay S**. Psammoma bodies in lung adenocarcinoma: incidence and association with ALK/ROS1/RET fusions. Poster presentation at: United States and Canadian Academy of Pathology (USCAP) 104th Annual Meeting, Boston, MA, 2015.
32. Canepa M, Patel JB, Chute DJ, Sturgis C, Arrossi AV, Hoschar AP, **Mukhopadhyay S**. Amiodarone-induced thyrotoxicosis: a study of 20 cases, with validation of histologic criteria. Poster presentation at: United States and Canadian Academy of Pathology (USCAP) 104th Annual Meeting, Boston, MA, 2015.
33. Elvin JA, **Mukhopadhyay S**, Ali SM, Wang K, Bailey M, Velcheti V, Li Y, Palma N, Erlich R, Lipson D, Yelensky R, Chmielecki J, Stephens PJ, Miller VA, Ross JS. Comprehensive genomic profiling (CGP) of 44 RET-fused lung adenocarcinomas (LADCA) with histologic and clinical correlates. Poster presentation at: United States and Canadian Academy of Pathology (USCAP) 104th Annual Meeting, Boston, MA, 2015.
34. Allen C, Yang B, Farver C, **Mukhopadhyay S**. Yield of EGFR and ALK testing in poorly differentiated non-small cell lung carcinomas. Poster presentation at: United States and Canadian Academy of Pathology (USCAP) 104th Annual Meeting, Boston, MA, 2015.
35. Ruiz-Quintero S, **Mukhopadhyay S**, Kaplan E, Zhang Y. The CD4/CD8 ratio is frequently elevated in sarcoidosis involving mediastinal lymph nodes: a retrospective analysis of flow cytometry data obtained by endobronchial ultrasonography (EBUS)-guided fine-needle aspiration. Presented at: American Society of Cytopathology (ASC) 62<sup>nd</sup> Annual Scientific Meeting, Dallas, TX, 2014.
36. Back JF, **Mukhopadhyay S**. Histologic spectrum and clinical significance of granulomatous inflammation in pulmonary aspergillosis: a study of 13 cases with comparison to mycetomas and invasive aspergillosis. Presented at: United States and Canadian Academy of Pathology (USCAP) 102<sup>nd</sup> Annual Meeting, Baltimore, MD, 2013.
37. **Mukhopadhyay S**, Tull J, Zhang S. *EGFR*, *KRAS* and *ALK* molecular tests can be performed using existing stained histologic slides, including small biopsies: a proof-of-concept study. Presented at: United States and Canadian Academy of Pathology (USCAP) 102<sup>nd</sup> Annual Meeting, Baltimore, MD, 2013.
38. Wells JM, **Mukhopadhyay S**, Mani H. Application of the new proposed adenocarcinoma classification - a reproducibility study. Presented at United States and Canadian Academy of Pathology (USCAP) 102<sup>nd</sup> Annual Meeting, Baltimore, MD, 2013.
39. Jha S, **Mukhopadhyay S**, Abraham JL, Gujral M, Paul M, Scalzetti EM, Iannuzzi MC. "Hut lung" (domestically acquired particulate lung disease) in a Bhutanese refugee living in Nepal: analysis of a case using scanning electron microscopy with energy dispersive x-



ray spectroscopy. Presented at: 2012 North American Refugee Healthcare Conference, Rochester, NY, 2012.

40. Singh P, **Mukhopadhyay S**. Neutrophilic dermatosis: Sweet syndrome or cutaneous forme fruste of Wegener's granulomatosis? Presented at: American Thoracic Society (ATS) Annual Meeting, San Francisco, CA, 2012.
41. Mehta P, Robinson B, Sah B, **Mukhopadhyay S**, Iannuzzi M. Sarcoidosis with striking histologic pulmonary venous involvement: report of a patient presenting with hemoptysis. Presented at: American Thoracic Society (ATS) Annual Meeting, San Francisco, CA, 2012.
42. **Mukhopadhyay S**, Farver C, Vaszar LT, *et al*. Causes of granulomatous inflammation in lung biopsies and resections from diverse geographic settings: an international, multi-institution retrospective study of 500 cases. Presented at: United States and Canadian Academy of Pathology (USCAP) 100th Annual Meeting, San Antonio, TX, 2011.
43. **Mukhopadhyay S**, Farver C, Vaszar LT, *et al*. Pulmonary granulomatous infections: comparison of the yield of cultures and histologic examination in 88 cases from 10 institutions. Presented at: United States and Canadian Academy of Pathology (USCAP) 100th Annual Meeting, San Antonio, TX, 2011.
44. **Mukhopadhyay S**, Katzenstein AA. Comparison of napsin A and TTF-1 expression in metastatic carcinomas from various sites: an immunohistochemical study of 143 cases. Presented at: United States and Canadian Academy of Pathology (USCAP) 100th Annual Meeting, San Antonio, TX, 2011.
45. Doxtader E, **Mukhopadhyay S**, Katzenstein AA. Biopsy site changes in lung carcinomas following core needle biopsy: a potential pitfall in the assessment of stromal invasion, accepted for poster presentation at: United States and Canadian Academy of Pathology (USCAP) 100th Annual Meeting, San Antonio, TX, 2011.
46. **Mukhopadhyay S**, Katzenstein AA. Smoking Related Interstitial Fibrosis (SRIF): A common form of interstitial fibrosis in smokers to be distinguished from the fibrosing idiopathic interstitial pneumonias. Presented at: United States and Canadian Academy of Pathology (USCAP) Annual Meeting, Washington, DC, 2010.
47. **Mukhopadhyay S**, Katzenstein AA. Subclassification of poorly differentiated non-small cell carcinoma on small biopsy specimens: utility of a panel of immunohistochemical stains. Presented at: United States and Canadian Academy of Pathology (USCAP) Annual Meeting, Washington, DC, 2010.
48. **Mukhopadhyay S**, Katzenstein AA. Biopsy findings in acute pulmonary histoplasmosis: unusual histologic features of a potential mimic of lymphomatoid granulomatosis. Presented at: United States and Canadian Academy of Pathology (USCAP) Annual Meeting, Washington, DC, 2010.
49. Poon CS, Butts S, Appleton J, **Mukhopadhyay S**. Pilomatrixoma of the head and neck region: imaging features with clinical and pathological correlation. Presented at:

American Society of Head and Neck Radiology 43rd Annual Meeting, New Orleans, LA, 2009

50. **Mukhopadhyay S**, El-Zammar OA, Katzenstein AA. Pulmonary meningothelial-like nodules: new insights into a common but poorly understood entity. Presented at: United States and Canadian Academy of Pathology Annual Meeting, Denver, CO, 2008.
51. Doxtader EE, **Mukhopadhyay S**, Katzenstein AA. Incidence and significance of benign diagnoses on core needle biopsies of lung. Presented at: United States and Canadian Academy of Pathology Annual Meeting, Denver, CO, 2008.
52. Nasr MR, **Mukhopadhyay S**, Zhang S, Katzenstein AA. Absence of BRAF mutation in HBME1 and CK19 positive atypical cell clusters in Hashimoto's thyroiditis: evidence against preneoplastic change. Presented at: United States and Canadian Academy of Pathology Annual Meeting, Denver, CO, 2008.
53. Aden AM, Scalzetti EM, **Mukhopadhyay S**, Grage R. Peripheral pulmonary carcinoid tumors diagnosed by core needle biopsy: imaging and pathologic features. Presented at: Society of Thoracic Radiology Annual Meeting, Ft. Myers, FL, 2008.
54. Wilcox B, **Mukhopadhyay S**, Aubry MC, Yi ES, Aughenbaugh G, Specks U. A review of necrotizing granulomas. Presented at: Chest Meeting, Chicago, IL, 2007.
55. **Mukhopadhyay S**, Savci Heijink CD, Specks U, Myers JL, Yi ES, Aubry MC. Necrotizing granulomas negative for microorganisms: clinical course of 50 cases. Presented at: United States and Canadian Academy of Pathology (USCAP) Annual Meeting, San Diego, CA, 2007.
56. **Mukhopadhyay S**, Katzenstein AA. Occult aspiration of gastric contents in biopsy/resection specimens: an often unrecognized cause of lung infiltrates and nodules. Presented at: United States and Canadian Academy of Pathology (USCAP) Annual Meeting, Atlanta, GA, 2006.
57. Nasr MR, **Mukhopadhyay S**, Zhang S, Katzenstein AA. Reevaluation of immunohistochemical markers in diagnosing papillary carcinoma (PC) of the thyroid: evidence for utility of HBME1 combined with CK19 immunostaining. Presented at: United States and Canadian Academy of Pathology (USCAP) Annual Meeting, Atlanta, GA, 2006.
58. Mukhopadhyay S, **Mukhopadhyay S**, Banki K. Triad of visceral malignancy, leukemoid reaction and Reed-Sternberg-like cells: a report of 2 cases. Presented at: Society of General Internal Medicine (SGIM) Mid-Atlantic Meeting, Philadelphia, PA, 2004.
59. **Mukhopadhyay S**, Valente AL, de la Roza G. Cystic nephroma: Immunohistochemical similarity to mixed epithelial and stromal tumor of kidney. Presented at: United States and Canadian Academy of Pathology (USCAP) Annual Meeting, Vancouver, B.C., Canada, 2004.

60. **Mukhopadhyay S**, Landas SK. Incidence and Spectrum of Epithelial Alterations in 400 Routinely Processed Gallbladders. Presented at: American Society of Clinical Pathology (ASCP) Annual Meeting, New Orleans, LA, 2003.
61. Mukhopadhyay S, **Mukhopadhyay S**, Abraham NZ, Jr., Gajra A. Unexplained bone marrow granulomas: is amiodarone the culprit? Presented at: American College of Clinical Pharmacology (ACCP) Annual Meeting, Tampa, FL, 2003.
62. **Mukhopadhyay S**, Mukhopadhyay S. Chest pain: tip of the iceberg (Unsuspected disseminated melanoma). Presented at: American College of Physicians (ACP) Regional Meeting, Syracuse, NY, 2003.
63. **Mukhopadhyay S**, Shrimpton AE, Jones LA, Nsouli IS, Abraham NZ Jr. Carcinosarcoma of the bladder in a patient of Wegener's granulomatosis on cyclophosphamide therapy. Presented at: American College of Physicians (ACP) Regional Meeting, Buffalo, NY, 2002.
64. **Mukhopadhyay S**, Mukhopadhyay S. Sequential Non-Hodgkin's and Hodgkin's lymphoma: a therapeutic and diagnostic challenge. Presented at: Charles R. Ross Research Poster Session, Syracuse, NY, 2002.
65. **Mukhopadhyay S**, Datta Gupta S. Celiac disease: Is Histopathology Redundant? Presented at: Annual Conference, Indian Association of Pathologists and Microbiologists (IAPM, Delhi Chapter), New Delhi, India, 2002.
66. **Mukhopadhyay S**, Datta Gupta S. Morphometric parameters of small intestinal biopsies in Indian children with celiac disease. Presented at: 9<sup>th</sup> Asian Conference on Diarrheal Diseases (ASCODD) and Nutrition, New Delhi, India, 2001
67. Rana SS, Das K, **Mukhopadhyay S**, Dinda AK, Kar P. Post-shunt IgA nephropathy in cirrhosis-renal biopsy findings. Presented at: Indian Society of Gastroenterology Delhi chapter Meeting, New Delhi, India, 1999.

### **INVITED PRESENTATIONS**

1. "Ten lung tumors you must have in your toolbox" and "Adenocarcinoma of the lung: are you doing it right in 2023/2024?". Invited Faculty Speaker, Emirates Surgical Pathology Society, 2023 (In person lectures). Emirates Pathology Society (EPS). Dubai, United Arab Emirates, 12/2023
2. "State of the art treatments for neuroendocrine small cell lung cancer: pathology updates". Invited Faculty Speaker and Session Chair (Session ES-03), International Association for the Study of Lung Cancer (IASLC) North America Conference on Lung Cancer, 2023 (In person lecture). Chicago, Illinois, 12/2023
3. "Vasculitis". Invited Faculty Speaker, Pulmonary Pathology Teaching Club, 2023 (Live lecture via videoconferencing followed by live Q&A). Mumbai, India, 11/2023

4. Pathology Board Review for Pulmonary Fellows. Invited Faculty Speaker, University of California San Francisco Pulmonary and Critical Care Fellowship Program (Live lecture via videoconferencing followed by live Q&A). Fresno, California, October 2023.
5. “What you inhale can kill you”. Invited Keynote Speaker, West Virginia Association of Pathologists Annual Meeting, 2023 (2 in-person lectures). Morgantown, West Virginia, October 2023.
6. “Discrepancies between clinical features, imaging and pathology: examples from my practice”. Invited Faculty Speaker, Pulmonary Pathology Teaching Club, 2023 (Live lecture via videoconferencing followed by live Q&A). Mumbai, India, August 2023.
7. “Diagnostic Pathology Update: Pragmatic Approaches to Daily Practice” (4 hours of in-person lectures). Invited Faculty Speaker, United States and Canadian Academy of Pathology (USCAP). Montreal, Canada, July 2023.
8. “Pathology Update: State-of-the-Art Surgical Pathology” (4 hours of in-person lectures). Invited Faculty Speaker, American Society of Clinical Pathology (ASCP). Chicago, Illinois, June 2023.
9. “What does COVID-19 look like under the microscope?” Invited Faculty Speaker, Histology Society of Ohio Spring Meeting, 2023 (In-person lecture). Beachwood, Ohio, April 2023.
10. “Diagnostic approach to granulomatous lesions of the lung”. Invited Faculty Speaker, Online Teaching Program for Post-Graduates in Pathology (OTPPGP), 2023 (Live lecture via videoconferencing followed by live Q&A). Mumbai, India, April 2023.
11. “Thoracic frozen section pitfalls” (Live lecture via videoconferencing followed by live Q&A). Invited Faculty Speaker, Tenth Princeton Integrated Pathology Symposium: Thoracic Pathology. Princeton, New Jersey, April 2023.
12. “Mistakes in thoracic pathology, and what I learned from them”. Invited Faculty Speaker, Pulmonary Pathology Teaching Club, 2023 (Live lecture via videoconferencing followed by live Q&A). Mumbai, India, February 2023.
13. “If you say DIP one more time...”. Invited Faculty Speaker, Interstitial Lung Disease Education Day, Cleveland Clinic Respiratory Institute, Cleveland, OH, October 2022.
14. “Upgrade your thoracic pathology skills: ten tumors you must have in your toolbox” (Live lecture via videoconferencing followed by live Q&A). Invited Faculty Speaker, Chinese American Pathologists Association (CAPA), September 2022.
15. “Upgrade your thoracic pathology skills: ten tumors you must have in your toolbox”. Invited Faculty Speaker, Grand Rounds, Department of Pathology, Cleveland Clinic, September 2022.
16. “Pathology of sarcoidosis: grappling with the granuloma” (Live lecture via videoconferencing followed by live Q&A). Invited Faculty Speaker, Society for Respiratory Medicine (Baroda Chest Group), Vadodara, India, September 2022.

17. Scientific Symposiums International: Surgical pathology for the practicing pathologist: diagnostic updates. John Goldblum, Course Director. Del Mar, California, June 2022.
18. "Upgrade your thoracic pathology skills: ten tumors you must have in your toolbox", (Live lecture via videoconferencing followed by live Q&A). Invited Faculty Speaker, Grand Rounds, Department of Pathology, University of Colorado. Denver, Colorado, May 2022.
19. "Upgrade your thoracic pathology skills: ten tumors you must have in your toolbox", "Diagnosis of non-neoplastic lung disease in small biopsies", and "Case based presentation". Invited Faculty Speaker, 28<sup>th</sup> Annual Seminar in Pathology. Pittsburgh, Pennsylvania, April 2022.
20. "Pulmonary vascular pathology". Invited Faculty Speaker, USCAP Short Course, with Humberto Trejo-Bittar and Mitra Mehrad, United States and Canadian Academy of Pathology (USCAP) Annual Meeting. 2-year course (2022: Los Angeles, California. 2023: New Orleans, Louisiana).
21. "Hypersensitivity pneumonitis: impact of new guidelines". Invited Faculty Speaker, Pulmonary Pathology Society (PPS) Companion Society Meeting at the United States and Canadian Academy of Pathology Annual Meeting. 2022: Los Angeles, California.
22. "SMARCA4-deficient undifferentiated tumor". Invited Faculty Speaker, College of American pathologists (CAP) Companion Society Meeting at the United States and Canadian Academy of Pathology Annual Meeting. 2022: Los Angeles, California.
23. "Interstitial lung disease: a case based approach". Invited Faculty Speaker, Pulmonary Pathology Teaching Club, 2021 (Live lecture via videoconferencing followed by live Q&A). Mumbai, India, October 2021.
24. "Lung cancer staging: new twists to complicate your life". Invited Faculty Speaker, Houston Methodist Hospital Department of Pathology Grand Rounds 2021 (Live lecture via videoconferencing followed by live Q&A). Houston, Texas, October 2021.
25. "Upgrade your thoracic pathology skills: ten tumors you must have in your toolbox". Invited Faculty Speaker, International Academy of Pathology (IAP) Annual Meeting 2021 (Recorded webinar followed by live Q&A). Thailand, October 2021.
26. "Not your grandpa's thoracic pathology: changes in concepts, diagnoses, terminology, and therapy in the last 20 years" (Live lecture via videoconferencing followed by live Q&A). Invited Faculty Speaker, Virtual Pathology Grand Rounds, Geisinger Medical Center, Pennsylvania, September 2021.
27. "COVID-19 lung: facts and controversies" and "What you inhale can kill you" (Live lectures via videoconferencing followed by live Q&A). Invited Faculty Speaker, Cleveland Clinic OMInar in pathology, Open Medical Institute, Salzburg, Austria, May 2021.
28. "COVID-19 pathology" (Live lecture via videoconferencing followed by live Q&A). Invited Faculty Speaker, New York Office of the Chief Medical Examiner. New York City, New York, March 2021.
29. "COVID-19 lung pathology" (Live lecture via videoconferencing followed by live Q&A). Invited Faculty Speaker, Virtual Pathology Grand Rounds, organized by American Society of Clinical Pathology. March 2021.

30. “The role of small lung biopsies in the diagnosis of non-neoplastic lung disease” (Webinar followed by live Q&A). Invited Faculty Speaker, “Contemporary Approach to Challenges in Lung Biopsy Interpretation”, Pathology Society of Philadelphia 2021. Philadelphia, Pennsylvania, February 2021.
31. “Lung mass but not malignant: what could it be?” (Webinar followed by live Q&A). Invited Faculty Speaker, Association of Indian Pathologists of North America (AIPNA) ICP International Pathology CME 2021. Kochi, Kerala, India, February 2021.
32. “Diagnostic approach to granulomatous lesions of the lung”. Invited Faculty Speaker, Online Teaching Program for Post-Graduates in Pathology (OTPPGP), 2021 (Live lecture via videoconferencing followed by live Q&A). Mumbai, India, April 2021.
33. “COVID-19 lung: pathologic findings from autopsies and beyond” and “What you inhale can kill you” (Live Webinars). Invited Faculty Speaker, Park City Anatomic Pathology Update. Salt Lake City, Utah, February 2021.
34. “COVID-19 pathology: facts and controversies” (Live Webinar). 54<sup>th</sup> Annual George Kypridakis Lecture. Invited Faculty Speaker, Los Angeles Society of Pathologists. Los Angeles, CA, December 2020.
35. “Lung mass but not malignant: what could it be?” (Webinar followed by live Q&A). Invited Faculty Speaker, California Society of Pathologists 73<sup>rd</sup> Annual Meeting. December 2020.
36. “Lung cancer staging: new twists to complicate your life”. Grand Rounds, Department of Pathology, Emory University (Live Webinar). Atlanta, GA, October 2020.
37. Master class series. “COVID-19 lung: a pathologist’s perspective” (Live Webinar). Invited Faculty Speaker, Society for Respiratory Medicine (Baroda Chest Group), Vadodara, India, October 2020.
38. “Lung granulomas: five things we learned in the 21<sup>st</sup> century?” (Live Webinar). 10<sup>th</sup> Annual Shields Warren Lecture, Beth Israel Deaconess Medical Center (Harvard Medical School) (Webinar). Boston, MA, October 2020.
39. “Lung cancer staging: new twists to complicate your life”. Invited Faculty Speaker, Philippine Society of Pathologists (PSP) 2020 (Live Webinar). Manila, Philippines, September 2020.
40. “COVID-19: what have we learned from pathology specimens?” (Live Webinar). Invited Faculty Speaker, Pathology Grand Rounds, Pathology Department, Pontificia Universidad Javeriana. Bogota, Colombia, September 2020.
41. “COVID-19: what have we learned from pathology specimens?” (Live Webinar). Invited Faculty Speaker, Indian Association of Pathologists and Microbiologists, Karnataka Chapter, 47<sup>th</sup> annual conference (KAPCON 2020). Karnataka, India, September 2020.
42. “Pathology of vaping-associated lung disease” (Recorded Webinar with Live Q&A session). Invited Faculty Speaker, “E-cigarettes, vaping, and lung disease” with William

E. Schreiber, MD and Seth Kligerman, MD, American Society of Clinical Pathology (ASCP), 2020 Virtual Annual Meeting, September 2020.

43. “What do vaping and COVID-19 have in common?” (Live Webinar). Invited Faculty Speaker, Anatomic Pathology Grand Rounds, Pathology Division, Moffitt Cancer Center. Tampa, FL, June 2020.
44. “Interstitial lung disease: theory vs. real life” (Live Webinar). Invited Faculty Speaker, College of American Pathologists (CAP) Virtual Lecture Series for Pathology Residents, June 2020.
45. “What have COVID-19 autopsies taught us?” (Recorded Webinar with Live Q&A session). Invited Faculty Speaker, United States and Canadian Academy of Pathology (USCAP) Online Broadcast (Webinar) streamed from USCAP Interactive Center, June 2020.
46. “COVID-19 autopsies: peeling back the onion” (Live Webinar). Invited Faculty Speaker, Literary Guild, Case Western Reserve University. Cleveland, OH, May 2020.
47. “Must-know morphologic findings in thoracic pathology” (Live Webinar). Invited Faculty Speaker, College of American Pathologists (CAP) Virtual Lecture Series for Pathology Residents, May 2020.
48. “Cleveland Clinic Global Connect: COVID-19 and the lungs - essential Cleveland Clinic clinical and pathology insights” (Live Webinar). Invited Faculty Speaker, Cleveland Clinic Global Connect Series, Episode 2, Cleveland Clinic, Cleveland, OH, May 2020.
49. “COVID-19 pathology” (Live Webinar). Invited Faculty Speaker, COVID-19 Infectious Disease Control, Department of Infectious Disease, Cleveland Clinic. Cleveland, OH, April 2020.
50. Scientific Symposiums International: Practical Tips for the Practising Pathologist, John Goldblum, Course Director. Maui, Hawaii, February 2020.
51. Cleveland Clinic Multispecialty Pathology Symposium: Jesse McKenney and Daniela Allende, Course Directors. Las Vegas, Nevada, January 2020.
52. “Vaping-associated lung injury: facts, theories and agendas” Invited Faculty Speaker, Grand Rounds, Department of Pathology, Louis Stokes Cleveland Veterans Administration Medical Center. Cleveland, OH, January 2020.
53. “Vaping-associated lung injury: facts, theories and agendas” Invited Faculty Speaker, Grand Rounds, Department of Pathology, New York University (NYU). New York, NY, December 2019.
54. 4<sup>th</sup> Annual Surgical Pathology Update: Diagnostic Pearls for the Practising Pathologist, John Goldblum and John Hart, Course Directors. October 2019, Las Vegas, Nevada.
55. “Not your grandpa’s lung pathology: 2009 vs. 2019”. Invited Faculty Speaker, Grand Rounds, Department of Pathology, Cleveland Clinic, October 2019.

56. "Update on the interstitial lung disease classification". Invited Faculty Speaker, Pulmonary Pathology Society (PPS) Biennial Meeting. June 2019, Dubrovnik, Croatia.
57. "Cytologic diagnosis of mediastinal lesions with histopathologic correlation: an update in the era of EBUS and EUS-guided FNA". Invited Faculty Speaker, USCAP Short Course, with Charles D. Sturgis and Erika E. Doxtader, United States and Canadian Academy of Pathology (USCAP) Annual Meeting. 3-year course (beginning 2019). Year 1: National Harbor, Maryland; Year 2: Los Angeles, CA, Year 3: Virtual.
58. "Airway centered interstitial fibrosis is an independent entity versus a spectrum of UIP: pro-con debate (con position)". Invited Faculty Speaker, Pulmonary Pathology Society (PPS) Companion Society Meeting, United States and Canadian Academy of Pathology (USCAP) Annual Meeting, 2019: National Harbor, Maryland.
59. "Infection or not? Occam's razor or Hickam's dictum". Grand Rounds, Department of Infectious Disease, Cleveland Clinic, January 2019.
60. "E-mail, texting and social media in medicine and pathology: etiquette, guidelines and regulations". Invited Faculty Speaker, ASCP Short Course, with Fadi Abdul-Karim, American Society of Clinical Pathology (ASCP), Baltimore Maryland, October 2018.
61. "Pathology of lung cancer in 2018: tell me something I didn't know!" Anatomic Pathology Diagnostic Mastery Series, Kaiser Permanente, May 2018.
62. "How to diagnose smoking-related interstitial lung disease in the 21<sup>st</sup> century: 3 key entities" Invited Faculty Speaker, MEDLAB 2018: 17<sup>th</sup> annual laboratory management and medicine conference, Dubai, United Arab Emirates (UAE), February 2018.
63. "Bye-bye microscope? Implications of a recent large multicenter WSI vs. microscopy study for the future of surgical pathology". Grand Rounds, Department of Pathology, Cleveland Clinic, December 2017.
64. "Small biopsies, big deal: practical approach to lung cancer diagnosis in the era of EBUS, targeted therapies and immunotherapy". Invited Faculty Speaker, Colorado Society of Clinical Pathologists (CSCP) Annual Stars in the Mountains Meeting. 2017: Vail, Colorado.
65. "The role of the pathologist in the diagnosis of non-neoplastic lung disease: more than just "clinical correlation"". Invited Faculty Speaker, Colorado Society of Clinical Pathologists (CSCP) Annual Stars in the Mountains Meeting. 2017: Vail, Colorado.
66. "Tell me something I didn't know: a potpourri of recently described lung pathology issues and entities". Invited Faculty Speaker, Colorado Society of Clinical Pathologists (CSCP) Annual Stars in the Mountains Meeting. 2017: Vail, Colorado.
67. "Use of transbronchial biopsies and core needle biopsies for diagnosing non-neoplastic diseases". Invited Faculty Speaker, Pulmonary Pathology Society (PPS) Biennial Meeting. 2017: Chicago, Illinois.



68. "Granulomatous lung disease: how pathologic findings add value to clinical and radiologic information". Invited Faculty Speaker, Pulmonary Pathology Society (PPS) Companion Society Meeting at the United States and Canadian Academy of Pathology Annual Meeting. 2017: San Antonio, Texas.
69. "Solitary pulmonary nodule in the high risk (for cancer) patient". Invited Faculty Speaker, Tall Rounds™, Heart and Vascular Institute, Cleveland Clinic, Cleveland, Ohio, 2016.
70. "Lung pathology slide seminar". Invited presentation for pathology residents, St. Luke's Roosevelt Beth Israel Medical Center (SLRBIMC), New York NY, 2016. The lecture was simultaneously broadcast to SUNY Upstate Medical University residents using GoToMeeting and was broadcast live worldwide using the Periscope smartphone application. This novel use of Periscope for global pathology teaching led to an invited Special Article (*Archives of Pathology and Laboratory Medicine*, 2016).
71. "Pathology of lung cancer". Invited Faculty Speaker, 2015 Lung Cancer Education Day, Respiratory Institute, Cleveland Clinic, Cleveland, Ohio, 2015
72. "Pulmonary infections: morphologic and molecular tips for the surgical pathologist". Invited Faculty Speaker, USCAP Short Course, with Carol Farver and Gary Procop, United States and Canadian Academy of Pathology Annual Meeting. 3-year course (2015: Boston, Massachusetts. 2016: Seattle, Washington, 2017: San Antonio, Texas).
73. "Napsin A immunohistochemistry: pearls and pitfalls". Grand Rounds, Department of Pathology, Cleveland Clinic, January 2015
74. "RET-rearranged lung adenocarcinomas: from pathologic observations to successful targeted therapy" presented at Respiratory Institute Research Day, Cleveland Clinic, December 2014
75. "Infectious causes of lung granulomas". Grand Rounds, Department of Infectious Disease, Cleveland Clinic, June 2014
76. "The many faces of pulmonary histoplasmosis: how pathology complements - or trumps - the clinical impression" presented at: Cleveland Society of Pathologists Fall Meeting, Cleveland, Ohio, 2013
77. "Napsin A: a useful marker for subclassifying primary non-small cell lung carcinomas and for determining pulmonary origin in metastatic adenocarcinomas" presented at: Nebraska Association of Pathologists Meeting, Omaha, Nebraska, 2011
78. Pulmonary Pathology Unknown slide conference for pathology residents, University of Nebraska Medical Center, Omaha, Nebraska, 2011
79. "Meningothelial-like nodules of the lung" presented at: Pulmonary Pathology Society 2011 Biennial Meeting, Memorial Sloan-Kettering Cancer Center, New York, New York, 2011

80. "Utility of small biopsies for diagnosis of lung nodules: doing more with less". Invited Faculty Speaker, United States and Canadian Academy of Pathology (USCAP) Long Course in Pulmonary Pathology: "Practical Solutions to Common Problems in Pulmonary Pathology", Anna-Luise Katzenstein and Jeffrey L. Myers, Course Directors, United States and Canadian Academy of Pathology 2011 Annual Meeting, San Antonio, Texas, 2011
81. Invited Speaker, Specialty Conference, Pulmonary Pathology, United States and Canadian Academy of Pathology 2009 Annual Meeting, Boston, Massachusetts, 2009
82. Invited Pathologist, "Fellows Forum": New York State Thoracic Society Annual Scientific Assembly, West Point, New York, 2009-2012
83. "Acute pulmonary histoplasmosis" presented at: New York State Thoracic Society Annual Scientific Assembly, Armonk, New York, 2008
84. "Fused genes and maimed lives: understanding Ewing's sarcoma" presented at: New York State Regional Cytogenetics Meeting, Syracuse, New York, 2005
85. "Microarrays in Pathology" presented at: Quarterly Conference, Indian Association of Pathologists and Microbiologists (IAPM, Delhi Chapter), New Delhi, India, 2002

### **VISA STATUS**

United States citizen

### **MEMBERSHIP IN PROFESSIONAL SOCIETIES**

1. United States and Canadian Academy of Pathology (2002-present)
2. American Society for Clinical Pathology (2002-present)
3. College of American Pathologists (2002-present)
4. Pulmonary Pathology Society (2007-present)

### **COMMITTEE MEMBERSHIPS**

1. Associate Editor (Pulmonary), *American Journal of Clinical Pathology* (May 2019-present)
2. Associate Editor, *Modern Pathology* (September 2021-present)
3. Member, Editorial Board, *Journal of Clinical Pathology* (2023-present)
4. Section Editor, Pulmonary Pathology, for the Editorial Board of *Archives of Pathology and Laboratory Medicine* (2010-present)

5. Chair, Digital Content Committee, Pulmonary Pathology Society (2020-June 2022)
6. Invited Expert/Guest, Test Development and Advisory Committee (TDAC), American Board of Pathology, Jan 2022.
7. Member, Abstract Review Committee (Pulmonary), United States and Canadian Academy of Pathology (USCAP) Annual Meeting (2009-2011, 2014-2017)
8. Member, Abstract Review Committee (Pulmonary), College of American Pathologists (CAP) Annual Meeting (2010-2017)
9. Moderator, Pulmonary Pathology Proffered Papers Platform Presentation Session, United States and Canadian Academy of Pathology (USCAP) Annual Meeting (2008, 2010-2013)
10. Member, Digital Content Committee, Pulmonary Pathology Society (2016-present)
11. Member, United States and Canadian Academy of Pathology (USCAP) Social Media Subcommittee (2018-2022)
12. *Ad Hoc* Reviewer:
  - a. New England Journal of Medicine (2020)
  - b. American Journal of Respiratory and Critical Care Medicine (2019)
  - c. Emerging Infectious Diseases (2020)
  - d. Chest (2008-present)
  - e. Thorax (2020)
  - f. Journal of Thoracic Oncology (2010- present)
  - g. Annals of American Thoracic Society (2022)
  - h. Modern Pathology (2017-2022)
  - i. American Journal of Surgical Pathology (2018)
  - j. Histopathology (2014-2022)
  - k. Human Pathology (2009, 2011, 2013, 2017)
  - l. Journal of Clinical Pathology (2020-2021)
  - m. International Journal of Surgical Pathology (2020-2022)
  - n. Pediatrics (2019-2020)
  - o. Lung Cancer (2011)
  - p. Journal of Bronchology and Interventional Pulmonology (2013, 2014)

- q. Respiratory Medicine (2013, 2021)
  - r. Respiration (2010)
  - s. Diagnostic Pathology (2021)
  - t. Virchows Archives (2022)
13. Pathology Reviewer, New York State Thoracic Society Annual Scientific Assembly (2009-2013)

### **TEACHING RESPONSIBILITIES**

1. Director, Surgical Pathology Elective, Department of Pathology, State University of New York Upstate Medical University (2008-2013)
2. Lectures for pathology residents, State University of New York Upstate Medical University (2007-2013)
  - a. Lung tumors
  - b. Residents In-Service Examination review
  - c. Lymphoid lung lesions
  - d. Pleural fluid cytology
  - e. Immunohistochemistry in lung tumors
  - f. Lung infections
  - g. Smoking-related interstitial lung diseases
  - h. Adenocarcinomas of lung, including molecular studies
  - i. Granulomatous and interstitial lung disease, rapid-fire unknown case conference
3. Lectures for medical students (Pathology 201), State University of New York Upstate Medical University (2007-2013)
  - a. Interstitial lung disease
  - b. Miscellaneous non-neoplastic lung diseases
  - c. Lung tumors
  - d. Lung infections
  - e. Pulmonary review session - interactive
  - f. Remedial review session - interactive
4. Pulmonary Multidisciplinary Conference (Monthly), State University of New York Upstate Medical University (2007-2013)
5. Pulmonary multidisciplinary interstitial lung disease Conference, Cleveland Clinic (2013-2022)
6. Pulmonary radiology-pathology conference, Cleveland Clinic (2013-2022)
7. Faculty, Lung Cancer Education Day for Pulmonary Fellows, Cleveland Clinic (2021)
8. Board review (pathology) for clinical pulmonary fellows, Respiratory Institute, Cleveland Clinic (2023)
9. Pathology of emphysema; 8<sup>th</sup> Jean Wall Bennett COPD Education Day, Respiratory Institute, Cleveland Clinic (2020)
10. Pathology of emphysema; 9<sup>th</sup> Jean Wall Bennett COPD Education Day, Respiratory Institute, Cleveland Clinic (June 8, 2022)
11. ENT tumor board, Cleveland Clinic (2013-2015)

12. Thyroid tumor board, Cleveland Clinic (2013-2015)
13. Lectures for pathology residents, Cleveland Clinic (2013-2022)
  - a. California Tumor Registry cases - pulmonary (2013, 2016)
  - b. Basics of lung cancer diagnosis in surgical pathology (2013)
  - c. Lung tumors - unknown slide conference (2013)
  - d. Granulomatous lung disease - fungal infections (2014)
  - e. Non-infectious granulomatous lung diseases - unknown slide conference (2014)
  - f. Utility of transbronchial biopsies in non-neoplastic lung diseases (2014)
  - g. Smoking-related interstitial lung disease (2015)
  - h. Common lung tumors (2015)
  - i. Common lung tumors, part 2 (2015)
  - j. Surgical pathology quiz (2015)
  - k. Adenocarcinoma (2016)
  - l. Interstitial lung disease (2017)
  - m. Non-neoplastic lung disease unknown slide conference (2017)
  - n. Interstitial lung disease (2017)
  - o. Lung granulomas (2017)
  - p. Introduction to pulmonary pathology (2018-2022)
  - q. Lung adenocarcinoma (2019, 2020, 2022)
  - r. Interstitial lung disease (2019, 2020, 2022)
  - s. Immunotherapy (2022)
14. Lectures for medical students, Cleveland Clinic Lerner School of Medicine (2013-2021)
  - a. Histologic organization of the respiratory system (Cardiovascular and Respiratory Sciences 1 Course) (2013-2022)
  - b. Pathology/immunology of pulmonary infections (Cardiovascular and Respiratory Sciences 1 Course, with Rachel G. Scheraga, MD, Respiratory Institute (2014-2022)
  - c. Interstitial lung disease, with Debasis Sahoo, MD, Respiratory Institute (2015-2022)
  - d. Pathology of lung cancer, with Peter Mazzone, MD (2021)
  - e. Obstructive lung disease, with Loutfi Aboussouan, MD (2021)
15. Interactive teaching sessions for pathology assistants and cytotechnology students, Cleveland Clinic
  - a. Histology and pathology in lung specimens (PAs: 2015, 2016, 2019)
  - b. Infections in lung specimens (cytotechnology students: 2018, 2020, 2021)