RACE TO ERASE MS

Content

2020 Vol. 1

Follow us @ Race to Erase MS

Contact Us

Race to Erase MS
1875 Century Park East,
Suite 280
Los Angeles, CA 90067

Phone: 310.440.4842
Fax: 310.471.4975
www.erasems.org

Center Without Walls Program

UCLA Joins our Stellar Team of MS Centers

Rhonda Voskuhl, MD, is the Director of the Multiple Sclerosis Program at the University of California Los Angeles (UCLA). She is a Professor of Neurology and holds the Jack H. Skirball Chair in MS Research. Dr. Voskuhl uses cell-specific and region-specific genome wide expression analyses in the brain to find new targets for disability-specific treatments in MS, and she investigates why females are more susceptible to MS while men have worse disability progression. She attained her MD from Vanderbilt University and did neurology residency at UT Southwestern and fellowship at the National Institutes of Health. She recently received the Berlin Institute of Health Excellence Award for Sex and Gender Aspects in Health Research in 2018 and the Kenneth P. Johnson Memorial Lecturer award from the Americas Committee for Treatment and Research in MS (ACTRIMS) in 2019.

Allan MacKenzie-Graham, Ph.D. and Kevin Patel, M.D. are part of Dr. Voskuhl's esteemed team. Dr. MacKenzie-Grahm is Associate Professor and Brain Mapping faculty and did seminal work demonstrating halting of brain atrophy in MS women treated with estriol and MS men treated with testosterone. He was the first to show that brain atrophy occurs in the preclinical MS model and uses 3D pathology of intact tissues to understand neurodegenerative mechanisms, together enabling discovery of new drugs to halt disability progression. Dr. Patel is an Assistant Professor and an expert in MS patient care. He also conducts neuroimaging studies to determine how neurological pathway connections are disrupted. His focus is finding a new biomarker for novel treatment trials in MS. His most recent work investigated how neurodegeneration in MS impacts network structure and dynamics.

The Multiple Sclerosis (MS) Program at the University of California Los Angeles (UCLA) is focused on "bedside to bench to bedside" research, medical care from five MS physicians and comprehensive care through the Marilyn Hilton Achievement Center, as well as education of the next generation of MS doctors. Leveraging UCLA's strength in neuroscience with the six neuroscience buildings and over 550 neuroscience faculty, the MS program is focused on discovering new treatments in MS that repair disabilities. This is done though cutting edge neurogenetics and neuroimaging. The "bedside to bench to bedside" approach starts with clinical observations in patients, mechanisms are determined at the laboratory bench, and new insights are translated into novel clinical trials for patients.

Just recently published by UCLA, Dr. Voskuhl's team discovered the father's X chromosome is linked to higher rates of autoimmune disease in women. ReachMD, Medical Xpress, The News Medical, and 15 additional media outlets covered research from Rhonda Voskuhl, MD, finding that the X chromosome females inherit from their fathers may account for their increased risk of autoimmune diseases.

ECTRIMS Scientific Summary

By Dr. Erin Longbrake, Yale and Dr. Joseph Sabatino, Jr., UCSF

Highlights of the meeting included further data about neurofilament light chain (NfL) as a promising new biomarker for disease activity and effectiveness of treatments. Other highlights were updates on a variety of therapies for MS, discussion about risks for other medical comorbidities in persons with MS, and new insights into MS immunology and disease progression.

Neurofilament light chain: an emerging biomarker for MS: Lack of reliable biomarkers can make MS difficult to diagnose for some patients. This can also make it difficult to rapidly determine whether or not individual patients are responding well to their medications. Neurofilament light chain (NfL) is emerging as an exciting new candidate biomarker. Data presented at ECTRIMS revealed that blood levels of NfL are elevated several years prior to the emergence of MS symptoms. Neurofilament levels also increase with relapses and new enhancing MRI lesions and decrease with most forms of disease modifying therapy. Interestingly, MS

(ECTRIMS continued on Page 12)

Message from Nancy Davis

President and Founder

There are now 18 drugs with FDA approval to help stop the progression of MS and more on the horizon, with three new drugs pending approval for this coming year. The future is bright for the person being diagnosed today with multiple sclerosis.

The Race to Erase MS has made a tremendous impact in the research arena by supporting innovative research projects that would not ordinarily receive funding through government or other foundation sources. We create opportunity for daring projects to come to life, out of the box concepts, that could potentially lead to a cure, and help make the quality of life for a patient living with MS much better.

We welcome Dr. Tika Benveniste to our Scientific Advisory Board as well as UCLA MS Center, led by Dr. Rhonda Voskhul, to our Center Without Walls team. The Race to Erase MS Center Without Walls program fosters a collaborative research community among our eight academic institutions which are MS centers of excellence. Scientists share their research results within the program to accelerate progress and have expedited discoveries because of this unique platform of team work. Ground-breaking concepts have germinated through the program and ultimately made it to patients to improve their lives. Some of these include:

• Contribution to the identification of the genes that can make someone susceptible to developing MS. We now know that there are over 200 genes that contribute to MS risk and are working to identify those making MS course worse. This knowledge should lead us to developing new treatments to prevent or treat MS.
• Low vitamin D levels, low sun exposure, cigarette smoking, diet and gut microbiome can influence the likelihood of developing MS. Some of these may also influence MS severity.
• Our program is focused on understanding the biology of progressive MS with the goal of promoting the repair of nerve cells to prevent and possibly reverse disability.
• Race to Erase MS has helped to create the NAIMS group which is the internationally renowned imaging program. This group brings together MRI MS researchers from multiple academic research programs to develop definitive tools to diagnose and monitor MS progression, and develop new treatments.

We are proud of the tremendous strides that have been accomplished in our Race to Erase MS and the advances that have been made towards finding a cure. We thank everyone who has supported our vision and to all those who "race" with us in unwavering generosity in our journey to find a cure for MS. We look forward to the day we can all cross that finish line in victory and win the Race To Erase MS.

Peace and Love,

Scientific Advisory Board

Etty (Tika) Benveniste, Ph.D. joins our prestigious Center Without Walls SAB to help guide us toward funding a cure!

Dr. Tika Benveniste is currently Senior Vice Dean for Basic Sciences at the University Alabama at Birmingham School of Medicine, and holds the Charlene A. Jones Endowed Chair in Neuroimmunology. We are thrilled and honored to welcome Dr. Tika Benveniste to our prestigious Center Without Walls Scientific Advisory Board (SAB). She joins Dr. Andrew Goodman, Dr. Monica Carson, Dr. Anne Cross and Dr. Daniel Reich who are truly the most stellar team of brilliant minds who will continue to lead our foundation in supporting ground breaking research initiatives.

Dr. Benveniste initiated research as a postdoctoral fellow at UCLA in the emerging field of neuroimmunology, elucidating mechanisms by which cells of the immune system and the central nervous system communicate and influence functionality. Specifically, her lab has focused on the interaction of cells of the immune system (T-cells, neutrophils, macrophages) with cells of the central nervous system (microglia, astrocytes), with a particular focus on the role of interferons, cytokines and chemokines. Dr. Benveniste was amongst the first group of investigators to elucidate that endogenous glial cells participated in immunological reactions within the brain. These studies have implications for a number of autoimmune/neurodegenerative diseases such as Multiple Sclerosis and Parkinson's Disease. She leads an active program in understanding the biologic basis of macrophage and neutrophil polarization, and CD4+ T-cell differentiation in the context of experimental autoimmune encephalomyelitis, an animal model of MS.

Her lab is studying the mechanisms by which two signaling pathways, JAK/STAT and CK2, contribute to the pathogenesis of EAE/MS, seeking to elucidate the mechanisms that lead to aberrant activation of these pathways in EAE and the use of specific JAK and CK2 inhibitors to block these pathways in vivo. Her laboratory has over 240 publications on these topics in journals such as J. Clin. Invest. Insight, PNAS, J. Immunol., J. Neurosci., Nature Immunol., Cancer Immunol. Res., Mol. Cell Biol., Clin. Cancer Res., and others. Dr. Benveniste's research is supported by grants from the NIH (NCI, NINDS), the Michael J. Fox Foundation and the National Multiple Sclerosis Society. Dr. Benveniste was elected in 2009 as a Fellow of the American Association for the Advancement of Science (AAAS). Dr. Benveniste has been very active in the National Multiple Sclerosis Society and the NIH with respect to Study Section membership, grant reviews and leadership.

LOVE to Erase MS Gala

2019 Recap and 2020 Announcement

2019 Recap: On May 10, 2019 we celebrated our 26th Annual Race to Erase MS Gala raising over $1.8 million to benefit Race to Erase MS and our Center Without Walls program. The event honored actress Selma Blair for her bravery and strength demonstrated during her personal battle with MS, as well as the Hausman Family Foundation, for its incredible and most generous support of Race to Erase MS. The evening began with a special runway show from Hollywood-favorite fashion brand alice + olivia by Stacey Bendet. The looks were showcased by a variety of models and actors, including Delilah Belle Hamlin, Luca Bella Facinelli, Jessica Hart and Mason Grammer, Isabella and Mariella Rickel.

The luxurious live auction returned this year and featured one-of-a-kind opportunities and collector's items including a ski trip at The Little Nell in Aspen Colorado, a once-in-a-lifetime chance to tour Abbey Road Studios and record a song with Nile Rogers and a Bahamas vacation aboard an Illusions yacht. The big item of the night was a Vanderhall Motor Works Venice GT Auto-Cycle, a classically redefined demonstration of art on wheels. The first performer of the evening, Aloe Blacc, was introduced by David Foster and Jack Osbourne, who himself was diagnosed with MS in 2012. David Foster also introduced the night's headliner, music superstar Flo Rida, who brought down the house with a twelve song set that included hits "Right Round," "My House," and "Wild Ones." In what has become a Race to Erase MS tradition over the past 26 years, an uplifting rendition of "Lean On Me," was performed as the finale of the evening, led by Foster with help from Angelina Jordan, Fernando Allende, Adán Allende, and so many more of the night's special guests including presenters Johnny Galecki, Sarah Michelle Gellar, Dorothy Lucey, Jack Osbourne, Robin Roberts, and special guests Kris Jenner, Tommy Hilfiger, LaToya Jackson, Avril Lavigne, Steven McQueen, Harry Hamlin, Jamie-Lynn Sigler, Rumer Willis, Vanna White, Constance Zimmer, Frances Fisher, Byron Allen, and more! Photo Gallery on Pages 6-9.

Mary Jo, Teri and John Hausman

Selma Blair and Son, Robin Roberts and Sarah Michelle Gellar

SAVE THE DATE May 8th 2020: We are excited to continue celebrating this year with star-studded entertainment and special guests. Make sure to mark your calendar for May 8, 2020 at The Beverly Hilton. We are thrilled to announce an incredible live performance from the legendary Nile Rodgers & CHIC who are sure to bring the house down. Make sure to follow us on our social channels for up to date information including special guests and entertainment for this year's event. Visit erasems.org to purchase tickets or make a donation.

We look forward to another spectacular year, which will bring us one step closer to winning our Race to Erase MS.

3 New Drugs

Update on the latest FDA approved therapies for MS

By Margaret Burnett, MD, USC

Three new medications were FDA approved for Multiple Sclerosis (MS) in 2019. Vumerity (Diroximel Fumarate) is approved for relapsing forms of MS including clinically isolated syndrome (CIS), relapsing-remitting disease and active secondary progressive MS. It is metabolized to the same active ingredient as Tecfidera (dimethyl fumarate). Vumerity is a reformulation which is expected to cause fewer gastrointestinal problems and flushing than Tecfidera but otherwise similar efficacy and side effects. It is available through Biogen and is a pill taken twice daily.

Mayzent (Siponimod) is a new S1P receptor inhibitor and is similar to Gilenya (Fingolimod). It is also indicated for the treatment of relapsing forms of MS. Mayzent is different in that it interacts with fewer subtypes of the receptor and causes fewer cardiac side effects. Mayzent is provided in a titration pack and does not have to be started with monitoring for most patients. It is eliminated from the body more rapidly than Gilenya. It is made by Novartis and is a pill taken once daily. Dosing is tailored to the patient.

Mavenclad (Cladribine) is indicated for relapsing-remitting and active secondary progressive forms of MS (not CIS). It is unique in that it is a pill taken for only 8-10 days in year one and again in year two. No additional dosing is recommended. Mavenclad carries a warning for potential risk of malignancy and teratogenicity. It is made by EMD Serono. All these medications are efficacious but require monitoring and each has a unique side effect profile which should be discussed with a specialized health care provider.

Stem Cells and Multiple Sclerosis

By Emmanuelle Waubant, MD, PhD, UCSF

Stem cells are currently being investigated as a promising treatment for MS to slow down progression. Stem cells can come from the own patient, human embryos or human placental tissue. In general, there are 3 distinct types of stem cells that may be considered for the treatment of MS.

1) Mesenchymal stem cells are obtained from the patient and are typically coming from peripheral blood. Mesenchymal stem cell therapy is still under investigation in humans. It is expected to help by modulating the immune system. These cells are usually administered intravenously. **2)** Human embryonic stem cells (hESC) and neural precursor cells (hNPC) are taken from bone marrow and may be manipulated to become oligodendrocyte precursor cells with some potential to promote remyelination of axons. They are transplanted into the cerebrospinal fluid of the patient with the goal of repairing damaged brain and spinal cord tissue. This type of transplant has very little track record of safety and benefit and is currently being investigated. One concern using these cells is the possibility they would grow into another tissue or develop without control. **3)** Hemotopoietic stem cell transplant (HSCT), also known as bone marrow transplant, is the most common of the 3 stem cell strategies and has been more widely studied (see below). Four recent clinical trials used hematopoietic stem cells from the patient's bone marrow, which is the soft, sponge-like material found inside bones, or from peripheral blood. Various immunosuppressive regimen (obliteration of immune system) are used prior to infusion of the hemotopoietic stem cells (HSCT). Most of the studies in MS did not use a placebo or another treatment group to compare safety and efficacy, and as such, conclusions from these studies are limited.

Given the risks involved with bone marrow transplant, this strategy is currently mostly used for patients with more aggressive forms of MS who have failed FDA-approved treatments. HSCT may induce long-term remission of disease activity while improving quality of life, with many patients experiencing moderate or severe adverse events. In prior studies, patients with relapsing-remitting multiple sclerosis (RRMS) had better results than those with progressive forms of the disease. Below are brief descriptions of the most recent and promising studies in MS with bone marrow transplant.

A. HALT-MS study by Dr Nash in 2014: Enrolled 24 relapsing-remitting MS patients with 2 or more relapses in previous 18 months and failure of 2 previous therapies. Patients received high-dose immunosuppression with multiple drugs, with a goal of ablating immune cells from the blood and other organs. That treatment was followed by bone marrow transplant to regenerate the immune system. 78% of patients at the 3 year mark did not experience a relapse or disability progression. 100% of the patients enrolled experienced a severe, life-threatening or disabling adverse event at some point during the trial. Almost all patients had an adverse event including low cell counts and infection.

B. ASTIMS (Autologous Stem Cell Transplantation International Multiple Sclerosis) study by Dr Mancardi, in 2015: 24 patients were enrolled but only 17 were evaluated. Two-thirds of patients had progressive forms of MS, only 1/3 had RRMS. The study compared intense immunosuppression and HSCT with mitoxantrone (MTX). Four years after treatment, patients receiving HSCT had 2.5 new T2 lesions, versus 8 new lesions in the mitoxantrone group. 100% of the patients treated with HSCT and 50% of the patients treated with MTX experienced a severe, life-threatening or disabling adverse event at some point during the trial.

C. Nonmyeloablative study by Dr Burt, in 2015: 123 patients with relapsing-remitting MS and 28 with secondary progressive MS. That study did not have a control group. Treatment with cyclophosphamide and alemtuzumab (22 patients) or cyclophosphamide and thymoglobulin (129 patients) followed by infusion of unmanipulated peripheral blood stem cells. Patients were followed up for 5 years. Infection and low cell counts were the most common adverse events but less common than in ASTIMS and HALT-MS studies. At 2 years the level of disability improved some.

D. More recently Dr Burt reported a randomized trial comparing the effectiveness of nonmyeloablative hematopoietic stem cell (HSCT) transplantation vs other disease modifying treatment (2019). The study enrolled 110 patients with at least 2 relapses in the prior year despite being on a disease-modifying treatment (DMT). Patients were randomized to transplant vs switching to any other DMT. At 1 year, only 2% had relapsed in the transplant group vs 69% in the regular DMT group. Of note the regular DMT group included some weak DMT such as interferon and glatiramer acetate, but also a few patients on natalizumab. Overall disability improved in the transplant group vs the regular DMT group at 1 year. Rate of infection was slightly higher in the transplant group. The transplant group also developed more thyroid diseases than the regular DMT group.

Additionally, few centers in the world claim to provide other types of stem cell therapies that may not rely on proven treatment strategies and may potentially not be safe. We advise patients to carefully investigate stem cell treatment options on websites of recognized entities such as the NIH clinical trial website or the National MS Society. Patients are encouraged to discuss with their neurologist before engaging in such treatments.

Project Update

By Dr. Nancy Sicotte, Cedars-Sinai

It has been a year of firsts for the NAIMS Cooperative! We are now on the web! Check us out at: https://www.naimscooperative.org/

Meetings: The latest NAIMS meeting was held in 2019. A full day workshop entitled "Imaging Disease Mechanisms of Progression in Multiple Sclerosis: Beyond Brain Atrophy" took place in Dallas, Texas. A group of international experts in the fields of immunology, neuroimaging, informatics and statistics presented their latest updates in a highly informative and productive meeting. The proceedings of this meeting will be published in the coming months.

Grants/Projects: Thanks to the generosity of the Race To Erase MS contributors the pilot study to validate the Central Vein Sign (CVS) was expanded from 6 to 10 sites, and target enrollment was increased to 100 subjects. To date the pilot is more than 75% completed. The findings from this study will be critical in establishing the usefulness of a new type of MRI scan that will allow an earlier and more accurate MS diagnosis. Breaking news! A new $7.4 million grant to fund a larger definitive study across 12 NAIMS sites to establish the role of CVS in MS diagnosis received a highly competitive score from the National Institutes of Health! If awarded, this would represent a new level of success for the NAIMS Cooperative that grew from the Race to Erase commitment.

Manuscripts: A total of 7 manuscripts from the NAIMS cooperative have been published, one is submitted and one is in preparation.

Upcoming events: NAIMS will host the next workshop in conjunction with the ACTRIMS meeting in West Palm Beach in February 2020. This will be led by Dr. Roland Henry and is entitled "Evidence for Translation of MRI to the Clinic: The Next Generation of MRI Use in the MS Clinic". Also at the ACTRIMS meeting, NAIMS will partner with IMSVISUAL – the largest MS group focused on visual outcomes in MS – for the first time in a joint symposium.

In July, NAIMS will join with MAGNIMS, our European counterparts, in Reykjavik, Iceland for an exciting meeting to assess the application of ultrahigh field imaging at 7 Tesla to better understand MS disease progression in another first for the growing NAIMS Cooperative!

What is NAIMS?
The North American Imaging in Multiple Sclerosis Cooperative (NAIMS) was established in 2012 with the support of the Race to Erase MS. The goals of the NAIMS group are to: (1) develop reliable imaging-based measures for disease-progression in multiple sclerosis (MS); (2) accelerate the pace of MS research in North America by creating standardized imaging protocols for use in clinical research; and (3) bring together a range of imaging expertise focusing on the study of MS.

NAIMS
North American Imaging in MS Cooperative

photo gallery: 2019 Annual Race to Erase MS


Ally Hilfiger, Nancy Davis, Tommy and Dee Hilfiger


John, Teri, Mary Jo and Richard Hausman


Selma Blair and Son, Robin Roberts and Sarah Michelle Gellar


Flo Rida


Nancy Davis and Stacey Bendet

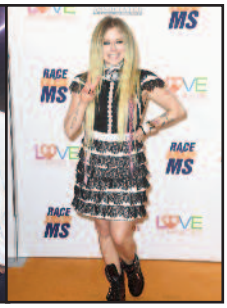

Aloe Blacc


Deb and Bill MacMillan


Kathy Hilton and Lauren King


Barbara Davis and Nancy Davis


Fernando Allende, Flo Rida, David Foster, Nancy Davis, Adan Allende


Avril Lavigne


Johnny Galecki and Alaina Meyer


Dorothy Lucey with Mary Jo, Teri and John Hausman


La Toya Jackson, Nancy Davis, Brenda Richie


MacMillan Family and Friends


Paul and Lynn Palmer


Beth Preece, Sherry Corday, Robin Correll, Rose Fahey and Debbie Eaton


Tommy Hilfiger, Selma Blair, and Kris Jenner


Arlene Hirschfeld, Nancy Davis, Debbie Lustig and Vanna White


David and Laura McKenzie and Nancy Daivs

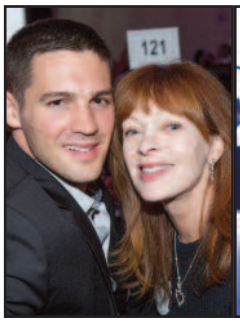

Jimmy Jam, Elizabeth Harris, Nancy Davis, Ken Rickel, Jennifer Lucas, Byron Allen


Peta Murgatroyd Maksim Chmerkovskly


Carol Mizel, Lynn Palmer, Courtney Mizel and Jimmy Lustig


Nancy Davis, Ken Rickel and David Foster


Nancy Davis and Rumer Willis



Steven McQueen and Frances Fisher

Selma Blair, Robin Roberts and Sarah Michelle Gellar

Dana and John Hausman, Teri Hausman, Mary Jo Hausman, Nancy Davis, Ken Rickel, Richard Hausman

Alexander and Lindsay Davis and Family

Constance Zimmer

Nicole Ostoya, Nancy Davis, Heather Hall

Elizabeth Stanton and Guests

Peace and Love Dancers

Arlene Hirschfeld, Melinda Spiegal, Debbie Lustig, Lauren King, Lynn Palmer

Cammy MacMillan and Mike Sica

Heather Boschke and Mark Lockes

Lea Thompson, Garcelle Beauvais, and Guest

Kurt Knutsson, Matt Rosler, and Guest

Hannah and Rachel Alansky

Jennifer Lucas, Tracy Danza and Dorothy Lucey

Bob and Linelle Shapiro, and Rick Hilton

Ryan and Carmel Giese with Daughters

Guest with Cameron Parker McCulloch and Nancy Davis

Joey Nisivoccia with Emma MacEachern

Sheila Cox and Timothy Whealon

Dave and Tonya Winfield

David and Andrea Faustino

Melora Hardin

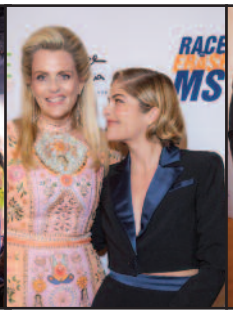
Paul Berman and Guests

Gina Furth and Ron Rosenblum

Dr. Emmanuelle Waubant, Claudia Curry Hill and Keely Cambridge

Stephanie Pratt and Rick Hilton with Guests

Flo Rida on Stage

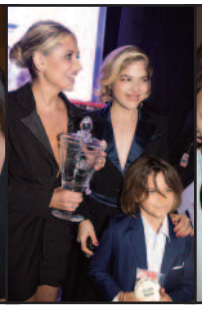


Nancy Davis and Selma Blair

Harry and Delilah Bell Hamlin and Nancy Davis

Teri Hausman, Christine Devine, Mary Jo Hausman, Camille Grammer

Guest with Dr. Robert Katz, Nancy Davis, Jacki Katz

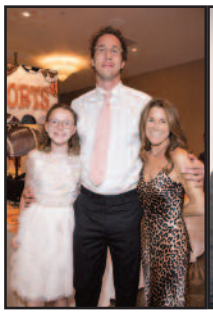


Sarah Michelle Gellar, Selma Blair and Son

Alan Kessel, Bo Brusco, Teri Hausman, Richard Hausman, Ashley and Carlos Lago, Mary Jo Hausman, Jill Lindsay

Guest with Flo Rida

Barry Sloane and Katy O'Grady



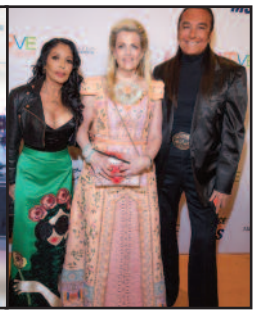
Karlee and Mike Albee and Julie Blew

Peter Facinelli

Mariella Rickel

Bill MacMillan, Bill Brinkerhoff, Christina Brinkerhoff, Steve Ponce, Meredith Hotz

Francesca Capaldi



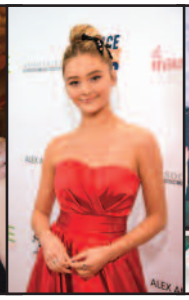
Mayte Garcia, Nancy Davis, and Nick Chavez

Michael Campion

Loni Anderson

Guest with Steven Cojocaru

Howard and Pamela Levine



Lizzy Greene

Flo Rida with Guests on Stage

Cammy MacMillan, Lynn Palmer, Jourdan Block, Deborah Maguire

Yvette Edidin and Family

Center Without Walls Doctors

Scott and Lisa Arnold

Jeneatte Elsner and Guest

Fatma Yuceler, Jessica Hulton
Farid Zekri, Neil Thwaites, Jenny Huang

Teri Hausman, Nancy Davis,
Mary Jo Hausman, Dorothy Lucey

Stacey Bendet
and Tessa Hilton

Corey Gamble, Kris Jenner,
Nancy Davis, Kathy and Rick Hilton

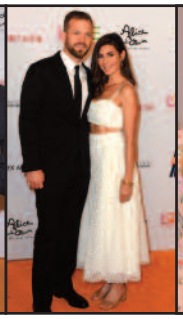
Jack Osbourne

Sark Ohanian, Mark Held,
Michael Uncapher, Richard David

Selma Blair
and Robin Roberts

Dana and John Hausman,
Lauren Hausman with Friend

Nancy Davis with Ken, Isabella and Mariella Rickel



Cutter Dykstra,
Jamie-Lynn Sigler

Nancy Davis
and Avril Lavigne

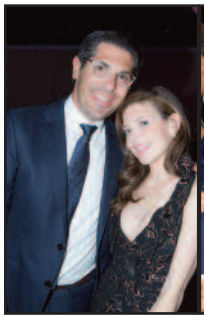
Mariella Rickel, Alexander Davis,
Nancy Davis and Isabella Rickel

Diane Warren

Martyn Lawrence Bullard,
Dee and Tommy Hilfiger

Brandon Davis and Jessica Hart
with Guests

Danielle Rager, Nancy Davis and
Jason Davis

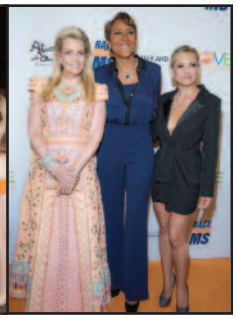


Ken and Brooke
Lande

Selma Blair and Son, Nancy Davis,
Isabella Rickel and Frances Fisher

Nancy Davis, Fernando and
Mari Allende and Adan Allende

Elizabeth Gillies, Jamie-Lynn Sigler,
Mariella and Isabella Rickel and Friends

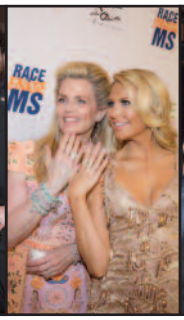


Nancy Davis, Robin Roberts,
Sarah Michelle Gellar

Paul and Suzanne
Berman

Nancy Davis with Family and Friends

Deborah Maguire, Cammy MacMillan, Bill MacMillan,
Fallon Kretoski, Casey Krammer, Matt Westray



Nancy Davis
and Stephanie Pratt

Friends with
Shelby and Tommy Chong

highlights from the lab

Center Without Walls Program 2019-2020 Research Update

Our mission is to fund cutting-edge, innovative research programs in our quest to find a cure for MS. Below are the 2019-2020 grantee research summaries from our newly awarded Young Investigators and Innovation Awards as well as updates from our second year Young Investigator grant awardees that began their basic science research in 2018.

1st Year YI Grant Recipients:

Marwa Kaisey, MD
Assistant Professor
Department of Neurology, Cedars-Sinai

Assessing Arterial and Venous Vascular Markers in the Brain and Retina in Multiple Sclerosis: While new and effective treatments for multiple sclerosis continue to become available, we sorely lack novel, accurate tools to diagnose and track MS. Arteries and veins in the brain and the eye may show changes that help with MS diagnosis and disease activity; they also hold potential clues for understanding what causes MS and unearthing new treatment targets. We will investigate brain arterial vessel changes in MS. Research has demonstrated the key role of the brain's blood vessels in perpetuating MS for decades. We also know that MS is more severe in patients with risk factors for diseases of the blood vessels that lead to heart attack and stroke. The small vessels themselves, however, have been difficult to investigate because, until recently, this required a brain biopsy or invasive angiography. We plan to use a non-invasive method, a new MRI technique, to investigate arterial markers that have not been defined in people with MS before.

The retina, an area in the back of the eye, is an easily visualized extension of the brain and central nervous system and so may be a practical tool to help diagnose MS and measure its activity. We will employ two non-invasive retinal photography techniques to visualize arteries at this interface between the eye and the brain.

Joseph J. Sabatino, Jr., MD/PhD
HS Clinical Instructor, Neurology
UCSF Weill Institute for Neurosciences

Myelin-specific CD8+ T cell clonal analysis in MS: MS is an inflammatory demyelinating condition of the central nervous system (CNS) believed to be mediated by autoreactive immune cells. Although largely overshadowed by CD4+ T cells and B cells, numerous lines of evidence suggest CD8+ T cells have a critical role in MS pathogenesis. CD8+ T cells from MS lesions appear to express similar T cell receptors (TCRs), suggesting that they are expanded in response to an antigenic stimulus within the CNS. Despite these observations, little is known about which antigens CD8+ T cells may be targeting in MS. Myelin antigens are one such potential target, and we have recently demonstrated evidence of increased activation of myelin-specific CD8+ T cells in MS patients.

The goal of this project is to compare the TCR usage of myelin-specific CD8+ T cells of MS patients and control subjects. In parallel, we will perform TCR sequencing analysis on total CD8+ T cell populations in the cerebrospinal fluid (CSF) and blood of the same individuals. By comparing the CSF-derived TCR sequences with those of myelin-specific CD8+ T cells from the blood, we can determine if CD8+ T cells targeting myelin are present and expanded within the CSF of MS patients. We believe this study will advance our understanding of which CD8+ T cells are involved in MS and potentially pave the way towards developing new biomarkers or therapeutic targets.

Jonathan D. Zurawski, M.D.
Associate Neurologist, Brigham & Women's Hospital, Dept. of Neurology
Instructor of Neurology, Harvard Medical School

Leptomeningeal Enhancement in Multiple Sclerosis—A 7T MRI Study: Leptomeningeal inflammation and associated cortical injury are novel findings in people with multiple sclerosis (MS) and may play a key role in the pathophysiology of disease progression. The detection of leptomeningeal enhancement (LME) by 7T MRI provides a promising new in vivo surrogate marker for such changes, potentially providing a non-invasive method to assess the risk of disease worsening. In this study, we aim to evaluate the prevalence, longitudinal change, associated tissue damage, and serum immunological correlates of LME using 7T MRI.

In a 2 year longitudinal study, we will evaluate the hypotheses that LME is associated with 1) MRI-defined cortical demyelination and cortical atrophy, 2) physical disability and cognitive impairment, and serum immune activation as assessed by miRNA profiling and lipid antibody activation. Ultimately, a better understanding of the factors leading to disease progression should lead to understanding disease heterogeneity and the identification of new therapeutic targets.

highlights from the lab

2nd Year YI Grant Recipients:

Michael Davin Kornberg, M.D., Ph.D., Assistant Professor of Neurology, Johns Hopkins

Bryostatin-1 as a potential modulator of the innate immune system in progressive multiple sclerosis: Progressive MS, which lacks satisfactory treatments, is characterized by chronic activation of so-called "innate" immune cells (macrophages and microglia) in the nervous system. These chronically activated innate immune cells cause ongoing injury and prevent repair processes such as remyelination, but no treatments targeting these cells have been developed. Our previous work has found that a brain-penetrant, naturally occurring drug called bryostatin-1 shows benefit in an animal model of MS by specifically targeting the innate immune system, differentiating it from current drugs and raising the possibility that it might be effective in progressive MS. We are currently conducting work to better understand how it works, along with whether it's capable of suppressing innate immune cells within the brain and promoting remyelination.

Erin Longbrake, MD, PhD Assistant Professor, Department of Neurology, Yale University

Interactions between gut microbiome and B-cell depletion in MS: During the first year of the Young Investigator award, we developed our capacity for patient recruitment and made good progress towards enrolling newly diagnosed MS patients and obtaining serial specimens from patients initiating B-cell depletion. Additional studies to characterize bacterial metabolites of interest (e.g. short chain fatty acids) are underway. In Year 2 of the proposal, we will continue to recruit patients and will undertake multiple rounds of microbiome sequencing and metabolite characterization. The gut microbiome is influential for the development of the immune system, and bacteria living in the gut are sensitive to changes in the environment (like obesity, low vitamin D, etc). The gut microbiome is also dysregulated by autoimmune diseases like MS. Therefore, we think that the gut microbiome may be an important link connecting the altered MS immune system with environmental risk factors of the disease.

We also believe that MS medications depleting B-cells will have important effects on the gut microbiome and that this may be part of the reason these drugs are so effective in MS. My project is designed to identify what microbiome changes are induced by the medication. Future studies will then examine how these drug-induced changes impacts the disease.

Innovation Grant Summaries 2019-2020

Peter Calabresi, M.D. Professor of Neurology and Director of the Johns Hopkins MS Center

Targeting Neurotoxic Glia to Promote Neuroprotection: Multiple sclerosis is a major cause of non-traumatic progressive disability in young people. While we have several drugs to treat relapsing forms of the disease, there is an unmet need to prevent disability progression. In this application we propose to examine how certain brain cells called glia become activated in a way that cause damage to the myelin and nerves as occurs in people suffering from multiple sclerosis.

Our team has discovered that a new drug, NLY01, may be especially effective at getting into the brain and suppressing the type of brain inflammation that we think causes damage to the nerve cells in people with MS. We have preliminary data that this drug suppresses the onset of brain inflammation in animals that is similar to what we see in people with multiple sclerosis. In this study we plan to treat the animals, after they are already diseased, to see if the new drug can suppress the ongoing brain inflammation and prevent nerve damage. These research lab studies will provide critical new information to scientists about inflammation in the brain causes damage, and will speed up the translation of this drug into clinical trials in people suffering with multiple sclerosis.

Dennis Bourdette, M.D., FANA, FAAN Professor of Neurology, School of Medicine, OHSU In collobration with David Huang M.D., Ph.D., OHSU

Retinal blood flow as a Biomarker in MS:the eye as a window to the brain: Blood vessel damage in the brain and spinal cord is important to increasing neurodegeneration in MS. MS patients with vascular disease risk factors, such as high blood pressure and high cholesterol, have more disability. Previously, studies measuring blood flow in MS have relied on expensive and very difficult MRI techniques. Our study explores Optical Coherence Tomography Angiography (OCTA) as a new, fast, non-invasive test to measure blood flow changes in retina of the eye and we believe reflect similar changes in the brain.

Prior work shows that MS patients have decreased retinal blood flow on OCTA compared to healthy adults and that this blood flow can improve over time. Our study seeks to explore these blood flow changes in the retina in patients with early MS and determine if these blood flow changes predict disease worsening. Our long-term goal is to use this pilot data to explore OCTA as an outcome measure to help develop neuroprotective therapies.

(CWW continued on Page 10)

highlights from the lab continued from page 9

David A. Hafler, M.D.
Professor of Neurology and Immunobiology
Chairman, Department of Neurology
Yale School of Medicine

Defining the role of B cells in myelin-reactive T cell induction and maintenance: Relapsing-remitting multiple sclerosis (MS) is a genetically-mediated, neuroinflammatory autoimmune disease characterized by inflammation in the brain and spinal cord. Immune cell recognizing brain proteins are thought to be critical mediators of this process and we have previously demonstrated that these brain reactive immune cells from patients with MS are inflamed, characterized by production of immune mediators that induce tissue destruction in the brain and spinal cord. This is different from healthy individuals without MS where the immune cells recognizing brain proteins secrete immune mediators that suppress inflammation. While these autoreactive immune cells are thought to be critical inciters of inflammation in the CNS of patients with the disease, the mechanism for the switch from anti-inflammatory to an inflamed state in MS is not known. It is critical to resolve both the unique pathogenic phenotype of autoreactive immune cells and the immunological networks promoting their dysfunction. Specifically, we will identify the antigen-presenting cells and cytokine producers that initially breach self-tolerance and supply signals to skew immune cell differentiation toward inflammatory subsets.

Ahmet Hoke M.D., Ph.D. FRCPC
Professor, Neurology and Neuroscience
Director, Neuromuscular Division
Johns Hopkins School of Medicine

Evaluation of Hsp90-SF3B2 axis to prevent axonal degeneration in MS: Secondary axonal degeneration remains one of the main challenges in multiple sclerosis (MS) with no effective therapies to prevent it. Although the exact mechanisms that lead to axonal degeneration in MS are unknown it is highly likely that they share some common molecular pathways involved in axonal degeneration seen in the peripheral nervous system.

Recently we identified Hsp90-SF3B2 axis as an important player to prevent axon degeneration. We will be testing the relevance of this molecular axon protection pathway in vitro and in vivo using MS models. If successful, this opens up a new therapeutic target for MS.

Mark Petersen, M.D.
Assistant Professor, Pediatrics, Neonatology Division
University of California San Francisco
Visiting Scientist, Gladstone Institutes

Single cell analysis of the CNS oligovascular niche during demyelination and regeneration: In MS, the nerve fibers in the brain and spinal cord lose their protective coating, called myelin, impairing the cell's ability to transmit signals leading to problems with cognition, sensation, and movement. Myelin can be regenerated from stem cells that normally reside in the central nervous system in a process called remyelination; however, remyelination is blocked in MS leaving the brain unable to repair damaged myelin. If we understand why this repair mechanism is halted in the brain, we may be able to discover new treatments that promote recovery and stop the progression of MS.

In previous efforts to promote brain repair in MS, scientists have focused on understanding what happens inside the cell. We have focused instead on the toxic proteins and inflammatory signals accumulating in the environment outside the cell. In MS, blood vessels in the brain become damaged which allows proteins from the blood to leak into the nervous system. We recently discovered that the blood clotting protein fibrinogen causes inflammation in the brain and blocks myelin repair. The goal of this project is to better understand how leaky blood vessels and fibrinogen block stem cells from repairing damaged myelin. This would open the possibility for new types of therapies to promote brain repair by targeting the inhibitory environment in the MS brain.

In this project, we will use a new microscope technique that allows us to see and specifically label cells around blood vessels in the living mouse brain. Using this technique in an MS animal model, we will label and isolate cells around leaky blood vessels in an area with myelin damage and compare them to the cells in an area of myelin repair. We will also determine whether genetically altered mice resistant to fibrinogen-induced inflammation are able to replace lost myelin better than normal mice. This research will provide basic information about the cell populations and inflammatory signals that block repair in MS and how the blood protein fibrinogen may contribute to MS disease progression. This could lead to new therapies to help patients with MS and many other diseases associated with myelin damage.

Save the Date
MS Forum and Expo

SPRING 2020
Saturday, May 9, 2020
10:00 am
The Beverly Hilton

FALL 2020
Saturday, November 14, 2020
10:00 am
Fairmont Century Plaza

Open forum with our top MS research scientists speaking on the latest advancements in multiple sclerosis research. Free to the public and no RSVP required. For more information please visit our website or follow us on social media.

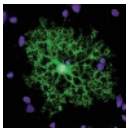
RACE to ERASE MS

Oligodendrocytes and Myelin

By Eve Kelland, Ph.D. and Wendy Gilmore, Ph.D, USC

As we all know, multiple sclerosis is a neurological disease in which myelin is damaged by inflammation, causing nerve cells to function inefficiently and eventually become damaged. Myelin is a very important substance in the nervous system. It can be compared to the insulation on electrical wires, except that it is composed of a specialized assembly of lipids and proteins, and it is produced by unique cells in the central nervous system known as oligodendrocytes.

Oligodendrocytes are stunningly beautiful in appearance, with many long star-like processes or "arms" that reach out to nerve cells and wrap themselves around them many times to form a multi-layered myelin "hug", or myelin sheath. The portion of the nerve cell that is myelinated is called the axon—it is this structure that is responsible for sending messages between nerve cells and the rest of the body. It is the job of the myelin sheath to make sure that these messages are sent rapidly and with purpose, as well as aid in the well-being of the axon and nerve cells by providing nutritional support. In the central nervous system, the myelin sheath can only be produced by mature, or adult, oligodendrocytes—they are the ones with the specific skill set to build and maintain myelin. Myelin sheaths last for many decades, perhaps even for our entire lifetime. However new research has shown us that even in a healthy environment there is myelin turnover, maintenance and replacement. Unfortunately, we also know that in diseases like MS, many oligodendrocytes are damaged and lost, so it is necessary to replace them to restore proper function. In order to accomplish this (both in health and injury), nature has provided us with a "pool" of younger, immature cells known as oligodendrocyte progenitor cells, or OPC. Oligodendrocyte progenitor cells occupy specific regions or "niches" in the brain until they receive a signal that they are needed. They look very different than their older mature counterparts in that they often only have a few short processes. It is this unique streamlined appearance that allows them to travel through the tightly woven environment of the brain, often dividing to increase their numbers along the way. Once they arrive at the source of the problem, the OPCs stop dividing, and begin a fascinating process of becoming mature oligodendrocytes capable of making myelin.



** Figure Caption: Photograph of a mature oligodendrocyte with extensive and elaborate processes (green staining) that are capable of making myelin and wrapping axons. Blue staining shows nuclei of nearby cells that are not oligodendrocytes. Photo courtesy of Eve Kelland, Ph.D.

In MS, research studies indicate that although oligodendrocyte progenitor cells are capable of traveling to sites of inflammatory myelin damage, they are somehow blocked from entering or completing the process of maturation. There is a great deal of interest in identifying what steps in OPC maturation are blocked, and how they can be overcome to encourage myelin formation and myelin repair. There is promise in the progress of current research efforts: we know a lot about the basic function of oligodendrocytes and OPC, summarized above. We know that oligodendrocytes aren't happy in an inflammatory environment like an MS lesion, but need 'good' inflammation to respond appropriately to the damage. We have identified molecules that can provide signals to OPC to mature and have begun to test them in clinical trials. Research studies are also being conducted to determine what effect, if any, currently approved disease modifying drugs for MS have on oligodendrocytes and OPC. Finally, we have begun to find out that dysfunctional OPC may become turncoats and trigger inflammation to perpetuate the disease process in MS. Collectively, knowledge of oligodendrocytes and OPC are essential to understanding MS, as well as to the development of new treatment strategies that can protect these remarkable cells and promote repair.

RACE TO ERASE MS

CENTER WITHOUT WALLS
Collaborating Physicians

Dr. Katerina Akassoglou, UCSF
Dr. Lilyana Amezcua, USC
Dr. Rob Bakshi, Harvard
Dr. Lisa Barcellos, UCSF/Berkeley
Dr. Pavan Bhargava, Johns Hopkins
Dr. Dennis N. Bourdette, OSHU
Dr. Peter A. Calabresi, Johns Hopkins
Dr. Michele Cameron, OHSU
Dr. Margarita Dominguez-Villar, Yale
Dr. Ben Emery, OHSU
Dr. Wendy Gilmore, USC
Dr. David Hafler, Yale
Dr. Roland Henry, UCSF
Dr. Adam Kaplin, Johns Hopkins
Dr. Eve Kelland, USC
Dr. Vijay Kochroo, Harvard
Dr. Brett Lund, USC
Dr. Kelly Monk, OHSU
Dr. Ellen Mowry, Johns Hopkins
Dr. Gopal Murugaiyan, Harvard
Dr, Bardia Nourbakhsh, Johns Hopkins
Dr. Kevin O'Connor, Yale
Dr. Dan Ontaneda, NAIMS Project
Dr. Daniel Pelletier, USC
Dr. Samuel Pleasure, UCSF
Dr. William Rooney, OHSU
Dr. Nancy Sicotte, Cedars-Sinai
Dr. Rebecca Spain, OHSU
Dr. VJ Yadav, OHSU
Dr. Emmanuelle Waubant, UCSF
Dr. Howard Weiner, Harvard
Dr. Leslie Weiner, USC
Dr. Katie Whartenby, Johns Hopkins
Dr. Don Zack, Johns Hopkins
Dr. Scott Zamvil, UCSF

2019-2020 Young Investigators
Dr. Marwa Kaisey, Cedars-Sinai
Dr. Michael Kornberg, Johns Hopkins
Dr. Erin Longbrake, Yale
Dr. Joseph Sabatino, Jr., UCSF
Dr. Jonathan D. Zurawski, Harvard

(ECTRIMS continued from Page 1)

patients with the highest levels of serum neurofilament also appeared to have increased neurologic disability. They were also more likely to have diabetes. More work is needed to determine whether regularly testing neurofilament levels can help better control disease for individual MS patients.

Comorbidities in MS: Several speakers highlighted that persons with MS frequently have other comorbid diseases like strokes, cardiovascular disease, sleep apneal, depression and others. These medical comorbidities may precede the diagnosis of MS. Being aware of the likelihood of such comorbidities will be important both for physicians managing MS and for patients, who need to make sure to continue seeing a primary care physician as well as their MS specialist.

Progressive MS: Our current armamentarium of MS disease modifying therapies provides significant protection against relapses and new MRI lesions. The long-term effects of MS treatments on the development on progressive MS is not clear. In a large retrospective analysis of relapsing MS patients, one study group revealed that earlier initiation of MS treatment reduced the risk of conversion to progressive MS. From a mechanistic perspective, one of the big ongoing questions in the field is to what extent disease progression is due to inflammation. Several groups presented data demonstrating that T cells and B cells, immune cells strongly implicated in relapsing MS, were present at high levels in progressive MS lesions. It is hoped that improved understanding of MS progression will allow development of more effective therapeutic strategies against this challenging aspect of the disease.

Immunologic Mechanisms of MS: There was a number of presentations evaluating the different aspects of the immune system in MS. One study demonstrated that gut bacteria in MS patients were coated with a certain class of antibodies. Interestingly, these microbiota-reactive antibodies were increased in the spinal fluid during MS attacks. Another presentation revealed that myelin-reactive CD8+ T cells, also called killer T cells, are more activated in MS patients, which was partially reversed following B cell-depletion. There is also renewed interest in the use of "antigen-based" treatments in MS, which could avoid the risks of broad immune suppression. Although prior studies were hampered by safety concerns, a new phase 1 trial demonstrated a novel myelin antigen tolerization strategy was safely tolerated in MS patients. Further studies will be needed to determine whether this strategy may be effective in MS.

Treatments for MS: Many presentations continued to demonstrate the effectiveness of B-cell depleting medications and other existing MS treatments, as well highlighting the effectiveness of several new treatments in the pipeline. One retrospective study suggested that the most highly effective treatments (Ocrevus and Tysabri) were disproportionately beneficial to patients who received them at younger ages. Phase 3 clinical trial data were presented for ofatumumab, a second-generation B-cell depleting medication. Ofatumumab was found to be more effective than teriflunomide (Aubagio) for controlling MS relapses and new brain lesions; like the currently approved medication Ocrevus, ofatumumab almost eliminated the appearance of new lesions on MRI. Ofatumumab is administered by monthly subcutaneous injections at home, and once approved, it may provide a convenient, home-based but highly effective option for MS treatment. Phase 3 results for another oral medication, ponesimod, were also presented; ponesimod was superior to Aubagio for preventing relapses and also appeared to improve fatigue symptoms for patients in the trial.

A Second Look at Homeopathy

By Lynn Wagner, CCH RSHom(NA) DHom(UK) and Board Member of the National Center for Homeopathy: With its stellar safety record, low cost and the lack of any known pharmaceutical drug interactions, consumer and professional use of homeopathy is growing exponentially. Although sometimes considered controversial in the United States, homeopathy and homeopathic remedies deserve a second look. As the second most widely used form of healthcare in the world, it has been in continuous use for over 200 years. Non-toxic homeopathic remedies are safe for use by all, including pregnant women and infants. Remedies are made from plants, minerals and animals, diluted in water and put under pressure to create broad acting medicines with a unique approach to healing. Studies have shown that homeopathy can relieve physical symptoms as well as mental and emotional issues, a true holistic solution.

Retailers including Walmart, CVS and Wegman's are rushing to meet rising consumer demand for homeopathic products as families opt for homeopathy to address minor first aid ailments such as bruises, sprains and flu. Today increasing numbers of medical doctors are recommending homeopathy in the treatment of both acute illness and chronic disease such as MS, especially when individuals experience intolerable side effects from conventional medicines. Homeopathy is also invaluable when no clear pharmaceutical solution exists. Certified homeopathic practitioners can provide additional support for people by recommending ways to use homeopathic remedies to stimulate and strengthen the immune system. To learn more about homeopathy, attend an informational webinar, or to find a practitioner in your area, visit the National Center for Homeopathy's website at www.homeopathycenter.org.

Always consult with your physican first. Race to Erase MS does not endorse any medications or therapies.

NBA Player, Jordan Bell, Hosts 1st Annual Celebrity Basketball Game Benefiting RACE TO ERASE MS

On Saturday, August 17, 2019 Jordan Bell, NBA Player with the Minnesota Timberwolves, partnered with Race to Erase MS for the 1st Annual Jordan Bell Celebrity Basketball Game, which took place at Long Beach State University. All funds raised from the game were donated directly to Race to Erase MS and its Center without Walls program, unique collaboration of the world's leading MS scientists on the cutting-edge of innovative research and therapeutic approaches to treat MS. In addition to combating MS through clinical research, the foundation hopes to increase awareness by educating the public about this disease.

Players and participants in attendance included Lonzo Ball, Javale McGee, Karl-Anthony Towns, Austin J. Mills, BDot, Brittney Elena, Cappie Pondexter, Dax, DMo, Don Benjamin, Famous Los, Marcelas Howard, Max is Nice, Ros Gold-Onwude, Francesca Capaldi, and more. "I'm so excited to partner with Race to Erase MS for my first annual Celebrity Basketball Game," said Jordan Bell. "Being able to combine my love for basketball with supporting a cause that is near and dear to my heart means a lot to me and my family!" Jordan's girlfriend, Carissa West, was diagnosed with MS, and he wanted to start this event in honor of her. He gave the most emotional and tearful speech about his love for her and his passion to help find a cure for MS. "We are so thrilled that Jordan Bell has chosen Race to Erase MS as the benefactor of his first annual charity game. We are incredibly grateful for his support and are looking forward to working together to help spread awareness about this life altering disease," said Race to Erase MS founder Nancy Davis.

Don Benjamin, Nancy Davis, Carissa West, Jordan Bell and Dax

Jordan Bell Team

Austin J. Mills and Dax

Richard Gardner's When I Swim Foundation

Richard Gardner

Thank you to Richard Gardner who inspires us all to live our best life! You are a true role model and we are so grateful for the importnat funds you raised to benefit Race to Erase MS. Richard raised $8,000 to help us Erase MS and below is his story.

Letter to my Friends, Family, & Supporters: I entered the water at 6:30 AM at Recreational Point on the North End of Bass Lake to start my swim of the length of Bass Lake. The Sun had just cast her first rays of light onto the water and surrounding mountains. It was quiet and serene with only the sounds of Steller Jays welcoming in the morning. The air was calm, the lake was without a ripple, and the water was warm and inviting. I could not have asked for a better stage and backdrop as I began my Third Swim of Bass Lake – 48 years later in life. It took me just over two hours to swim the length of the Lake on Saturday Aug. 3, 2019 doing so with the support of my close friends getting me to and from the lake, and paddling alongside me as I swam. I could not have done this without them, nor could I have done this without all of you in your support and in your donations in helping me raise MS Awareness and funding to help find a cure for MS.

.

Richard Gardner created *When I Swim Foundation* to raise MS awareness through Open-Water Swimming Events and individual Open-Water Lake Swims throughout the Sierra Nevada Mountains: Providing Funding for MS Research and Quality-of-Life programs and events for those Living with MS.

Shop to Erase MS

shop.erasems.org

Look out for new products and Month of May Campaign Partners in 2020!

Send a Tribute

Pay tribute to friends and family by making a tax-deductible donation to the Race to Erase MS. A loving card will be sent with your personal message to friends and family on your behalf.

Propel us one step closer to finding a cure for MS!

Join our Virtual

RACE TO ERASE MS

Crowd Fundraise and Earn Tickets to the Gala Event!

Join today and reach out to your community to fundraise online to help find a cure for MS.

Every dollar counts towards a cure, and you can earn tickets to attend our 27th Gala Event on May 8, 2020 at The Beverly Hilton. For more information and to sign up today visit: www.erasems.org/virtual-race/

Semi-Annual MS Forum and Expo

Our winter MS Forum took place on December 7, 2019 at The Beverly Hilton. Nancy Davis and board member, Claudia Curry Hill, welcomed guests to the event. Panelists included Dr. Margarette Burnett, Dr. Emmanuelle Waubant, Dr. Rhonda Voskuhl, Dr. Erin Longbrake, Dr. Peter Calabresi, Dr. Rob Bakshi, Dr. Nancy Sicotte, Dr. Adam Kaplin, Dr. Vijay Yadav and guest Damian Washington.

Visit our Race to Erase MS Facebook page to watch the archived Facebook Live Forum and listen to the important topics covered by the panel including the recently approved MS therapies (Mayzent, Mayenclad, Vumerity), new therapies in the pipeline for approval (Ozanimod, Ponesimod, Ofatumumab) as well as bone marrow transplant. The subject of pregnancy, and breastfeeding in MS including use of DMT was also covered as well as the hormonal issues in men. Other topics included gut microbiome in MS, remyelination and repair including metformin, high dose biotin, lingo and stem cell therapy. The panel talked about new imaging techniques for MS diagnosis, the treatment and monitoring of remyelination and repair, management of depression and anxiety, and symptom therapy and lifestyle in MS. It was a highly illuminating morning with incredible cutting-edge information on MS.

Don't miss our next MS Forum and Expo May 9, 2020. The event is free and open to the public and we welcome you, your family, and friends to attend this unique opportunity to ask questions, receive resources and information, and to speak directly to top MS research doctors from around the country. Our past forums are available to view on our Facebook page at any time and our future forums will always be accessible via Facebook Live. Make sure to follow us on our social media platforms or check our website to obtain updates on our topics for 2020.

Race to Erase MS Forum panelists, supporters and guests

alice + olivia by Stacey Bendet Shopping Event

Tawny Sanders, Nancy Davis, Lynn Palmer, Isabella Rickel, Brenda Richie, La Toya Jackson

On Wednesday, December 4, 2019, alice + olivia hosted "Shop To Erase MS" at the alice + olivia store in Beverly Hills. The sale included the latest collection. The event was hosted by Race to Erase MS Founder Nancy Davis alongside co-hosts, Isabella Rickel, Mariella Rickel, Caroline D'Amore, Debbie Lustig, La Toya Jackson, Lynn Palmer, Brenda Richie and Tawny Sanders.

20% of sales benefited the Race to Erase MS and our Center Without Walls program, a collaboration of top MS research centers working together as a team on ground-breaking research with the goal of treating and, ultimately, finding a cure for MS.

We are so grateful to Stacey Bendet for her incredible support of our mission and her dedication to helping us win our Race to Erase MS.

Isabella Rickel and Mariella Rickel

Brenda Richie, Nancy Davis La Toya Jackson

Jezlan Moyet

Isabella Rickel, Guest, Nancy Davis, La Toya Jackson, Barbara Davis

Steven Cojocaru

amazonsmile

Already love Amazon? How about using AmazonSmile! The same great Amazon you love but with .05% of the profits being automatically donated to us!

To Sign Up for smile.amazon.com: If you have not already selected a charity through Amazon, sign into your account, select **Accounts and Lists**, choose **Amazon Smile Charity Lists**, then click on **Join Amazon Smile**. It will request that you sign back into your account, then it will prompt you to find a charity. Search for Race to Erase MS.

To Change Your Charity: Sign in to **smile.amazon.com** on your desktop or mobile phone browser. From your desktop, go to Your Account from the navigation at the top of any page, and then select the option to Change your Charity. Or, from your mobile browser, select Change your Charity from the options at the bottom of the page.

1875 Century Park East, Suite 280
Los Angeles, CA 90067

Address correction requested

Non-Profit Org.
U.S. Postage
PAID
Paramount, CA
Permit No. 31

LOVE TO ERASE MS

27th Annual Race to Erase MS

May 8, 2020 | 6:30pm | The Beverly Hilton

Silent Auction | Cocktail Reception | Dinner | Live Performances

To learn more please call 310-440-4842
or visit us at erasems.org