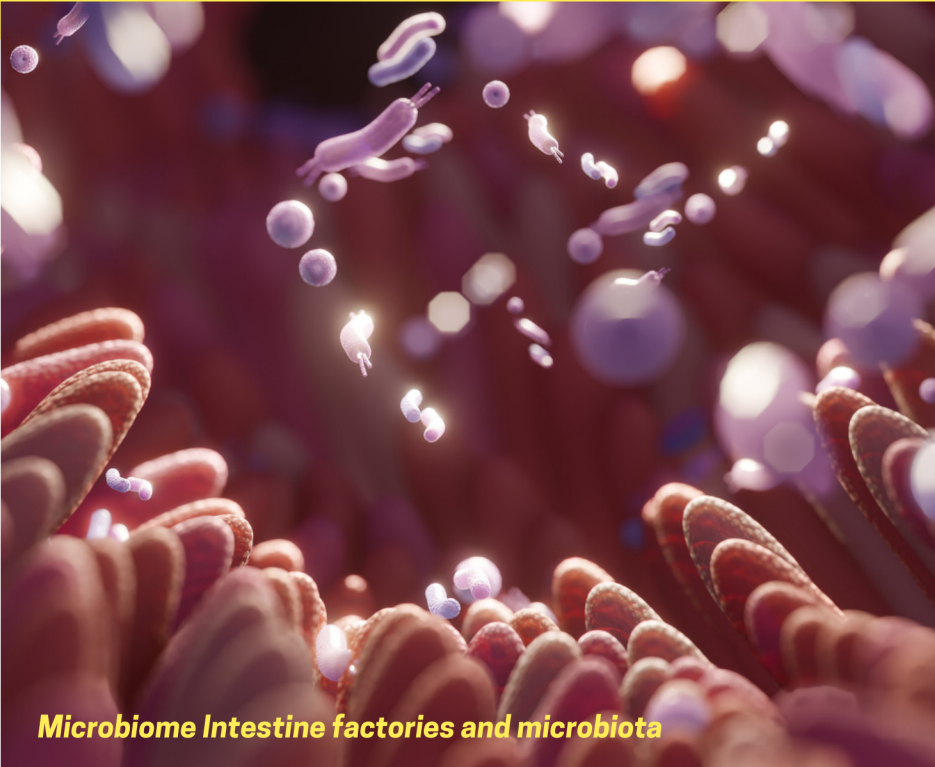


# RESEARCH QUARTERLY

Atlanta VAHCS Research & Development Service



*Microbiome Intestine factories and microbiota*

## MEET SHANTHI SRINIVASAN MD, AGAF

**Researcher**, Atlanta VA  
**R. Bruce Logue Chair** in Digestive Diseases  
**Professor of Medicine**, Emory University School of Medicine  
**Director**, Division of Digestive Diseases Department of Medicine, Emory University School of Medicine

## RESEARCH FOCUS

### How Diet And Gut Microbiome Affect Gastrointestinal Nerves Leading To Constipation And Abdominal Pain

*by Dr. Shanthi Srinivasan*

Thousands of Veterans suffer from gastrointestinal diseases such as irritable bowel syndrome, diabetes-related diarrhea, and constipation. These gastrointestinal symptoms impair the quality of life of Veterans. External factors such as stress and diet can lead to changes in the nervous system of the gastrointestinal tract, leading to these symptoms. Our research looks at the basic mechanism underlying these disorders to help find new therapies for the management of these conditions.

*Continued on page 2*



## RESEARCH FOCUS



**A man suffering painful stomachache caused by gastrointestinal disease**

The gastrointestinal tract has an internal nervous system called the enteric nervous system. My laboratory studies the various factors affecting the survival and growth of these nerves, including diet and microbiota. The proper functioning of these nerves is important for the movement of food and waste along the gastrointestinal tract. We study the role of various growth factors and signaling pathways in promoting the health of neurons.

Our studies are finding new mechanisms of enteric neuronal cell death. We recently discovered that enteric neurons could die due to a process called pyroptosis. In addition, we are finding that excess labile iron in neurons can lead to their degeneration. Over the years we have discovered that in humans and animal models of diabetes, there is loss of enteric neurons, and this leads to gastrointestinal issues like constipation. Our findings can find ways to prevent this neurodegeneration and also potential treatment target.

Our study used human samples, intestines from mice fed a Western diet or regular diet, and cultured enteric neurons to understand the mechanism of neuronal degeneration. We used special techniques to isolate intestinal neurons and study cell death mechanisms. We also use specialized microscopy to look at the intestinal neurons in sections of human and mouse tissues.

The neurons of the gastrointestinal tract can degenerate in diseases such as inflammatory bowel disease, obesity, and diabetes and can lead to gastrointestinal motility disorders. Pyroptosis is a novel form of programmed cell death, but little is known about its role in enteric neuronal degeneration. We observed pyroptosis, in intestinal neurons of overweight and obese human subjects compared with normal-weight subjects. Western diet-fed (WD-fed) mice exhibited increased intestinal neuronal pyroptosis, and delayed colonic transit leading to constipation. To understand the contributions of saturated fatty acids and bacterial products to the steps leading to enteric neurodegeneration, we performed in vitro experiments using mouse enteric neurons. LPS gained entry to the cytosol in the presence of palmitate leading to pyroptosis of a specific subset of neurons. These results support the role of the caspase-11-mediated pyroptotic pathway in WD-induced myenteric nitrergic neuronal degeneration and colonic dysmotility, providing important therapeutic targets for enteric neuropathy.

See page 3 for Dr. Srinivasan's profile.

Read published study *Caspase-11-mediated enteric neuronal pyroptosis underlies Western diet-induced colonic dysmotility* at <https://www.jci.org/articles/view/130176/pdf>



# RESEARCH FOCUS

## Q&A with Dr. Shanthi Srinivasan

### Why did you become interested in medicine?

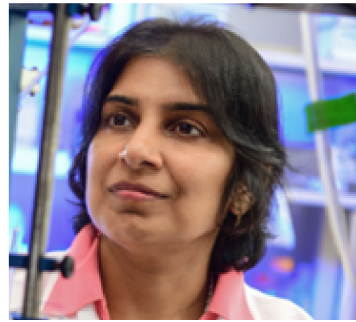
My mother who is a pediatric pulmonologist, inspired me to become a physician. Growing up, I loved science and helping people and I felt that Medicine is the perfect field that combines both.

### Why did you pursue gastrointestinal motility disorder research - particularly at the VA?

I trained at the University of Michigan and my mentor, Dr. John Wiley, had an interest in understanding the pathophysiology of gastrointestinal motility disorders. His primary appointment and research funding was from the VA and he was a role model for me. The VA offers physician-scientists the opportunity to perform patient care and funding to support research. For me, this has been a perfect model and has supported my career over the past 15 years.

### What is your advice to new researchers seeking VA funding?

For new researchers seeking funding, I would recommend asking questions that are relevant to Veteran health and clinical outcomes. Talking to the VA research office and senior VA research investigators can really help guide their experimental plan and the likelihood of funding.



## Profile on Dr. Shanthi Srinivasan

Dr. Srinivasan received her MD from Wayne State University's School of Medicine and completed her residency and digestive diseases fellowship at the University of Michigan. She continued her digestive diseases training at Washington University and served on the faculty. She joined the Emory School of Medicine faculty in 2003 and is currently the Division Director of Digestive Diseases.

Leveraging her interests in gastrointestinal motility disorders and neurotrophic regulation of hepatic steatosis, Dr. Srinivasan has built a robust research program at Emory and the Atlanta VA. She has received NIH and VA Merit Funding for her research focused on gastrointestinal neurobiology, changes in gut microbiota, and hepatic steatosis.

Dr. Srinivasan teaches gastrointestinal pathophysiology, gastrointestinal motility-related disorder, and the enteric nervous system to medical students including internal medicine residents, gastroenterology fellows, and graduate students. Dr. Srinivasan has served as the chief of gastroenterology at the Atlanta VA.

## SPOTLIGHT

### The Resolve to Eradicate HIV

#### Appointments (partial list)

**Professor of Medicine**, Emory University School of Medicine

**Atlanta Veterans Affairs Medical Center**

**Staff Physician**, Infectious Disease Clinic

**Research Staff**, Infectious Diseases

**Director**, Infectious Diseases Research Program

*Continued on page 4*



**Dr. Vincent Marconi**

# SPOTLIGHT

## The Resolve to Eradicate HIV: Advances & Unexpected Discoveries

At the Atlanta VA, Dr. Vincent Marconi focuses his research on two broad topical areas: age-related comorbidities for Veterans with HIV and strengthening the healthcare system for the approximately 31,000 Veterans with HIV currently in care. Marconi hopes that the vast body of information he and his team continue to document will contribute to finding a cure for HIV. “Whether you harness the immune system or eliminate the virus through other kinds of agents, we are actively exploring all approaches,” said Marconi. “And, from a health system strengthening perspective, we will continue to identify ways to make treatment and care better for the Veterans. They deserve to be treated with the utmost quality, attention, and sensitivity.”

One of team Marconi’s biggest breakthroughs in HIV age-related comorbidities occurred through the exploration of a new class of medications known as JAK inhibitors. Unlike older biologic drugs, JAK inhibitors work inside cells to reduce inflammation in autoimmune conditions like rheumatoid arthritis. “We tested ruxolitinib in a population of individuals



who had HIV – a study that was the first of its kind. It turns out ruxolitinib addresses a very singular pathway that is overly active in people with HIV. We found that we could reduce the inflammation that leads to aging,” said Marconi. With this finding, ruxolitinib has the potential to now treat a wider range of inflammatory conditions caused by psychosocial stressors in life or by infections.

Then, Marconi and his team made a significant serendipitous discovery. “We moved on to study a JAK inhibitor related to ruxolitinib called baricitinib and that became a really pivotal moment for us in terms of a breakthrough,” said Marconi.

Read more in the e-magazine FAVER FEATURES at: <https://faver.foundation/faver-features/>



**We found that we could reduce the inflammation that leads to aging**  
Dr. Vincent Marconi



# MSM INTERNS

The Atlanta VA Research Summer Program gives Morehouse School of Medicine (MSM) students up to 10 weeks of research experience under the direction of established scientists. Interns conduct laboratory-based, clinical, or translational research in Biomedical, Clinical, Rehabilitative, and/or Health Services.



## Yakia Clark

Yakia Clark, is a second-year medical student, interning in vascular surgery under the supervision of Drs. Olamide Alabi and Shayna Brathwaite. “This experience has been nothing short of amazing and informative,” said Clark who interviewed and interacted with study participants. Clark also rotated with different clinical specialties including anesthesia, ophthalmology, and gynecology. Her long-term goal is to become a physician-scientist.



## Jalen Norris

Jalen Norris graduated from Valdosta State University with a Bachelor of Science in Psychology. Prior to pursuing medicine, he was a metro-Atlanta EMT working at the height of the Covid-19 pandemic. Norris’ interest in research was sparked after participating in a study on the sensitization of earthworms. He now plans to do research throughout his medical career.

*Continued on page 6*

# MSM INTERNS

The Atlanta VA Research Summer Program is the vision of Dr. Olamide Alabi, M.D., vascular surgery specialist and clinical researcher at Atlanta VA. Alabi works closely with the Director of R&D Operations Ashley Scales, Ph.D., MPH, to make this program a reality.



## **Nancy Liu**

Atlanta native Nancy Liu, now a second-year medical student, graduated with a B.A. from Vanderbilt University. She is assisting Dr. Vincent Marconi and his team to further HIV research and care (read more about Marconi's research on page 4). Before medical school, she worked at the Centers for Disease Control and a free clinic for the uninsured. Liu is interested in public health, epidemiology, and health equity. She plans to combine clinical care with research as a physician.



## **Talaijha Haynes**

Talaijha Haynes is a Mississippi native, and second-year medical student interning with Dr. Hicham Drissi's orthopedic research lab. "Because of my interest in orthopedic surgery, this summer experience has been rewarding. Witnessing firsthand the hard work and dedication that goes into making advancements in the field of orthopedics has given me a deeper appreciation for the scientists and physician-scientists who make it all possible," said Haynes. She plans to become an orthopedic surgeon.

*Continued on page 7*



# MSM INTERNS



## **Stacia Jones**

Stacia Jones, a Kennesaw State University graduate with a B.S. in Psychology, successfully completed “Bridges to Biotechnology and Bioentrepreneurship,” MSM’s online program providing exposure and first-hand training in the biotechnology industry. Jones is now pursuing a Master of Science in Biotechnology – with a Medical Cannabis Therapeutics concentration. At Atlanta VA she is studying cancer research under Dr. Hadiyah-Nicole Green. Jones has long-term plans of obtaining her Ph.D. and becoming a cancer researcher.

## Researching Biomarkers To Diagnose And Treat Chronic Pain

Dr. Anna Woodbury, a Center for Visual and Neurocognitive Rehabilitation Investigator, focuses her research on using electroacupuncture and neuromodulation therapies to develop neuro-biomarkers to accurately diagnose chronic, widespread pain syndromes like fibromyalgia and Gulf War Syndrome.

Electroacupuncture involves running a low-voltage electrical current through acupuncture needles placed along the meridian (a path through which Qi or life energy flows). Neuromodulation is a technology that acts directly upon nerves to either inhibit pain signals or stimulate neural impulses. Neuromodulation devices are electrical, temperature-altering, or magnetic, and some are implanted into the body via surgery, “I generally am more interested in nonpharmacologic approaches altogether - things that are less likely to have side effects,” said Woodbury.

Currently, Woodbury is leading a Foundation for Atlanta Veterans Education and Research (FAVER) funded study to develop neuro-biomarkers for Gulf War Syndrome. She uses repetitive transcranial magnetic stimulation (rTMS) to target areas of the brain that study participants associate with pain. “We take a magnet that looks like a figure eight and we hold it over the area of your brain that is involved in pain. It’s non-invasive and very low risk,” said Woodbury.

An MRI is used to measure the effectiveness of electromagnetic stimulation. “We look at the kind of brain activity in different areas and which areas are lighting up together,” said Woodbury. Although the MRI results can be impacted by what a person is thinking to some extent, Woodbury’s team has made some interesting observations. According to Woodbury, “Chronic pain patients have different resting state functional connectivity on brain imaging compared to healthy individuals. And then if you treat their pain, you’ll see some appropriate changes that correlate with the pain treatment and reductions in pain.”

Read more in FAVER FEATURES at <https://faver.foundation/faver-features/>.



**The problem is there’s no laboratory test, no X-ray that shows that somebody has Gulf War Syndrome or fibromyalgia, so developing neuroimaging as a biomarker for pain diagnosis and also treatment response is helpful.**

### **Appointments**

**Investigator, CVNR**

**Associate Professor of Anesthesiology,**  
Emory University School of Medicine

**Associate Vice Chair for Research,** Emory  
Department of Anesthesiology

*CVNR develops novel, clinically-relevant rehabilitative approaches based on scientific discoveries that improve the health and quality of life of Veterans with visual or neurocognitive deficits.*





## POLICY NEWS

### Updated Credentialing Process Now in Effect

**Standard Operative Procedure** (SOP) defines the process of obtaining research credentials at the Atlanta VA for individuals engaged in approved research projects conducted on-site.

- A **Credentialing Information Form** is now required to initiate Research Credentialing and must be submitted by the Investigator and/or Surrogate (i.e., Lab Manager, Lead Coordinator, etc.).
- The **Research Scope Practice Form** is more in-depth to ensure the correct training and applicable project details are collected.
- A detailed **Checklist** is in the credentialing packet to ensure applicants complete the required steps.
- Only one **Official Clearance Email** will be sent to reduce confusion about when an applicant has cleared.
- **Research Credentialing** can take approximately 60-90 days to complete. Track at [https://vaww.gateway.research.va.gov/errrp/modules/user/user\\_credentiaing.cfmtc](https://vaww.gateway.research.va.gov/errrp/modules/user/user_credentiaing.cfmtc)
- **Email questions** to [AshelyScales@va.gov](mailto:AshelyScales@va.gov) or [TedraRicks@va.gov](mailto:TedraRicks@va.gov)

## RESEARCH QUARTERLY

### Editor

Dr. Ashley Scales  
Director of R&D Operations

### Content and Graphic Design

Hillary Rowe Wiley, FAVER Communications and Public Relations Manager

### Submissions

- Do you want to have your work featured in Research Quarterly?
- Does your department have new updates to share?

Contact:

**[Ashley.Scales@va.gov](mailto:Ashley.Scales@va.gov)**  
**[Tedra.Ricks@va.gov](mailto:Tedra.Ricks@va.gov)**

# Research Day 2023 Recap



Anant Madabhushi



Camile Vaughan



Shanthy Srinivasan



Katie Bales and Mohleen Kang



Cooperative Studies Program Researcher Coordinators



# Research Day Awardees



Michael Hart with Investigator of the Year Anant Madabhushi



Keynote Speaker Judith Ford with Michael Hart



Research Lab Manager of the Year Kevin Mammino with Research Administrator of the Year Erica Watkins



Standing room only - 150 guests attended Research Day 2023



Ashley Scales and Research Coordinator of the Year Juton Winston



Foundation for Atlanta *Veterans* Education and Research

## NEW STAFF

During the second quarter of 2023, FAVER welcomed the following new employees:

**Temi Olumakin**

**Fareha Hussain**

**Elena Morales**

**Drew Nash**

**Kevin Dong**

## FUNDING RESOURCES

- FAVER extramural funding resource for PIs is located at <https://faver.foundation/pi-resources/funding-opportunities/>.
- This page also provides links to non-VA-funded grant opportunities.
- To submit an application/proposal through FAVER, please contact Marcia Weese, [marcia.weese@va.gov](mailto:marcia.weese@va.gov) or 404.321.6111 ext. 127897.

## REMINDERS

In addition to our new e-magazine, FAVER FEATURES (see page 12), research projects are also displayed at <https://faver.foundation/latest-news/featured-projects/> and the archives are at <https://faver.foundation/latest-news/previously-featured-projects/>.

*FAVER serves Georgia's Veterans by enabling and supporting partnerships in research and education between the Atlanta VA, academic institutions, government research organizations, and private companies.*



**Leslie Hughes, Executive Director**

[hughes@faver.foundation](mailto:hughes@faver.foundation)

404.321.6111 ext. 122535

## ANNIVERSARIES

Thank you to all FAVER employees for your contributions and dedication to the VA/FAVER research and education missions. And congratulations to employees who celebrated anniversaries during the second quarter of 2023:

**Lisa Lefebvre** (24 years)

**Colleen Oliver** (23 years)

**Christopher Simmons** (17 years)

**Marcia Weese** (15 Years)

**Lewis Perry** (14 years)

**Maxine Maher-Albertelli** (12 Years)

**Julie Costello** (7 Years)

**Taressa Sergent** (7 Years)

**Johanna Boers** (5 Years)

**Risha Patel** (4 Years)

**Erica Taylor** (4 Years)

**Elizabeth Tibus** (4 Years)

**Leyla Karimzadeh** (2 Years)

**Radhika Mungara** (2 Years)



# READ YOUR RESEARCH STORIES IN FAVER FEATURES

**A NEW DISCOVERY**

"We found that we could reduce the inflammation that leads to (HIV-related) aging."

Dr. Vincent Marconi  
Atlanta VA Researcher

The Resolve to Eradicate HIV: Advances & Unexpected Discoveries  
July edition of  
**FAVER FEATURES**

HIV INFECTED CELLS

Brand New! July 2023 edition



Researching Biomarkers to Accurately and Effectively Diagnose and Treat Chronic Pain

**Dr. Anna Woodbury**

"The problem is there's no laboratory test, no X-ray that shows that somebody has Gulf War Syndrome or fibromyalgia, so developing neuroimaging as a biomarker for pain diagnosis and also treatment response is helpful."

June edition of  
**FAVER FEATURES**

June 2023 edition

May edition of  
**FAVER FEATURES**

Meet Dr. Jeanie Park, a Nephrologist determined to reduce early death and cardiovascular risk in Veterans.

"We had the capability to use gold-standard rigorous techniques to look at risk factors for developing hypertension and cardiovascular disease in PTSD (post-traumatic stress disorder) that had not previously been examined."  
Dr. Park

May 2023 edition

**FAVER FEATURES**

**On a mission to save limbs**

"I felt I had to come down to the South because amputation rates are higher and I thought I could help all these patients and put a dent in that number," said Alabi.

Studies consistently show that Southern states rank among the worst in the U.S. for health and wellness outcomes.

**BRAND NEW E-MAGAZINE**  
March 2023

**Dr. Olamide Alabi, M.D.**  
Vascular Surgery Specialist  
Clinical Researcher,  
Atlanta-VA Health Care System

First edition: April 2023

<https://faver.foundation/faver-features/>