

# Monica Ter-Minassian

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## EDUCATION

Doctor of Science in Environmental and Occupational Epidemiology, 2009

Master of Science in Epidemiology, 2006

Harvard School of Public Health, Massachusetts

Master of Science in Cell and Molecular Biology, Genetic Counseling Program, 1999

Brandeis University, Massachusetts

Bachelor of Science in Biology

Massachusetts Institute of Technology, Massachusetts

## PROFESSIONAL POSITIONS

Research Scientist, January 2016 - present

Mid Atlantic Permanente Research Institute, Rockville, MD

Postdoctoral Fellow, 2010-2015

Department of Medical Oncology, Dana Farber Cancer Institute, Boston, MA

Postdoctoral Fellow, 2009-2015

Departments of Epidemiology and Environmental Health, Harvard School of Public Health, Boston, MA

Graduate Teaching Assistant Principles of Toxicology, Fall 2007

Harvard School of Public Health, Boston, MA

Graduate Researcher, 2005-2009

Departments of Epidemiology and Environmental Health, Harvard School of Public Health, Boston, MA

Pre-doctoral fellow, 2002-2004

Genetic Epidemiology Branch, National Cancer Institute, Bethesda, MD

## HONORS AND AWARDS

Travel Award from North American Neuroendocrine Tumor Society 2015

Travel Award from Conquer Cancer Foundation 2015

Research Fellowship for Ileal Carcinoid Tumor Research from Raymond and Beverly Sackler and the American Association of Cancer Research (AACR) 2011 – 2013

Travel Award from the Program in Quantitative Genetics for an AACR meeting abstract 2010

Honorable mention at Harvard School of Public Health Poster and Exhibit Day 2009

Pilot grant from the Harvard/ National Institute for Environmental Health Sciences (NIEHS) Center for Environmental Health 2009

Travel Award for Symposium talk from North American Neuroendocrine Tumor Society 2009

Scholarship from John F. and Virginia B. Taplin through the Harvard School of Public Health 2006 - 2009

## PROFESSIONAL ACTIVITIES (selected)

Chief language editor for *Cancer Translational Medicine*

Peer Reviewer for *Medical Care*, *Oncologist*, *Journal of Oncology Practice*, *Cancer epidemiology*, *Neuroendocrinology*, *CEBP (Cancer Epidemiology, Biomarkers & Prevention)*, *Carcinogenesis*, *Lung Cancer*, *Clinical Lung Cancer*, and *Environmental and Molecular Mutagenesis*, and *Toxicology Letters*.

## PROFESSIONAL AFFILIATIONS

American Society of Hematology Member, 2021  
 American Society of Clinical Oncology Member, 2015-present  
 American Association of Cancer Research Member, 2007-2016  
 International Society of Pharmacoepidemiology Member, 2015-2016  
 North American Neuroendocrine Tumor Society Member, 2009-2015, 2019-2020  
 American Society of Human Genetics Member, 2002-2004

## PUBLICATIONS

### Papers

**Ter-Minassian M**, Schaeffer ML, Jefferson CR, Shapiro SC, Suwannarat P, Visvanathan K. Screening and Preventative Strategies for Patients at High Risk for Breast Cancer. *JCO Oncol Pract*. 2021 Apr;17(4):e575-e581.

Burnett-Hartman AN, Udaltsova N, Kushi LH, Neslund-Dudas C, Rahm AK, Pawloski PA, Corley DA, Knerr S, Feigelson HS, Hunter JE, Tabano DC, Epstein MM, Honda SA, **Ter-Minassian M**, Lynch JA, Lu CY. Clinical Molecular Marker Testing Data Capture to Promote Precision Medicine Research Within the Cancer Research Network. *JCO Clin Cancer Inform*. 2019 Sep;3:1-10.

**Ter-Minassian M**, Lanzkron S, Derus A, Brown E, Horberg MA. Quality Metrics and Health Care Utilization for Adult Patients with Sickle Cell Disease. *Journal of the National Medical Association*. 2018 Jun 22 [Epub]. 2019 Feb;111(1):54-61.

**Ter-Minassian M**, Zhang S, Brooks NV, Brais LK, Chan JA, Christiani DC, Lin X, Gabriel S, Dinot J, Kulke MH. Association Between Tumor Progression Endpoints and Overall Survival in Patients with Advanced Neuroendocrine Tumors. *Oncologist*. 2017 Feb;22(2):165-172. PMC5330705.

Qian ZR, Li T, **Ter-Minassian M**, Yang J, Chan JA, Brais LK, Masugi Y, Thiagalingam A, Brooks N, Nishihara R, Bonnemarie M, Masuda A, Inamura K, Kim SA, Mima K, Sukawa Y, Dou R, Lin X, Christiani DC, Schmidlin F, Fuchs CS, Mahmood U, Ogino S, Kulke MH. Association Between Somatostatin Receptor Expression and Clinical Outcomes in Neuroendocrine Tumors. *Pancreas*. 2016 Nov;45(10):1386-1393. PMC5067972.

Du Y, **Ter-Minassian M**, Brais L, Brooks N, Waldron A, Chan JA, Lin X, Kraft P, Christiani DC, Kulke MH. Genetic associations with neuroendocrine tumor risk: results from a genome-wide association study. *Endocr Relat Cancer*. 2016 Aug;23(8):587-94. PMC6151867.

Qian ZR, **Ter-Minassian M**, Chan JA, Imamura Y, Hooshmand SM, Kuchiba A, Morikawa T, Brais LK, Daskalova A, Heafield R, Lin X, Christiani DC, Fuchs CS, Ogino S, Kulke MH. Prognostic significance of MTOR pathway component expression in neuroendocrine tumors. *J Clin Oncol*. 2013 Sep 20;31(27):3418-25. PMC3770868.

**Ter-Minassian M**, Chan JA, Hooshmand SM, Brais LK, Daskalova A, Heafield R, Buchanan L, Qian ZR, Fuchs CS, Lin X, Liu G, Christiani DC, Kulke MH. Clinical presentation, recurrence, and survival in patients with neuroendocrine tumors: results from a prospective institutional database. *Endocrine Related Cancer*. 2013 22;20(2):187-96. PMC3739696.

Zhao Y, Yu H, Zhu Y, **Ter-Minassian M**, Peng Z, Shen H, Diao N, Chen F. Genetic association analysis using sibship data: a multilevel model approach. *PLoS One*. 2012;7(2):e31134. PMC3270036.

Zhai R, Zhao Y, Liu G, **Ter-Minassian M**, Wu IC, Wang Z, Su L, Asomaning K, Chen F, Kulke MH, Lin X, Heist RS, Wain JC, Christiani DC. Interactions between environmental factors and polymorphisms in angiogenesis pathway genes in esophageal adenocarcinoma risk: a case-only study. *Cancer*. 2012 Feb1;118(3):804-11. PMC3193872.

**Ter-Minassian M**, Wang Z, Asomaning K, Wu MC, Liu CY, Paulus JK, Liu G, Bradbury PA, Zhai R, Su L, Fraumeni CS, Hooshmand SM, De Vivo I, Lin X, Christiani DC, Kulke MH. Genetic associations with sporadic neuroendocrine tumor risk. *Carcinogenesis*. 2011 Aug;32(8):1216-22. PMC3193872

**Ter-Minassian M**, Asomaning K, Zhao Y, Chen F, Su L, Carmella SG, Lin X, Hecht SS, Christiani DC. Genetic variability in the metabolism of the tobacco-specific nitrosamine 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone (NNK) to 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanol (NNAL). *Int J Cancer*. 2011 Mar 15;130(6):1338-46. PMC3247647.

Wu IC, Zhao Y, Zhai R, Liu G, **Ter-Minassian M**, Asomaning K, Su L, Liu CY, Chen F, Kulke MH, Heist RS, Christiani DC. Association between polymorphisms in cancer-related genes and early onset of esophageal adenocarcinoma. *Neoplasia*. 2011 Apr;13(4):386-92. PMC3071087.

Wu IC, Zhao Y, Zhai R, Liu CY, Chen F, **Ter-Minassian M**, Asomaning K, Su L, Heist RS, Kulke MH, Liu G, Christiani DC. Interactions between genetic polymorphisms in the apoptotic pathway and environmental factors on esophageal adenocarcinoma risk. *Carcinogenesis*. 2011 Apr;32(4):502-6. PMC3066416.

Liu CY, Wu C, Chen F, **Ter-Minassian M**, Asomaning K, Zhai R, Wang Z, Su L, Heist R, Kulke MH, Lin X, Liu G, Christiani DC. A Large Scale Genetic Association Study of Esophageal Adenocarcinoma Risk. *Carcinogenesis*. 2010 Jul;31(7):1259-63. PMC2893800

Bradbury PA, Zhai R, Hopkins J, Kulke MH, Heist RS, Singh S, Zhou W, Ma C, Xu W, Asomaning K, **Ter-Minassian M**, Wang Z, Su L, Christiani DC, Liu G. Matrix metalloproteinase 1, 3 and 12 polymorphisms and esophageal adenocarcinoma risk and prognosis. *Carcinogenesis*. 2009 May;30(5):793-8. PMC2675656

Bai JL, Zheng MH, Xia X, **Ter-Minassian M**, Chen YP, Chen F. *MTHFR* C677T polymorphism contributes to prostate cancer risk among Caucasians: A meta-analysis of 3511 cases and 2762 controls. *Eur J Cancer*. 2009 May;45(8):1443-9.

**Ter-Minassian M**, Zhai R, Asomaning K, Su L, Zhou W, Liu G, Heist RS, Lynch TJ, Wain JC, Lin X, De Vivo I, Christiani DC. Apoptosis gene polymorphisms, age, smoking and the risk of non-small cell lung cancer. *Carcinogenesis*. 2008 Nov;29(11):2147-52. PMC2577138

McMaster ML, Goldin LR, Bai Y, **Ter-Minassian M**, Boehringer S, Giambarresi TR, Vasquez LG, Tucker MA. Genomewide linkage screen for Waldenstrom macroglobulinemia susceptibility loci in high-risk families. *Am J Hum Genet*. 2006 Oct;79(4):695-701. PMC1592553

Landi MT, Kanetsky PA, Tsang S, Gold B, Munroe D, Rebbeck T, Swoyer J, **Ter-Minassian M**, Hedayati M, Grossman L, Goldstein AM, Calista D, Pfeiffer RM. *MC1R*, *ASIP*, and DNA repair in sporadic and familial melanoma in a Mediterranean population. *J Natl Cancer Inst*. 2005 Jul 6;97(13):998-1007.

Goldin LR, McMaster ML, **Ter-Minassian M**, Saddlemire S, Harmsen B, Lalonde G, Tucker MA. A genome screen of families at high risk for Hodgkin lymphoma: evidence for a susceptibility gene on chromosome 4. *J Med Genet*. 2005 Jul;42(7):595-601. PMC1736088

Landi MT, Bergen AW, Baccarelli A, Patterson DG Jr, Grassman J, **Ter-Minassian M**, Mocarelli P, Caporaso N, Masten SA, Pesatori AC, Pittman GS, Bell DA. *CYP1A1* and *CYP1B1* genotypes, haplotypes, and TCDD-induced gene expression in subjects from Seveso, Italy. *Toxicology*. 2005 Feb 14;207(2):191-202.

Landi MT, Goldstein AM, Tsang S, Munroe D, Modi W, **Ter-Minassian M**, Steighner R, Dean M, Metheny N, Staats B, Agatep R, Hogg D, Calista D. Genetic susceptibility in familial melanoma from northeastern Italy. *J Med Genet*. 2004 Jul;41(7):557-66. PMC1735833

Haines JL, **Ter-Minassian M**, Bazyk A, Gusella JF, Kim DJ, Terwedow H, Pericak-Vance *et al*. A complete genomic screen for multiple sclerosis underscores a role for the major histocompatibility complex. The Multiple Sclerosis Genetics Group. *Nat Genet*. 1996 Aug;13(4):469-71.

Haines JL, Boustany RM, Worster T, **Ter-Minassian M**, Jondro P, Lerner TJ. Genome-wide search for *CLN2*, the gene causing late-infantile neuronal ceroid-lipofuscinosis (LNCL). *Am J Med Genet*. 1995 Jun 5;57(2):344-7.

### **Abstracts and Poster presentations presented at Professional meetings**

**Ter-Minassian M**, Somasundaram B, Visvanathan K. Benign Breast Disease and breast malignancy. 2021 San Antonio Breast Cancer Symposium abstract accepted.

**Ter-Minassian M**, Whiting T, Advani S, Roblin D. Initial Low Dose CT for Lung Cancer Screening and Recalls at Kaiser Permanente Mid-Atlantic States. International Association for the Study of Lung Cancer 2020 Annual meeting.

Basra S, **Ter-Minassian M**, Derus A, Watson E, Horberg M. All-Cause Mortality Production Table from the National Death Index. Health Care Systems Research Network Conference 2020. *Journal of Patient-Centered Research and Reviews*. 2020. 7:1 supplement.

Leuchert M, Oakkar A, Somasundaram B, Whiting T, **Ter-Minassian M**. Reducing Overuse of Nonspecific Tumor Registry Codes Through Data Visualization. National Association of American Cancer Registries. June 2019.

**Ter-Minassian M**, Visvanathan K, Jefferson C, Schaeffer ML, Suwannarat P. Breast Cancer Screening and Risk Reducing Surgeries for Patients at High Risk for Breast and Ovarian Cancer at Kaiser Permanente Mid-Atlantic States. Health Care Systems Research Network Conference 2019.

**Ter-Minassian M**, Visvanathan K, Jefferson C, Schaeffer ML, Suwannarat P. Screening and risk reducing surgeries for patients at high risk for breast and ovarian cancer at a diverse integrated care setting. *Cancer Res* February 15 2019 (79) (4 Supplement) P4-10-13; DOI: 10.1158/1538-7445.SABCS18-P4-10-13

Jefferson C, Oakkar A, Derus A, Blank J, **Ter-Minassian M**. Tumor Registry Information Extraction Tool (TRInE-T): A Supplemental Abstraction Tool for Tumor Registrars. Health Care Systems Research Network Conference. 2018.

Lanzkron S, **Ter-Minassian M**, Derus A, Brown E, Horberg M. Applying Sickle Cell Disease Quality Metrics to an Integrated Care System. *National Sickle Cell Disease Scientific Meeting abstract* April 2017.

**Ter-Minassian M**, Brooks NV, Brais LK, Chan JA, Christiani DC, Lin X, Gabriel S, Dinot J, Kulke MH. Patterns and sequencing of systemic therapies in patients with advanced neuroendocrine tumors (NET). North American Neuroendocrine Tumor Society Annual meeting abstract. 2015

**Ter-Minassian M**, Brooks NV, Brais LK, Chan JA, Christiani DC, Lin X, Gabriel S, Dinot J, Kulke MH. Association of progression-free survival with overall survival in patients with neuroendocrine tumor treated with somatostatin analogs. American Society of Clinical Oncology abstract. 2015.

**Ter-Minassian M**, Qian ZR, Chan JA, Hooshmand SM, Brais LK, Heafield R, Lin X, Liu G, Christiani DC, Kulke MH. Associations of genetic polymorphisms in *VEGFR1* with progression-free and overall survival in patients with neuroendocrine tumors treated with the VEGFA inhibitor bevacizumab. American Association of Cancer Research abstract. 2013.

**Ter-Minassian M**, Chan JA, Hooshmand SM, Brais LK, Daskalova A, Heafield R, Qian ZR, Lin X, Christiani DC, Kulke MH. Prognostic value of chromogranin A and alkaline phosphatase in patients with advanced neuroendocrine tumor. American Association of Cancer Research abstract. 2012

**Ter-Minassian M**, Asomaning K, Zhao Y, Chen F, Su L, Carmella SG, Lin X, Hecht S., Christiani DC. Genetic variability in the metabolism of the tobacco-specific nitrosamine 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone (NNK) to 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanol (NNAL). American Association of Cancer Research abstract. 2011.

**Ter-Minassian M**, Chan JA, Fraenhoffer C, Hooshmand SM, Asomaning K, Lin X, Christiani DC, Kulke MH. Prospective analysis of clinical outcomes and prognostic factors in patients with neuroendocrine tumors (NETs). American Society of Clinical Oncology abstract. 2010.

**Ter-Minassian M**, Wang Z, Asomaning K, Wu M, Liu C-Y, Paulus J, Liu G, Bradbury P, Zhai R, Su L, Fraenhoffer C, Hooshmand SM, De Vivo I, Lin X, Christiani DC, Kulke MH. A large-scale SNP evaluation of associations with sporadic neuroendocrine tumor risk. American Association of Cancer Research abstract. 2010.

**Ter-Minassian M**, Wang Z, Asomaning K, Wu M, Liu C-Y, Su L, Fraumeni C, Hooshmand SM, Silver J, Lin X, Christiani DC, Kulke MH. Association of a *TSC2* SNP with sporadic neuroendocrine tumor risk. American Association of Cancer Research abstract. 2009.

**Ter-Minassian M**, Wang Z, Asomaning K, Wu M, Liu C-Y, Su L, Lin X, Liu G, Christiani DC. Genetic susceptibility to esophageal adenocarcinoma. American Association of Cancer Research abstract. 2009.

**Ter-Minassian M**, Zhai R, Asomaning K, Su L, Lynch TJ, Wain JC, Lin X, Christiani DC. Apoptosis gene polymorphisms and the risk of lung cancer. American Association of Cancer Research abstract. 2008.

**Ter-Minassian M**, Zhou W, Liu G, Bradbury P, Wang Z, Kulke MH, Christiani DC. Comparison of Internet tools for SNP selection applied to a molecular epidemiological study of non-small cell lung cancer. American Association of Cancer Research abstract. 2007.

**Ter-Minassian M**, Zhou W, Asomaning K, Su L, Wain JC, Lynch TJ, Liu G, Lin X, Christiani DC. *MTHFR* polymorphisms and the risk of lung cancer. American Association for Cancer Research abstract. 2006.

**Ter-Minassian M**, Tsang S, Modi W, Steighner R, Staats B, Goldstein A, Calista D, Landi MT. Familial melanoma in north eastern Italy. American Association for Cancer Research abstract. 2004.

## INVITED PRESENTATIONS

Large-scale SNP Evaluation Reveals an Association of a *TSC2* SNP with Sporadic Neuroendocrine Tumor Risk; Talk at the North American Neuroendocrine Tumor Society symposium in Charlotte, NC; supported by NANETS travel grant, 2009

## RESEARCH SUPPORT

### Ongoing Research Support

Community Benefit, Kaiser Permanente                      Ter-Minassian (PI)                      ongoing

Oncology Epidemiology

The goal of this project is to work with the KPMAS cancer registry to monitor cancer incidence, treatment and survival of all patients diagnosed with cancer at Kaiser Permanente Mid-Atlantic States.

Role: PI

Community Benefit, Kaiser Permanente                      Ter-Minassian (PI)                      ongoing

Sickle Cell Disease Registry

The goal of this project is to monitor Sickle Cell Disease incidence, treatment and vaccinations of patients diagnosed at Kaiser Permanente Mid-Atlantic States.

Role: PI

Community Benefit, Kaiser Permanente                      Horberg (PI)                      1/2013 - 12/2021

Kaiser Permanente Biobank (Mid-Atlantic region)

The goal of this project is to recruit eligible members (including those recently diagnosed with cancer) to participate in a multisite Biobank, located at Kaiser Permanente Northern California, Oakland CA.

Role: Co-Investigator

FDA HHSF223201400030I                      Ter-Minassian (PI)                      9/2018 - 9/2021

Sentinel Data Partner Infrastructure

Contract to provide drug safety surveillance data for the multisite Federal Drug Administration Sentinel project.

Role: PI

Garfield Memorial Fund, Kaiser Permanente Roblin (PI) 9/2020 - 12/2021  
 COVID19 Low Dose Thoracic Imaging Pilot Study

The goal is to identify post COVID-19 infection thoracic imaging results and patient self-reported respiratory health over time.

Role: Co-Investigator

#### Completed Research Support

Community Benefit, Kaiser Permanente Ter-Minassian (PI) 12/2019 - 4/2021

Benign Breast Disease: Cohort identification for Breast Cancer Screening and Pathology Analysis

The goal of this collaborative pilot project with Johns Hopkins University was to evaluate sample size and basic population characteristics of patients with benign breast disease, diagnosed at Kaiser Permanente Mid-Atlantic and Johns Hopkins Genetics Clinics. We collected preliminary demographic data for these patients.

Role: PI

Community Benefit, Kaiser Permanente Roblin (PI) 1/2020 - 12/2020

Lung Cancer Screening Pilot Study

The goal of this pilot was to determine numbers of patients who were eligible for lung cancer screening, patients who received screening and factors associated with screening completed.

Role: Co-PI

Community Benefit, Kaiser Permanente Ter-Minassian (PI) 3/2017 - 3/2018

Pilot funding for Preventative Strategies for Patients at High Risk for Breast cancer

The goal of this collaborative pilot project with Johns Hopkins University was to evaluate sample size and basic population characteristics of patients at high risk for breast cancer, diagnosed at Kaiser Permanente Mid-Atlantic and Johns Hopkins Genetics Clinics. We collected data on breast cancer screening for these patients.

Role: PI

Community Benefit, Kaiser Permanente Horberg (PI) 1/2016 - 7/2017

Sickle Cell Disease Quality Measures and Outcomes

The goal of this project was to measure the quality of care of patients diagnosed with Sickle Cell Anemia and Thalassemia at Kaiser Permanente Mid-Atlantic States.

Role: Co-Investigator

R01 CA151532 Kulke (PI) 9/2011 - 7/2015

Molecular and genetic analysis of neuroendocrine tumor risk and survival

The goal of this study was to identify genetic and molecular risk factors associated neuroendocrine tumor risk and prognostic factors associated with neuroendocrine tumor survival.

Role: Post-doctoral fellow

Raymond and Beverly Sackler American Association of Cancer Research Fellowship for Ileal Carcinoid Tumor Research Ter-Minassian (PI) 2011 - 2013

Molecular Markers of Neuroendocrine Tumor Outcomes

Role: Post-doctoral fellow

ES00002 funded by Harvard and the National Institute for Environmental Health Sciences (NIEHS) Center for Environmental Health Ter-Minassian (PI) 2008 - 2009

Genetic variability in tobacco-specific nitrosamine NNK to NNAL metabolism and the risk of lung cancer

Role: Doctoral student, PI