

Baylor
College of
Medicine

Pedi Press



A Quarterly Publication of the Department of Pediatrics
Baylor College of Medicine

Vol. 9, Issue 4, Part II

Fall 2020



PART II

DEPARTMENT NEWS: FACULTY, FELLOWS, RESIDENTS & STAFF FEATURES

"Dr. Appachi Gives Update on Faculty at CHofSA"	3
"Dr. Peter Hotez Interviewed for Texas Optimism Project"	4
"In Memoriam" (Dr. Diane Anderson)	5
"Dr. Zoghbi Named Citation Laureate"	5
"Dr. Taylor Recognized by PIDS for Antimicrobial Research"	5
Academic Promotions & Awards Announced	6
2019-2020 Department of Pediatrics Annual Education Awards	6
Research Mentor Awards 2020-2021	7
2020 Young Investigator Awards	7
Educational Scholarship Achievements Recognized	8
2020 Pediatrics Educational Retreat / Scholarship	8
2020 BCM Showcase of Educational Scholarship	8
Department Well Represented for Norton Rose Fulbright Awards	9
Research Mentor Awards for 2020-2021 Announced	9
faculty briefs . . .	10
BCM Announces Pediatric Resident Fellowship Matches	13

DEPARTMENT NEWS: RESEARCH

"Clinical Trials for Vaccine Begin in India"	14
"Candidate Vaccine Produced by BMC Collaboration Begins Trials in India"	15
"Study Reveals Likely Cause of Meosamerican Nephropathy"	16
"Grant Provides for Research on Sarcomas to Continue"	18
"Unusual Case of Reversed T1D Reported"	18
"Study Indicates CAR NKT Cells Offer Possibility as Immunotherapy for Solid Tumors"	19
"Review Reveals Ways to Address Burkitt Lymphoma"	21
"Grant Funds Development of Lyme Disease Vaccine"	22

"END WITH GOOD STUFF" 23



DEPARTMENT NEWS

FACULTY, FELLOWS, RESIDENTS, & STAFF

Dr. Appachi Gives Update on Faculty at CHofSA



Dr. Elumalai Appachi, Professor and Chair of Pediatrics at Children's Hospital of San Antonio (CHofSA) announced that the physician faculty had reached 80 and the APP faculty was 30. He also announced the following faculty appointments:

Leadership Changes:

Franca Iorember, MD, MPH, Section Chief, Nephrology

Melissa Svoboda, MD, Section Chief Neurology

Dr. Ruchi Kaushik, MD, MPH, Associate Program Director

Dr. Jonathan Crews, MD, Interim Section Chief Infectious Diseases

Appointments to Professor:

Dr. Samiya Razzaq

Dr. Monisha Gupta

Dr. Peter Hotez Interviewed for Texas Optimism Project

In an article for the Texas Optimism Project (TOP), **Dr. Peter Hotez**, Professor and Dean of the National School of Tropical Medicine (BCM) and Co-Director of Texas Children's Center for Vaccine Development, shared his thoughts on how optimism and resilience have served him well in his important advocacy for vaccine diplomacy, often in the face of opposition and resistance. TOP, a sponsored partnership between *Texas Monthly* and Frost Bank's Opt for Optimism initiative, aims to explore optimism through storytelling. Since June 2018, it has interviewed leaders in Texas about the power of perspective and archived the stories online. Dr. Hotez was interviewed recently, and we herein offer some of the main points.

Having aspired to be a scientist most of his life, with an aim to advance science towards humanitarian goals, Dr. Hotez began working 40 years ago while he was an MD-PhD student at Rockefeller University and Cornell to develop vaccines for poverty-related neglected diseases. While pursuing that course, he also has worked to raise awareness about the widespread nature of neglected infections associated with poverty and to combat the rising anti-vaccine movements that have taken hold in Texas and the nation.

He explained that, although his priority was always developing new vaccines for diseases associated with poverty, he realized that he needed to become a pediatrician in order to know how vaccines could have optimal impact on vulnerable populations. His commitment to healthcare and social justice were "cemented" when he first visited Central America in the early 1990s and saw first-hand children with severe malnutrition, worms, Chagas disease, and other neglected infections. The situation was a water-shed moment, as he realized that the battle against global suffering had to extend beyond his laboratory and into the public arena, where he could advocate for social justice.

A major step toward that goal was becoming chair of microbiology at George Washington University, which afforded him a "unique opportunity . . . to influence policy makers in D.C. and led to [his] first big initiative in global health working with the U.S. Congress and Bush White House to introduce legislation and appropriations for neglected tropical diseases."

When asked if he ever felt like giving up, Dr. Hotez said that there were times when he struggled to influence policy makers and to get buy-in among elected leaders, which continue to be ongoing challenges, but he's never felt like giving up. One of

the major challenges he's faced, often alone, is the harassment he's experienced from combating the anti-vaccine and anti-science movements across the nation. He shared that his biggest supporters have been the NIAID NIH, the Gates Foundation, and the Kleberg Foundation. He expressed special gratitude to Dr. Paul Klotman, President of BCM,



Mr. Mark Wallace, CEO of TCH, Dr. Maria Elena Bottazzi, his science partner for the past 20 years, Tito's Vodka, JPB Foundation, Steve Papermaster and his family, the Southwest Electronic Energy Medical Research Foundation, and, especially, the unwavering support of his wife of 33 years, Ann.

With regard to the role optimism has played in his life and career, Dr. Hotez said that "next to resilience, I believe the most important predictor of success is having an optimistic outlook, followed by passion and commitment. Of course, all of these things reinforce one another. But that combination of resilience, optimism, and passion represent a true formula for success. They're also essential features for weathering difficult times. . . [and] in finding a meaningful goal and taking simple pleasure in the incremental steps it takes to get there. Take pleasure in the journey!"

The entire interview may be viewed at <https://paid.texasmonthly.com/texas-optimism-project/optimism-works-resilience-optimism-and-passion-represent-a-true-formula-for-success/>.

In Memoriam

Diane Anderson, PhD, RD, LD, passed away after courageously navigating a lengthy illness. Dr. Anderson was a beloved member of the Section of Neonatology for 20 years and true pioneer in the field of neonatal nutrition. She received her undergraduate degree at Bowling Green State University and her Master's and Doctorate of Philosophy from Case Western Reserve University. She then went to work for the Medical University of South Carolina. She came to Baylor College of Medicine/Texas Children's Hospital as an Associate Professor in 2000. Dr. Anderson was one of the first neonatal dietitians in the United States and the only person to hold a Maternal Child Health training grant for neonatal dietitians for over 20 consecutive years. She helped train more than 1000 dietitians; authored countless publications and textbook chapters; and organized a national Neonatal Nutrition Conference attended by hundreds each year. Her impact on the health of neonates is immeasurable. Dr. Anderson was a truly a special person who treated everyone with kindness and touched the lives of many. She will be greatly missed.

Dr. Zoghbi Named Citation Laureate



Dr. Huda Zoghbi, Professor and Director of the Jan and Dan Duncan Neurological Institute at TCH and Howard Hughes Medical Institute investigator at BCM, was named a Citation Laureate for 2020 by Clarivate Web of Science. The award recognizes world-class researchers with work being among the most frequently cited in journal publications (typically in the top 0.01 percent of researchers cited most frequently). It also describes the critical contributions each researcher has made and demonstrates how their research influences the field of medicine. Dr. Zoghbi was recognized for her discoveries on the pathogenesis of neurological disorders, including identifying the genetic mutation that causes Rett Syndrome. The discovery led to a straightforward diagnostic genetic test that allows early and accurate diagnosis of the syndrome. It also demonstrated that mutations in *MECP2* can cause numerous other neuropsychiatric features ranging from autism to juvenile onset of schizophrenia and provided evidence that an autism spectrum disorder or an intellectual disability disorder can be genetic even if not inherited. Her work further revealed the sensitivity of the brain to levels of *MECP2*, including that duplication causes progressive neurological deficits. The disorder now is recognized as *MECP2* duplication syndrome

Dr. Taylor Recognized by PIDS for Antimicrobial Research



Dr. Margaret "Maggie" Taylor, Fellow, was one of three candidates awarded the Pediatric Infectious Disease Society (PIDS) Antimicrobial Stewardship Fellowship Award in 2020. Under the mentorship of **Dr. Deb Palazzi**, Dr. Taylor is conducting a dual-center study with Dr. Torsten Joerger (Fellow at Children's Hospital of Philadelphia and mentored by Dr. Jeff Gerber). The award is presented annually to fellows pursuing research in antimicrobial stewardship. The awardees will present their research findings at the annual Pediatric Antimicrobial Stewardship Conference to be held in St. Louis in June 2021. Dr. Taylor and Joerger will conduct a review of penicillin allergy labels in children seen in more than 80 clinics in Houston and Philadelphia, a relatively unstudied field as a primary stewardship intervention, despite recommendations by the Infectious Disease Society of America that all beta-lactam allergy labels be assessed. The two physicians will examine the prevalence, mechanism, and quality of penicillin allergy labels, and they will explore outcomes of children identified as penicillin-allergic with children having no allergy labels. Their results should help inform programs on the most strategic ways to review and address allergy mislabeling in the community.

Academic Promotions & Awards Announced



During the last quarter of 2020, the following academic promotions were announced:

Distinguished Emeritus Professor
Dr. Donald H. Mahoney (Heme-Onc)

Professor
Dr. Teresa K Duryea (AGP)
Dr. Ewa Elenberg (Renal)
Dr. Tim Lotze (Neuro)
Dr. Athar M. Qureshi (Card)
Dr. Paul Sirbaugh (PEM and CMO) Dr.
Monesha Gupta (CHofSA, Card) Dr.
Samiya Razzaq (CHofSA, AGP) Dr.
Richard Wayne (CHofSA)

Associate Professor
Dr. Binal S. Kancherla (Pulm)
Dr. Job Lopez (Trop Med)
Dr. Mathew K. Pesek (CCM)
Dr. Christopher Rhea (Neo)

2019-2020 Department of Pediatrics Annual Education Awards



Excellence for Grand Rounds - TCH
Andrea Tania Cruz, MD, MPH

Excellence for Grand Rounds - CHofSA
Ruchi Kaushik, MD, MPH

Excellence in Teaching
Sanjiv Harpavat, MD, PhD

Excellence in Educational Innovation
Audrea Burns, PhD

**Arnold J. Rudolph
Lifetime Excellence in Teaching**
Antonio R. Mott, MD

**Excellence in Teaching
by a Non-Pediatric Faculty Member**
M. Tyson Pillow, MD, MEd

**Center for Research, Innovation and
Scholarship (CRIS) Outstanding Fellow
Teaching Award**
Linessa Zuniga, MD, MEd

**Core Clerkship Community
Preceptor Award for 2020**
Anthony Gardea, MD, MPH (CHofSA - AGP)
Anna Rueda, MD (AGP)

Research Mentor



Professor

Connie M. Wiemann, PhD (Adol)

Associate Professor

Lisa S. Kahalley, PhD (Psych)
Teresa M. O'Connor, MD, MPH (Nutri)

Assistant Professor

Jennifer H. Foster, MD, MPH (Heme-Onc)
Rayne H. Rouse, MD (Heme-Onc)
Sowdhamini "Mini" Wallace, DO, MS (PHM)

2020 Young Investigator Awards



Alexis Wood, PhD



Lisa Forbes Satter, MD



Rachel Rau, MD



Job Lopez, PhD



Jayna Dave, PhD



Meenakshi Hegde, MD



Qi Wu, PhD



Andrew DiNardo, MD

Educational Scholarship Achievements Recognized



2020 Pediatrics Educational Retreat Outstanding Educational Scholarship

“The Virtual Deliberate Practice Module for Procedural Skills Training”

Benjamin J, Flores S, Jain P, Thammasitboon S

“Impact of a Teaching Service on Patient Outcomes and Costs at a Community Hospital”

Dean A, Halvorson E, Ban K, Russell G, Vachani J, Singhal G, Darby J

**“Creating an Educational Program for Renal Replacement Therapy
for Pediatric Critical Care Fellows**

Using a Hybrid of Gamification and Team-Based Learning”

Dolan K, Arikan A, Mottes T, Thammasitboon S

“Effectiveness of Case-Based Curriculum in Pediatric Residents Education”

Al-Gadi I, Sisley S

**“Understanding the Dynamic Between Senior Residents and Fellows
on Pediatric Hospital Medicine Teams:**

A Qualitative Study”

Barak G, Dean A, Haq H, Singhal G

2020 BCM Showcase of Educational Scholarship

Faculty Winners

“An Online Course to Optimize UC Provider

Antimicrobial Use for Pediatric Upper Respiratory Infections”

Cameron L, Thammasitboon S, Kumar K, Yen T, Ostrosky L, Palazzi D

“Impact of a Teaching Service on Patient Outcomes and Costs at a Community Hospital”

Singhal G, Halvorson E, Ban K, Russell G, Vachani J, Darby J

Trainee Winners

**“Understanding the Dynamic Between Senior Residents and Fellows
on Pediatric Hospital Medicine Teams:**

A Qualitative Study”

Barak G, Dean A, Haq H, Singhal G

“More than Milestones - The Data Residents Want Versus What They Get”

Yarahuan J, Lo H-y, Bass L, Siller A, Hess L

CONGRATULATIONS

Department Well Represented for Norton Rose Fulbright Awards

The Norton Rose Fulbright Faculty Excellence Award (formerly the Fulbright & Jaworski LLP Faculty Excellence Award) is a criterion-based program that recognizes faculty contributions in four categories: Teaching and Evaluation, Development of Enduring Educational Materials, Educational Leadership and Educational Research. During the last quarter of 2020, numerous members of the Department's faculty received one of the awards. They are listed below.

Teaching and Evaluation

Dr. Gladstone Airewele (HO)
Dr. Leandra Berry (Psych)
Dr. Julie Boom (AGP)
Dr. Julienne Brackett (HO)
Dr. Shailendra Das (Pulm)
Dr. Andrea Dean (PHM)
Dr. Daniela Dinu (Neo)
Dr. Peter Ermis (Card)
Dr. Joud Hajjar (IAR)
Dr. Sonny Harpavat (GI)
Dr. Laura Hess (PHM)
Dr. Parag Jain (CCM)
Dr. Ruchi Kaushik (Chof SA-AGP)
Dr. Susan Kirk (HO)
Dr. Javier Lasa (CCM)
Dr. Kim Little-Wienert (PEM)
Dr. Pablo Lohmann (Neo)
Dr. Keila Lopez (Card)
Dr. Stephanie Marton (AGP)
Dr. Jennifer Mauney (CCM)
Dr. Megan McClure (PHM)
Dr. Julie McManemy (PEM)
Dr. Sonia Monteiro (Beh-Dev)
Dr. Diane Nguyen (BIPAI)
Dr. Athar Qureshi (Card)
Dr. Alan Riley (Card)
Dr. Sarah Risen (Neuro)
Dr. Poyyapakam Srivaths (Renal)
Dr. Alexandra Stevens (Heme-Onc)
Dr. Nathan Sundgren (Neo)

Development of Enduring Educational Materials

Dr. Aikaterini Anagnostou (IAR)
Dr. Bruno Chumpitazi (GI)
Dr. Nader Kim El-Mallawany (Heme-Onc)
Dr. Charleta Guillory (Neo)
Dr. Joshua Kailin (Card)
Dr. Daniel Leung (GI)
Dr. Jonathan "Chase" McNeil (ID)
Dr. Sanghamitra "Mitra" Misra (AGP)
Dr. Shaban Yusuf (PEM)

Educational Leadership

Dr. Audrea Burns (IAR)
Dr. Nana Coleman (CCM)
Dr. YoungNa Kim (Heme-Onc)
Dr. Janelle Little (Neo)
Dr. Joseph Lubega (Heme-Onc)
Dr. Mariella Self (Psych)
Dr. Jenilea Thomas (CCM)
Dr. Joyee Vachani (PHM)

Educational Research

Dr. Lemke (PEM)

Professor

Dr. Jeffery Kim (Card)

Research Mentor Awards for 2020-2021 Announced

Professor

Connie M. Wiemann, PhD (Adol)

Associate Professor

Lisa S. Kahalley, PhD (Psych)
Teresia M. O'Connor, MD, MPH (Nutri)

Assistant Professor

Jennifer H. Foster, MD, MPH (Heme-Onc)
Rayne H. Rouse, MD (heme-Onc)
Sowdhamini "Mini" Wallace, DO, MS (PHM)

faculty briefs...

Dr. Nancy Ayers, Asst. Professor, received the Maria Serratto Master Educator Award from the AAP Section on Cardiology and Cardiac Surgery.

Rhahim Bank, Global HOPE Malawi nurse, presented the Palliative Care Program virtually for 52nd Congress of The International Society of Paediatrics Oncology.

Dr. Aarti Bavare, Asst. Professor, received Baylor College of Medicine Star Awards for Excellence in Patient Care.

Dr. M. Brooke Bernhardt, Asst. Professor, will serve on the BCM Environmental Safety Committee, overseeing research using hazardous agents.

Dr. Maria Elena Bottazzi, Professor and Associate Dean of the National School of Tropical Medicine
-- was named one of the 100 Most Powerful Women of 2020 by Forbes Centroamérica. She's spotlighted in the August edition for her career in vaccine development and her work on a COVID-19 vaccine.
-- and her team received an \$860,000 grant from the Department of Defense to develop a recombinant protein vaccine for Lyme disease, the most common vector-borne disease in the general U.S. population and the U.S. military.

Nancy Correa, MPH, Senior Coordinator, received the Texas Pediatric Society Distinguished Service Award, which recognizes a non-member pediatrician, non-pediatric physician, allied health care provider or layperson who has done beyond the norm in expressing their dedication and love of children.

Dr. Jorge Coss-Bu, Professor, received the Presidential Citation from Society of Critical Care Medicine for contributions to the field of Critical Care.

Dr. Teresa A. Davis, Professor

-- received the ASAS Morrison Award for Lifetime Achievement in Research (first woman to receive it).
-- was inducted as a Fellow of the American Society of Animal Science (ASAS).
-- serves on the USDA/HHA 2020 Dietary Guidelines Advisory Committee, the basis for the 2020-2025 Dietary Guidelines for Americans.

Dr. Daniel DeSalvo, Asst. Professor, and his diabetes quality improvement team were honored with the 2020 T1D Exchange Award for Outstanding QI Team. The award recognizes their contributions to multiple publications, presentations, QI projects and data benchmarking and their sharing of resources with the other 24 centers in the QI Collaborative.

Dr. Sophia Ebenezer, Asst. Professor, is part of a team that reversed insulin dependence in a patient with type 1 diabetes. The patient has not needed insulin for almost two years. The case is described in a letter to the NEJM.

Dr. Jenny Erklauer, Asst. Professor and Medical Director of Neurocritical Care, received the Baylor College of Medicine Early Career Award for Excellence in Patient Care.

Dr. Nick Ettinger, Asst. Professor, received the Presidential Citation from Society of Critical Care Medicine for contributions to the field of Critical Care.

Dr. Lisa Forbes, Asst. Professor, is part of a team that reversed insulin dependence in a patient with type 1 diabetes. The patient has not needed insulin for almost two years. The case is described in a letter to the NEJM.

Dr. Karla Fredricks, Asst. Professor and PIRCH Director, was selected as Co-Chair of the Publications committee of the American Academy of Pediatrics Council on Immigrant Child and Family Health.

Dr. Monica Gramatges, Assoc. Professor and Co-director of the Long-Term Survivor Program at TCH, received the ASPHO 2021 Northwestern Mutual Award for Excellence in Childhood Cancer Survivorship. The award recognizes an early or mid-career investigator who has demonstrated commitment to survivorship research and project funding.

Dr. Charleta Guillory, Assoc. Professor

- appointed to the American Academy of Pediatrics (AAP) Committee on Fetus and Newborn
- serves on the AAP/CDC committee that is developing disaster plans for neonatologists
- is President-Elect for 2020 and President for 2021 of the Texas Pediatric Society

Dr. Heather Haq, Asst. Professor, is collaborating with a study team that has launched a virtual global health initiative survey to understand dynamics of global health partnerships during COVID-19. The goal of this survey is to better understand existing global health partnerships; their preferences for virtual activities during the COVID-19 pandemic; the potential barriers to those activities; and what factors may increase their chances for success.

Dr. Peter Hotez, Professor and Dean of the National School of Tropical Medicine

- was named by Inside Texas Politics in its annual Turkey Awards, which celebrate each year the great and not-so-great leaders throughout the year. Those who have excelled through adversity receive a turkey leg, and those who have been the best they could get the gizzard. Dr. Hotez received a turkey leg for "telling the truth throughout the year even as [he has] been told to be quiet. If we listened to our doctors more, we'd be better off."
- gave a total of 683 TV and Radio interviews concerning COVID-19 in 2020
- published 28 articles on COVID -19 in 2020
- published two books (see *Pedi Press* Volume 1, page 26)
- wrote 10 op eds

Dr. Catherine Joseph, Asst. Professor, will serve on the Institutional Policy Committee, where she will opine on new and existing College policies.

Dr. Alexander W. Kay, Asst. Professor, presented at the 22nd Virtual BIPAI Network Meeting on Global TB current activities, including the National Institutes of Health and Department of Defense TB stool diagnostics project and the most recently Centers for Disease Control (CDC) Funded Project "TB GAPS."

Dr. Katherine King, Assoc. Professor, received an Emerging Investigator Award from the National Heart, Lung and Blood Institute of the NIH. The grant of \$600,000 per year for seven years will support her project, "Impact of Infection and Inflammation on Primitive Hematopoiesis."

Dr. Susan Kirk, Asst. Professor, is the 2020 recipient of the Carl E. Visionary Leadership Award. Named for the longtime director of the Physician Assistant Program at Baylor, the award recognizes excellence by a physician assistant in education, research, clinical practice and service.

Dr. Emily Krennerich, Asst. Professor, was elected to serve as a member of the Executive Committee for AAP Section on Transport Medicine.

Dr. Ruchi Kaushik, Asst. Professor, received the Texas Pediatric Society Early Career Physician Award.

Dr. Michelle Lopez, Asst. Professor, was selected to represent PHM in the Association of Pediatric Program Directors Subspecialty Pediatrics Investigator Network.

Dr. Tim Lotze, Professor, was named President of the American Academy of Pediatrics Section on Neurology

Dr. Anna Maria Mandalakas, Professor, presented at the 22nd Virtual BIPAI Network Meeting on Global TB current activities, including the National Institutes of Health and Department of Defense TB stool diagnostics project and the most recently Centers for Disease Control (CDC) Funded Project "TB GAPS."

Dr. Trung C. Nguyen, Assoc. Professor, received The University of Pittsburgh Department of Critical Care Medicine Distinguished Alumni Award 2020-2021.

Dr. Regina Okhuysen-Cawley, Assoc. Professor

- was admitted as a Fellow of the American College of Critical Care Medicine.
- received the Presidential Citation from Society of Critical Care Medicine for contributions to field of Critical Care.

Dr. Mohan Pammi, Assoc. Professor, was elected to the American Pediatrics Society.

Dr. Muralidhar Premkumar, Asst. Professor, was named Co-Director for the Intestinal Rehabilitation Program.

Dr. Rayne Rouce, Asst. Professor, won the National Cancer 2020 Cancer Clinical Investigator Team Leadership Award. It recognizes outstanding investigators who participate extensively in NCI-funded clinical trials and whose leadership and activities promote a culture of collaborative clinical research.

Dr. Nicole Schneider, Asst. Professor, received the 2020 Young Investigator Award from the International Society of Paediatric Oncology.

Dr. Lara Shekerdeman, Professor and Vice Chair of Clinical Affairs

-- gave numerous media appearances and newspaper interviews including ABC news, NBC news, USA Today and the *New York Times* among others.

-- participated in webinars totaling more than 1900 attendees.

-- authored article in JAMA Pediatrics that was one of the top 5% of articles.

Dr. Rohit Shenoi, Professor, received the AAP Unsung Hero Award from the Committee on Ingestions, Violence and Poisoning Prevention.

Dr. Geeta Singhal, Professor, received the J. David Holcomb, Ed.D., Achievement Award for 2020 for her steadfast support and inclusion of health professions faculty and programs over many years in Faculty Development efforts, the Norton Rose Fulbright process, and advocacy at TCH and BCM.

Dr. M. Hossein Tchamtchi, Assoc. Professor, was appointed to serve as a member of the American College of Critical Care Medicine Credentials Committee. He will serve a two-year term starting in January 2021 on the committee, which is charged with reviewing and analyzing ACCM fellowship applications.

Dr. Sebastian Tume, Asst. Professor, received Baylor College of Medicine Star Awards for Excellence in Patient Care.

Dr. Eric Williams, Assoc. Professor, received the Presidential Citation from Society of Critical Care Medicine for contributions to field of Critical Care.

Dr. Mark Zobeck, Instructor, received the 2020 Young Investigator Awards from the International Society of Paediatric Oncology. He was recognized for his research on "Novel Risk Factors for Glucarpidise Use in Pediatric Acute Lymphoblastic Leukemia: Hispanic Ethnicity, Age, and the ABCC4 Gene."

Baylor College of Medicine Announces Pediatric Resident Fellowship Match Results



On January 8, 2021, **Dr. Elaine Fielder**, Associate Professor and Director of the Pediatric Residency Program, announced the pediatric residents who matched into fellowships for the 2021-2022 academic year. She also thanked “all of you who served as educators, mentors, and support through their journey.” The match results are listed below.

2021 Baylor Pediatric Resident Fellowship Match Results			
Nawara	Alawa	Boston	CCM
Ariany	Aquino Lopez	Baylor	Heme/Onc
Katie	Bedard	Boston	Combined ID
Amber	Berry	Northside (ATL)	Sports Medicine
DeMarco	Bowen	San Diego	PHM
Javi	Cabrera-Perez	Brigham	Allergy & Immunology
Celeste	Cleveland	Phoenix	Heme/Onc
Chasity	Custer	UTSW	CCM
Amy	Dutko	Baylor	CCM
Gabriela	Espinoza-Candelaria	Pittsburgh	ID
Zach	Foughty	Baylor	PEM
Nikki	Gambhir	Baylor	DBP
Ev	Goldart	Michigan	Cardiology
AC	Gomez	Boston	Combined Nephrology
Elit	Hadad	Baylor	PEM
Andrew	Headrick	Utah	Cardiology
Jisha	Jose	Columbia	Neonatology
Yassy	Koukaz	Baylor	PEM/Global Health
Julie	Lovin	Baylor	Cardiology
Laura	Mackay	Baylor	Metabolic Genetics
Rebecca	Markovitz	Boston	Allergy & Immunology
Zobia	Momin	Emory	PEM
Tara	Ness	Baylor	ID
Sahar	Rahiem	Kansas City	Palliative Care
Amira	Said	Baylor	ID
Amani	Sanchez	Dell	PEM
John	Shabosky	Baylor	Cardiology
Alex	Siller	Baylor	Endocrine
Allison	Silverstein	St. Judes	Palliative Care
Amanda	Small	Baylor	Child Abuse
Brandon	Stormes	CHOP	CCM
Zac	Tabb	UCSF	GH/Health Equity
Abhinav	Totapally	Vanderbilt	CCM
Russ	Wolters	Baylor	Heme/Onc
Ran	Xiao	Baylor	Cardiology



DEPARTMENT NEWS RESEARCH

Clinical Trials for Vaccine Begin in India

A COVID-19 vaccine candidate developed by **Dr. Peter Hotez**, Professor and Dean of the National School of Tropical Medicine and Co-Director of TCH's Center for Vaccine Development, and **Dr. Maria Elena Bottazzi**, Professor and Associate Dean of National School of Tropical Medicine and Co-Director of TCH's Center for Vaccine Development, has begun testing in a Phase I/II clinical trial in India, according to an announcement by Baylor College of Medicine, Biological E Limited, a Hyderabad, India-based vaccines and pharmaceutical company; and Dynavax Technologies Corporation (Dynavax), a U.S.-based vaccine-focused biopharmaceutical company, with approval from the Drugs Controller General of India. The vaccine candidate includes an antigen in-licensed from BCM Ventures, BCM's integrated commercialization team, and an advanced adjuvant, CpG 1018 by Dynavax, to boost the immune response.

"This vaccine represents an urgent biotechnology innovation for ensuring health equity and combating the COVID-19 pandemic."

-- Dr. Peter Hotez

"The transition of our vaccine candidate into human trials is an important milestone and exemplifies a successful transfer of technology with BE [Biological E. Limited] that could lead to a safe, effective, and affordable vaccine."

-- Dr. Maria Elena Bottazzi

"We are very happy indeed to transition our potential vaccine candidate to clinical trials and offer one more potential option for the prophylaxis of COVID-19."

-- Mahima Datla, Managing Director of Biological E. Limited

"We are proud to contribute CpG 1018 to support development of an adjuvant vaccine to prevent COVID-19. CpG 1018's potential to boost the immune response to produce more antibodies and longer lasting immunity may also minimize the dose of antigen needed, enabling vaccination of a greater number of people"

-- Ryan Spencer, Chief Executive Officer of Dynavax

Candidate Vaccine Produced by BCM Collaboration Begins Trials in India

On November 16, 2020, Baylor College of Medicine announced that the candidate vaccine developed by **Drs. Peter Hotez**, Professor and Dean of the National School of Tropical Medicine and Co-Director of TCH's Center for Vaccine Development, and **Maria Elena Bottazzi**, Professor and Associated Dean of National School of Tropical Medicine and Co-Director of TCH's Center for Vaccine Development, was entering Phase I/II clinical trials. The trials will evaluate the safety and immunogenicity (i.e., ability to induce an immune response) of the vaccine candidate. The candidate vaccine, administered in two doses for each study participant, via intramuscular injection 28 days apart, will be given to approximately 360 healthy subjects aged 18 to 65 years old. It consists of the receptor binding domain of the SARS-CoV-2 spike protein at three dose levels adjuvanted with CpG1018 plus alum. The results are expected to be reported in February 2021.

The partnership for producing and distributing the candidate vaccine is composed of Baylor College of Medicine (BCM) Ventures, Biological E Limited, and Dynavax Technologies Corporation (Dynavax).

BCM Ventures, a commercial component of the college, was created to support the translation of academic knowledge and intellectual assets for the benefit of society. It encourages innovators, researchers, and entrepreneurs in their abilities to develop ideas along the best commercial path by fostering a culture and commercialization and engaging with industry to identify market opportunities for collaborative ventures. Biological E Limited is a pharmaceuticals and biologics company founded in 1953 and based in Hyderabad, India. It is the first private sector biological products company in India and the first pharmaceutical company in Southern India. It supplies vaccine to more than 100 countries and has therapeutic products sold in India and the USA. It has eight WHO-prequalified vaccines in its portfolio. Dynavax is a commercial stage biopharmaceutical company involved in developing and commercializing novel vaccines. Its first commercial product HEPLISA-B®, is approved in the U.S. for prevention of infections caused by all known subtypes of hepatitis B in adults aged 18 years old and older. It is also advancing CpG 1018 as a premier vaccine adjuvant.



Study Reveals Likely Cause of Meosamerican Nephropathy

Dr. Kristy Murray, Professor, led her team in a “CSI-style” investigation that provides new and compelling evidence that low-dose exposure to nickel can cause systemic inflammation, anemia, and kidney injury. The study was conducted in response to the epidemic of chronic kidney disease (CKD) of unknown origin that has plagued South America’s Pacific coastline from Mexico to Panama for the past 20 years or more, leading to more than 50,000 deaths. The symptoms associated with the exposure are hallmarks of the condition in South America, known as acute Mesoamerican Nephropathy (MeN). Nickel toxicity was found to be an underlying cause of the disease in a Nicaraguan hotspot for MeN, which progresses to chronic kidney disease in approximately 90% of affected patients.

The culprit initially proposed to be a possible factor, agricultural toxins, was ruled out by the team, as were genetic mutations, which were excluded because of the relatively recent emergence of the disease and a sharp increase in the region. Dr. Murray explained that the condition was thought to be chronic, but their review of hundreds of clinical records and their surveillance for new cases revealed the acute “flu-like” presentation in initial stages of the disease.

In fact, she said the “disease looked remarkably like a classic hyper-inflammatory response to an infection.” For that reason, they screened several pathogens but were unable to identify any particular infectious agent. They then looked at clinical and pathological tests that held “the most important clues to crack this case. Majority of the affected individuals had recently developed anemia and their kidney biopsies showed extreme inflammation in the tubules and cortico-medullary junctions of the kidney, indicative of heavy metal or trace element toxicity. The pieces of the puzzle were finally coming together.”

Despite being an abundant, naturally occurring heavy metal that is essential for the human body, nickel is needed only in trace quantities, and excess recurrent exposure to it can cause several toxic and carcinogenic effects. The researchers theorize that the reason people who work in that area with soil (e.g., agricultural field laborers, miners, and brick makers) have the highest risk of acquiring the disease is that the source of the exposure likely is geologic in nature and possibly linked to a volcanic chain in the area that became active in the late 1990s. Dr. Murray noted their excitement in finding what they consider to be a strong lead in addressing

“A few years back, based on my reputation of investigating many new outbreaks and my laboratory’s expertise in studying tropical medicine and infectious diseases among vulnerable populations, we were called to investigate the possible causes of this horrific epidemic that plagued vulnerable agricultural areas in the Pacific lowlands for decades.”

-- Dr. Kristy Murray



Team members Drs. Rebecca Fischer (Texas A&M University), Sreedhar Mandayam, and Chandan Vangala (BCM) worked together to compile the analyses and to guide the team in the clinical interpretation of acute cases. The next step involved collaboration with Drs. Jason Unrine and Wayne Sanderson (University of Kentucky), who specialize in trace-element toxicity.

They collected toenail clippings of individuals (the easiest way to test for heavy metals) for approximately three months after they experienced an acute kidney injury event and analyzed them for 15 trace elements. The results were compared with those of controls recruited from the same population who had no evidence of kidney disease. The result was that affected cases had significantly increased levels of nickel, as well as higher levels of aluminum and vanadium.

this public health problem, although the findings of the geological source of nickel contamination will need to be validated in other areas impacted by MeN, such as El Salvador or Guatemala.

The findings open opportunities to find ways to protect drinking water sources from soil and runoff water contamination and to educate community members about the need to wash their hands frequently after working with soil. Already, efforts are paying off, and a dramatic reduction in the number of new cases has occurred, indicating they are moving the right direction.

Information extracted from Pathak D. “Mesoamerican Nephropathy outbreak linked to nickel toxicity.”

<https://www.bcm.edu/news/mesoamerican-nephropathy-outbreak-linked-to-nickel-toxicity?fbclid=IwAR1qdLfnRsoOnkA6yliVt5MbeBT8vLtpEsUTKOe9cE1b0cUYmgsGEU5TUH8>

Grant Provides for Research on Sarcomas to Continue Foundation



Dr. Meenakshi Hegde, Assoc. Professor, and her team received a \$1.4 million gift over 3 years from The Faris Foundation to support a clinical trial of a novel form of immunotherapy for children with recurrent or refractory sarcomas. The Faris Foundation was founded by the mother of Faris Virani, a former patient at TCH who lost his battle with Ewing sarcoma.

The clinical trial is known as the HEROS 3.0 trial. It will evaluate chimeric antigen receptor (CAR) T cells that are targeted against HER2, a growth protein found on the surface of some cancer cells. Specially altered T cells designed to fight cancer, CAR T cells will be given in combination with immune checkpoint inhibitors (e.g., PD1 antibody). This trial is the first trial in humans to study HER2 CAR T cells in combination with immune checkpoint blockade to treat advanced sarcoma. The aim is to identify the optimal dose and assess the safety of CAR T cells combined with immune checkpoint blockade in children with high-risk sarcoma.

Dr. Hegde and her mentor, **Dr. Nabil Ahmed**, Assoc. Professor, have been working toward this goal for more than a decade. A previous clinical trial in which children and young adults with advanced HER2-expressing sarcoma were given HER2 CAR T cells found that the treatment provided clinical benefit for some of the patients. In the current trial, the researchers will study whether the combined approach can boost the vaccine effect. They also aim to define the safety and anti-tumor effects of the combination therapy. The results should help Dr. Hegde and the team to improve how CAR T cell treatments are delivered to pediatric patients with sarcomas and other solid tumors. The long-term effect could lead to more positive clinical outcomes, and may benefit studies by researchers nationally and internationally.

The study will be held at TCH, and **Dr. Shoba Navai**, Asst. Professor, will work as co-leader with Dr. Hegde on the trial. Other BCM team members involved in conducting biomarker studies include Dr. Ahmed, Dr. Sujith Joseph, and Dr. Jason Yustein.

Unusual Case of Reversed T1D Reported



Dr. Lisa R. Forbes, Asst. Professor (left), was corresponding author on an unusual case presented in a letter in October in the New England Journal of Medicine. A team from

BCM, TCH, and University of California, San Francisco, described a patient with Type 1 diabetes (T1D) who no longer needs insulin to

maintain optimal blood sugar levels, after the physicians used precision/personalized medicine to specifically target the the underlying genetic mutation that the primary driver of the patient's condition. The current treatment options available for patients with this condition, in which the pancreas produces little or no insulin, consist of insulin, diet and exercise to manage blood sugar levels and prevent complications. Lead author **Dr. Sophia Ebenezer**, Asst. Professor (right), explained

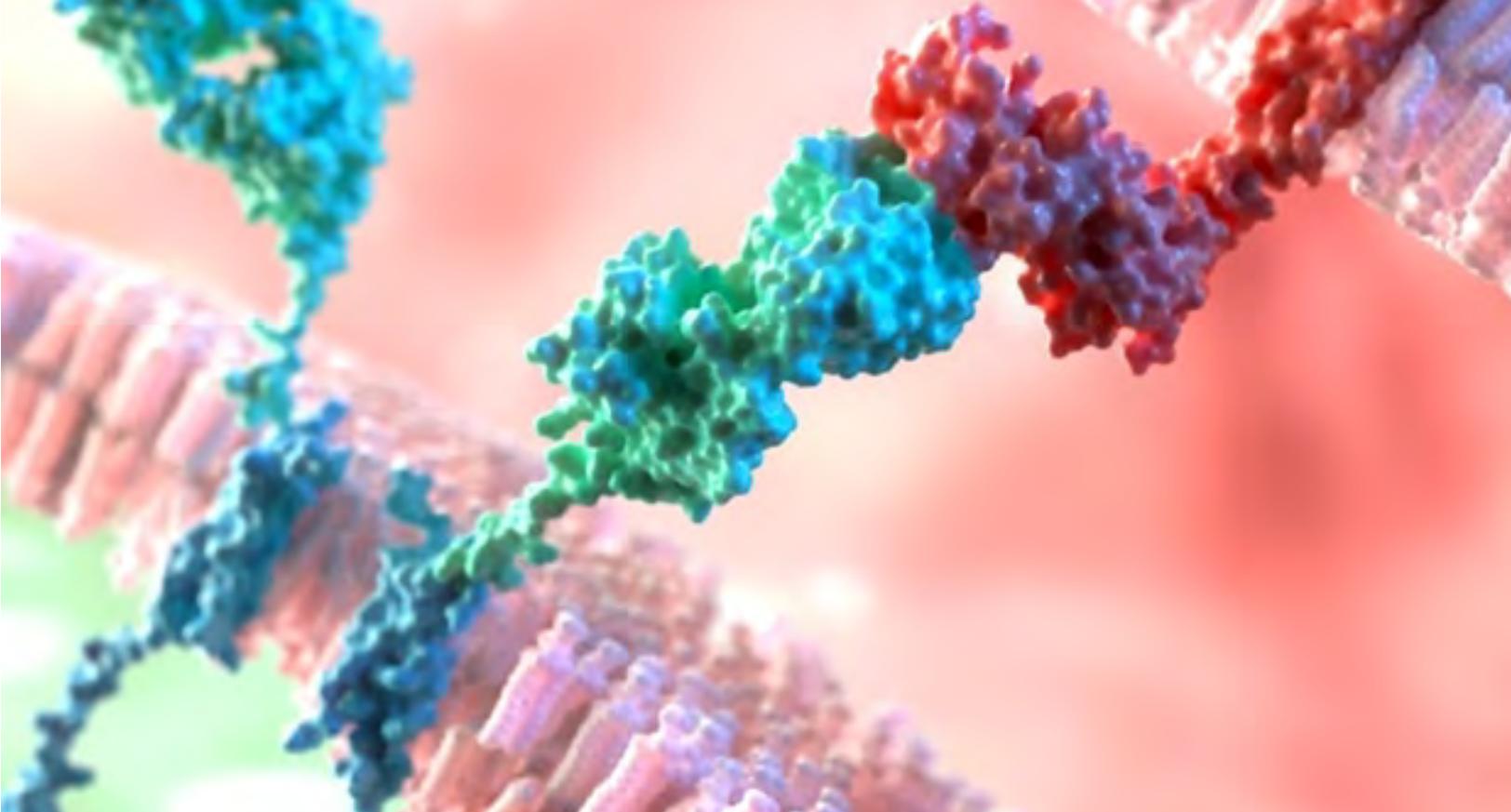
Patients with T1D often have an initial 'honeymoon phase' for the first months after being diagnosed. Their insulin requirements are

minimal, but gradually their dependence on insulin begins to rise. The patient they describe experienced a similar phase but then needed low doses of insulin. A careful investigation into the patient's health history revealed

that he harbored a harmful mutation in the *STAT1* that dangerously heightened the activity of the STAT1 protein. He was started on a regimen of ruxolitinib, and about a year later, he no longer needs daily insulin injections and has shown full remission of other clinical signs and marked improvements in his quality of life. The authors note that, although the results are promising, a longer clinical assessment of the patient is needed to confirm if he can remain insulin-free permanently.



"This is the first clinical demonstration that ruxolitinib can reverse insulin dependence in T1D patients with STAT1 mutations, which is a very exciting prospect." - Dr. Sophia Ebenezer



Study Indicates CAR NKT Cells Offer Possibility as Immunotherapy for Solid Tumors

“In addition to being able to effectively combat tumors in mouse models, the presence of NKT cells within solid tumors is associated with favorable outcomes in cancer patients,”

-- Dr. Leonid S. Metelitsa

“We think that NKT cells have substantial potential to serve as valuable contributors to the fight against cancer.”

--Dr. Andras Heczey



Dr. Leonid Metelitsa, Professor (left), and **Dr. Andras Heczey**, Asst. Professor (right), are co-corresponding authors on a study published in *Nature Medicine* on their findings with regard to human natural killer T (NKT) cells genetically modified with a chimeric antigen receptor (CAR). The modification enables them to specifically recognize and attack neuroblastoma; expressed with the CAR is interleukin-15 (IL-15), a natural



protein that supports NKT cell survival. The interim results published in the journal are from an ongoing clinical trial showing that the modified cells are safe, localize to tumors, and can induce an objective response with regression of bone metastatic lesions (as shown in one of three patients).

Although the earliest CAR-modified cells were shown to be effective in treating certain types of leukemia and lymphoma, they presented numerous challenges when used to treat solid tumors with CAR T cells. Preclinical studies demonstrated that NKT cells provide a novel approach that may enhance the CAR-directed cancer immunotherapy. Previous studies also demonstrated that NKT cells have a spectrum of anti-tumor activities such as the ability to migrate to tumor sites where they kill tumor-associated macrophages. Also, an anti-tumor response indirectly promoted by NKT cell activation can be mediated by two types of immune cells, NK and T cells.

In earlier studies, Dr. Metelitsa, Dr. Heczey, and colleagues developed methods to grow NKT cell populations to clinical scale with high purity, a needed step because of the low percentage of NKT cells found in the blood.

Dr. Metelitsa noted that initial results indicate that NKT cells can be expanded to clinical scale with high purity and used safely to treat patients with advanced neuroblastoma. He explained that the study demonstrates that they can use immune cells with natural anti-tumor capabilities and enhance their tumor-fighting power with designer synthetic receptors. Dr. Heczey, a co-author on the study, added that the CAR-IL15 KT cells can be detected in the peripheral blood, “where they expand postinfusion, traffic to bone metastases and the bone marrow, and exert anti-tumor activity. We observed an objective response, elimination of at least 50 percent of metastases, in one of the patients.”

Other co-authors include Dr. Antonio Montalbano of Immunai, a company that specializes in single-cell technologies and AI approaches for immunology.

“The Baylor-Kuur Therapeutics relationship is generating exactly the type of outcomes that we had envisioned at the outset. The modified NKT platform developed in the Metelitsa laboratory is differentiated from other cell therapy platforms, offering novel routes for the treatment of cancers that have posed challenges for immunotherapeutic approaches. The encouraging findings announced today support the potential of NKT platform to provide promising alternatives, particularly for the treatment of solid tumors.”

--Shawn Davis, Vice-President and Chief Ventures Officer, BCM

Dr. Metelisa explained that NKT cells can combat tumors, but because all these attacks seem to be indirect, they gave the NKT cells a tool, namely the CAR, to enable them to attack the cells directly.

They added IL-15 to help the cells survive in the patient while fighting the tumor. With these advances, they were ready to begin to test CAR NKT cells in patients with neuroblastoma in a clinical trial.

In the ongoing clinical trial, results from the first three patients with heavily pre-treated, relapsed/refractory metastatic neuroblastoma were treated with CAR NKT cells, engineered from the patient’s own white blood cells. The researchers engineered 95% pure NKT cells, some of which were armed with CAR-IL15. These first patients were presented in the study.

He and colleagues applied their cutting-edge technology platform that provides for analyses of all genes at the single-cell level in the CAR-NKT patients’ products. Their analyses revealed new information about the heterogeneity of human NKT cells and details of the therapeutic modifications. Nine subsets of NKT cells were found, and they discovered that the CAR receptor seemed to address preferentially one set identified as cluster 3. Implications of these findings will spark further studies.

Other contributors to this work include Amy N. Courtney, Simon Robinson, Ka Liu, Mingmei Li, Nisha Ghatwai, Olga Dakhova, Bin Liu, Tali Raveh-Sadka, Cynthia N. Chauvin-Fleurence, Xin Xu, Ho Ngai, Erica J. Di Pierro and Barbara Savoldo. The authors are affiliated with one or more of the following institutions: Baylor College of Medicine, Texas Children’s Hospital, Immunai Inc. and the University of North Carolina at Chapel Hill.

Review Reveals Ways to Address Burkitt Lymphoma



BIPAI researchers in Global HOPE reviewed their own experiences and decades of the literature on



Burkitt lymphoma to identify barriers that stand in the way to improving cure rates in low-income countries in Africa. **Dr. Nmazuo Ozuah**, Asst. Professor (top), and **Dr. Carl Allen**, Professor (bottom), are authors of the study published in the journal *Blood Advances* that proposes strategies to improve therapeutic approaches.



Among the barriers they identified are the limited access to medical care and the lower survival rates of patients in Africa. The former means that most patients delay seeing a doctor and getting diagnosed, and even when they do see a doctor, often the staff is not trained to recognize their symptoms as those of cancer. The type of treatments patients receive greatly affects the cure rates. Patients in Sub-Saharan Africa usually receive low-dose chemotherapy that may achieve some initial success but ultimately does not provide a long-term cure. Also, research has shown that high-dose chemotherapy regimens are known to be effective in achieving high long-term survival rates, but delivery

of these regimens to patients in Sub-Saharan Africa is complicated by the high risk for life-threatening toxicities associated with settings where resources are limited for providing adequate supportive care.

The study, which reviewed reports from Sub-Saharan Africa, the United States, and Europe, revealed that higher doses of chemotherapy can be effective in low-income countries if the regimen is tailored to the level of supportive care available. The Global HOPE team in working to address these concerns in Africa by forming alliances with communities, hospitals, and local governments to train pediatric oncologists, nurses, and pharmacologists to increase their levels of expertise in diagnosing and treating pediatric cancer. In addition, they are working to raise educational awareness that early diagnoses can help save lives and partnering with the Ministries of Health to ensure that patients are taken to the Global HOPE team.

Recognizing that low-income countries in Africa and elsewhere face numerous medical challenges, including dealing with communicable diseases such as malaria, HIV, and tuberculosis, and severe malnutrition, they have added cancer to the list of priorities. Because Burkitt lymphoma is curable, they consider it a moral imperative to make the cures available to children in Africa.

Grant Funds Development of Lyme Disease Vaccine

The Department of Defense has provided a grant of \$860,000 to the National School of Tropical Medicine at BCM and TCH's Center for Vaccine Development for the development of a recombinant protein vaccine for Lyme disease. Researchers from BCM/TCH will partner with experts from the Wadsworth Center, New York State Department of Health to address Lyme disease, the most common vector-borne disease in the general population and military of the United States.

Dr. Maria Botazzi, Professor and Associate Dean of the National School of Tropical Medicine and Co-Director of TCH's Center for Vaccine Development, noted that no vaccine for the disease exists, and the candidate vaccines that have advanced to clinical trials have not proved to be safe and effective or to provide an efficient response. Hence, BCM/TCH researchers are partnering with experts who have identified a novel vaccine antigen and plan to accelerate its development as a new prototype vaccine, from bench into clinic.

"Contributing to this work and applying our strict quality system practices will be crucial to realize our long-term goal to develop a Lyme disease vaccine, and our vaccine center is well poised to achieve the goals of the project."

--Dr. Wen-Hsiang Chen,
Assistant Professor



Transmitted by the bacterial *Borrelia burgdorferi*, Lyme disease begins with infection at the site of a bite by a black legged (deer) tick and then moves to the bloodstream, where it can survive and spread to the heart, joints, or brain. It causes symptoms such as rash (see right), fever, headache, and fatigue. If not treated, it can result in arthritis, neurological abnormalities, and carditis. During the past 20 years, the prevalence has increased, affecting approximately 300,000 people annually.

The study calls for developing a vaccine prototype and defining host immune responses triggered by that prototype under different regimens, including different doses, number of immunizations, and types of immune-stimulants, and thereby identify how to prevent bacterial colonization and manifestation of the disease. Dr. Yi-Pin Lin of the Wadsworth Center explained that the study builds on their strengths in identifying Lyme disease bacterial proteins as vaccine candidates and in investigating how vaccine candidates block tick-to-human transmission of the Lyme-causing bacteria.



“End with Good Stuff”



***Hood'n'Borden's Lady Heather Prancin' the Liffey
AKC Canine Good Citizen
Licensed Pet Therapy Dog***