Greetings! We’re always excited to welcome friends to join us in March to celebrate our annual National Autoimmune Disease Awareness Month. As usual, we’ve packed important activities into these four weeks, and I want to give you a sampling before you read all the details in this newsletter. Be sure to take time to read about our annual Detroit-area fund raiser, the schedule of events, and other items of note.

First, however, I must share the good news about the generosity of our supporters in responding to our Annual Appeal. As of this writing, we have reached a total of $53,664. Thank you, thank you, thank you! Projects have been awaiting funding, and now they can become reality. On that happy note, let’s look to some of our special March awareness activities.

- A Congressional Briefing continues our reaching out to members of Congress and their staffs concerning health care issues important to autoimmune disease patients. These briefings, held in conjunction with our friends in the National Coalition of Autoimmune Patients Groups (NCAPG), not only educate but also emphasize the need for autoimmune research funding.

- Our March Autoimmune Disease Awareness Public Campaign expands and enhances our ongoing education, awareness, and advocacy efforts. YOU can help. How? I urge you to “reach out to five.” Yes, simply introduce five people with whom you come in contact to the category of autoimmune disease. A short conversation could save a life—and you will have taken part in our national campaign. I’ve always been amazed at how breast cancer patients, their families, and friends work so effectively to spread breast cancer awareness. Can we do the same with autoimmune disease? Let’s not wait for “someone out there” to do this for us. Each one of us has a vital story to tell. Let’s take action ourselves.

- Another great education/awareness opportunity is our Autoimmune Summit Meeting scheduled for March 23. This daylong meeting will focus on the state of autoimmune research, advocacy, and other issues that directly affect patients. The entire meeting is open to the public, patients, media representatives, health policy makers, researchers, and interested others. One important topic to be addressed is the overwhelming fatigue that plagues so many autoimmune patients.

You can help us gather data on this issue. Please take the Fatigue Survey that can be found at www.aarda.org.

- On a light note, but one with a real purpose of raising funds for autoimmune research and services for autoimmune patients, is a “Pajama Dance Challenge” started by one of our AARDA volunteers on her Facebook. Could this possibly match the highly successful Ice Bucket Challenge for ALS? Please don your PJs and challenge your friends and relatives. Be sure to upload the video to AARDA’s Facebook page and donate, donate, donate! This is another thing that we can do to help ourselves.

Now may I share with you a subject dear to my heart? Ever since founding AARDA more than 20 years ago, I have been campaigning unsuccessfully for a major donor—a really significant major donor—to support the founding of at least one major autoimmune disease medical center in this country. It could provide patients with a multiple diagnostic triage and coordinated care while offering researchers opportunities for integrated research representing all autoimmune diseases. It always has been frustrating for me to think that in a country such as the USA there is no major autoimmune diseases medical center—yet centers exist for other illnesses, e.g., heart disease, diabetes, and cancer. Why is our autoimmune disease voice not being heard? Why must our treatment resources be scattered?

I am pleased to say that, with AARDA Board approval, I have decided to step out in faith and make a significant contribution myself to start a fund to establish an autoimmune disease medical center for the aforementioned diagnostic triage, treatment, and integrated research. I know that this is a very ambitious plan since we have no philanthropic donor to get us started. However, I am reminded of two of my mother’s favorite sayings when I was a child: “Where there is a will, there is a way,” and “Everything good starts with good intentions and a first step toward your goal.”

The first step has been made. In a survey we conducted some time ago, we found that 90 percent of respondents said that such a center is needed—and 78 percent said that they would contribute to such an effort. Now it’s time. I invite you to contribute to this major effort. Your contribution, large or small, will move this dream along. Are you in? Please give us a call if you want to be part of this gigantic effort. What an exciting prospect!

From all of us here at AARDA, thank you for your interest in our work and your support, as you find possible, for the 50 Million Americans needing our help.

With appreciation,
Virginia
InFocus, a quarterly newsletter of the American Autoimmune Related Diseases Association, Inc. (DBA Autoimmune Diseases Association)

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AARDA Survey Finds Overwhelming Majority of Patients Lack Understanding of Biosimilar Drugs

Recently, AARDA issued a white paper to educate its membership and the patient community about biosimilar medicines after a survey found most patients were generally unaware of this new category of medicines which may soon be approved in the U.S.

“Unlike chemically based drugs, biologic medicines have the unique ability to target the underlying cause of a disease, representing a huge breakthrough for patients suffering from many serious autoimmune diseases,” said Virginia Ladd, President and Executive Director of AARDA. “The results of our member survey illuminated just how limited awareness is around these life-saving medications – especially among those who need them most.”

The white paper provides a comprehensive overview of biologic medicines, which are used to treat serious illnesses including autoimmune diseases, immune deficiencies and cancer, and comes as the U.S. Food and Drug Administration (FDA) works to finalize its guidelines for the approval of biosimilars – drugs that are similar but not identical to original biologic medicines. The survey of 362 AARDA members – 96 percent of whom reported living with an autoimmune disease – found that more than 80 percent of respondents did not know what biosimilar medicines were and about 52 percent did not understand how biologics differ from chemical drugs.

The Affordable Care Act (ACA) established a pathway for the FDA to approve biosimilar drugs in the U.S. for interchangeable use with brand name biologic medicines. As biologic therapies reach the end of their patent protection, the FDA is preparing to release standards for the approval of biosimilar drugs on the basis of analytical and clinical comparison to the already marketed biologic product.

Ladd continued, “It is our hope that biosimilars will increase patient access to these treatments by lowering the cost of this class of drugs. However, patient safety must come first. The white paper will help to ensure all patients living with complex medical conditions are able to understand this category of drugs, be aware of their treatment options and safety issues and work to ensure that the FDA enacts policies that protect patient safety.”

The white paper is available as a free, PDF download on AARDA’s web site: www.aarda.org.


~ Upcoming Education Events for 2015 ~
Sponsored, cosponsored, or supported by AARDA

March 23 – “The State of Autoimmune Disease: A National Summit” - 9 a.m. – 4 p.m.

March 24 – Congressional Briefing – Sponsored by AARDA and the National Coalition of Autoimmune Patient Groups (NCAPG) – Washington, DC

March 28 – AARDA Public Forum “What Every American Needs to Know About Autoimmune Disease” - $20 and includes lunch. 9:30 a.m. registration, 10 a.m. to 3:30 p.m.
Limited scholarships are available. Doubletree by Hilton Tampa Airport - Westshore, 4500 W Cypress St., Tampa, FL - Information and registration at https://tampaadforum.eventbrite.com or call 586-776-3900

June 27 – 4th Annual Washington DC Metro Autoimmune Walk, McLean Central Park, 1468 Dolley Madison Blvd., McLean, VA 22102. Registration will begin at the gazebo at 9 a.m.
Visit www.autoimmunewalk.org for more information.
The mercury found in some seafood may be linked to autoimmune disorders among women of childbearing age, new research suggests. Autoimmune diseases develop when the body's immune response goes awry and starts to attack healthy cells. Such diseases include lupus, rheumatoid arthritis, multiple sclerosis, inflammatory bowel disease and “Sjogren’s syndrome.”

All told, these diseases affect roughly 50 million Americans, most of whom are women, the University of Michigan researchers said. “We don’t have a very good sense of why people develop autoimmune disorders,” study author Emily Somers said in a university news release. “A large number of cases are not explained by genetics,” she added, “so we believe studying environmental factors will help us understand why autoimmunity happens and how we may be able to intervene to improve health outcomes. In our study, exposure to mercury stood out as the main risk factor for autoimmunity,” Somers said.

Somers is an associate professor in the departments of internal medicine in the division of rheumatology, environmental health sciences, and obstetrics & gynecology at the University of Michigan Medical and Public Health Schools in Ann Arbor.

Somers and her colleagues reported their findings in the Feb. 10 issue of Environmental Health Perspectives. The research team pointed out that swordfish, king mackerel and tile fish are all known to contain relatively high amounts of mercury. Lower levels are also found in shrimp, canned light tuna and salmon.

This makes any mercury-immune disorder connection troubling for women of childbearing years, the researchers noted, given that the U.S. Food and Drug Administration and the Environmental Protection Agency have long said that consuming up to 12 ounces of seafood a week is safe for pregnant women. To explore risk factors for autoimmune disorders, the study authors focused on government data that looked at women between the age of 16 and 49 between 1999 and 2004.

The result: the higher the exposure to mercury, the higher the rate of proteins called “autoantibodies.” Such proteins are generated when a faulty immune system can no longer distinguish healthy cells from harmful ones, and their presence is considered an indicator and/or precursor of autoimmune disease.

While the study found an association between mercury exposure and the possible development of autoimmune diseases, it did not prove that mercury causes the diseases.

“The presence of autoantibodies doesn’t necessarily mean they will lead to an autoimmune disease,” Somers stressed. “However, we know that autoantibodies are significant predictors of future autoimmune disease, and may predate the symptoms and diagnosis of an autoimmune disease by years,” she explained.

“For women of childbearing age, who are at particular risk of developing this type of disease, it may be especially important to keep track of seafood consumption,” she added. --Source: “Mercury in Seafood May Raise Risk of Autoimmune Diseases in Women: Study,” by Alan Mozes, www.philly.com, published February 12, 2015

Racing Across America for Autoimmune Disease

Lisa Brunckhorst and her teammates, Dustin Weida, Ian Cramer and Nelson Gaker will trek across America to raise money for AARDA. The foursome is participating in the bicycle race, Race Across America (RAAM), that will begin on June 20th in Oceanside, California and end 3,000 miles later in Annapolis, Maryland. Lisa has a very personal reason for selecting AARDA as her team’s charity.

“My mother died from complications of an autoimmune disorder and it continues to run through my family. My sister told me about AARDA as she has been a supporter. Autoimmune diseases are so prevalent, yet few people know about AARDA,” says Lisa.

Lisa is no stranger to the RAAM experience. She has worked at the RAAM time station 41 in Oxford for four years and has met many racers and crews. She says the best part of the experience is listening to the participants tell stories about the charities that inspired their teams.

Serving as the team’s anchor, Lisa, who has been riding for six years, is flanked by strong team members with varying degrees of bike riding experience. Some have even completed an Ironman competition. With all the brute strength surrounding her, she recently discovered that three crew members are living with autoimmune disease.

“Our team exists because we all bring value to it. We want to be part of something difficult and amazing that impacts more than just us. We hope to increase public knowledge of the scope of autoimmune diseases, and raise thousands of dollars for AARDA as well as awareness of its existence,” says Lisa. --

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Quote to ponder and enjoy...

Now and then it’s good to pause in our pursuit of happiness and just be happy. – Guillaume Apollinaire
At the tender age of 22, Boston based college student, Lilly Stairs, has been diagnosed with Crohn’s Disease, psoriasis, hypothyroidism and psoriatic arthritis. Instead of raising a white flag of surrender, she decided to take autoimmune disease advocacy to the next level. Lilly and a couple of her close friends created the “50 Cents for 50 Million (50c50m)” campaign. With this campaign she is encouraging everyone to “cure autoimmune diseases 50 cents at a time.” From the website, wwe.50c50m.com, she not only advocates but she also has long sleeved t-shirts and jewelry for sale. All donations and sales benefit AARDA.

Car manufacturer, Scion, noticed Lilly’s diligence and has partnered with her by loaning the 50c50m group a Scion TC! They used the vehicle to visit Children’s Hospital in Boston. They donated 100 “Strength Bunny” stuffed animals that were offered to children who were diagnosed with autoimmune diseases. They also visited Dorchester’s Boston Home that houses Multiple Sclerosis and neurological disease patients. They also stopped by the home a 15 year old student who is battling Hashimotos, autoimmune hepatitis and Addison’s disease, all autoimmune diseases. She missed 102 days of school last year due to her health. Lilly and her team offered her reassurance and encouraging words. The 50c50m team’s work has recently been documented in the Boston Herald.

**Autoimmune Disease Awareness Day**  
Wednesday, March 25, 2015 - 6:00pm - 10:00pm  
A partnership with restaurants and companies across Boston to raise money for AARDA.

**Laugh for Immunity Comedy Show**  
Wednesday, March 25, 2015, 7:00pm - 10:00pm  
Laugh Boston - 425 Summer St, Boston, MA 02210  
Please visit wwe.50c50m.com for more details.

Many thanks to Raquel Sulaiman of the Detroit Pistons organization for arranging ticket donations from Pistons players Joel Anthony, Greg Monroe and Josh Smith (former Piston)!! AARDA members enjoyed complimentary floor seats, meal vouchers, t-shirts and a chance to sit in their favorite players’ section.

**AARDA Memorial / Tribute Program**  
Write or call us for full details of this program. It can be handled by mail or by phone using Visa, MasterCard, or American Express. Memorial and Tribute contributions bring great satisfaction to donors AND to the recipients (or their families). They also help greatly in our ongoing fight against all autoimmune diseases.

**American Autoimmune Related Diseases Association**  
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**To our readers:** Autoimmune diseases are conditions in which the body’s own immune system can (among other things) cause damage to the skin, joints, and internal organs. Although most autoimmune diseases are not yet preventable or curable, most can be controlled to varying degrees. It is because of the wide variance and severity that the individualization of medical management is so important. It is vital that persons diagnosed with (or suspected of having) an autoimmune disease consult with their physician or with the appropriate division at a major teaching hospital to assure proper evaluation, treatment, and interpretation of information contained in this newsletter. Opinions expressed in this newsletter do not necessarily reflect the views of the American Autoimmune Related Diseases Association or its Scientific Advisory Board.

If you belong to a Service Organization or Fraternal (or other) group which provides financial contributions to charitable organizations, please ask them to consider the AARDA as a potential recipient. Your thoughtfulness could provide a vital link in helping our efforts to promote autoimmune research, education and awareness. (The AARDA is a fully accredited IRS 501 (c) (3) tax exempt organization.)
On January 16, The Step by Step (SBS) Dance Studio in Millstone Township, NJ hosted the Student Choreography Benefit – 2015. The fundraiser raised $1,800 for AARDA! The “Divas” chose AARDA because one of their teachers, Tiffanie Cohn-Masi, bravely lives with Takayasu’s Arteritis. Prior to her diagnosis, Tiffanie was experiencing “blurred vision, migraines, frothy urine, shortness of breath and elevated blood pressure and heart rate.” A two week stay at two different hospitals with a team of 20 specialists eventually diagnosed with Takayasu’s Arteritis almost eight years ago. She said that she feels fortunate to have the support of Step by Step Dance Studio.

“I am honored, blessed, grateful and overwhelmed to say the least! Besides family and close friends, SBS has been by my side from the start,” Tiffanie said. “Everyone has been so kind and supportive. They always show their concern and ask how I’m feeling. Everyone is well aware that if I’m not present at an outside studio related event, it’s usually because I need to rest and everyone is respectful of that. I couldn’t ask for a better support system.”

And the 50 million people living with autoimmune disease are grateful for Tiffanie, the Step by Step staff and the Divas! Thank you for thinking of AARDA and doing your part for advocacy and awareness.

The 15th Annual Derby Luncheon and Auction Fundraiser will take place on Saturday, May 2 at the Iroquois Club located at 43248 N. Woodward Ave in Bloomfield Hills, MI. Parking is free. The festivities will begin at 11:30am and end at 2:30pm. Included in the silent auction are a variety of jewelry, leather tote bags and a pair of Taylor Swift tickets (valued at $600). Tickets are $55 for adults and $30 for youth ages 5-17 and can be purchased by calling the office at 586-776-3900 or emailing aaarda@aarda.org.

Guitarist Eddie Ojeda of the band, Twisted Sister, donated an autographed guitar to AARDA. The guitar will be added to eBay in the near future so get ready to bid! This one of a kind guitar can be yours if the price is right. Also up for grabs are a pair of Taylor Swift tickets (valued at $600). The concert is May 30th at Ford Field in Detroit.

The funds raised will go a long way in helping us carry out our mission in the autoimmune disease field, especially in the areas of education, awareness and advocacy. Make sure that you monitor AARDA’s Facebook page for bidding details for both items.

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Autoimmune Disease Crossword Puzzle

How many words can you find?

--Puzzle courtesy of Althea Cices


AARDA
ARTHRITIS
AUTOIMMUNE
AWARENESS
CHRONIC
CURE
DIAGNOSIS
DISEASE
DOCTOR
EDUCATION
FUNDING
HASHIMOTO
HEALTH
JOINTS
LUPUS
MEDICAL
RESEARCH
STRESS
SYNDROME
WALK

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Did You hear?!?

Guitarist Eddie Ojeda of the band, Twisted Sister, donated an autographed guitar to AARDA. The guitar will be added to eBay in the near future so get ready to bid! This one of a kind guitar can be yours if the price is right. Also up for grabs are a pair of Taylor Swift tickets (valued at $600). The concert is May 30th at Ford Field in Detroit.

The funds raised will go a long way in helping us carry out our mission in the autoimmune disease field, especially in the areas of education, awareness and advocacy. Make sure that you monitor AARDA’s Facebook page for bidding details for both items.
March is Autoimmune Disease Awareness Month (ADAM)
Do YOU have your facts straight?

AUTOIMMUNE DISEASE FACT SHEET

Autoimmune Disease...is a major health problem.
• The National Institutes of Health (NIH) estimates up to 23.5* million Americans suffer from autoimmune disease and that the prevalence is rising. We at AARDA say that 50 million* Americans suffer from autoimmune disease. Why the difference? The NIH numbers only include 24 diseases for which good epidemiology studies were available.
• Researchers have identified 80-100 different autoimmune diseases and suspect at least 40 additional diseases of having an autoimmune basis. These diseases are chronic and can be life-threatening.
• Autoimmune disease is one of the top 10 leading causes of death in female children and women in all age groups up to 64 years of age.
• A close genetic relationship exists among autoimmune disease, explaining clustering in individuals and families as well as a common pathway of disease.
• Commonly used immunosuppressant treatments lead to devastating long-term side effects.
• The Institute of Medicine reports that the US is behind other countries in research into immune system self recognition, the process involved in autoimmune disease.
• Understanding how to modulate immune system activity will benefit transplant recipients, cancer patients, AIDS patients and infectious disease patients.

...faces critical obstacles in diagnosis and treatment.
• Symptoms cross many specialties and can affect all body organs.
• Medical education provides minimal learning about autoimmune disease.
• Specialists are generally unaware of interrelationships among the different autoimmune diseases or advances in treatment outside their own specialty area.
• Initial symptoms are often intermittent and unspecific until the disease becomes acute.
• Research is generally disease-specific and limited in scope. More information-sharing and crossover among research projects on different autoimmune diseases is needed.

...offers surprising statistical comparisons with other disease groups.
• NIH estimates up to 23.5 million Americans* have an AD. In comparison, cancer affects up to 9 million and heart disease up to 22 million.
• NIH estimates annual direct health care costs for AD to be in the range of $100 billion (source: NIH presentation by Dr. Fauci, NIAID). In comparison, cancer costs are $57 billion (source: NIH, ACS), and heart and stroke costs are $200 billion (source: NIH, AHA).
• NIH research funding for AD in 2003 came to $591 million. In comparison, cancer funding came to $5.6 billion; and heart and stroke, to $2.4 billion (source: NIH).
• The NIH Autoimmune Diseases Research Plan states: “Research discoveries of the last decade have made autoimmune research one of the most promising areas of new discovery.”
• According to the Department of Health and Human Services’ Office of Women’s Health, autoimmune disease and disorders ranked #1 in a top ten list of most popular health topics requested by callers to the National Women’s Health Information Center.

-- Source: www.aarda.org

Autoimmune Support Group Meetings

Autoimmune Disease Support Group
Simi Valley (CA) and Surrounding Areas
New group for autoimmune disease sufferers!! The autoimmune disease support group meets from 6 p.m. to 8 p.m. the third Thursday of every month in the gray portable with burgundy trim in the ER parking lot at Simi Valley Hospital, 2975 N. Sycamore Drive. The members of the support group share experiences, ask questions and help each other. For more information, please contact Diane at scott_diane@sbcglobal.net.

Autoimmune Disease Support Group
Clinton Township (MI) and Surrounding Areas
In its second year, the Autoimmune Awareness Peer Group meetings will take place every second Saturday of each month (no meetings December – February) The meetings will be held Henry Ford’s Macomb Hospital located at 16151 Henry Ford Medical Pavilion, 19 Mile & Hayes in Clinton Township, Michigan on the 4th floor – Room 3. The meetings are 11 a.m. until 1 p.m. For more information, please contact Kimberly at snugs1@wowway.com.

Autoimmune Disease Support Group
Somerville (NJ) and Surrounding Areas
This new group meets the first and third Saturday afternoons of each month from 2:00 p.m. - 3:30 p.m. at the Robert Wood Johnson University Hospital - Somerset located at 110 Rehill Avenue, Somerset, NJ 08876. The meetings take place in the Hamilton Conference Room. Please visit www.autoimmunegroup.com for more information.

We at AARDA say that 50 million Americans suffer from autoimmune disease. Why the difference? The NIH numbers only include 24 diseases for which good epidemiology studies were available.
New Strides in Hypothyroidism Treatment

An international research team led by physician-scientists at Rush University Medical Center have gained new insights into hypothyroidism – a condition affecting about 10 million people in the U.S. – that may lead to new treatment protocols for the disease, particularly among the approximately 15 percent of patients for whom standard treatments are less effective.

The researchers published their findings at the beginning of the new year in a pair of articles in the Journal of Clinical Investigation (JCI) and the Journal of Clinical Endocrinology & Metabolism (JCEM).

Hypothyroidism occurs when the thyroid gland fails to produce sufficient quantities of two hormones, thyroxine (known as T4) and its more active form, called T3. The condition can cause a number of health problems, including weight gain, fatigue and so-called “foggy brain.”

For decades, the standard treatment has been a daily T4 supplement named levothyroxine. Once absorbed into the body, T4 is transformed to T3, in theory fully normalizing blood levels of T3. However, physicians have long been puzzled by why this type of treatment fails to relieve all symptoms in up to 15 percent of patients.

The puzzle persists in large part because the efficacy of treatments for hypothyroidism relies also on patients’ subjective reports of how they feel – patients with a normal thyroid may experience symptoms similar to those of hypothyroidism but due to other conditions, such as post-menopause syndrome or clinical depression.

The study published in the JCI was performed on rats whose thyroid glands had been removed and explains the cellular basis for why circulating levels of T3 are not fully normalized by levothyroxine alone. In addition, the study reveals that circulating T3 levels and hypothyroidism can be corrected fully when the levothyroxine regimen is supplemented with T3.

The study found that some of the rats that only received levothyroxine had higher cholesterol levels in their blood than rats that received the combination T4 and T3 therapy. They also had signs of hypothyroidism in their brains, which could potentially explain the “foggy brain” that is a common symptom of hypothyroidism. Therefore, the combined therapy established normal thyroid hormone action in the areas of the body commonly affected by hypothyroidism — the brain, the liver and also the skeletal muscles.

“Of course it’s important to confirm these studies clinically,” says Antonio Bianco, MD, PhD, head of Rush’s Division of Endocrinology and Metabolism and senior author of both journal articles. Dr. Bianco also co-chaired an American Thyroid Association task force that updated the association’s guidelines for the treatment of hypothyroidism published this past December in the journal Thyroid.

“Hypothyroid patients are not all the same. Some will do better on the combination therapy others not. The challenge is to identify these individuals and understand why these differences exist,” Dr. Bianco says.

This point was explored in the study published in the JCEM, in which the researchers examined a common polymorphism (a frequent genetic mutation) in the enzyme known as D2 that transforms T4 to T3. In a previous study, hypothyroid patients with this polymorphism preferred the combination therapy, which led Dr. Bianco and his team to explore the relationship between the polymorphism and the failure of standard therapy for hypothyroidism.

Working with the brains of about 100 cadaver donors, the researchers found that the polymorphic D2 has a tendency to accumulate in a cell compartment that normally does not contain D2. This abnormal accumulation of D2 disrupts cell function in a way also observed in the brain of patients with neurodegenerative diseases such as Huntington disease.

“It is conceivable that the D2 polymorphism is a risk factor for neurodegenerative disease that could be aggravated when these patients develop hypothyroidism,” Dr. Bianco says.

Fortunately, treatment may be possible for this condition. “Some of the genes affected by the polymorphic D2 were indicative of oxidative stress,” Dr. Bianco says. “When we treated cells containing the polymorphic D2 with a substance that neutralizes oxidative stress, that [treatment] normalized the expression of those genes.”

“If confirmed by additional studies, the findings with the D2 polymorphism explain why not all hypothyroid patients are the same, with some exhibiting one or additional risk factors for decreased cognition,"Dr. Bianco says. “It would seem that personalized medicine has caught up with hypothyroidism and might be able to ensure that treatment is effective in 100 percent of patients."


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Parkinson’s: An Autoimmune Disease?

The cause of neuronal death in Parkinson’s disease is still unknown, but a new study proposes that neurons may be mistaken for foreign invaders and killed by the person’s own immune system, similar to the way autoimmune diseases like type I diabetes, celiac disease, and multiple sclerosis attack the body’s cells. The study was published April 16, 2014, in Nature Communications.

“This is a new, and likely controversial, idea in Parkinson’s disease; but if true, it could lead to new ways to prevent neuronal death in Parkinson’s that resemble treatments for autoimmune diseases,” said the study’s senior author, David Sulzer, PhD, professor of neurobiology in the departments of psychiatry, neurology, and pharmacology at Columbia University College of Physicians & Surgeons.

The new hypothesis about Parkinson’s emerges from other findings in the study that overturn a deep-seated assumption about neurons and the immune system.

For decades, neurobiologists have thought that neurons are protected from attacks from the immune system, in part, because they do not display antigens on their cell surfaces. Most cells, if infected by virus or bacteria, will display bits of the microbe (antigens) on their outer surface. When the immune system recognizes the foreign antigens, T cells attack and kill the cells. Because scientists thought that neurons did not display antigens, they also thought that the neurons were exempt from T-cell attacks.

Cells display antigens with special proteins called MHCs. Using postmortem brain tissue donated to the Columbia Brain Bank by healthy donors, Dr. Sulzer and his postdoc Carolina Cebrián, PhD, first noticed—to their surprise—that MHC-1 proteins were present in two types of neurons. These two types of neurons—one of which is dopamine neurons in a brain region called the substantia nigra—degenerate during Parkinson’s disease.

To see if living neurons use MHC-1 to display antigens (and not for some other purpose), Drs. Sulzer and Cebrián conducted in vitro experiments with mouse neurons and human neurons created from embryonic stem cells. The studies showed that under certain circumstances—including conditions known to occur in Parkinson’s—the neurons use MHC-1 to display antigens. Among the different types of neurons tested, the two types affected in Parkinson’s were far more responsive than other neurons to signals that triggered antigen display.

The researchers then confirmed that T cells recognized and attacked neurons displaying specific antigens. The results raise the possibility that Parkinson’s is partly an autoimmune disease, Dr. Sulzer says, but more research is needed to confirm the idea.

---Source: Excerpted from “Is Parkinson’s An Autoimmune Disease?” by Susan Conova, Columbia University Research Center online publication, published April 17, 2015

Gut Microbes and RA

Doctors aren’t entirely sure what triggers rheumatoid arthritis, a disease in which the body turns on itself to attack the joints, but an emerging body of research is focusing on a potential culprit: the bacteria that live in our intestines.

Several recent studies have found intriguing links between gut microbes, rheumatoid arthritis, and other diseases in which the body’s immune system goes awry and attacks its own tissue.

A study published in 2013 by Jose Scher, a rheumatologist at New York University, found that people with rheumatoid arthritis were much more likely to have a bug called Prevotella copri in their intestines than people that did not have the disease. In another study published in October, Scher found that patients with psoriatic arthritis, another kind of autoimmune joint disease, had significantly lower levels of other types of intestinal bacteria.

This work is part of a growing effort by researchers around the world to understand how the microbiome—the mass of microbes that live in the gastrointestinal tract—affects our overall health. The gut contains up to a thousand different bacteria species, which together weigh between one and three pounds. This mass contains trillions of cells, more than the number of cells that make up our own bodies. Over the past several years, scientists have compiled a growing collection of evidence that many of these bugs may have a major effect on our well-being, with some triggering chronic, non-infectious ailments such as rheumatoid arthritis, and others protecting against such diseases.

“It’s become more and more clear that these microbes can affect the immune system, even in diseases that are not in the gut,” says Veena Taneja, an immunologist at the Mayo Clinic in Rochester, Minnesota, who has found clear differences in the bacterial populations of mice bred to be genetically prone to rheumatoid arthritis. In those more susceptible to the disease, a species of bacteria from the Clostridium family dominates. In mice without arthritis, other strains flourish, and the Clostridium strains are scarce.

Scientists are especially intrigued by how these bacteria influence the immune system. In recent decades, the incidence of many autoimmune diseases has been increasing; many microbiome researchers argue that at least some of this rise is due to changes in our bacterial ecosystem. Altered diet, the explosion of antibiotic use, and decreasing contact with the microbe-packed natural world of animals and plants have all combined to transform the bacteria that call humans home. “Our microbiome has changed significantly over the past century, and especially over the past 50 years,” says NYU microbiologist Martin Blaser, who puts much of the blame on widespread use of antibiotics. “We’re losing microbes with each generation; they are going extinct. These changes have consequences.”


~ EDITOR’S NOTE ~

The information on these pages is provided without implied recommendation, solely as a service to those who may be interested. As with all research projects, interested parties should thoroughly question and have a complete understanding before considering participation.
Bristol-Myers Squibb gives $7 Million for Scleroderma Trial

Two University of Michigan researchers were recently awarded $7 million to conduct an international clinical trial in patients with diffuse systemic sclerosis, also known as scleroderma.

The investigator-initiated award from Bristol-Myers Squibb was awarded to U-M Scleroderma Program Director Dinesh Khanna, M.D., M.S., associate professor of Internal Medicine in the Division of Rheumatology and Cathie Spino, Sc.D., of the U-M School of Public Health.

There are currently no known treatments for this devastating disease. The Abatacept Systemic Sclerosis Trial (ASSET) evaluates abatacept (Orencia®), which is FDA approved for the treatment of rheumatoid arthritis, to reduce the symptoms of sclerosis.

Mechanistic work in the trial is supported by the NIH/NIAID as part of the Clinical Autoimmunity Center of Excellence (ACE) grant to U-M. The principal investigator of the overall ACE is David Fox, M.D., professor of internal medicine at the U-M Medical School and chief of the Division of Rheumatology. Khanna is the project principal investigator.

More information on the ASSET trial can be found at www.scleroderma-asset-study.org.


Link between gene regulatory elements and autoimmune diseases?

Investigators with the National Institutes of Health have discovered the genomic switches of a blood cell key to regulating the human immune system. The findings, published in Nature today, open the door to new research and development in drugs and personalized medicine to help those with autoimmune disorders such as inflammatory bowel disease or rheumatoid arthritis.

The senior author of the paper, John J. O'Shea, M.D., is the scientific director at NIH's National Institute of Arthritis and Musculoskeletal and Skin Diseases. The lead author, Golnaz Vahedi, Ph.D., is a postdoctoral fellow in Dr. O'Shea's lab in the Molecular Immunology and Inflammation Branch. The study was performed in collaboration with investigators led by NIH Director, Francis S. Collins, M.D., Ph.D., in the Medical Genomics and Metabolic Genetics Branch at the National Human Genome Research Institute.

Autoimmune diseases occur when the immune system mistakenly attacks its own cells, causing inflammation. Different tissues are affected in different diseases, for example, the joints become swollen and inflamed in rheumatoid arthritis, and the brain and spinal cord are damaged in multiple sclerosis. The causes of these diseases are not well understood, but scientists believe that they have a genetic component because they often run in families.

“We now know more about the genetics of autoimmune diseases,” said NIAMS Director Stephen I. Katz, M.D., Ph.D. “Knowledge of the genetic risk factors helps us assess a person’s susceptibility to disease. With further research on the associated biological mechanisms, it could eventually enable physicians to tailor treatments to each individual.”

Identifying autoimmune disease susceptibility genes can be a challenge because in most cases a complex mix of genetic and environmental factors is involved. Genetic studies have shown that people with autoimmune diseases possess unique genetic variants, but most of the alterations are found in regions of the DNA that do not carry genes. Scientists have suspected that the variants are in DNA elements called enhancers, which act like switches to control gene activities.

Dr. O’Shea’s team wondered if the alterations might lie in a newly discovered type of enhancer called a super-enhancer (SE). Earlier work in the laboratory of Dr. Collins and others had shown that SEs are especially powerful switches, and that they control genes important for the function and identity of each individual cell type. In addition, a large number of disease-associated genetic alterations were found to fall within SEs, suggesting that disease occurs when these switches malfunction.


Eczema and its autoimmune connection

Atopic dermatitis (AD), or eczema, affects 10 percent of adults in the United States and about 25 percent of children worldwide.

AD is an inflammatory disorder in which the skin becomes covered in itchy, scaly lesions. These lesions cause cracks in the skin’s outer barrier, exposing patients to infection. AD is always accompanied by activation of the immune system.

A new study shows that dupilumab, a type of drug called a monoclonal antibody (mAb), can reverse the immune response that causes AD skin lesions. Many of the scientists who conducted the study are employed by Regeneron Pharmaceuticals, the makers of dupilumab. The study was published in the Journal of Allergy and Clinical Immunology.

Dupilumab blocks the activity of two proteins: interleukin-4 (IL-4) and interleukin-13 (IL-13). Interleukins are immune proteins that increase the body’s ability to fight off viruses and bacteria. But these proteins can mistakenly target the body’s own tissues, causing an autoimmune reaction.

In previous studies, drugs that suppress the entire immune system have improved eczema patients’ symptoms. However, scientists were not sure exactly how these drugs work in patients with AD.

Lead study author Dr. Emma Guttman-Yassky, an associate professor of dermatology at the Icahn School of Medicine at Mount Sinai in New York, said in a press statement, “This study is the first evaluation of a treatment that targets specific immune proteins in atopic dermatitis, where mechanistic changes track closely with clinical measures of disease and relief from it.”

Guttman-Yassky and her colleagues took skin samples from people with moderate-to-severe AD. People who were treated with 150 milligrams or 300 milligrams of dupilumab over four weeks had less expression of genes that are usually over-expressed in AD. They also had greater expression of genes that are usually under-expressed in AD, compared to people who were treated with a placebo.

Most importantly, their skin cleared up.

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