

Clarissa Araujo Cassol, MD, FRCPC, FCAP

CURRENT ACADEMIC POSITION

06/2020-present Staff Pathologist, Arkana Laboratories

PREVIOUS ACADEMIC APPOINTMENTS

08/2018-05/2020 Assistant Professor, Department of Pathology, The Ohio State University, Columbus, OH
07/2017-07/2018 Clinical Assistant Professor, Department of Pathology, SUNY Upstate Medical University, Syracuse, NY
08/2016-06/2017 Chief Fellow, Anatomic Pathology, University of Toronto, Canada
12/2014-12/2015 Chief Resident, Anatomic Pathology, University of Toronto, Canada

EDUCATION

01/2000-12/2005 Medical School, Santa Catarina Federal University, Brazil

TRAINING

07/2016-06/2017 Renal Pathology Fellowship, University of Toronto, Canada
07/2011-06/2016 Anatomic Pathology Residency, University of Toronto, Canada
02/2009-06/2011 CIHR Molecular Oncologic Pathology Fellowship, University of Toronto, Canada
02/2006-01/2009 Anatomic Pathology Residency, University of São Paulo, Brazil

MEDICAL LICENSURE

04/2020- present Arkansas State Medical Board, license E-13142
03/2018-present State Medical Board of Ohio, license 35.133222
03/2017-present New York State Medical Board, license: 288267

CERTIFICATION

10/2016 American Board of Pathology, Anatomical Pathology
08/2016 Royal College of Physicians and Surgeons of Canada, Anatomical Pathology Fellow
10/2013 Educational Commission for Foreign Medical Graduates

CLINICAL SERVICE

07/2017-07/2018 Medical Renal Service, Staff, SUNY Upstate University Hospital
 08/2018- present Medical Renal and Transplant Pathology Service, Staff, Wexner
 Medical Center, The Ohio State University

COMMITTEE ASSIGNMENTS**Departmental Service**

07/2017-07/2018 Pathology Residency Selection Committee member, SUNY Upstate
 Medical University
 10/2017-01/2018 Pathology Residency Program Interviews, SUNY Upstate Medical
 University
 02/2017 Hematopathology Residency Internal Review Committee, Department
 of Pathology and Laboratory Medicine, University of Toronto
 07/2016-07/2017 Fellowship Training Committee, Department of Pathology and
 Laboratory Medicine, University of Toronto
 01/2015-01/2016 Residents Teaching Committee, Department of Pathology and
 Laboratory Medicine, University of Toronto
 01/2014-01/2015 Residents Selection Committee, Department of Pathology and
 Laboratory Medicine, University of Toronto
 09/2013 Laboratory Medicine External Review advisory team, Department of
 Laboratory Medicine and Pathobiology, University of Toronto
 09/2012-04/2013 Residents Research Day, organizing committee, Department of
 Pathology and Laboratory Medicine, University of Toronto
 09/2011-04/2012 Residents Research Day, organizing committee, Department of
 Pathology and Laboratory Medicine, University of Toronto

Institutional Service

08/2017-02/2018 Medical Students Admission Interviews, SUNY Upstate Medical
 University

HONORS and AWARDS

05/2017 Best poster presentation, 3rd place, Laboratory Medicine and
 Pathobiology Postgraduate Research Day, Toronto, Canada
 07/2016 Andrew Herzenberg Award for Best Resident Poster Presentation in
 Nephropathology or Transplant Pathology, awarded by the Canadian
 Association of Pathologists, Vancouver, Canada
 06/2016 Stanley-Raphael Award for Professionalism, awarded by the Laboratory
 Medicine and Pathobiology Department, University of Toronto, Canada

03/2013	Stowell-Orbison Award for the poster “Sunitinib Targets in Pheochromocytomas and Paragangliomas”, awarded by the USCAP, Baltimore, USA
03/2012	Association of Indian Pathologists in North America Award for the poster “Cell Cycle Regulators in Pheochromocytomas and Paragangliomas and Correlation with SDHx Status and FGFR4 Genotype”, awarded during the USCAP Annual Meeting, Vancouver, Canada
12/1999	1 st ranked on Santa Catarina Federal University general admission exam amongst the 32.261 candidates enrolled, Florianopolis, Brazil

TEACHING

Undergraduate Medical Teaching

01/2017	Glomerular Diseases, SUNY Upstate Medical University
01/2017	Tubulointerstitial Diseases, SUNY Upstate Medical University
01/2017	Renal Involvement in Systemic Diseases, SUNY Upstate Medical University
09/2016-11/2016	Problem-based learning - “Mechanisms, Manifestations, & Management of Disease” Course - Cell Damage, Inflammation and Neoplasia Unit - Wightman-Berris Academy, Toronto General Hospital, University of Toronto
09/2015-11/2015	Problem-based learning - “Mechanisms, Manifestations, & Management of Disease” Course - Cell Damage, Inflammation and Neoplasia Unit - Peters-Boyd Academy, Sunnybrook Hospital, University of Toronto
09/2014-11/2014	Tutor, “Genetic Ethics”, University of Toronto
02/2006-07/2006	Autopsy Telepathology for Medical Students, University of São Paulo, Brazil
07/2002-12/2002	Teaching Assistant - General Pathology - Santa Catarina Federal University, Brazil

Postgraduate Medical Teaching

12/2017	Nephrology Fellow Seminar Series - “Bortezomib-associated Thrombotic Microangiopathy”, SUNY Upstate Medical University
11/2017	Nephrology Fellow Seminar Series – “Renal Involvement in Monoclonal Gammopathies”, SUNY Upstate Medical University
09/2017	Pathology Residency - “Introduction to Renal Pathology”, SUNY Upstate Medical University

09/2017	Nephrology Fellow Seminar Series - "Introduction to Renal Pathology", SUNY Upstate Medical University
07/2017	PGY-1 Orientation Session - "Thrombotic Microangiopathy", SUNY Upstate Medical University
11/2016	Residents' Unknown Rounds - "Medical Kidney", Queen's University Pathology Residency Program, Kingston General Hospital, Kingston
09/2016	Residents' Unknown Rounds - "Medical Kidney", Toronto General Hospital, Toronto
06/2016-06/2017	Renal Biopsy Rounds - Toronto General Hospital, Toronto
10/2014	Residents' Unknown Rounds - "Medical Kidney", Sunnybrook Hospital, Toronto
11/2010	Residents' Unknown Rounds - "Endocrine Pathology", University of Toronto
02/2006-07/2006	Autopsy Telepathology for Internal Medicine Residents - University of São Paulo, Brazil

FORMAL MENTORING

Tiffany Caza – currently staff pathologist at Arkana Laboratories, Little Rock, AR, US.

Kevin Y. Ren – current assistant professor, Anatomic Pathology, Queen's University, Kingston, ON, Canada.

MANUSCRIPT REVIEW

02/2018-present	Clinical Nephrology
04/2018-present	Journal of Clinical Nephrology and Renal Care
09/2018-present	Aging

PROFESSIONAL MEMBERSHIPS AND ACTIVITIES

01/2010	United States and Canada Academy of Pathology
02/2016	Ontario Medical Association
09/2016	American Society of Nephrology
11/2016	International Society of Nephrology
01/2017	Renal Pathology Society
07/2017	American Society of Transplantation
02/2018	American Medical Association

INVITED PRESENTATIONS

1. Moderator - "Computational Image Analysis: Shaping the Future of Nephropathology." American Society of Nephrology Kidney Week 2019, Washington DC, November 2019.

2. Renal Pathology Case Conference – Nephrology and Hypertension Associates, Syracuse, Dec 6, 2017.
3. Journal Club Conference – “Atypical hemolytic uremic syndrome and C3 glomerulopathy: conclusions from a “Kidney Disease: Improving Global Outcomes” (KDIGO) Controversies Conference” – SUNY Upstate Medical University Hospital, Syracuse, Sept 26, 2017.
4. Renal Pathology Case Conference – Nephrology and Hypertension Associates, Syracuse, Sep 13, 2017.
5. Transplant Glomerulopathy: Determinants of Long-Term Graft Outcome. Department of Pathology, SUNY Upstate Medical University, Syracuse, Nov 10, 2016.
6. Transplant Glomerulopathy: Determinants of Long-Term Graft Outcome. Department of Pathology and Molecular Medicine, Queen’s University, Kingston, Nov 3, 2016.
7. Comparative study on the efficacy of two 18-gauge needles on native and allograft renal biopsies. Advances in Pathology 2016 and the 16th Annual William Anderson Memorial Lecture. Toronto, Oct 2016.
8. Molecular Markers in Pheochromocytomas and Paragangliomas: Receptors Tyrosine Kinase. Advances in Pathology 2012 and the 12th Annual William Anderson Memorial Lecture. Toronto, Oct 2012.
9. Receptor Tyrosine Kinase in Pheochromocytomas and Paragangliomas. Allied Health Professionals Lecture, Toronto General Hospital, Oct 2010.

GRANTS

Grants Funded

Title of grant: Clinician-Scientists in Molecular Oncologic Pathology

Funding agency: Canadian Institutes of Health Research

Grant number: STP-53912

Award total: CAN\$ 60,000

Dates of funding: 2009-2011

Role: Research Fellow

BOOK CHAPTERS

1. Avila-Casado C, Cassol CA. The Kidney in Endocrine Diseases. In: Endocrine Pathology Textbook. Mete & Asa (Eds). Cambridge University Press 2016; 821-833.

JOURNAL ARTICLES

In Peer-Reviewed Journals

1. Brodsky SV, Nadasdy T, Cassol C, Satoskar A. IgA Staining Patterns Differentiate Between IgA Nephropathy and IgA-Dominant Infection-Associated Glomerulonephritis. *Kidney Int Rep.* 2020;5(6):909-911. Published 2020 Apr 11. doi:10.1016/j.ekir.2020.03.029
2. Campbell CM, Cassol C, Cataland SR, Kahwash R. Atypical haemolytic uraemic syndrome: a case report of a rare cause of reversible cardiomyopathy. *Eur Heart J Case Rep.* 2020;4(2):1-6. Published 2020 Mar 12. doi:10.1093/ehjcr/ytaa050
3. Alawieh R, Brodsky SV, Satoskar AA, et al. Membranous Nephropathy With Crescents. *Kidney Int Rep.* 2020;5(4):537-541. Published 2020 Jan 30. doi:10.1016/j.ekir.2020.01.010
4. Ayoub I, Cassol C, Almaani S, Rovin B, Parikh SV. The Kidney Biopsy in Systemic Lupus Erythematosus: A View of the Past and a Vision of the Future. *Adv Chronic Kidney Dis.* 2019 Sep;26(5):360-368. doi: 10.1053/j.ackd.2019.08.015. Review. PubMed PMID: 31733720.
5. Cassol CA, Williams MPA, Caza TN, Rodriguez S. Renal and pulmonary thrombotic microangiopathy triggered by proteasome-inhibitor therapy in patient with smoldering myeloma: A renal biopsy and autopsy case report. *Medicine (Baltimore).* 2019 Sep;98(39):e17148.
6. Cassol C, Satoskar A, Lozanski G, Rovin B, Hebert L, Nadasdy T, Brodsky SV. Anti-PD-1 Immunotherapy May Induce Interstitial Nephritis With Increased Tubular Epithelial Expression of PD-L1. *Kidney Int Rep.* 2019 Jun 20;4(8):1152-1160.
7. Cassol CA, Braga JR, Hartage R, Satoskar AA, Nadasdy T, Brodsky SV. Lost in Transportation: Calcium Oxalate Crystals in Kidney Biopsy Specimens Fixed in Michel Medium May Disappear. *Arch Pathol Lab Med.* 2019 Aug 12. doi: 10.5858/arpa.2019-0088-OA. [Epub ahead of print] PubMed PMID: 31403332.
8. Cassol CA, Bott C, Nadasdy GM, Alberton V, Malvar A, Nagaraja HN, Nadasdy T, Rovin BH, Satoskar AA. Immunostaining for galactose-deficient immunoglobulin A is not specific for primary immunoglobulin A nephropathy. *Nephrol Dial Transplant.* 2019 Aug 1. pii: gzf152. doi: 10.1093/ndt/gzf152. [Epub ahead of print] PubMed PMID: 31369128.
9. Cassol CA, Brodsky SV, Satoskar AA, Blissett, A, Cataland S, Nadasdy T. Eculizumab deposits in vessel walls in thrombotic microangiopathy. *Kidney Int.* 2019 May 24. pii: S0085-2538(19)30525-3. doi: 10.1016/j.kint.2019.05.008. [Epub ahead of print] PubMed PMID: 31345584.
10. Von Visger J, Cassol C, Nori U, Franco-Ahumada G, Nadasdy T, Satoskar AA. Complete biopsy-proven resolution of deposits in recurrent proliferative glomerulonephritis with monoclonal IgG deposits following rituximab treatment in renal allograft. *BMC Nephrol.* 2019 Feb 14;20(1):53.
11. Cassol CA, Rao PK, Braga JR. Acute renal failure in a patient with PR3-ANCA and monoclonal immunoglobulin deposition disease: Case report. *Medicine (Baltimore).* 2018 Dec;97(52):e13799.
12. Sharmeen S, Cassol C, Kato H. ANCA-Associated Necrotizing Glomerulonephritis Overlapping with Mesangial Proliferative Lupus Nephritis Refractory to Plasmapheresis, Steroid Pulse Therapy, and a Combination of Mycophenolate Mofetil and Rituximab, Case Reports in *Rheumatology*, 2018:3076806.
13. Cassol CA, Hod-Dvorai R, Hubbell C, Aggarwal V, Sinha S, Gentile T, Hutchison RE. Donor-derived Philadelphia chromosome positive B-cell lymphoblastic leukemia presenting with renal allograft involvement in the first year post-transplant. *Am J Transplant.* 2019 Mar;19(3):956-957.

14. Malavade T, **Cassol CA**, John R, Husain S, Chen C, Chan C. Polyomavirus nephropathy in autologous stem cell transplantation. *Kidney Int Rep.* 2018 Jan 5;3(3):748-751.
15. **Cassol CA**, Braga JR, Dabbo S, Khalili K, Avila-Casado C. Effectiveness and safety of two 18-gauge needle types on native and allograft renal biopsies. *Ann Diagn Pathol* 2017;28:1-6.
16. **Cassol CA**, Mete O. Endocrine Manifestations of Von-Hippel Lindau Disease. *Arch Pathol Lab Med* 2015;139:263-268.
17. **Cassol CA**, Winer D, Liu W, et al. Tyrosine kinase receptors as molecular targets in pheochromocytoma and paraganglioma. *Mod Pathol* 2014;27(8):1050-62.
18. Chui MH, **Cassol CA**, Asa SL, et al. Follicular epithelial dysplasia of the thyroid: morphological and immunohistochemical characterization of a putative preneoplastic lesion to papillary thyroid carcinoma in chronic lymphocytic thyroiditis. *Virchows Arch* 2013;462(5):557-63.
19. Erovic BM, Kim D, **Cassol C**, et al. Prognostic and predictive markers in medullary thyroid carcinoma. *Endocr Pathol* 2012;23(4):232-42.
20. Balogh K, Asa SL, Zheng L, **Cassol C**, et al. The insulin resistance Grb14 adaptor protein promotes thyroid cancer ret signaling and progression. *Oncogene* 2012;31(36):4012-21.
21. **Cassol CA**, Asa SL. Molecular Pathology of Thyroid. *Diagnostic Histopathology* 2011;17(3):124-39.
22. **Cassol CA**, Guo M, Ezzat S, et al. GNAq Mutations are Not Identified in Papillary Thyroid Carcinomas and Hyperfunctioning Thyroid Nodules. *Endocrine Pathology* 2010;21(4):250-2.
23. **Cassol CA**, Noria D, Asa SL. Ectopic Thyroid Tissue within the Gall Bladder: Case Report and Brief Review of the Literature. *Endocrine Pathology* 2010;21(4):263-5.
24. **Cassol CA**, Pellegrin CP, Wahys MLC, et al. Clinical Profile of Santa Catarina Members of Brazilian Celiacs Association. *Arq Gastroenterol* 2007;44(3):257-65.

ABSTRACTS

Platform Presentations

At national/international meetings

1. Analysis of the FGFR4 Single Nucleotide Polymorphism in Pheochromocytomas and Paragangliomas. Platform presented at the 2011 USCAP Annual Meeting, San Antonio, 2011.
2. Evaluation of Knowledge about Celiac Disease: Treatment and Dietary Compliance among Santa Catarina Members of the Brazilian Celiacs Association. XI Brazilian Congress of Nutrition, 2007.

At local/regional meetings

1. Molecular Pathology of Thyroid. Resident's Teaching Session, University of Toronto, Aug 2010.
2. The Role of Digestive Endoscopy in the Diagnosis of Celiac Disease. XVI Brazilian Seminar of Digestive Endoscopy and South-Brazilian Congress of Endoscopy, 2003.

Posters

At national/international meetings

1. Gleicher S, **Cassol C**, Jacob J, Shapiro O, Elvin JA, Vergilio J et al. Carcinomas of the renal medulla: a comprehensive genomic profiling (CGP) study. *The Journal of Urology*, Volume 199, Issue 4, Supplement, 2018, Page e891. Annual Urology Association Meeting, San Francisco, CA, 2018.
2. Mete O, Pakbaz S, **Cassol C**, Asa S. The Spectrum and Clinical Features of Paragangliomas. In *Mod Pathol* 2018; 31:234-234. USCAP Annual Meeting, Vancouver, Canada, 2018.
3. Urbanellis P, Hamar M, Linares I, Kollmann D, **Cassol C**, John R, et al. Normothermic Ex-Vivo Kidney Perfusion Improves Function of Extreme Marginal Renal Grafts Subjected to Prolonged Ischemia. *Am J Transplant*. 2017; 17 (suppl 3).
4. **Cassol CA**, Dabbo S, Braga JR, Khalili K, Avila-Casado C. Safety and Effectiveness of Two 18-Gauge Needle Types on Medical Renal Biopsies. World Congress of Nephrology, Mexico City, 2017.
5. **Cassol CA**, Braga J, Kim JS, John R. Factors Affecting Kidney Allograft Outcome in Transplant Glomerulopathy. Banff-SCT Joint Scientific Meeting, Barcelona, Spain, 2017.
6. **Cassol CA**, Avila-Casado MC. Comparative study on the efficacy of two 18-gauge needle types on native and allograft renal biopsies. 67th Annual Meeting of the Canadian Association of Pathologists. Vancouver, 2016.
7. Felipe-Silva A, Wakamatsu A, Cirqueira CS, **Cassol C**, Alves VA. Broad Immunohistochemistry Panel in Hepatocellular Carcinoma Seems to Segregate Molecular Subtypes by Grade: A Cross-Sectional Study in 80 Brazilian Autopsies. *Laboratory Investigation* 2014;94(S1):419A. USCAP Annual Meeting, San Diego, US, 2014.
8. **Cassol CA**, Winer D, Liu W, Asa SL. Sunitinib Targets in Pheochromocytomas and Paragangliomas. *Mod Pathol* 2013;26(S2):130A. 102nd USCAP Annual Meeting, Baltimore, 2013.
9. **Cassol CA**, Asa SL. Cell Cycle Regulators in Pheochromocytomas and Paragangliomas and Correlation with SDHx Status and FGFR4 Genotype. *Mod Pathol* 2012;25(S2):143A. 101st USCAP Annual Meeting, Vancouver, 2012.
10. **Cassol CA**, Asa SL. Differential Expression of FGFRs Correlates with Outcomes in Pheochromocytomas and Paragangliomas. *Mod Pathol* 2011;24:134A. 100th USCAP Annual Meeting, San Antonio, 2011.
11. Chui MH, Mete O, **Cassol C**, et al. Characterization of “Dysplastic” Foci in Chronic Lymphocytic Thyroiditis. *Mod Pathol* 2011;24:135A. 100th USCAP Annual Meeting, San Antonio, 2011.
12. Felipe-Silva A, Longatto-Filho A, Wakamatsu A, **Cassol C**, Alves V. VEGF-C Expression in Advanced and Metastatic Hepatocellular Carcinoma: An Autopsy Study in Cirrhotic Patients. *Mod Pathol* 2011;24:360A. 100th USCAP Annual Meeting, San Antonio, US, 2011.
13. Mete O, Erovcic BM, Kim D, **Cassol C**, et al. Identification of Target Proteins in Medullary Thyroid Carcinoma. *Thyroid* 2011(21):A86. 81st Annual Meeting of the American Thyroid Association.
14. Finelli A, Horgan AM, Evans A, Kim TK, Durrant K, Yap S, **Cassol CA**, et al. Preoperative sorafenib and cytoreductive nephrectomy in metastatic renal cell carcinoma. *J Clin Oncol* 29: 2011 (suppl; abstr 4668). 2011 American Society of Clinical Oncology, 2011.

15. Felipe-Silva A, **Cassol CA**, Gonçalves FR, et al. EGFR Expression in Advanced Hepatocellular Carcinoma: An Autopsy Study in Cirrhotic Patients. *Histopathology* 2010;57(S1):164. XXVIII International Congress of the International Academy of Pathology, Sao Paulo, Brazil, 2010.
16. Gonçalves FR, **Cassol CA**, Soares IC, et al. Comparative Evaluation of Apoptosis and Proliferation in Hepatocellular Carcinoma from an Autopsy Database. *Histopathology*. 2008;53:254. XXVII International Congress of The International Academy of Pathology, Athens, Greece, 2008.
17. **Cassol CA**, Gonçalves FR, Melo ES, et al. Characterization of Liver Cirrhosis in Autopsy – a Study of 343 Cases. XXVI Brazilian Congress of Pathology, 2007.
18. **Cassol CA**, Assunção Neto RN, Bernardi FDC, et al. Right Ventricular Metastasis from Choriocarcinoma as a Cause of Repeated Pulmonary Embolism – an Autopsy Report. XXVI Brazilian Congress of Pathology, 2007.
19. **Cassol CA**, Rocha ECV, Barros L, et al. Malignant Mixed Mullerian Tumor of the Uterine Corpus with Neuroendocrine Differentiation. XXVI Brazilian Congress of Pathology, 2007.
20. **Cassol CA**, Assunção Neto RN, Rocha ECV, et al. MUM-1 Expression in Non-B-Cell Lineage Lymphomas – a Report of Three Cases. XXVI Brazilian Congress of Pathology, 2007.
21. **Cassol CA**, Lima JF, Kawassaki AM, et al. Pulmonary Alveolar Microlithiasis – a Case Report. XXVI Brazilian Congress of Pathology, 2007.
22. **Cassol CA**, Geyer F, Aldred VL, et al. Parathyroid Lipoadenoma – a Case Report. XXVI Brazilian Congress of Pathology, 2007.
23. Pellegrin CP, **Cassol CA**, Pires MMS, et al. Bio-socio-demographic Profile of Santa Catarina Members of the Brazilian Celiacs Association. 8th National Congress of Pediatrics, 2005.
24. Shiozawa MB, Lee IC, Leitão JT, **Cassol CA**. Survey of Small Bowel Biopsies for the Study of Celiac Disease in the Years 2000/2001 – Experience of a Private Anatomic Pathology Facility. XXIV Brazilian Congress of Pathology, 2003.

BIOGRAPHICAL NARRATIVE

I am a Renal and Transplant pathology specialist. My initial AP training was at the University of Sao Paulo, Brazil, after which I moved to Canada to pursue a 2-year Molecular Oncologic Pathology fellowship at the University of Toronto. My studies at the time focused on endocrine malignancies, particularly pheochromocytomas and paragangliomas, for which I received the USCAP Stowell-Orbinson Award in 2014. I subsequently completed a 5-year Anatomic Pathology residency at the same institution, where I also served as a chief resident. Upon completion of residency, I received the University of Toronto Stanley-Raphael award for professionalism and went on to pursue a Renal Pathology Fellowship, also at the University of Toronto. I then joined SUNY Upstate Medical University as a dedicated Renal and Transplant pathologist, where I worked for one year. I joined The Ohio State Renal Pathology Division in August 2018 and have been working as a dedicated renal and transplant pathologist since. My research interests include glomerular and tubulointerstitial diseases, acute and chronic renal and heart allograft rejection, and the application of digital pathology to transplant and medical renal disease.