

**BIOGRAPHICAL SKETCH****NAME: MORGAN, Douglas Robert**

eRA COMMONS USER NAME: Douglas\_Morgan

POSITION TITLE: Associate Professor, Division of Gastroenterology, Vanderbilt University

**EDUCATION/TRAINING**

INSTITUTION AND LOCATION	DEGREE	Completion	FIELD OF STUDY
Case Western Reserve University, Cleveland OH	M.D.	1991	Medicine
University of California, Berkeley, California	M.P.H	1996	Epidemiology

**A. Personal Statement**

Dr. Morgan has a track record of academic research, education and service in gastroenterology, epidemiology, and global health. His central research interest is cancer epidemiology and prevention in Hispanic-Latino populations in Latin America and the U.S. The specific focus is gastric adenocarcinoma research in the core of low/middle income countries (LMICs) of northern Central America, labelled the Central America Four (CA-4: Honduras, Nicaragua, Guatemala, and El Salvador).

The principal location is the high incidence area of western Honduras (Copán), where systematic gastric cancer epidemiology, appropriate technology, and chemoprevention initiatives are in place. The epidemiology programs include the examination of host genetic factors, *H. pylori* virulence and microbiome dynamics, dietary contributors, and environmental factors with a population-based design and infrastructure. The research platform facilitates parallel initiatives in the building of cancer control capacity in the CA-4 region.

Dr. Morgan has demonstrated a longstanding commitment to global health in Central America populations via clinical translational investigations. He is well positioned as a returned Honduras Peace Corps engineer, with longstanding relationships with in-country collaborators, and with robust research infrastructures.

1. **Morgan DR**, Torres J, Sexton R, Herrero R, Salazar E, Greenberg ER, Bravo LE, Dominguez R, Ferreccio C, Lazcano EC, Meza MM, Peña EM, Peña R, Correa P, Martinez ME, Chey WD, Valdivieso M, Anderson GL, Goodman GE, Crowley, J, Baker LH. Risk of recurrent *Helicobacter pylori* infection one year after initial eradication therapy in seven Latin American communities. JAMA 2013; 309(6): 578-586. PMC3697935.
2. Greenberg ER, Anderson GL; **Morgan, DR**, Torres J, Chey WD, Bravo LE, Dominguez R, Ferreccio C, Herrero R, Lazcano EC, Meza MM, Peña R, Peña EM, Salazar E, Correa P, Martinez ME, Valdivieso M, Goodman GE, Crowley, J, Baker LH. A Randomised Trial of empiric 14-day Triple, five-day Concomitant, and ten-day Sequential Therapies for *Helicobacter pylori* in Seven Latin American Sites. Lancet. 2011 Aug 6; 378(9790):507-14. PMC3313469 NCT 01061437.
3. Tang W, **Morgan DR**, Meyers MO, Dominguez RL, Martinez E, Kakudo K, Kuan PF, Banet N, Muallem H, Woodward K, Speck O, Gulley ML. Epstein-Barr virus infected gastric adenocarcinoma expresses latent and lytic viral transcripts and has a distinct human gene expression profile. Infect Agent Cancer 2012; 7(1): 21. PMC3598565
4. Gully ML, **Morgan DR**. Molecular oncology testing in resource-limited settings. J Molec Diagnostics 2014; 16(6): 601-11. PMID 25242061 PMC4210462.

**B. Positions and Honors****Professional Memberships**

- 1996-present American Gastroenterological Association. (AGA).
- 2001-present American Society for Gastrointestinal Endoscopy. (ASGE).
- 2006-2009 International Committee, American Gastroenterological Association. (AGA)
- 2009-present American College of Gastroenterology. (ACG).
- 2009-present International Committee, American College of Gastroenterology.
- 2013-present Outreach Committee, World Endoscopy Organization.
- 2015-present Upper Gastrointestinal Cancer Committee, World Endoscopy Organization

## Positions and Employment

- 1991-1994 Internal Medicine Residency, University of California, San Francisco,  
1994-1996 Gastroenterology Fellowship. University of California, San Francisco.  
1996-2000 Clinical Associate Professor, University of North Carolina, Chapel Hill.  
Faculty, Internal Medicine, Wake Area Health Education Center (AHEC)  
2001-2008 Assistant Professor, University of North Carolina, Chapel Hill  
Division of Gastroenterology  
2008-2011 Associate Professor, University of North Carolina, Chapel Hill.  
Division of Gastroenterology and Hepatology, Department of Medicine  
Director, UNC Center for Latino Health (CELAH).  
Director, UNC Program in Nicaragua, UNC Institute for Global Health & Infectious Diseases  
Co-Director, UNC Office of International Activities, Latin America oversight.  
2011-present Associate Professor, Vanderbilt University.  
Division of Gastroenterology, Hepatology, and Nutrition, Department of Medicine  
Director for Latin America sites, Vanderbilt Institute for Global Health (VIGH).  
VICC Staff Investigator for Special Populations, Vanderbilt Ingram Cancer Center (VICC).

## Awards and Honors

- 1991 Alpha Omega Alpha Honor Medical Society, Case Western Reserve University SOM  
1991 Ivan E. Shalit Prize for Clinical Excellence, Case Western Reserve University SOM  
1992 Julius R. Krevans Award for Clinical Excellence, UCSF  
2004 Governor's Award for Excellence in Clinical Research, ACG National Meeting  
2006 ASGE Capsule Endoscopy Research Award, Digestive Disease Week  
2009 **Fellow, American College of Gastroenterology**  
2010 Diamante Award in Health & Science, for contributions to North Carolina Hispanics.  
Founding PI and Director, UNC Center for Latino Health (CELAH)  
2011 **Ohtli Award, Government of Mexico.** The highest honorary award from the Government of Mexico. Presented for the creation of the UNC Center for Latino Health (CELAH), and for innovation in health care in the service of North Carolina Hispanic-Latinos. Ohtli Award winners include Hilda Solis, Secretary of Labor, Bill Richardson, former New Mexico governor, and Arturo Rodriguez, President of the United Farm Workers  
2015 Vanderbilt Ingram Cancer Center (VICC) High Impact Research Award  
2015 **Honorary Professor of Medicine,** National Autonomous University of Nicaragua (UNAN-León)

## C. Contribution to Science

1) **The Western Honduras Gastric Cancer Initiative.** Dr. Morgan's central contribution to cancer epidemiology in Central America has been the creation of the Western Honduras (Copán) Gastric Cancer Initiative, with his counterpart, Dr. Ricardo Dominguez. These efforts are centered on clinical translational investigations in the rural LMIC setting of Central America. The platform is anchored by an ongoing population-based, case-control study of gastric cancer etiologic factors, including host genetics and responses, *H. pylori* genetics, the microbiome, nutrition, and environmental factors. The study is believed to be the largest of its kind in Latin America, with the enrollment of >2,000 subjects. The initiative has provided initial data to IARC (GLOBOCAN 2008, 2012), to position this region of Central America as having among the highest incidence rates in the western hemisphere. This initiative has served as the basis for CA-4 cancer control initiatives, including the creation of the Copán population-based cancer registry (PBCR), one of the first in the CA-4.

- a. Dominguez RL, Crockett SD, Lund JL, Suazo LP, Heidt P, Martin CM, **Morgan DR.** Gastric cancer incidence estimation in a resource limited nations: use of endoscopy database methodology. *Cancer Causes Control* 2013; 24(2): 233-9. PMC3815449.
- b. Chaturvedi R, Asim M, Piazuelo MB, Yan F, Barry DP, Sierra JC, Delgado AG, Hill S, Casero RA, Bravo LE, Dominguez RL, Correa P, Polk DB, Washington MK, Rose KL, Schey KL, **Morgan DR,** Peek RM, Wilson KT. Activation of EGFR and ERBB2 by *Helicobacter pylori* results in survival of gastric epithelial cells with DNA damage. *Gastroenterology* 2014; 146(7): 1739-51. PMC4035375.
- c. Tang W, **Morgan DR,** Meyers MO, Dominguez RL, Martinez E, Kakudo K, Kuan PF, Banet N, Muallem H, Woodward K, Speck O, Gulley ML. Epstein-Barr virus infected gastric adenocarcinoma expresses latent and lytic viral transcripts and has a distinct human gene expression profile. *Infect Agent Cancer* 2012; 7(1): 21. PMC3598565

- d. **Morgan DR**, Dominguez RL, Keku TO, Heidt PE, Martin CF, Galanko JA, Omofoye OA, Sandler RS. Gastric cancer and the high combination prevalence of host cytokine genotypes and *Helicobacter pylori* in Honduras. Clin Gastroenterol Hepatol 2006; 4:1103-1111. PMID 16820326

**2) Latin America gastric cancer epidemiology.** Dr. Morgan has made contributions to the epidemiology of gastric cancer in Latin America via extensive collaborations. With Vanderbilt colleague, Dr. Pelayo Correa, and collaborators, the “**altitude enigma**” of gastric cancer in Latin America has been outlined. It is defined by the high incidence and mortality in the mountainous regions of the Pacific littoral. The burden of disease above 800-1000 meters, is postulated to be the result of a clustering of risk factors such as host genotypes, *H. pylori* virulence, and environmental factors. In addition, he and collaborators performed a meta-analysis of the role of estrogen in the “gender enigma”, the consistent 2:1 male-to-female global incidence ratio in both high and low incidence regions.

- a. Torres J, Correa P, Ferreccio C, Hernandez G, Herrero R, Cavazzao M, Dominguez RL, **Morgan DR**. Gastric cancer incidence and mortality is associated with altitude in the mountainous regions of Pacific Latin America. Cancer Causes Control 2013; 24(2); 249-55. PMC3697934.
- b. Corral JE, Delgado Hurtado JJ, Domínguez RL, Valdez Cuéllar M, Balmore Cruz C, **Morgan DR**. The descriptive epidemiology of gastric cancer in Central America and comparison with United States Hispanic populations. J Gastrointest Cancer 2015; 46(1): 21-8. PMID 25412859
- c. Camargo MC, Goto Y, Zabaleta J, **Morgan DR**, Correa P, Rabkin CH. Sex hormones, hormonal interventions and gastric cancer risk: A Meta-Analysis. Cancer Epidemiol Biomarkers Prev 2012 Jan; 21(1):20-38. PMC3315355.
- d. Porras C, Nodora J, Sexton R, Ferreccio C, Jimenez S, Dominguez RL, Cook P, Anderson G, **Morgan DR**, Baker LH, Greenberg ER, Herrero R. Epidemiology of Helicobacter pylori infection in six Latin American countries. Cancer Causes Control 2013; 24(2): 209-15. PMC3645498.

**3) The role of EBV in gastric cancer.** Dr. Morgan has a longstanding interest in *H. pylori*-associated gastric adenocarcinoma and EBV co-infection, in collaboration with Drs. Gulley and Dominguez. The study by Tang, et. al., examined the role of EBV co-infections in gastric adenocarcinoma. This was the first study to combine human and EBV transcripts in a single microarray, to examine RNA expression. EBV co-infection was shown to account for 9% of incident adenocarcinomas, consistent with the international literature. Importantly, EBV+ gastric cancers were shown to have a unique human transcriptome, consistent with the subsequent Cancer Genome Atlas findings (TCGA, 2014). Honduras paraffin-embedded tissues accounted for the majority of study tissues, and were of high quality, and amenable to future appropriate technologies for LMICs.

- a. Tang W, **Morgan DR**, Meyers MO, Dominguez RL, Martinez E, Kakudo K, Kuan PF, Banet N, Muallem H, Woodward K, Speck O, Gulley ML. Epstein-Barr virus infected gastric adenocarcinoma expresses latent and lytic viral transcripts and has a distinct human gene expression profile. Infect Agent Cancer 2012; 7 (21): 1-15. PMC3598565.
- b. Speck O, Tang W, **Morgan DR**, Kuan PF, Meyers MO, Dominguez RL, Martinez E, Gulley ML. Three molecular subtypes of gastric adenocarcinoma have distinct histochemical features reflecting Epstein-Barr virus infection status and neuroendocrine differentiation. Appl Immunohistochem Mol Morphol 2014; PMID 25517873
- c. Camargo MC, Koriyama C, Matsuo K, Kim WH, Herrera-Goepfert R, Liao LM, the Eurgast-EPIC Group, Yu J, Carrasquilla G, Sung JJY, Alvarado-Cabrero I, Lissowska J, Meneses-Gonzalez F, Yatabe Y, Ding T, Hu N, Taylor PR, **Morgan DR**, Gulley ML, Torres J, Akiba S, Rabkin CS. Case-case comparison of smoking and alcohol risk associations with Epstein-Barr virus-positive gastric cancer. Int J Cancer 2014; 134(4): 948-53. PMC3961829
- d. Ryan JL, **Morgan DR**, Dominguez RL, Thorne LB, Elmore S, Mino-Kenudson, M, Lauwers GY, Booker JK, Gulley ML. High levels of Epstein-Barr Virus DNA in latently infected gastric adenocarcinoma. Laboratory Investigation 2009; 89: 80-90. PMC2612099.

**4) Global health GI research and education.** The Central America research platform has permitted global health initiatives in gastrointestinal and related diseases, as well as global health electives for trainees in the health sciences. Many of the studies have had a microbiome component, now an important research focus.

- a. Steiner BD, Carlough M, Dent G, Peña R, **Morgan DR**. International crises and global health electives: Lessons for faculty and institutions. *Academic Medicine* 2010; 85(10): 1560-63.
- b. Denslow SA, Edwards J, Horney J, Peña R, Wurzelmann D, **Morgan DR**. Improvements to water purification and sanitation infrastructure may reduce the diarrheal burden in a marginalized and flood prone population in remote Nicaragua. *BMC Int Health Hum Rights*. 2010;10:30, 1-7. PMC3016364.
- c. **Morgan DR**, Benschhoff M, Caceres M, Becker-Dreps S, Cortes L, Martin CF, Schmulson M, Peña R. Irritable bowel syndrome and gastrointestinal parasite infection in a developing nation environment. *Gastroenterol Res Pract*. 2012; 2012:343812. PMC3296149.
- d. Becker-Dreps S, Bucardo F, Vilchez S, Zambrana LE, Liu L, Weber DJ, Peña R, Barclay L, Vinjé J, Hudgens MG, Nordgren J, Svensson L, **Morgan DR**, Espinoza F, Paniagua M. Etiology of childhood diarrhea following rotavirus vaccine introduction: A prospective, population-based study in Nicaragua. *Pediatr Infect Dis* 2014; 33(11): 1156-63. PMID 24879131 PMC 4216626

**5) Innovation in endoscopy and molecular imaging.** As a former engineer, Dr. Morgan has pursued endoscopy and imaging innovation in three areas: technologies appropriate for LMIC endoscopy, U.S. collaborative studies in new methods in endoscopy, and molecular imaging. With colleagues in Gastroenterology and Engineering at Vanderbilt, a novel ultra-low cost endoscopy system (USD\$1-5) has been designed, with animal studies underway. This would permit gastric cancer screening in LMIC rural and remote areas, by analogy similar to rural cervical cancer screening. The work in molecular imaging was recently awarded a patent (Morgan DR, et. al. U. S. Patent. No. 8,900,133. Dec 02, 2014. "Capsule imaging devices systems and methods for in vivo imaging applications". [Molecular endoscopy for non-invasive GI imaging].)

- a. Caprara RJ, Obstein KL, Scozzarro G, Di Natali C, Beccani M, **Morgan DR**, Valdastris P. A platform for gastric cancer screening in low- and middle-income countries. *IEEE Trans Biomed Eng*. 2015; 62(5): 1324-32. PMID 25561586 PMC4406855.
- b. **Morgan DR**, Upchurch BR, Draganov PV, Binmoeller KF, Haluszka O, Jonnalagadda S, Okolo PI, Grimm IS, Juday J, Tokar J, Chiorean MV. Spiral Enteroscopy: Prospective multicenter U.S. study in patients with small bowel disorders. *Gastrointest Endosc*. 2010;72(5): 992-998. PMID20870226
- c. Zhang H, **Morgan DR**, Cecil G, Burkholder A, Ramecke N, Scull B, Lund PK. Biochromoendoscopy: Molecular imaging with capsule endoscopy for detection of adenomas of the gastrointestinal tract. *Gastrointest Endosc* 2008; 68:520-7. PMC2754293
- d. Ding S, Blue RE, Chen Y, Scull B, Lund PK, **Morgan DR**. Molecular imaging of gastric neoplasia with near infrared fluorescent (NIRF) activatable probes. *Molecular Imaging* 2013; 11(6): 507-15. PMC3689298.

**Complete List of Published Work in MyBibliography:**

<http://www.ncbi.nlm.nih.gov/sites/myncbi/douglas.morgan.1/bibliography/45096504/public/?sort=date&direction=ascending>

**D. Research Support**

**Ongoing Research Support**

5P01 CA028842-29 (Overall PI: Keith Wilson)  
NIH/NCI

07/01/2015 – 06/30/2020

Etiological Studies of Gastric Carcinoma.

Roles: Project Leader (PI) for Project 1 and Director for Core C.

Project 1: Epidemiology studies of gastric carcinogenesis.

Core C: Fieldwork core for the oversight of the sites in Central America and Colombia.

The Project 1 goal is to study the molecular epidemiology of host and bacterial genetics within the context of the co-evolution hypothesis in Central America and Colombia, integrated with studies of the microbiome (Project 2) and host response molecular signatures (Project 3).

1R01 CA190612 (Co-PIs, Morgan, Wilson) 09/18/2014 - 09/17/2019  
NIH/NCI  
Targeted chemoprevention of gastric carcinogenesis in high risk populations.  
Prospective clinical translational study of the efficacy and mechanisms of DFMO treatment in patients with premalignant gastric lesions in two high risk regions of Latin America (Honduras, Colombia).  
Co-PI Role: Oversight of the randomized clinical trial and field research.

NCI Center for Global Health (PAR-15-155) (PI, Morgan, Pietenpol) 09/01/2015 - 09/01/2017  
Central America LMIC initiative in cancer registration and pathology: Gastric cancer focus.  
• Investigation of the molecular subtypes of gastric adenocarcinoma, including HER2 and EBV.  
• Design and implementation of population-based cancer registries (PBCRs), Honduras & El Salvador.

NIH/NCI HHSN261201200032I (Limburg, Mayo Clinic) 09/01/2016 - 08/31/2018  
Division of Cancer Prevention, Cancer Prevention Network (CPN), Mayo Consortium.  
Role: Co-PI for study with Dr. Marcia Cruz-Correa, Puerto Rico Comprehensive Cancer Center.  
CPN Site Leader for Vanderbilt University (TN008).  
Study Title: Randomized, double-blind, placebo-controlled trial of Meriva® (curcumin) as a candidate chemoprevention agent for gastric carcinogenesis. (Phase IIa study in Honduras and Puerto Rico.)

5P30 CA068485-16 (PI, Pietenpol) 09/01/2015 - 08/30/2020  
NIH/NCI  
Vanderbilt Ingram Cancer Center (VICC), NCI Designated Cancer Center Grant  
Role: VICC Staff Investigator for Special Populations.  
Focus: Hispanic-Latino populations in Latin America and Tennessee.

### **Recent Completed Grant Support**

Bill & Melinda Gates Foundation #43930 07/01/2009 - 12/31/2011  
Latin American *H. pylori* and Gastric Cancer Consortium (PI, Lawrence Baker, SWOG)  
Randomized controlled trial of *H. pylori* eradication regimens, with gastric cancer biomarker collection, in high incidence areas of Latin America (Honduras, Nicaragua, Colombia, Mexico, Costa Rica, Chile).  
Role: Advisory Committee, Biomarker studies, oversight of collaboration sites (Honduras, Nicaragua).

R03 TW00800 (PI, Hogan) 02/01/2008 - 01/31/2013  
NIH/Fogarty International  
Kidney disease in Nicaragua: evaluating prevalence and risk factors. (Mesoamerican nephropathy).  
Role: Co-Investigator

K07 CA125588 (PI, Morgan) 09/01/2007 - 08/30/2013  
NIH/NCI Gastric cancer epidemiology initiative in Central America, western Honduras.  
Prospective population-based study of host genotypes, *H. pylori* virulence and diet.

5P30 CA068485-16 (PI, Pietenpol) 01/31/2013 - 08/30/2014  
NIH/NCI Pilot Project (Morgan)  
Vanderbilt-Ingram Cancer Center Translational Support Grant (CCSG T/C)  
Study: Modulation of *H. pylori* virulence by iron status in a high risk population in Honduras.  
Role: PI for this pilot study within the CCSG.

Cancer control capacity building supplement (PI, Morgan) 08/01/2014 – 10/01/2014  
Union for International Cancer Control (UICC)  
Supplement to the NCI Center for Global Health Cancer informatics network grant in Central America.

Pilot Collaborations with LMICs in Global Cancer Research 02/15/2014 - 09/27/2015  
NCI Center for Global Health (HHSN261200800001E) (PI, Morgan, Pietenpol)  
Study: Cancer bioinformatics network in the Central America LMICs (CA-4): Gastric cancer focus.  
• Cancer capacity building bioinformatics initiative in western Honduras, El Salvador, and the CA-4.  
• National retrospective gastric cancer incidence study in El Salvador.