

March 16, 2023

CURRICULUM VITAE
BHARAT THYAGARAJAN, MBBS/MPH/PHD

PROFESSIONAL ADDRESS

University of Minnesota
Department of Laboratory Medicine and Pathology
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SECTION I

EDUCATION

Degree	Institution	Date Degree Granted
Bachelor of Medicine and Bachelor of Surgery (MBBS)	Grant Medical College, Mumbai, India	1992-1998
Master of Public Health(MPH) Epidemiology	School of Public Health, University of Minnesota, Minneapolis	1998-2000
PhD/Epidemiology	School of Public Health, University of Minnesota, Minneapolis	2000-2004

TRAINING

Clinical Pathology Resident , Laboratory Medicine and Pathology University of Minnesota, Minneapolis, MN	2004 – 2007
Molecular and Genetic Pathology Fellow Laboratory Medicine and Pathology, University of Minnesota, Minneapolis, MN	2006 - 2007

CERTIFICATION AND LICENSURES

1. American Board of Pathology (Clinical Pathology)	2008
2. United States Medical License (Minnesota)	2007
3. Indian Medical License	1998
4. ECFMG Certificate	2003

ACADEMIC APPOINTMENTS

March 16, 2023

Professor with Tenure June 2021-Present
Laboratory Medicine and Pathology, University of Minnesota, Minneapolis, MN

Associate Professor with Tenure June 2015-May 2021
Laboratory Medicine and Pathology, University of Minnesota, Minneapolis, MN

Adjunct Professor June 2021-Present
Division of Epidemiology and Community Health, University of Minnesota, Minneapolis, MN

Adjunct Associate Professor June 2015-May 2021
Division of Epidemiology and Community Health, University of Minnesota, Minneapolis, MN

Assistant Professor November 2007-May 2015
Laboratory Medicine and Pathology, University of Minnesota, Minneapolis, MN

Adjunct Assistant Professor July 2011-May 2015
Division of Epidemiology and Community Health, University of Minnesota, Minneapolis, MN

Academic Administrative appointments

Vice Chair for Translational Research July 1, 2023-Present
Laboratory Medicine and Pathology, University of Minnesota, Minneapolis, MN

Director, Division of Molecular Pathology and Genomics April 2017-Present
Laboratory Medicine and Pathology, University of Minnesota, Minneapolis, MN

Program Director, Advanced Research and Diagnostics Laboratory October 2021-Present
Laboratory Medicine and Pathology, University of Minnesota, Minneapolis, MN

Clinical/Hospital /Appointments

Medical Director, Molecular Epidemiology and Biomarker Research Core Laboratory/Clinical Core October 2013-February 2020
University of Minnesota, Minneapolis, MN

Medical Director, UMGC/Clinical Genomics Core June 2012-September 2019
University of Minnesota, Minneapolis, MN

Medical Director, Molecular Diagnostics Laboratory June 2012-September 2018
Laboratory Medicine and Pathology, University of Minnesota, Minneapolis, MN

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

Member: College of American Pathology	2013
Member: Association of Molecular Pathology	2008-Present
Member: Academy of Clinical and Laboratory Professionals	2008-Present
Member: American Association for Cancer Research	2008-Present

HONORS AND AWARDS FOR RESEARCH WORK, TEACHING, PUBLIC ENGAGEMENT, AND SERVICE

1. Bittner Endowed Chair in Cancer Research October 2019- present
2. Advanced Training Award. College of American Pathology Foundation 2007
3. Paul J. Stranford Young Investigator Award. Academy of Clinical Laboratory Physicians and Scientists 2006
4. Scholar - In - Training Award. American Association for Cancer Research 2004
5. Scholar - In - Training Award. American Association for Cancer Research 2003
6. Research Excellence in Molecular Epidemiology. Molecular Epidemiology Group, American Association for Cancer Research 2003

RESEARCH AND SCHOLARSHIP

Grants and Contracts

CURRENT (EXTERNAL SOURCES)

1. Role: Co-Investigator and Subcontract PI

Name of PI: Jianwen Cai

Grant Number: 5116028/75N92019D0010-75N92019F00053

External Granting Agency: National Heart Lung and Blood Institute

Grant Title: Hispanic Community Health Study – Study of Latinos (HCHS-SOL) V3 TASK AREA A

Project Dates: 11/30/2018 – 11/29/2024

Total Costs: \$1,449,006

Direct Costs Per Year: \$176,085

Effort: 1.32 calendar months

2. Role: Co-Investigator and Subcontract PI

Name of PI: Christy Avery

Grant Number: R01HL147853

External Granting Agency: National Heart Lung and Blood Institute

Grant Title: Inflammatory Mediators of Cardiometabolic Risk in Latinos

Project Dates: 01/01/2020 – 12/31/2023

Total Costs: \$93,872

Direct Costs Per Year: \$19,091

Effort: 0.84 calendar months

3. Role: Co-Investigator and Subcontract PI

Name of PI: David Weir

Grant Number: 3004822520/U01AG009740

External Granting Agency: National Institute on Aging

Grant Title: Health and Retirement Study: Years 29-34

Project Dates: 01/01/2018 – 12/23/2023

Total Costs: \$4,665,726

Direct Costs Per Year: \$504,949

Effort: 2.40 calendar months

4. Role: Co-Investigator and Subcontract PI

Name of PI: Jordan Carlson

Grant Number: R01HL148463

External Granting Agency: National Heart Lung and Blood Institute

Grant Title: Characterization of Sedentary Patterns and Cardiovascular Disease Risk Markers in Hispanics/Latinos

Project Dates: 07/01/2019 – 06/30/2023

Total Costs: \$44,876

Direct Costs Per Year: \$8,285

Effort: 0.12 calendar months

5. Role: Co-Investigator and Subcontract PI

Name of PI: Eileen Crimmins

Grant Number: R01AG060110

External Granting Agency: National Institute on Aging

Grant Title: Biological Underpinnings of Socioeconomic Differentials in Health and Mortality

Project Dates: 09/01/2018 – 06/30/2023

Total Costs: \$478,309

Direct Costs Per Year: \$90,590

Effort: 0.91 calendar months

6. Role: Co-Investigator and Field Center PI

Name of PI: Ravi Kalhan

Grant Number: 2R01HL122477

External Granting Agency: National Heart Lung and Blood Institute

Grant Title: Transitions from Impaired Respiratory Health to Lung Disease

Project Dates: 04/01/2019 – 03/31/2023

Total Costs: \$1,111,147

Direct Costs Per Year: \$182,970

Effort: 0.60 calendar months

7. Role: Co-Investigator and Subcontract PI

Name of PI: Krista Perirra

Grant Number: R01HL14778

External Granting Agency: National Heart Lung and Blood Institute

Grant Title: Cardiovascular Health of Sexual and Gender Minorities in the Hispanic Community Health Study/Study of Latinos (SGM HCHS/SOL)

Project Dates: 03/04/2020 – 02/28/2023

Total Costs: \$37,245

Direct Costs Per Year: \$7,960

Effort: 0.24 calendar months

8. Role: Co-Investigator and Subcontract PI

Name of PI: Jianwen Cai

Grant Number: 5113833/75N92019D00010

External Granting Agency: National Heart Lung and Blood Institute

Grant Title: Hispanic Community Health Study – Study of Latinos (HCHS-SOL) V3 TASK AREA B

Project Dates: 05/31/2019 – 11/03/2022

Total Costs: \$938,042

Direct Costs Per Year: \$30,547

Effort: 1.20 calendar months

9. Role: Multiple PI

Name of Contact PI: Michael Province

Grant Number: U19AG063893

External Granting Agency: National Institute on Aging

Grant Title: The Long-Life Family Study

Project Dates: 8/15/2019 – 3/31/2021

Total Cost: \$2,704,504

Direct Costs Per Year: \$902,132

Effort: 1.80 calendar months

10. Role: Co-Investigator

Name of PI: Rob Warren

External Granting Agency: Alzheimer's Association

Grant Title: The High School and Beyond Pilot

Project Dates: 01/01/2020 – 01/01/2021

Total Costs: \$153,880

Direct Costs Per Year: \$153,880

Effort: 1.20 calendar months

CURRENT (INDUSTRY FUNDED)

1. Role: Co-Investigator

Name of PI: Shilpa Gupta/ Badri Konety

External Granting Agency: Bristol Meyers Squibb

Grant Title: Phase II Trial of Neoadjuvant Nivolumab with Cisplatin and Gemcitabine in Muscle-Invasive Bladder Cancer (MIBC) Patients undergoing Radical Cystectomy

Project Dates: 07/01/2017 – 06/30/2020
Effort: No salary support

CURRENT (UNIVERSITY SOURCES)

1. Role: Co-Investigator and Co-Research Director

Name of PI: Jerrica Berge
Grant Number: K12HD055887
External Granting Agency: National Institute of Child Health and Human Development
Grant Title: University of MN Building Interdisciplinary Research Careers in Women's Health
Project Dates: 09/01/2017 – 07/31/2022
Total Costs: : \$305,629
Direct Costs Per Year: \$305,629
Effort: 0.30 calendar months (Though this is a NIH Training Grant, my effort is currently paid through the University and hence listed under University Sources)

2. Role: Co-Investigator

Name of PI: Arpit Rao
Granting Agency: Shaver Cancer Fund, Masonic Cancer Center
Grant Title: Exosome based biomarkers for Prostate Cancer
Project Dates: 01/01/2019 – 12/31/2020 (No salary support)
Total Costs: \$80,000
Direct Costs Per Year: \$40,000
Effort: No salary support

3. Role: Multiple-PI

Name of Contact PI: Logan Spector
Granting Agency: Masonic Cancer Center
Grant Title: Ten Thousand Families Study
Project Dates: 09/01/2018 – 08/31/2020
Total Costs: \$1,000,000
Direct Costs Per Year: \$500,000
Project Dates: 1.20 calendar months

4. Role: Co-Investigator

Name of PI: Sophie Arbefville
Granting Agency: Department of Laboratory Medicine and Pathology
Grant Title: Clinical validation of Metagenomics sequencing in cerebrospinal fluid
Project Dates: 07/01/2017 – 06/30/2020
Total Costs: \$150,000
Direct Costs Per Year: \$75,000
Effort: No salary support

5. Role: Co-Investigator

Name of PI: Pawel Mroz

Granting Agency: Department of Laboratory Medicine and Pathology

Grant Title: Clinical validation of digital droplet PCR for identification of minimal residual diseases in acute lymphoblastic leukemia

Project Dates: 07/01/2018 – 06/30/2020

Total Costs: \$150,000

Direct Costs Per Year: \$75,000

Effort: No salary support

PENDING

1. Role: Co-Investigator and Sub-contract PI

Name of PI: Mitchell Colter

External Granting Agency: National Institute on Aging

Grant Title: Biological Aging Across the Life Course: Harmonizing Cohort Biospecimen Archives

Project Dates: 12/01/2020 – 11/30/2025

Total Costs: \$352,586

Effort: 1.20 calendar months

2. Role: Co-Investigator and Subcontract PI.

Name of PI: Eileen Crimmins

External Granting Agency: National Institute on Aging

Grant Title: Social Circumstances and Epigenomics Promoting Health in Three Countries

Project Dates: 8/1/2020 – 7/31/2025

Total Costs: \$1,400,832

Effort: 1.44 calendar months

3. Role: Co-Investigator

Name of PI: Rob Warren

External Granting Agency: National Institute on Aging

Grant Title: Educational and Early Life Predictors of Mild Cognitive Impairment: New Evidence about Mediators and Moderators from High School & Beyond

Project Dates: 01/01/2021 – 12/31/2023

Total Costs: \$4,057,149

Effort: 2.40 calendar months

PAST GRANTS (External Sources)

1. Role: Co-Investigator and Field Center PI

Name of PI: Ravi Kalhan

Grant Number: R01HL122477

External Granting Agency: National Heart Lung Blood Institute

Grant Title: Lung Function Decline and Disease Risk from Young Adulthood to Middle Age

Project Dates: 08/01/2014 – 07/31/2019
Total Cost: \$590,384
Effort: 0.60 calendar months

2. Role: Co-Investigator

Name of PI: Michael Verneris
Grant Number: 5R01CA196754-03
External Granting Agency: National Cancer Institute
Grant Title: Genetic Epidemiology of Hematopoietic Cell Transplant Outcomes
Project Dates: 07/01/2015 – 06/30/2019
Total Cost: \$47,073
Effort: 0.60 calendar months

3. Role: Co-Investigator and Subcontract PI

Name of PI: Michael Province
Grant Number: 5U01AG023746
External Granting Agency: National Institute on Aging
Grant Title: Long Life Family Study
Project Dates: 06/01/2014 - 05/31/2019
Total Cost: \$1,389,283
Direct Cost Per Year: \$167,758
Effort: 1.20 calendar months

4. Role: Co-Investigator

Name of PI: Jianwen Cai
Grant Number: HHSN268201300001I
External Granting Agency: National Heart Lung Blood Institute
Grant Title: Hispanic Community Health Study – Study of Latinos (HCHS-SOL V2)
Project Dates: 03/01/2014 – 03/31/2019
Total Cost: \$4,020,935
Effort: 2.20 calendar months

5. Role: Co-Investigator and Subcontract PI

Name of PI: Marian Neuhouser
Grant Number: 5R01CA119171
External Granting Agency: National Institutes of Health
Grant Title: Nutrition and Physical Activity Assessment Study (NPAAS)
Project Dates: 01/01/2018 – 12/31/2018
Total Costs: \$8,716
F. Hutchinson Cancer Research Ctr (NIH Prime)
The goal of this project is to measure Vitamin B12 and Folate in the Women's Health Initiative
Effort: 0.12 calendar months

6. Role: Co-Investigator and Subcontract PI

Name of PI: David Weir
Grant Number: U01AG00974

External Granting Agency: National Institute of Aging

Grant Title: Health and Retirement Study Yrs 23-28 Venous Blood

Project Dates: 01/01/2015 – 12/31/2018

Total Costs: \$9,793,998

Effort: 2.40 calendar months

7. Role: Co-Investigator

Name of PI: Beth Lewis

Grant Number: HHSN268201300025C

External Granting Agency: National Heart Lung Blood Institute

Grant Title: CARDIA Central Laboratory

Project Dates: 07/01/2013 – 06/30/2018

Total Cost: \$130,873

Effort: 0.10 calendar months

8. Role: Co-investigator and Subcontract PI

Name of PI: Maria Constanza Carmago

External Granting Agency: National Cancer Institute

Grant Title: Evaluation of H. Pylori infection as a risk factor for Asthma in the Hispanic Community Health study

Project Dates: 01/01/2017 – 12/31/2017

Total Costs: \$149,750

Effort: 0.12 calendar months

9. Role: Co-Investigator and Subcontract PI

Name of PI: David Weir

Grant Number: U01AG00974

External Granting Agency: National Institute on Aging

Grant Title: Health and Retirement Study Yrs 23-28: Harmonized Cognitive Assessment Protocol (HCAP)

Project Dates: 01/01/2015 – 12/31/2017

Total Cost: \$468,803

Effort: 1.20 calendar months

10. Role: Multiple PI

Grant Number: 1R01CA172555-01A1

External Granting Agency: National Cancer Institute

Grant Title: An Integrated Study of Mitochondrial Pathways in Colorectal Cancer

Project Dates: 08/01/2013 – 07/31/2017

Total Cost: \$1,998,933

Effort: 0.12 calendar months

11. Role: Co-Investigator

Name of PI: Mehta/Wolf

Grant Number: K24DK093723

External Granting Agency: National Institute of Diabetes and Digestive and Kidney Diseases

Grant Title: Mentored Patient-Oriented Research in Mineral Metabolism

Project Dates: 07/01/2012 – 06/30/2017

Total Cost: \$12,759

Effort: 0.12 calendar months

12. Role: Co-Investigator

Name of PI: John Eckfeldt

Grant Number: 200-2011-38342

External Granting Agency: Centers for Disease Control and Prevention

Grant Title: NHANES Lipid Laboratory

Project Dates: 01/01/11 – 12/31/14

Direct costs:\$493,510

Effort: 0.60 calendar months

13. Role: PI

Grant Number: 1R03CA167701-02

External Granting Agency: National Cancer Institute

Grant Title: Mitochondria as a novel biomarker of colorectal adenoma.

Project Dates: 07/01/12 – 06/30/14

Total costs: \$97,000

Effort: 0.60 calendar months

14. Role: Co-Investigator

Name of PI: Michael Province/John Eckfeldt

Grant Number: 5U01AG023746-06

External Granting Agency: National Institute of Aging

Grant Title: Long Life Family Study Central Laboratory

Project Dates: 08/15/10 – 5/31/14

Total Cost: \$3,086,555

Effort: 0.60 calendar months

15. Role: Co-Investigator

Name of PI: Mossavar Al-Rahmani

External Granting Agency: National Heart Lung and Blood Institute

Grant Title: SOLNAS Central Laboratory

Project Dates: 12/01/09 – 03/31/14

Total cost: \$77,023

Effort: 0.24 calendar months

16. Role: PI

Training Grant PI: Nancy Raymond

External Granting Agency: National Institute of Child Health and Human Development

Grant Title: Role of mitochondria in determining breast cancer susceptibility

Project Dates: 12/01/10 – 12/31/13

Total Cost: \$75,000

Effort: 9.00 calendar months

17. Role: Co-Investigator and Subcontract PI

Name of PI: Jianwen Cai

Grant Number: HHSN268200625233C

External Granting Agency: National Heart Lung and Blood Institute

Grant Title: Hispanic Community Health Study – Central Laboratory

Project Dates: 06/01/06 – 05/31/13

Total costs: \$4,789,289

Effort: 1.56 calendar months

18. Role: Co-Investigator

Name of PI: Gerardo Heiss

Grant Number: 5 U01 HG004803-04

External Granting Agency: National Human Genome Research Institute

Grant Title: Genetic Epidemiology of Causal Variants Across the Life Course (CALiCO Consortium)

Project Date: 06/01/2010 – 05/31/2013

Total Costs: \$371,216

Effort: 0.12 calendar months

19. Role: Co-Investigator

Name of PI: Kim Robien

Grant Number: 5 R21 CA 135180-02

External Granting Agency: National Cancer Institute

Grant Title: Genetic Variation in Vitamin D Metabolism and BMT Outcomes

Project Dates: 09/01/08 – 08/31/10

Total costs: \$224,996

Effort: 1.20 calendar months

20. Role: Co-Investigator

Name of PI: Mukta Arora

Grant Number: 5R21-AI079354-02

External Granting Agency: National Institutes of Allergy and Infectious Diseases

Grant Title: Identification and Development of Genetic Polymorphisms as Biomarkers of Graft versus-Host Disease

Project Date: 07/01/08 - 06/30/10

Total Costs: \$274,240

Effort: 0.24 calendar months

21. Role: Co-Investigator and Subcontract PI

Name of PI: Allison Kuippers

Grant Number: CNVA0062045 (131810-2)

External Granting Agency: National Heart Lung and Blood Institute

Grant Title: Molecular Epidemiology of Aortic Diameter and Subclinical Cardiovascular Disease

Project Dates: 08/01/2019 – 07/31/2020

Total Cost:\$59,384

Direct Costs Per Year: \$38,561

Effort: 0.12 calendar months

22. Role: Co-Investigator and Subcontract PI

Name of PI: Victoria Perksy

Grant Number: 1R01ES025159-01

External Granting Agency: National Institutes of Health

Grant Title: Persistent Organic Pollutants, Endogenous Hormones and Diabetes in Latinos

Project Dates: 6/1/2016 – 5/31/2020

Total Costs: \$315,394

Direct Costs Per Year: \$104,951

Effort: 0.60 calendar months

23. Role: Co-Investigator

Name of PI: Britt Erickson

External Granting Agency: National Cancer Institute

Grant Title: Pilot Study of Daily Exemestane in Women with Complex Atypical Hyperplasia of the Endometrium / Endometrial Intraepithelial Neoplasia or Grade 1 Endometrial Cancer

Project Dates: 01/01/2017 – 12/31/2020

Effort: No salary support

PAST GRANTS (INDUSTRY FUNDED)

1. Role: PI

External Funding Agency: Genome Quest Lab Grant Program

Grant Title: Bioinformatics support for next generation sequencing

Project Dates: 01/01/12 – 12/31/12

Total costs: \$10,000

Effort: no salary support.

2. Role: PI

External Funding Agency: Cellerant Inc.

Grant Title: Pilot study to identify large number of donors in samples obtained from patients undergoing umbilical cord blood transplant.

Project Dates: 04/01/09 – 010/31/09

Total Costs: \$8,000

Effort: No salary support

PAST GRANTS (University sources)

1. Role: Multiple PI

Name of Contact PI: Tetyana Shippee

Granting Agency: Internal AHC Support

Grant Title: Psychosocial Stress, Resilience, and Premature Aging

Project Dates: 03/12/2018 – 03/30/2019

Total Costs: \$21,260

Effort: 0.60 calendar months

2. Role: Multiple PI

Name of Contact PI: Robert Straka
Granting Agency: Office of Vice President of Research
Grant Title: VIP-Hmong Study: Pharmacogenetics in the Hmong population
Project Dates: 06/01/16-05/31/18
Total costs: \$100,000
Effort: no salary support

3. Role: Co-Investigator

Name of PI: Maguiness/Turcot
Granting Agency: Department of Pediatrics
Grant Title: Pediatric Cutaneous Mastocytosis: Gene Discovery and a Path to Developing a Center of Excellence
Project Dates: 12/31/2015 - 12/31/2017
Total Costs: \$200,000
Effort: No salary support

4. Role: Co-investigator

Name of PI: Kiki Sarafagalou
Granting Agency: Academic Health Center University of Minnesota
Grant Title: Next generation sequencing for specific diagnosis in 46,XY Disorders of Sex Development
Project Dates: 06/01/13 -- 5/30/15
Total costs: \$25,000
Effort: no salary support

5. Role: PI

Granting Agency: Masonic Cancer Center
Grant Title: Methylation based biomarkers for early detection of breast cancer.
Project Dates: 02/01/14 – 01/31/15
Total Costs: \$25,000
Effort: No salary support

6. Role: Co-Investigator

Name of PI: Heather Nelson
Granting Agency: Shaver Head and Neck Cancer Fund, Masonic Cancer Center
Grant Title: Development of state-of-art- screening technology for early detection of oral cancer.
Project Dates: 02/01/14 – 01/31/15
Total costs: \$28,000
Effort: No salary support

7. Role: Multiple PI

Granting Agency: Bob Allison Ataxia Research Center-Minnesota Medical Foundation
Grant Title: Clinical application of NGS technology for diagnosis of ataxias
Project Dates: 07/01/12 – 06/30/14
Total costs: \$100,000

Effort: no salary support

8. Role: PI

Granting Agency: Institute of Translational Neuroscience-University of Minnesota

Grant Title: Development of next generation sequencing technology for clinical applications

Project Dates: 07/01/10 – 06/30/12

Total costs: \$80,000

Effort: no salary support

9. Role: PI

Granting Agency: American Cancer Society Institutional Research Grant

Grant Title: DNA repair polymorphisms: Implications for autologous transplant outcomes

Project Title: 01/01/10 – 12/31/10

Total costs: \$30,000

Effort: no salary support

10. Role: PI

Granting Agency: Minnesota Medical Foundation

Grant Title: Measurement of UV induced apoptosis in epidemiological studies and its possible role in breast cancer susceptibility

Project Dates: 08/01/08 – 07/31/10

Total Costs: \$15,000

Effort: no salary support

11. Role: Co-investigator

Name of PI: Vladimir Cherkassky

Granting Agency: Biomedical Informatics and Computational Biology

Grant Title: Reliable Biomarkers for Prediction of Transplant-Related Mortality

Project Dates: 07/01/08 – 06/30/10

Total costs: \$10,000

Effort: no salary support

12. Role: Co-investigator

Name of PI: Behzad Najafian

Granting Agency: AHC Faculty Seed Grant

Grant Title: Endothelial Microparticles: A Novel Non-Invasive Biomarker of Antibody-Mediated Kidney Transplant Rejection

Project Dates: 07/01/09 - 06/30/10

Total Costs: \$25,000

Effort: no salary support

13. Role: Co-investigator

Name of PI: Kristin Anderson

Granting Agency: Masonic Cancer Center, University of Minnesota

Grant Title: Pancreatic cancer risk: association with 1) Meat-derived carcinogen intake (HCAs and BaP) & 2) Nucleotide excision repair (NER) (DNA repair)

Project Dates: 06/01/07 – 05/31/08

Total Costs: \$30,000

Effort: no salary support

PUBLICATIONS

Peer-Reviewed Publications

1. Peters BA, Xing J, Chen GC, Usyk M, Wang Z, McClain AC, Thyagarajan B, Daviglius ML, Sotres-Alvarez D, Hu FB, Knight R, Burk RD, Kaplan RC, Qi Q. Healthy dietary patterns are associated with the gut microbiome in the Hispanic Community Health Study/Study of Latinos Am J Clin Nutr. 2023 Mar;117(3):540-552. doi: 10.1016/j.ajcnut.2022.11.020 PMID: 36872018
2. Usyk M, Peters BA, Karthikeyan S, McDonald D, Sollecito CC, Vazquez-Baeza Y, Shaffer JP, Gellman MD, Talavera GA, Daviglius ML, Thyagarajan B, Knight R, Qi Q, Kaplan R, Burk RD. Comprehensive evaluation of shotgun metagenomics, amplicon sequencing, and harmonization of these platforms for epidemiological studies Cell Rep Methods. 2023 Jan 23;3(1):100391. doi: 10.1016/j.crmeth.2022.100391. PMID: 36814836 PMCID: PMC9939430
3. Faul JD, Kim JK, Levine ME, Thyagarajan B, Weir DR, Crimmins EM. Epigenetic-based age acceleration in a representative sample of older Americans: Associations with aging-related morbidity and mortality. Proc Natl Acad Sci U S A. 2023 Feb 28;120(9):e2215840120. doi: 10.1073/pnas.2215840120. Epub 2023 Feb 21. PMID: 36802439
4. Persky V, Abasilim C, Tsintsifas K, Day T, Sargis RM, Daviglius ML, Cai J, Freels S, Unterman T, Chavez N, Kaplan R, Isasi CR, Pirzada A, Meyer ML, Talavera GA, Thyagarajan B, Peters BA, Madrigal JM, Grieco A, Turyk M. Sex Hormones and Diabetes in 45-74-Year- Old Men and Postmenopausal Women: the Hispanic Community Health Study. J Clin Endocrinol Metab. 2023 Jan 12;dgad018. doi: 10.1210/clinem/dgad018. Online ahead of print. PMID: 36633580
5. Klopach ET, Thyagarajan B, Faul JD, Meier HCS, Ramasubramanian R, Kim JK, Crimmins EM. Socioeconomic status and immune aging in older US adults in the health and retirement study. Biodemography Soc Biol. 2022 Jul-Dec;67(3-4):187-202. doi: 10.1080/19485565.2022.2149465. Epub 2022 Dec 6. PMID: 36472376
6. Mao Z, Gray ALH, Gross MD, **Thyagarajan B**, Bostick RM. Associations of DNA Base Excision Repair and Antioxidant Enzyme Genetic Risk Scores with Biomarker of Systemic Inflammation. Front Aging. 2022 May 4;3:897907. doi: 10.3389/fragi.2022.897907. PMID: 36338835; PMCID: PMC9632613.

7. Vásquez PM, Tarraf W, Chai A, Doza A, Sotres-Alvarez D, Diaz KM, Zlatar ZZ, Durazo-Arvizu RA, Gallo LC, Estrella ML, Vásquez E, Evenson KR, Khambaty T, **Thyagarajan B**, Singer RH, Schneiderman N, Daviglius ML, González HM. Accelerometer-measured latent physical activity profiles and neurocognition among middle-aged and older Hispanic/Latino adults in the Hispanic Community Health Study/Study of Latinos (HCHS/SOL). *J Gerontol B Psychol Sci Soc Sci*. 2022 Oct 11;gbac161. doi: 10.1093/geronb/gbac161. Epub ahead of print. PMID: 36219450.
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II. SOFTWARE DEVELOPMENT

Large scale genotyping projects in epidemiological studies pose considerable challenges for data management and statistical analysis. Bioinformatics tools are essential for appropriate design, project management and subsequent data analysis of large scale genotyping projects. We are developing a series of web based programs in collaboration with the Minnesota Supercomputing Institute that will provide bioinformatics support for various stages of large scale genotyping projects.

1. **SV image Annotator:** A custom software for structural variant analysis of WES and WGS data. ***Release date: June 2020***
Role: Team co-leader for overall design and identifying critical functionality
2. **CNV:RF:** This pipeline was developed to support cloud based computational analyses of NGS data for detection of copy number variation. ***Release date: August 2015***
Role: Team leader for overall design and identifying critical functionality
3. **Scanindel:** A custom bioinformatics program to detect low level somatic SNV and indel detection using amplicon based targeted NGS. ***Release date: November 2014***
Role: Provided input into overall design
4. **Bioinformatics pipeline for detection of point mutations using next generation sequencing data:** This pipeline was developed to support cloud based computational analyses of NGS data for detection of point mutations. ***Release date: July 2012***

Role: Team leader for overall design and identifying critical functionality

5. **tinSNP:** This software program is designed for project management of medium to large scale genotyping projects and provides an interactive web-based interface to evaluate genotyping quality and organize genotype data for statistical analysis. **Release date: March 2010**

Role: Provided input into overall design and identified critical functionality

III. ABSTRACTS

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 76. Bower M, Bushara K, Beckman K, Bunjer K, Hauge A, Kemmer T, Peterson J, Peterson R, Onsongo G, Schomaker M, Silverstein K, Yohe S, **Thyagarajan B**. Technical and clinical validation of a next generation sequencing diagnostic assay for rare ataxias. Ataxia Investigators Meeting, March 2012.
 77. **Thyagarajan B**, Jackson S, Basu S, Jacobson P, Gross MD, Weisdorf DJ, Arora M. Association between genetic variants in immune response genes and outcomes after hematopoietic cell transplantation. *Annual meeting of the American Society of Hematology*, December 2011.
 78. **Thyagarajan B**, Wang R, Barcelo H, Jacobs DR Jr., Yee D, Koh WP, Yuan JM. Mitochondrial copy number is associated with breast cancer risk. *Eighth Annual Building Interdisciplinary Research Careers in Women’s Health Conference*, November, 2011.
 79. **Thyagarajan B**, Wang R, Barcelo H, Koh WP, Yuan JM. Mitochondrial copy number is associated with colorectal cancer risk. *1st Regional Translational Research in Mitochondria, Aging, and Disease Symposia*, October 2011.
 80. **Thyagarajan B**, Wang R, Barcelo H, Jacobs DR Jr., Yee D, Koh WP, Yuan JM. Mitochondrial copy number is associated with breast cancer risk. *Women’s Health Research Conference*, September, 2011.
 81. Manaktala M, Roychowdhary M, Pambuccian S, Schomaker M, **Thyagarajan B**. Human Papilloma Virus Infection with Multiple types: Prevalence and Patterns of Co-infections. *Women’s Health Research Conference*. September, 2011.
 82. **Thyagarajan B**, Wang R, Barcelo H, Jacobs DR Jr., Yee D, Koh WP, Yuan JM. Mitochondrial copy number is associated with breast cancer risk. *Women’s Health Research Conference*. September, 2011.
 83. **Thyagarajan B**, Jacobson P, Jackson S, Basu S, Weisdorf DJ, Gross M, Arora M. Pharmacogenetic variants and outcomes after hematopoietic cell transplantation. *American Society of Clinical Oncology. Annual Meeting*, June 2011.
 84. Robien K, Strayer L, DeFor T, **Thyagarajan B**, Lazovich D, Cooley S, Ross J, Baker SK. Genetic variation in vitamin D pathway and risk of graft-vs-host disease after blood and marrow. *American Society of Clinical Oncology Annual Meeting*, June 2011.
 85. Shaukat A, Mustafa A, Pohlman L, **Thyagarajan B**. Is KRAS mutation associated with Interval Colorectal cancers? *Digestive Diseases Week* May 2011.
 86. Arynchyn A, Smith L, Sood A, Jacobs D, **Thyagarajan B**, Williams OD. Weight loss and pulmonary function changes in middle age adults: The CARDIA study. *American Thoracic Society*, May 2011.

87. Cuttica MJ, Colangelo L, Lima J, Ogunyankin K, **Thyagarajan B**, Rosenberg S, Liu K, Jacobs D, Lloyd-Jones D, Kalhan R. Echocardiographic abnormalities in young adults are associated with reduced lung function. *American Thoracic Society*, May 2011.
88. Gross MD, Bielinski SJ, Suarez-Lopez JR, Reiner AP, Bailey K, **Thyagarajan B**, Carr J. Circulating soluble ICAM-1 and subclinical atherosclerosis: The Coronary Artery Risk Development in Young Adults (CARDIA) Study. *American Heart Association Epidemiology Council*. April 2011.
89. **Thyagarajan B**, Barcelo H, Shaukat A. Is mitochondrial DNA copy number associated with interval colorectal cancers? *AACR Annual Meeting* April 2011.
90. Silverstein K, Beckman K, Bower M, Bunjer K, Schomaker M, Kemmer T, Schimmenti L, Yohe S, Peterson R, Karger A, Roychowdhury M, **Thyagarajan B**. Optimization of Bait Selection for Sequence Capture Arrays. *RECOMB Annual Meeting* March 2011.
91. Singh C, Gamez RG, **Thyagarajan B**, Holler J, Gulbahce EH, Pambuccian SE. Age-Specific HPV, High-Risk HPV and HPV16/18 Rates and Follow-Up Histologic Diagnoses in Women with Atypical Squamous Cells of Undetermined Significance (ASC-US). A Study of 17,059 Cases from a Predominantly Low-Risk Screening Population. *United States and Canadian Academy of Pathology*, March, 2011.
92. Gamez R, Pambuccian S, **Thyagarajan B**, Cook S, Amirouche S and Gulbahce E. Impact of HPV Vaccination on HPV Genotypes in Women with Atypical Cells of Undetermined Significance (ASC-US) in a Low-Risk Screening Population. *United States and Canadian Academy of Pathology*, March, 2011.
93. Manaktala M, Pambuccian S, Schomaker M, Gamez R, Yohe S, **Thyagarajan B**. Prevalence of Probable High Risk HPV Subtypes and its implications for Primary Prevention of Cervical Cancer. *Women's Health Research Conference*. September, 2010.
94. Dash C, Goodman M, Gross MD, **Thyagarajan B**, Bostick RM. Association of dietary and plasma carotenoids with circulating F2-isoprostanes in a pooled case-control study of incident colorectal adenomas. *AACR: Future of Molecular Epidemiology*, June 2010
95. Wilson J, **Thyagarajan B**, Gross MD. Association between gene expression of peripheral blood oxidative stress markers and Alzheimer's disease: The Nun Study. *International Congress of Alzheimer's Disease*. June 2010.
96. Jacobs DR, **Thyagarajan B**, Kalhan R, Rosenberg SR, Duprez D, Smith LJ. Rate of decline of forced vital capacity predicts future hypertension: The CARDIA Study. *American Thoracic Society*, May 2010.
97. Rosenberg SR, Colangelo LA, Barr RG, **Thyagarajan B**, Jacobs DR, Daviglius ML, Smith LJ, Kalhan R. Lung Function is Associated with Metabolic Syndrome, but Not with Subclinical Atherosclerosis in Middle Aged Adults. *American Thoracic Society*, May 2010.
98. Sood A, Qualls C, **Thyagarajan B**, Steffes M Smith LJ, *Jacobs DR*. Longitudinal Association Between Serum Adiponectin and Asthma Among Women: The CARDIA Study. *American Thoracic Society*, May 2010.
99. **Thyagarajan B**, Lindgren B, Basu S, Nagaraj S, Gross M, Weisdorf D, Arora M. DNA repair polymorphisms as predictors of Graft-versus-Host Disease after allogeneic hematopoietic cell transplants. *American Association for Cancer Research*, April 2010.
100. Tasso D, Kjeldahl K, Pambuccian SE, **Thyagarajan B**, Gulbahce HE. Outcomes in High-Risk HPV-Positive and HPV18/18-Positive Women with ASC-US Differ Based on the Women's Age Group. *United States and Canadian Academy of Pathology*, March, 2010.

101. Gamez RG, Roychowdhury M, Gulbahce HE, **Thyagarajan B**, Pambuccian SE. Age-Specific Histologic Follow-up Findings for Women With High-Risk Human Papillomavirus Positive Low-Grade Squamous Intraepithelial Lesion (LSIL) Papanicolaou Test Results. *United States and Canadian Academy of Pathology*, March, 2010.
102. Dunning KK, Gamez RG, **Thyagarajan B**, Savik K, Gulbahce HE, Kjeldahl K, Pambuccian SE. HPV Genotype Distribution in a Low-Risk Screening Population: Can the Impact of HPV Vaccination be Demonstrated? *United States and Canadian Academy of Pathology*, March, 2010.
103. Arora M, Lindgren B, Basu S, Nagaraj S, Gross M, Weisdorf, **Thyagarajan B**. Association between genetic variants in the base excision repair pathway and outcomes after hematopoietic cell transplants. *American Society of Hematology*, December 2009.
104. Yohe S, **Thyagarajan B**, Bower M, Peterson R, Floodman S. Three Mutations in the Tyrosinase Gene: An Unusual Case of Oculocutaneous Albinism. *Association of Molecular Pathology*, November 2009.
105. Gross M, Tyas S, **Thyagarajan B**, Hayes J, Desrosiers M, Zandi P. Blood Folate and Beta-Carotene are Associated with Asymptomatic Alzheimer's Disease: The Nun Study. *International Congress on Alzheimer's disease*, June 2009.
106. Dominic E, Qualls C, Beckett W, Jacobs DR, Smith LJ, Gross M, **Thyagarajan B**, Steffes M, Sood A. Sex-Specific Effects of Serum Adiponectin Concentration on Asthma Severity. *American Thoracic Society*, May 2009.
107. Sood A, Qualls C, Arynchyn A, Beckett W, Smith LJ, **Thyagarajan B**, Sidney S, Jacobs DR. Asthma Is Associated with Both Fat and Lean Mass in Women. *American Thoracic Society*, May 2009.
108. **Thyagarajan B**, Smith LJ, Gross MD, Beckett W, Jacobs DR. Higher circulating carotenoids and their changes are associated lung function in early adulthood: CARDIA. *American Thoracic Society*, May 2009.
109. Schmitz B, Henriksen J, Blue Arm N, Killeen AA, Dolan M, **Thyagarajan B**, Pambuccian S, Wang X. Prevalence of Human Papillomavirus (HPV) Genotypes in a Low-risk Midwestern US population. *United States and Canadian Academy of Pathology*, September 2008.
110. **Thyagarajan B**, Young S, Floodman S, Peterson R, Wang X. Optimization of use of short tandem repeat markers for chimerism analysis following allogeneic hematopoietic stem cell transplantation. *Academy of Clinical Laboratory Physicians and Scientists*, June 2008.
111. **Thyagarajan B**, Smith LJ, Barr G, Gross MD, Sood A, Kalahan R, Jacobs DR. Association of Circulating Adhesion Molecules with Lung Function: Results from the CARDIA Study. *American Thoracic Society*, May 2008.
112. Tran B, Colangelo L, **Thyagarajan B**, Arynchyn A, Liu K, Holvoet P, Jacobs DR, Smith LJ, Kalhan R. Serum F2-Isoprostanes and Oxidized LDL Are Longitudinally Associated with Lower Lung Function: The CARDIA Study. *American Thoracic Society*, May 2008.
113. **Thyagarajan B**, Koratkar R, Diebes A, Zandi P, Snowdon D, Gross MD. The feasibility of high throughput genotyping using paraffin embedded brain tissue from the Nun study. *American Association of Cancer Research*, April 2008.
114. **Thyagarajan B**, Gamez R, Sweeney C, C Blair C, Gulbahce HE. Estrogen Receptor Positivity in Normal Breast Epithelium from Women with Breast Cancer Correlates with Tumor Hormone Receptor. *United States and Canadian Academy of Pathology*, March, 2008.

115. **Thyagarajan B**, Arora M, Weisdorf D, Wang X. The Association between T Cell Receptor Excision Circles and Chronic Graft Versus Host Disease following Hematopoietic Stem Cell Transplant. *Association of Molecular Pathology*, November 2007.
116. Tran B, Colangelo L, Liu K, **Thyagarajan B**, Jacobs DR, Smith LJ, Kalhan R. Markers of Systemic Inflammation in Early Adulthood are Associated with Reduced Lung Function Later in Life: The CARDIA Study. *American Thoracic Society*, May 2007.
117. Hankinson AL, Liu K, Jacobs DR, **Thyagarajan B**, Smith LJ, Greenland P, Sidney S. Longitudinal changes in cardiorespiratory fitness and pulmonary function over 20 years. *American Heart Association*, April 2007.
118. **Thyagarajan B**, Lessard CJ, Kailash P, Hayes J, Mori T, Anderson KE, and Gross MD. Comparison of DNA repair between cultured lymphocytes and fresh lymphocytes: The alkaline unwinding flow cytometry assay. *Proc Am Assoc Cancer Res* 47: 2006.
119. Eastlund T, **Thyagarajan B**, Skeate R, Ayasola A, Mair DC, West M, and Schorer A. Acute relapse of TTP after ERCP. *Transfusion* 45 (Supplement): 39A, 2005.
120. Michniovaite R, Hayes JH, **Thyagarajan B**, Khaliq W, Raatz SK, Jacobs DR, Key NS, and Gross MD. Effect of Black Tea Intake on Blood Cholesterol Concentrations in Individuals with Mild Hypercholesterolemia. *The Federations of American Societies for Experimental Biology* conference, April, 2005.
121. Gross MD, **Thyagarajan B**, Kailash P, Hayes JH, Khaliq W, Anderson KE, Veltri G, Jacobs DR. A Comparison of DNA Repair Activity in Several Lymphocyte Preparations. *Proc Am Assoc Cancer Res* 46: 2005.
122. Khaliq W, **Thyagarajan B**, Kailash P, Hayes JH, Anderson KE, Veltri G, Jacobs DR, Gross MD. The recovery of lymphocytes from cryopreserved whole blood and measurement of their DNA repair activity. *Proc Am Assoc Cancer Res* 46: 2005.
123. **Thyagarajan B**, Khaliq W, Anderson KE, Jacobs Jr D, Bargaje A, Folsom AR, Selk F, Lynch C, and Gross MD. DNA Repair Gene Polymorphisms and the Risk of Breast Cancer: The Iowa Women Health Study (IWHs). *Proc Am Assoc Cancer Res* 45: 2004.
124. **Thyagarajan B**, Anderson KE, Kong F, Folsom AR, Selk F, Lynch C, and Gross MD. New approaches for genotyping breast tissue from cancer patients: The Iowa Women's Health Study. *Proc Am Assoc Cancer Res* 44: 2003.
125. Gross MD, Chau A, **Thyagarajan B**, Hayes JH. The inhibition of platelet activation by flavanoid metabolites. *The Federations of the American Societies for Experimental Biology*. April, 2003.
126. Gross MD, **Thyagarajan B**, Key N, Johnson G, Jacobs Jr D. Black tea reduces platelet activity and oxidative damage in healthy subjects. *Tea Symposium*. September 2002.
127. Gross MD, **Thyagarajan B**, Key N, Johnson G, Jacobs Jr D. Black tea, platelet activity, and oxidative damage in human subjects. *The Federations of American Societies for Experimental Biology Annual Meeting*. April 2002.
128. **Thyagarajan B**, Anderson KE, Kong F, Folsom AR, Lynch C, and Gross MD. A population-based estimate of DNA repair gene allele frequencies: The Iowa Women's Health Study. *Proc Am Assoc Cancer Res* 43: 774, 2002.

Presentations

Invited Oral Presentations at International Professional Meetings, Conferences

1. **Thyagarajan B.** Biomarkers in Dementia Research. LASI-DAD Wave 2 Launch Meeting, October 31, 2022.
2. **Thyagarajan B.** Integrative Study of transcriptomics and DNA methylation. Biomarker Network Meeting on Functional Genomics: RNA and Epigenetics in Population Health. Virtual meeting via Zoom due to the Coronavirus pandemic. October 22, 2020.
3. **Thyagarajan B.** Novel Quality Control Metrics Applications for RNA-Seq in Population Studies. Biomarker Network Meeting on Functional Genomics: RNA and Epigenetics in Population Health. Virtual meeting via Zoom due to the Coronavirus pandemic. October 21, 2020.
4. **Thyagarajan B.** T cells and Type 2 Diabetes: Findings from HRS. Biomarker Network Meeting. Austin April 22, 2019.
5. **Thyagarajan B.** Transcriptomics in HRS. International Biomarker Meeting. Austin April 21, 2019.
6. **Thyagarajan B.** Next Generation Sequencing for Clinical Diagnostics: Five Year Experience of an Academic Laboratory. Next Generation Sequencing in Clinical Genomics- Advances & Applications. Bengaluru, November 2018
7. **Thyagarajan B.** Flow Cytometry: Novel Markers Of Population Immune Functioning In The HRS. Gerontology Society of America, Boston, November 2018.
8. **Thyagarajan B.** An integrated framework for detection of copy number variation using targeted next generation sequencing data. World Congress of Molecular Pathology. Melbourne, Australia, July 2016.
9. **Thyagarajan B.** Genetics of Malignant Hyperthermia. 6th Annual conference of Indian College of Anaesthesiologists, Bangalore India, November 21, 2014.
10. **Thyagarajan B.** Clinical application of the next generation sequencing platform for diagnosis of inherited disorders. MV Diabetes Research Foundation, Chennai, India March 2012.
11. **Thyagarajan B.** Genetic testing for congenital eye disorders using the next generation sequencing platform. Narayana Netralaya Eye Hospital, Bengaluru, India March 2012.
12. **Thyagarajan B.** Adhesion Molecules and Lung Function: Findings from the CARDIA study. American Thoracic Society. May 18, 2011 (Invited talk at Symposium).
13. **Thyagarajan B.** Role of Engraftment Analysis in Predicting Outcomes Following Hematopoietic Cell Transplantation. American Society of Hematology Satellite Symposium, December 3, 2010 (Invited talk at Education session at ASH satellite symposium).
14. **Thyagarajan B,** Jacobs DR, Apostol GG, Smith LJ, Jensen RL, Crapo RO, Barr GR, Lewis CE, Williams DO. Longitudinal association of body mass index with lung function: the CARDIA study. *American Thoracic Society*, May 2007 (Invited talk at Symposium).

Invited Oral Presentations at National Professional Meetings, Conferences

1. Ramasubramanian R*, Meier H, Crimmins E, Faul J, **Thyagarajan B.** The role of cohabitation on adaptive and innate immune cell profiles in the Health and Retirement Study. Academy of Clinical Laboratory Physicians and Scientists. June 24, 2022.
2. Vivek S*, Nelson H, Crimmins E, Faul J, **Thyagarajan B.** Cross-sectional association between Cytomegalovirus seropositivity, T cell subsets and Epigenetic aging clocks in Health and Retirement Study. Academy of Clinical Laboratory Physicians and Scientists. June 24, 2022.
3. **Thyagarajan B.** Stability of Biomarkers of Cognitive Decline. NIA Intramural Program. NIA Intramural Program. September 15, 2019

4. **Thyagarajan B.** Plasma Exosomes for measurement of Cognitive Decline Biomarkers. NIA Intramural Program. September 15, 2019
5. **Thyagarajan B.** Targeted sequencing of specimens with limited DNA on a microfluidics-coupled NGS platform for solid tumor diagnostics. Northwestern University July 2014.
6. **Thyagarajan B.** Genomics Testing: What is it good for? College of American Pathology Webinar July 2014
7. **Thyagarajan B.** Mitochondria as a novel biomarker for colorectal cancer susceptibility Emory University June 2013.

Invited Oral Presentations at Local and Regional Professional Meetings, Conferences

1. **Thyagarajan B.** Towards a better understanding of age as a risk factor for chronic disease. Life Course Center Seminar. May 1, 2019
2. **Thyagarajan B.** Genomics Testing: What is it good for? Second Annual Lab CE event, Fairview, October 6, 2018
3. **Thyagarajan B.** The Molecular Diagnostics Laboratory: Current capabilities and future of genomics testing at MHealth. Second Annual Lab CE event, Fairview, October 6, 2018
4. **Thyagarajan B.** Clinical Application of Genomics in Pediatrics. Department of Pediatrics Grand Rounds April 5, 2017.
5. **Thyagarajan B.** Clinical Genomics Applications In Research. January 5, 2017.
6. **Thyagarajan B.** Introduction to Genomics (HFN tumors) Bell Symposium November 2016.
7. **Thyagarajan B.** MtDNA copy number, colorectal cancer and BMT. Translational Biomarkers in Cancer Epidemiology September 2016.
8. **Thyagarajan B.** Introduction to genomics Fairview Southdale Grand Rounds November 2014.
9. **Thyagarajan B.** Utilization of next generation sequencing platforms to advance translational research in bone marrow transplantation. BMT Research Group, University of Minnesota, Minneapolis MN. May 5, 2014.
10. **Thyagarajan B.** Opportunities for translational research using existing genomic resources at the University of Minnesota. Prostate Cancer Translational Working Group. March 4, 2014.
11. **Thyagarajan B.** Clinical applications of next generation sequencing. Bell Symposium, University of Minnesota, Minneapolis, MN. November 1, 2013.
12. **Thyagarajan B.** Mitochondria as a novel biomarker for colorectal cancer. Research Conference, Division of Epidemiology and Community Health, University of Minnesota, Minneapolis MN. November 1, 2013.
13. **Thyagarajan B.** Clinical applications of next generation sequencing. Genetic Mechanisms of Cancer Working Group, Cancer Center, University of Minnesota, Minneapolis, MN. September 6, 2013.
14. Wherley C, Bushara K, **Thyagarajan B**, Yohe S, Beckman K, Hauge A, Deshpande A, Silverstein K, Onsongo G, Erdmann J, Bower M. What's in a name? Identifying spastic paraparesis mutations in patients with hereditary ataxia. Accepted for oral platform presentation at the Upper Midwest Clinical Genetics Conference. Minneapolis, MN. September 19, 2013.
Student: Wherley C was a Genetic Counseling student.
15. **Thyagarajan B.** Base excision repair polymorphisms and outcomes after allogeneic hematopoietic cell transplants. *Cancer Epidemiology Interest Group*, University of Minnesota. August 20, 2009.

16. **Thyagarajan B.** Body Mass Index, Inflammation, and Lung Function. *Center for Lung Science and Health*, University of Minnesota. October 23, 2008.
17. **Thyagarajan B.** Donor Chimerism, Thymic function, and Hematopoietic Stem Cell Transplantation. *Grand Rounds: Department of Laboratory Medicine and Pathology*, University of Minnesota. April 2007.
18. **Thyagarajan B.** Genetic Susceptibility in Breast Cancer: Is there a role for Nucleotide Excision Repair Genes? *Grand Rounds: Department of Laboratory Medicine and Pathology*, University of Minnesota. February 2004.

Peer-reviewed Oral Presentations at Professional Meetings, Conferences.

1. **Thyagarajan B.** Transcriptomics: The Health and Retirement Study. Gerontology Society of America, Austin November 2019.
2. Vivek S*, Prizment AE, Nelson H, Faul J, Crimmins E, **Thyagarajan B.** Combined Effect of CMV Seropositivity and Systemic Inflammation is Associated with Cognitive Impairment in Elderly Cancer Survivors. Gerontology Society of America, Austin November 2019.
Student: Sithara Vivek is a PhD student in my laboratory.
3. **Thyagarajan B,** Lazovich D, Nelson HH, Poynter J, Prizment A, Roesler M, Cassidy E, Putnam S, Reilly C, Spector L. Field Application of Digital Technologies for Health Assessment in the 10,000 Families Study. American Association of Cancer Research Special Conference on Modernizing Population Sciences in the Digital Age. San Diego February 19-22, 2019
4. Cassidy E*, Barcelo H, Arora M, **Thyagarajan B.** A pilot study of plasma cell-free mitochondrial DNA copy number as a biomarker of frailty in hematopoietic cell transplantation. National Conference on Undergraduate Research. April 6, 2017.
Student: Erin Cassidy was an undergraduate working in my laboratory.
5. Cuttica MJ, Colangelo L, Washko G, Rana J, Jacobs D, **Thyagarajan B,** Sidney S, Lewis B, Liu K, Lloyd-Jones D, Dransfield M, Kalhan R. Association between Lung Health and Cardiovascular Outcomes in Young Adults: The CARDIA Study. ATS Annual Meeting, May 21, 2017.
6. Cartwright D*, **Thyagarajan B,** Yohe, S, Nelson AC. Utilizing cytology preps in the Molecular Diagnostics Laboratory. Academy of Clinical Laboratory Physicians and Scientists Annual Meeting June, 2016.
Student: David Cartwright was a Molecular and Genetic Pathology Fellow.
7. Baughn LB*, Onsongo G, Bower M, Henzler C, Silverstein KAT, **Thyagarajan B.** Copy number variation detection using next generation sequencing. Academy of Clinical Laboratory Physicians and Scientists Annual Meeting May 28-30, 2015.
Student: Linda Baughn was a ABMG Molecular Fellow
8. Boone J*, Bower M, **Thyagarajan B,** Schimmenti LA. Hereditary Retinopathy: Expansion to a Single Large NGS Gene Panel Encompassing All Known Retinal Phenotypes. Academy of

Clinical Laboratory Physicians and Scientists Annual Meeting May 28-30, 2015.

Student: Jamie Boone was a Molecular and Genetic Pathology Fellow

9. Nelson AC*, Schomaker S, Henzler C, Kemmer T, Wilson JD, Yohe S, **Thyagarajan B**. Targeted sequencing of specimens with limited DNA on a microfluidics-coupled NGS platform for solid tumor diagnostics. Academy of Clinical Laboratory Physicians and Scientists Annual Meeting May 29-31, 2014.
Student: Andrew Nelson was a Molecular and Genetic Pathology Fellow
10. Cisneros D, Qualls C, Arynchyn A, **Thyagarajan B**, Smith LJ, Jacobs D, Sood A. Despite greater symptoms, subjects with ‘obesity preceding asthma’ do not show worse asthma outcomes than those with ‘asthma preceding obesity’. Annual Meeting of the American Thoracic Society May 17-20, 2014.
11. Oetting W, Beckman K, Silverstein K, Onsongo G, **Thyagarajan B**, Bower M. Introduction of next generation sequencing in a clinical diagnostic laboratory. The Human Genome Variation Society (HGVS) Clinical Applications of Next Generation Sequencing meeting. Paris, France. June 8, 2013.
12. Spears M*, Onsongo G, Silverstein K, Beckman K, Schomaker M, Yohe S, Bower M, Hansen K, Baumann L, Reding M, **Thyagarajan B**. A Next-Generation Sequencing Approach to Investigating Inherited Thrombophilias. Academy of Clinical Laboratory Physicians and Scientists Annual Meeting June 2013.
Student: Michael Spears was a Molecular and Genetic Pathology Fellow
13. Technical and Clinical Validation of a Next-Generation Sequencing Diagnostic Assay for Fanconi Anemia. Peterson J*, Beckman B, Bower M, Bunjer K, Hauge A, Kemmer T, Peterson R, Onsongo G, Schomaker M, Silverstein K, Yohe S, Zierhut H, **Thyagarajan B**. Academy of Clinical Laboratory Physicians and Scientists Annual Meeting June 2012.
Student: Jess Peterson was a Molecular and Genetic Pathology Fellow
14. Karger AB*, Wilson JD*, Bower M, Schimmenti LA, **Thyagarajan B**. Detection of PAX2 partial and whole exon deletions using multiplex ligation-dependent probe amplification (MLPA). Academy of Clinical Laboratory Physicians and Scientists Annual Meeting June 2011.
Student: Amy Karger was a clinical pathology resident and Jon Wilson contributed to this work during his training as a Molecular and Genetic Pathology Fellow.
15. **Thyagarajan B**, Alozie O, Jacobs DR, Steffes MW, Kailash P, Hayes J, and Gross MD. Factors Associated with Paraoxonase Genotypes and Activity in a Diverse, Young, Healthy Population: The Coronary Artery Risk Development in Young Adults (CARDIA) Study. *Academy of Clinical Laboratory Physicians and Scientists*, April 2006.
16. **Thyagarajan B**, Khaliq, W, Anderson KE, Veltri G, Jacobs Jr D, Folsom AR, and Gross MD. Inter- and Intra-Individual Variation in DNA Repair as Measured by Flow Cytometric Assays. *Proc Am Assoc Cancer Res* 45: 2004.

TEACHING AND CURRICULUM DEVELOPMENT

Residents Supervised

Residents who rotated through the Molecular Diagnostics Laboratory from November 2007- Present

Clinton Crowder, MD
Min Yi Ngae, MD
Noelle BlueArm, MD
Rhonda Peters, MD
Pong Boon-Unge, MD
Amy Karger, MD, PhD
Roberto Gamez, MD
Alesia Kaplan, MD
Sarah Meyers, MD
Monika Roychowdhury, MD
Melissa Hart, MD
Charanjeet Singh, MD
Sarah Anderson, MD
Steve Bloechl, MD
Jermaine Anderson, MD
Tetyana Mettler, MD
Arbaz Samad, MD
Leah Dvorak, MD
Annie Meares, MD
Andrew Nelson, MD
Megan Griffith, MD
Justin Peltola, MD
Sarah Drawz, MD
Shabnam Zarei, MD
Maria Surowiecka, MD
Laura Moench, MD
Sumaya Al Rawi, MD
Shifteh Vahidi
Maryam Shahi
Barrie Miller, MD
Scott Giles, MD
Evan Sell, MD

Molecular and Genetic Pathology Fellows who rotated through the Molecular Diagnostics Laboratory from November 2007- Present

Randolph Peterson, MD
Sophia Yohe, MD
Jon Wilson, MD
Monika Rowchowdhury, MD
Amy Karger, MD, PhD

Jess Peterson, MD
 Michael Spears, MD
 Andrew Nelson, MD, PhD
 Linda Baughn, PhD
 Jamie Boone, MD
 Anup Tilak, PhD
 Mathew Meredith, PhD
 Aruna Rangan, MD
 Zoltan Oltavi, MD, PhD

Post sophomore fellows who rotated through the Molecular Diagnostics Laboratory from November 2007-Present

Daniel Martig
 Amanda Murphy

Hematology-Oncology Fellows who rotated through the Molecular Diagnostics Laboratory from January 2012-Present

Layla Shule, MD
 Farhana Malik, MD
 George Scaria, MD, PhD

ADVISING AND MENTORING

Undergraduate Student Activities

#	Trainee Name	Degree	Year	Project	Outcome	Current Position
1	Daniel Pannikar	Undergraduate	2021-Present	Stability of neurodegenerative biomarkers	Ongoing	Sophomore
2	Ria Koppikar	Undergraduate	2023-present	Flow cytometry analysis	Ongoing	Freshman
1	Claire Chabin	Undergraduate	2019-2020	Analysis of Grip Strength and Digital Cognitive Measures	Undergrad Directed Res.	Graduated
2	Vy Nguyen	Undergraduate	2018-2020	Exosome based biomarkers	Undergrad Directed Res.	Joined Osteopathic school
3	Karla Boirivant	Undergraduate	2018	Obesity and Cognitive Function in HRS	Undergrad research project	Graduated
4	Paige Hartman	Undergraduate	2016-2017	Variant classification in Long Life Family Study	Poster at ACMG: Directed	Medical School, UMN Dultuh

					Res.	
5	Erin Cassidy	Undergraduate	2016-2017	Plasma mtDNA copy number as a frailty biomarker	Oral presentation in NURC: Directed Res	Admitted to Medical School
6	Jessica Hanneman	Undergraduate	2015-2016	Genetic causes of ataxia	Poster presentation in NURC and UMN undergrad research symposium: Directed Res.	Masters student in Veterinary Science at University of Kentucky at Lexington.
7	Upasana Arvindam	Undergraduate	2015	Obtained laboratory research experience	N/A	Graduated from PhD Student in MiCAB program UMN
8	Omar Bushara	Undergraduate (Harvard University)	2012-2016	Geographical distribution of HPV genotypes in Minnesota	Abstract and publications X2	Family Medicine Resident: Northwestern University
9	Priyanka Kailash	Undergraduate	2009-2010	Obtained laboratory research experience to support application to osteopathic schools	N/A	Emergency Medicine Physician

Graduate Student Activities

#	Trainee Name	Degree	Year	Project	Outcome	Current Position
1	You-Shan Shen	MS	2022-Present	Proteomic profiles in diabetes	Ongoing	Graduate student
2	Gokul Sheshadri	MS	2022-Present	Proteomic profiles in obesity	Ongoing	Graduate Student
3	Sithara Vivek	PhD student	2018-present	Adaptive immunity in diabetes	Ongoing	PhD student
4	Ramya Ramasubramanian	PhD student	2018-2022	Immunity and lung function	Graduated	Analyst at Analysis Group
5	Daniel Muldoon	MPH student	2017-2018	Mitochondrial SNPs in HCT outcomes	Graduated	Research Scientist
6	Ramya	MPH	2017-	Lung function and gene	Graduated	PhD student

	Ramasubramanian	student	2018	expression in CARDIA		
7	Jonathan Ploeger	PhD Student	2013	Effect of green tea on mitochondrial DNA copy number	Completed project	PhD student
8	Sharad Manaktala	MPH student	2010-2013	Prevalence of single and multiple HPV infections	Abstracts X2 MPH thesis not completed	Health Informatician : Klewver
9	Heather Gray	MPH student	2009-2010	SHBG polymorphisms and polycystic ovarian syndrome	Graduated	

Undergraduate honors thesis directed:

Paige Hartman – 2017

Member of Master’s thesis committee:

Andrew Walker, MS Computer Science – 2020-2022

Guangyong Li, MPH Biostatistics – 2019-2021

Daniel Muldoon, MPH Epidemiology – 2017-2018

Heather Gray, MPH Epidemiology – 2009-2010

Master’s thesis directed:

Ramya Ramasubramanian, MPH Epidemiology – 2016-2018

Master’s Thesis Title: Association of lung function with inflammatory and oxidative stress gene expression profiles in peripheral blood

Sharad Manaktala, MPH Student – 2013 (did not complete Master’s thesis and moved directly to a PhD program in Health Informatics).

Member of PhD dissertation committee:

Elizabeth Polter, Epidemiology – 2019-present

Shuo Wang, Epidemiology – 2019-present

Noemi Vidal Folch – June 2022- present

PhD students directed:

Ramya Ramasubramanian, PhD student in Epidemiology – 2018-present. *PhD dissertation title:* TBD

Sithara Vivek, PhD student in Biomedical Informatics and Computational Biology – 2018-present
PhD dissertation title: TBD

Post-doctoral fellows supervised

#	Trainee Name	Degree	Year	Project	Outcome	Current Position
1	Zoltan Oltavi	Genetic	2018-	CAG repeat expansions	Validated	Professor,

		Pathology Fellow	2019	in Androgen Receptor	clinical test	University of Rochester
2	Jamie Boone	Genetic Pathology Fellow	2014-2015	ABO sequencing	Ongoing work	Private Practice; pathology
3	Linda Baughn	Genetic Pathology Fellow	2014-2015	Copy number variation detection using next generation sequencing.	Abstract and publication	Assistant Professor, Mayo Clinic
4	Andrew Nelson	Genetic Pathology Fellow	2013-2014	Targeted sequencing of specimens with limited DNA on a microfluidics-coupled NGS platform.	Abstract and publication	Assistant Professor. Univ. of Minnesota
5	Michael Spears	Genetic Pathology Fellow	2012-2013	A Next-Generation Sequencing Approach to Investigating Inherited Thrombophilias.	Abstract	Private Practice: Pathology
6	Jess Peterson	Genetic Pathology Fellow	2011-2012	Technical and Clinical Validation of a Next-Generation Sequencing Diagnostic Assay for Fanconi Anemia.	Abstract	Assistant Professor: University of Wisconsin, Milwaukee
7	Amy Karger	Resident	2010-2011	Detection of PAX2 partial and whole exon deletions using multiplex ligation-dependent probe amplification (MLPA).	Abstract	Assistant Professor: Univ of Minnesota
8	Monika Roychowdhury	Genetic Pathology Fellow	2010-2011	Participated in several research projects	Abstracts X3	Private Practice: Pathology
9	Jon Wilson	Genetic Pathology Fellow	2009-2010	Association between gene expression of peripheral blood oxidative stress markers and Alzheimer's disease: The Nun Study	Abstract	Associate Professor: Univ of Minnesota
10	Sophia Yohe	Genetic Pathology Fellow	2008-2009	Three Mutations in the Tyrosinase Gene: An Unusual Case of Oculocutaneous Albinism	Abstract	Associate Professor: Univ of Minnesota

Junior Faculty Mentored

#	Faculty	Position	Duration	Department	Current Position/Achievements
1	Ruping Sun	Assistant Professor	2019-present	Laboratory Medicine and Pathology;	Developing collaborations for various research projects

				Medical School	
2	Niloufar Haddidi	Associate Professor	2019-Present	Nursing School	Mentoring in genomics related research and education
3	Elizabeth Wrigley Field	Assistant Professor	2018-Present	Sociology	Applying for NIH mentored K award
4	Kelsey McinTyre	Assistant Professor	2018-Present	Laboratory Medicine and Pathology; Medical School	Awarded MPG Division Research Project in 2019
5	Jesse Seegmiller	Assistant Professor	2017-present	Laboratory Medicine and Pathology; Medical School	Funded >50% effort for the last 2 years
6	Pawel Mroz	Assistant Professor	2017-present	Laboratory Medicine and Pathology; Medical School	Awarded an institutional career development award
7	Sophia Yohe	Assistant Professor	2013-2018	Laboratory Medicine and Pathology; Medical School	Associate Professor: Univ of Minnesota Director of Molecular Diagnostics Laboratory

Visiting Scholars Hosted

#	Trainee Name	Degree	Year	Project	Outcome	Current Position
1	Anuprita Ghosh	Visiting Scientist	2016	Laboratory interpretation of genetic variants in NGS	Published manuscript	Senior Scientist, Narayana Netralaya
2	Pallavi Prakash	Visiting Professor	2012-2013	Mitochondrial DNA copy number and bone marrow transplant outcomes	Ongoing publication	Associate Professor, JSS Medical College

EDUCATIONAL PRESENTATIONS

- Linking molecules to morphology: An integrated approach to cancer diagnosis.** Clinical Pathology Case Conference, University of Minnesota May 18, 2020.
- Tumor Profiling using Molecular Methods:** Guest Lecture in Genetics & Genomics in Human Health April 8, 2020.
- What Demographers should know about Genetics:** Minnesota Population Center Seminar Series, December 6, 2019.
- Genomic Techniques used in Epidemiological Techniques:** Public Health Genomics, September 18, 2019.
- Multiple oncogenic mutations in cancer: causes and clinical implications:** Clinical Pathology Case Conference. University of Minnesota May 21, 2019.
- Molecular ABO Subtyping: Techniques and Clinical Applications:** Clinical Pathology Case Conference, University of Minnesota May 15, 2018.

7. **Design and Implementation of the Ten Thousand Families Study:** Public Health Genomics, October 18, 2017.
8. **An Unusual Case of Severe Combined Immunodeficiency.** Clinical Pathology Case Conference. University of Minnesota April 18, 2017.
9. **Oculocutaneous albinism: a case of non-mendelian inheritance?** Clinical Pathology Case Conference. University of Minnesota April 26, 2016.
10. **Whole Genome Sequencing – Cancer Biology and Tumor Profiling.** Guest Lecture in. Genetics & Genomics in Human Health April 25, 2016.
11. **Genetics in Cancer Epidemiology.** Guest Lecture in Cancer Epidemiology. March 28, 2016.
12. **Whole Genome Sequencing – Cancer Biology and Tumor Profiling.** Guest Lecture in Advanced Human Genetics. April 18, 2015.
13. **Biomarkers in Clinical Research.** Guest Lecture in Clinical Trials class. November 11, 2015.
14. **Genomic incidental findings: to disclose or not to disclose?** Clinical Pathology Case conference. University of Minnesota April 14, 2015.
15. **Genetics in Cancer Epidemiology.** Guest Lecture in Cancer Epidemiology. March 23, 2015.
16. **Geographical distribution of HPV genotypes in Minnesota.** Clinical Pathology Case conference. University of Minnesota April 22, 2014
17. **Biomarkers in Cancer Epidemiology.** Guest Lecture in Cancer Epidemiology. April 14, 2014.
18. **Genetic characterization of hereditary syndromes: Hereditary ataxias as a case example.** Clinical Pathology Case conference. University of Minnesota April 23, 2013.
19. **Tumor Heterogeneity and Clinical Trials.** Guest Lecture in Cancer Epidemiology. April 15, 2013.
20. **Acute Lymphoblastic Leukemia:** Translating Genomics advances into clinical practice. Clinical Pathology Case conference. University of Minnesota May 8, 2012.
21. **HPV testing in the Molecular Diagnostics Laboratory** (Average 2 times/year during resident rotations 2010-2012).
22. **Role of engraftment analyses in patient monitoring after hematopoietic cell transplantation** (Average 3 times/year during resident rotations 2009-2012).
23. **Introduction to Molecular Pathology** (Average 3 times/year during resident rotations since 2009-2012).
24. **Clinical applications of next generation sequencing.** Clinical Pathology Case conference. University of Minnesota May 24, 2011.
25. **Melting Curve analyses and Next Generation Sequencing Methodology.** February 2010.
26. **Hematopoietic cell transplantation for treatment of primary immunodeficiencies.** Clinical Pathology Case conference. University of Minnesota June 8, 2010.
27. **Role of HPV testing in Cervical Cancer Screening.** Clinical Pathology Case conference. University of Minnesota May 26, 2009.
28. **Molecular Diagnostics: Principles and Techniques.** Educational lecture for pathology residents. University of Minnesota October 2008.
29. **Role of laboratory testing in diagnosis of hereditary colorectal cancer.** Educational lecture for genetic counseling students. University of Minnesota. April 3, 2008.

CLINICAL SERVICE

At the University of Minnesota

Molecular Pathology, University of Minnesota Medical Center, Fairview.

The Molecular Diagnostics Laboratory at the University of Minnesota Medical Center, Fairview is responsible for processing and evaluation of approximately 10, 000 specimens annually.

Significant portion of the specimens are for evaluating HPV infections in cytology specimens and bone marrow engraftment analysis in patients undergoing hematopoietic stem cell transplantation.

My service responsibilities in Molecular Pathology include

Evaluation and diagnosis of approximately 200 specimens weekly

Evaluation of laboratory QA/QC procedures.

Design and implementation of new laboratory tests.

Completed quality improvement projects

A. Automation of interpretation of HPV screening test. October 2008- February 2009

Background: Rapid increase in the number of HPV tests resulted in errors in reporting of HPV results. Systematic analyses of the errors revealed the post PCR processing steps to be a major source of errors in the Molecular Diagnostics Laboratory.

Solution: We used the Qiaxcel capillary electrophoresis system to standardize and automate all post PCR steps. This new system eliminates use of agarose gels and human error in interpretation of genotyping data. In addition, we have been able to standardize the sensitivity of the HPV screening tests to 1000 HPV copies with the use of the Qiaxcel system.

Design and implementation of new laboratory tests

A. Pharmacogenomics testing (Pain, Psychiatry and cardiovascular) July 2015-Present

We are developing a microfluidics based pharmacogenomics assay for use in the pain, psychiatric and primary care clinics.

B. Detection of Structural Variants from WGS data May 2018-Present

We are developing novel bioinformatics tools for detection of structural variants from WGS data.

C. NGS sequencing for Blood Group Determination November 2017 – Present

We are developing sequencing approaches for detecting blood group antigens that will improve allocation of kidneys for renal transplantation.

D. Whole exome analysis July 2013 – May 2017

We have validated whole exome analysis for clinical use in inherited disorders.

E. Upgrade to targeted sequencing analyses July 2013 – April 2014

We have upgraded our NGS test to include sequencing of 4800 genes.

F. Amplicon based NGS tests for cancer diagnostics ***July 2013 – November 2014***

We have validated a 21 gene test for diagnosis and prognosis for a variety of hematological malignancies and solid tumors.

G. Next generation sequencing tests ***January 2010 – July 2012***

We, in collaboration with the University of Minnesota Genomics Center, offer clinical sequencing of 568 genes for more than 130 inherited disorders in the Molecular Diagnostics Laboratory.

H. Targeted sequencing analyses ***July 2012 – November 2012***

We have developed and validated universal targeted sequencing tests (Tier 2 testing) that can be used for genetic testing of family members once a mutation has been identified in the proband.

I. IKAROS deletion detection ***April 2011 – October 2011***

We developed a Multiplex Ligation Probe Amplification assay, in collaboration with the cytogenetics laboratory, to detect IKAROS gene deletions in patients with acute lymphoblastic leukemia.

J. Magnetic bead sorting of peripheral blood samples for chimerism analyses of post bone marrow transplant samples ***September 2009 – June 2010***

We have optimized magnetic bead sorting of CD19 and CD56 cells prior to chimerism analysis of peripheral blood samples from patients who have undergone bone marrow transplants and will be offered as clinical tests for patients undergoing hematopoietic cell transplantation.

K. KRAS testing ***October 2009 – June 2010***

We have developed a clinical test to detect exon 2 KRAS mutations in tumor samples and this test is currently being offered as a clinical test. This was a clinical test developed by the Molecular Fellow, John Wilson.

L. Magnetic bead sorting of peripheral blood samples for chimerism analyses of post bone marrow transplant samples ***September 2008 – June 2009***

We have optimized magnetic bead sorting of CD3 and CD15 cells prior to chimerism analysis of peripheral blood samples from patients who have undergone bone marrow transplants. Cell sorting for CD3 and CD15 cells prior to chimerism analyses has now replaced previous testing methodology as the standard of care at the University of Minnesota.

PROFESSIONAL SERVICE AND PUBLIC OUTREACH

Outside the University of Minnesota

Journal Reviewer Experience (since 2007)

1. Cancer
2. Carcinogenesis

3. Journal of exposure analysis and environmental epidemiology
4. Annals of Epidemiology
5. Frontiers in Pharmacotherapy of Respiratory Diseases
6. Molecular Carcinogenesis
7. Journal of Asthma
8. Medical Principles and Practice
9. Cancer Epidemiology Biomarkers and Prevention
10. Journal of Psychosomatic medicine
11. Experimental and Clinical Pathology
12. Translational Research
13. Innate Immunity
14. PLoS One
15. Journal of Obesity
16. BMC Research Notes
17. BMC Cancer
18. Drug Design, Development and Therapy
19. Medicine
20. Molecular and Cellular Biochemistry
21. Mitochondrion
22. Tumor Biology
23. Scientific Reports
24. Biomedical Journals
25. Cancers
26. Biomarkers
27. Microarrays
28. International Journal of Molecular Sciences
29. Genome Medicine
30. Clinica Chimica Acta
31. Clinical Cancer Research
32. BioMed Research International
33. Journal of Gerontology: Medical Sciences
34. Clinical and Experimental Dermatology
35. BMC Medical Genetics

36. International Journal of Gerontology
37. BMC Pulmonary Medicine
38. Cancer Biomarkers
39. American Journal of Clinical Pathology
40. Aging
41. Immunology

Grant Reviewer

National Human Genome Research Institute (Special Emphasis Panel)	March 2023
National Institute of Aging (Special Emphasis Panel)	November 2022
National Institute of Aging (Special Emphasis Panel)	September 2022
National Cancer Institute (EDRN Review Panel)	February 2022
CTSI UMN K to R Review Panel	December 2021
National Institute of Aging (COVID Emphasis Panel)	November 2021
National Heart Lung Blood Institute (Special Emphasis Panel)	May 2021
A*MIDEX International Call proposal Grant Reviewer (France)	January 2019
Biomedical Research Awards for Interdisciplinary New Science	November 2018
Minnesota Colorectal Cancer Research Fund	November 2018
BIRCWH program Grant Reviewer	September 2017
California TRDRP Program	March 2017
National Human Genome Research Institute (CSER review)	February 2017
NIH (Special Emphasis Panel)	February 2017
Reviewer, Genome British Columbia, Canada	November 2016
Faculty Research Development Grants, UMN	August 2016
National Cancer Institute (Special Emphasis Panel)	October 2014, July 2016
National Cancer Institute (R03)	June 2016
National Institute of Aging (Special Emphasis Panel)	November 2015
Tyrolean Science Fund, Austria	August 2014
CTSI, University of Minnesota	March 2013/April 2014
National Science Center, Poland	November 2012

Consultant

Medical Director, Diversigen Inc. January 2020-present

March 16, 2023

National Institute of Aging (CALERIE study)	January 2018-December 2019
Consultant for NIPT testing	August 2017
Consultant for cancer testing	August 2016
MedACorp	January 2015

Invited Panelist/Session Moderator/Conference Organizer

Novel Biomarkers of Biological Age in the Health and Retirement Study: Session Moderator in the Gerontology Society of America Annual Meeting.	November 2019
Don't Think Twice, It's Alright! There are Many Roads to Sustainability: Invited Panelist in the Regional Meeting of the International Society for Biological and Environmental Repositories.	November 2019
Conference Organizer: Molecular Pathology and Genomics Symposium	October 2018
Session Moderator: World Congress of Molecular Pathology.	July 2016
Session Moderator: Diagnostics and biomarker identification for cancer and heart disease. 5 th Annual Biomedical Informatics and Computational Biology Symposium.	May 21, 2013
Session Moderator: Molecular Pathology Section. Academy of Clinical Laboratory Physicians and Scientists Annual Meeting	June 2012.

College of American Pathology (CAP) Inspector January 2009 - Present

I have been a team member of three CAP teams that inspected other clinical laboratories for CAP accreditation.

Service to the University/Medical School/Department

Departmental Committees

Bioinformatics Search Committee, Chair	2022-2023
Molecular Epidemiology Search Committee, Chair	2022-2023
Research Advisory Committee member	2019-2021
RAFT committee member	2016-2020
Molecular Pathologist Hire committee member	May 2016 – February 2017
Establishing a Division of Molecular Pathology	2017
Health Informatics Committee	2015-2016
Innovation Initiatives Development committee	2014-2015
Solid Tumor Cluster Hire committee member	2014