Dear Friends and Colleagues,

At the end of each year I take time to reflect on how far we’ve come in the Division of Rheumatology and Immunology here at The Ohio State University.

As busy professionals we tend to move quickly from one project or initiative to the next, focusing more on the work that lies ahead of us than the work we’ve put to rest. But it’s important to pause and take stock of everything we’ve accomplished — because those early efforts, no matter how small, laid the groundwork for us to move new opportunities forward.

Like so many previous years, 2016 was full and rewarding. We created new programs, launched new research and engaged with our peers at meetings and conferences around the world.

But looking back, what’s clear to me now is that 2016 was the year we took collaboration to a new level. We’ve assembled some of the best and brightest minds to partner across disciplines here at Ohio State, and we’ve launched several important studies that bring together renowned faculty from multiple academic medical centers. For example:

- Ohio State’s Nicholas Young, PhD and Rutgers’ Naomi Schlesinger, MD, have teamed up to develop a novel mouse model that will examine whether regular, moderate exercise can reduce the frequency and severity of gout attacks.
- We are starting a study with clinicians and scientists from Washington University School of Medicine in St. Louis. We’ve received a $400,000 SPARC grant to investigate whether micro-RNA profiles can be used as biomarkers to help diagnose and treat early aggressive and drug resistant rheumatoid arthritis.
- In September, Ohio State rheumatologist Zhanna Mikulik, MD, and dermatologist Jessica Kaffenberger, MD, launched a multidisciplinary clinic dedicated to patients with psoriatic arthritis.
- Kevin Hackshaw, MD, associate professor in our Division of Rheumatology and Immunology, has partnered with Brian Focht, PhD, kinesiology professor in Ohio State’s Department of Human Sciences, to determine whether a combined exercise and weight loss program improves pain and other symptoms associated with knee osteoarthritis. Their efforts are supported by a $2.83 million grant from the National Institute on Aging.

We consider our attendance at medical and scientific meetings an important part of our roles, because our multi-center collaborations often begin with an exchange of ideas at such conferences. To that end, during the past year we presented our research activities across the United States and in Europe, including:

- “Myocarditis is Detected by MRI in Lupus Nephritis-Induced Cardiovascular Disease and Correlates with Fibrosis and Pro-Inflammatory Cytokine Expression in a Mouse Model,” presented at The European League Against Rheumatism (EULAR) Annual European Congress of Rheumatology meeting June 8-11, 2016 in London, England.
- "Novel Therapeutic Inhibitor Cocktail Suppresses Extracellular Vesicle-Mediated Inflammation Induced by micro-RNA in a Humanized Mouse Model of Lupus,” presented at the International Society for Extracellular Vesicles (ISEV) in Rotterdam, the Netherlands, May 3-7, 2016.

To help meet the growing national demand for well-trained and highly skilled rheumatologists, in 2016 we increased the size of our fellowship program to three fellows per year. And illustrating the ways in which our motivated fellows can shape the program to suit their strengths and interests, we were pleased to retain Dr. Alexa Meara. She will spend an additional year of fellowship focusing on health literacy, numeracy and patient activation.

Thank you for allowing me to share our 2016 achievements. As always, our team has spent countless hours engaging in clinical care, research and teaching activities that contribute to one shared goal — making sure we provide the best care possible to our rheumatology patients, both today and tomorrow.

I encourage you to send me your comments or questions by e-mailing me at Wael.Jarjour@osumc.edu.

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Ohio State Researchers One Step Closer to Linking Lifestyle Interventions with Improved Knee Osteoarthritis Symptoms

Thanks to a five-year, $2.83 million grant from the NIH’s National Institute on Aging, a team of Ohio State researchers has launched the next phase of research to determine whether a combined exercise and weight loss program improves pain and other symptoms associated with knee osteoarthritis (OA).

Brian Focht, PhD, professor and associate chair of the departments of Human Sciences and Kinesiology, is principal investigator of the study, called Comprehensive Lifestyle Intervention Program for Knee Osteoarthritis Patients (CLIP-OA).

Together with co-principal investigator Kevin Hackshaw, MD, associate professor and fellowship program director in the Division of Rheumatology and Immunology, Dr. Focht and his team aim to change the standard of care for knee osteoarthritis patients. Their goal is to create a lifestyle intervention program that not only yields meaningful improvements among overweight OA patients, but is scalable, cost effective and easily disseminated into the community.

Strong preliminary data
A previous NIAMS-funded study led by Drs. Focht and Hackshaw, called Improving Maintenance of Physical Activity in OA Trial Pilot (IMPACT-P), found that knee OA patients who participated in a structured exercise program showed measurable improvements in mobility, pain and other symptoms.

“The strength of our initial findings provided the impetus to move forward with a larger and longer study,” says Dr. Hackshaw. “We’re now applying those findings to a broader lifestyle intervention concept that combines exercise and weight management, while simultaneously moving our research from a controlled environment at Ohio State out into the Columbus community.”

The next five years
CLIP-OA is a two-arm, randomized controlled trial led by Ohio State in collaboration with the Central Ohio Arthritis Foundation. It will study the efficacy of an existing Arthritis Foundation program called Walk With Ease, an instructor-led resource that teaches people how to safely manage their OA symptoms through exercise, compared to an intervention program that combines exercise with weight management strategies.

“Local Arthritis Foundation instructors will deliver both programs at various community sites throughout Columbus,” says Dr. Focht. “After comparing their effects on weight loss, physical function and other outcomes, we anticipate that the combined approach will provide some additional benefits beyond exercise alone. And ultimately, the study results may impact how various health care providers help people manage their knee OA symptoms in communities nationwide.”

Dr. Hackshaw adds that this study is also important because of growing concerns about the medications traditionally used to treat OA.

“Anti-inflammatories help manage pain and inflammation, but they can pose cardiac, gastrointestinal and other risks,” says Dr. Hackshaw. “And while narcotics containing oxycodone or hydrocodone were initially thought to be a safe alternative to anti-inflammatories, we now know there is a strong risk of addiction. If we can demonstrate that our lifestyle intervention program measurably reduces symptoms, we may be able to significantly decrease or even eliminate the need for adjunctive medication among many knee OA patients.”
New Clinic Enables Early Intervention for Psoriatic Arthritis

A new clinic at The Ohio State University Wexner Medical Center is poised to transform how patients with psoriasis are screened and treated for psoriatic arthritis. Launched in September 2016, the clinic is jointly managed by Jessica Kaffenberger, MD, assistant professor and director of the clinical trial research fellowship in the Division of Dermatology, and Zhanna Mikulik, MD, assistant professor in the Division of Rheumatology and Immunology.

Recognizing that they can better address the complex needs of people with psoriatic arthritis by working together, Drs. Kaffenberger and Mikulik are building a multidisciplinary program that improves coordination of care for patients as well as communication between specialists — and will ultimately allow patients expanded access to clinical trials.

Joint Preservation and Other Benefits

Psoriatic arthritis occurs in up to one-third of people who have psoriasis, and can result in disabling joint pain and disfiguring inflammation if left untreated.

“Even though having psoriasis is the biggest risk factor for developing psoriatic arthritis, early symptoms often get overlooked or attributed to something else,” says Dr. Mikulik.

“Because an early diagnosis is key to getting patients on a treatment plan that prevents joint damage, we’ve set up a process to screen all psoriasis patients for warning signs of psoriatic arthritis. These range from painless fingernail pitting to mild back pain that the patient assumes is unrelated to their psoriasis.”

People suspected of having psoriatic arthritis now receive same-day access to a rheumatologist who can provide a thorough evaluation. And for patients who already are diagnosed with both psoriasis and psoriatic arthritis and require care from both specialists, this means fewer trips back and forth to the Ohio State campus.

“Because there are not many clinics devoted to psoriasis and psoriatic arthritis, a number of our patients travel from out of state for their care,” says Dr. Kaffenberger. “By allowing people to see both of us on the same day, we’re not just managing their ongoing care more efficiently and holistically, we’re helping reduce their travel, lost work time and other expenses.”

Looking Ahead

Although the new clinic is less than six months old, it’s generating positive patient feedback — and physician satisfaction.

“This model creates invaluable opportunities for Dr. Mikulik and me to bounce ideas off each other and treat our mutual patients collaboratively,” says Dr. Kaffenberger. “And as our clinic grows and we continue to build volume, we’ll be in a better position to host clinical trials that will allow our patients to test emerging treatments for psoriatic arthritis.”

Having seen the success of similar multidisciplinary programs managed by her colleagues in the Division of Rheumatology and Immunology, including patient care clinics dedicated to lupus and scleroderma, Dr. Mikulik looks forward to the future.

“We anticipate that this clinic will enhance more than just skin and joint care,” she says. “Many of our psoriasis and psoriatic arthritis patients have co-morbidities such as obesity, diabetes and depression. Over time we hope to streamline referrals to a variety of other services too, ranging from additional sub-specialty consultations to lifestyle programs like nutrition counseling and smoking cessation. We are positioning ourselves to better care for the whole patient.”
Researchers from Ohio State, Washington University to Kick Off Pioneering Research on Biomarkers in Aggressive RA

*Study aims to identify MiR signatures that may guide treatment decisions*

Five researchers with expertise in biomarker research, RNA sequencing and clinical rheumatology care have teamed up to investigate whether micro-RNA (MiR) profiles can be used as biomarkers to help diagnose and treat early aggressive and drug resistant rheumatoid arthritis (RA).

The study is made possible by a two-year, $400,000 grant from the Strategic Pharma-Academic Research Consortium (SPARC) in collaboration with Ohio State’s Center for Clinical and Translational Science. The research team, representing The Ohio State University Wexner Medical Center and Washington University School of Medicine in St. Louis, will analyze MiR profiles within extracellular microvesicles (exosomes) in synovial fluid and peripheral blood samples collected from patients with RA.

The team will examine global MiR expression among patients from both institutions whose RA is well managed through conventional treatments, and also with early aggressive RA that is unresponsive to standard of care therapies.

“Our long term goal is to identify biomarkers which distinguish patients who have the most destructive, drug resistant form of the disease,” says Wael Jarjour, MD, principal investigator and director of the Division of Rheumatology and Immunology at Ohio State. “We’d also like to take the guesswork out of therapeutic strategies for those patients whose MiR signatures indicate they will respond to standard of care treatments. Currently we cannot predict whether a patient will require more aggressive treatment with biologics.”

Along with Dr. Jarjour, the team includes co-principal investigator Elisha Roberson, PhD, Christine Pham, MD and Deborah Parks, MD, from the Division of Rheumatology at Washington University.

If validated, their study findings could lead to more personalized, effective and efficient RA treatments — as well as development of novel drugs for those patients who don’t respond to the gold standard therapies available today.

Researchers from Ohio State & Rutgers Examine How Exercise May Influence the Management of Gout

*Challenging conventional wisdom*

Building on his previous research that suggested daily, moderate physical activity may help control the chronic inflammation associated with lupus and other autoimmune diseases, Dr. Young and his colleagues hope to demonstrate that exercise helps reduce the frequency and severity of gout flare-ups.

*Creating a new mouse model*

Aided by a grant from Ironwood Pharmaceuticals, Drs. Schlesinger and Young and their team will develop an animal model that attempts to recreate the chronic conditions present in gout. After establishing that exercise helps suppress inflammation — and determining what intensity and frequency of exercise is most effective — the team will induce multiple flares of gout with rest and recovery periods in between.

“Using the optimal exercise regimen defined during our first phase of experiments, we’ll begin exercising the mice during a recovery period to see if it has an effect on
Research Collaboration May Lead to Treatment and Possible Prevention of Aromatase Inhibitor-Induced Arthralgias

Rheumatologists and medical oncologists at The Ohio State University Wexner Medical Center have joined forces to better understand why so many breast cancer patients treated with aromatase inhibitors develop joint pain, stiffness, inflammation and other symptoms known collectively as aromatase inhibitor-induced arthralgias (AIIAs).

The team is developing a novel mouse model to study why AIIAs occur — and to eventually test therapies that may prevent them. Their efforts are supported by a $50,000 pilot grant from the Stefanie Spielman Fund for Breast Cancer Research at The Ohio State University Comprehensive Cancer Center – Arthur G. James Cancer Hospital and Richard J. Solove Research Institute.

Leveraging combined expertise

The research team led by principal investigator Raquel Reinbolt, MD, assistant professor in the Division of Medical Oncology, is uniquely suited to tackle the growing concern over AIIAs. Team members include Wael Jarjour, MD, and Nicholas Young, PhD, who are at the forefront of studies showing how hormones influence inflammation, and Maryam Lustberg, MD, who has a special interest in improving treatment-related toxicity among breast cancer patients.

“Aromatase inhibitors limit the amount of estrogen in the body, and are therefore an effective way to treat active hormone-receptor-positive breast cancers and to prevent tumors from recurring,” says Dr. Lustberg, co-principal investigator and assistant professor in the Division of Medical Oncology. “But in nearly 15 percent of patients who develop AIIAs, symptoms are so severe they end up changing or discontinuing therapy, which can directly impact outcomes including breast cancer recurrence and survival.”

And with recent research suggesting breast cancer patients may benefit by increasing aromatase inhibitor therapy from five to 10 years, the need for interventions to prevent or treat AIIAs is stronger than ever.

A two-pronged approach

Although mouse models are often used to study inflammation associated with rheumatologic diseases, there are no pre-clinical models available currently to study the pathophysiology of AIIAs.

“We suspect aromatase inhibitors can trigger an inflammatory process, and we are creating an animal model to explore how and why that inflammation occurs,” says Dr. Young, a research scientist in the Division of Rheumatology and Immunology who has experience investigating the effects of hormones on the immune system. “If we can figure out what causes the inflammation, we may be able to target those pathways and stop it from happening.”

The team will first develop a mouse model of AIIA to examine the physiological effects of estrogen deprivation on joint inflammation and the molecular changes that occur once aromatase inhibitor therapy is initiated. They will then establish a breast cancer xenograft model to investigate how the tumor environment impacts the mechanism of AIIA development and progression.

Game-changing potential

“We try our best to help patients manage their AIIA symptoms using treatments such as anti-inflammatory medication, physical therapy and local injections, but until we have a better understanding of what’s happening within the joints, we are really just aiming in the dark,” says Dr. Lustberg. “Once we have a working animal model, we can screen various supplements and medications to see which ones show promise before designing additional studies to test them in humans.”

Dr. Young adds that although this study is still in its infancy, the long term results could have a significant impact on breast cancer outcomes.

“Right now there is no translational animal model to study this problem that affects quality of life for so many patients,” he says. “Ideally we’ll be able to prevent the side effects associated with aromatase inhibitors while simultaneously preventing tumor relapse. Creating a model that allows us to explore AIIAs in a living system is the first critical step toward that goal.”
Continuing Medical Education Annual Conference: Clinical Applications of Musculoskeletal Ultrasound

Hareth Madhoun, DO, will lead a two-day, intensive workshop on May 12-13, 2017 featuring nationally and internationally known experts in the field of musculoskeletal ultrasound.

The workshop features:

- Presentations on ultrasound scanning techniques, normal extremity anatomy and common pathology in inflammatory arthritis
- More than 12 hours of hands-on training in small groups, including learning ultrasound-guided injections on cadavers
- The current approach for incorporating the role and use of musculoskeletal ultrasound in the care of patients with inflammatory arthritis and other musculoskeletal ailments
- Training to recognize on ultrasound the common pathologies of the musculoskeletal system

Registration will open in early 2017. For information or to register, please visit ccme.osu.edu. You can also visit our website at internalmedicine.osu.edu/rheumatology.
A selection of journal articles from the impressive list of publications authored or co-authored by our faculty:


Ganesan LP, Matey JM, Chepilowitz AM, Avila CL, Zimmerer JM, Yoo Z, Maiseyee A, Rajaram MV, Robinson JM. Anderson CL. Scavenger receptor B1, the HDL receptor, is expressed abundantly in liver sinusoidal endothelial cells. *Scientific Reports*. 2016 Feb 11;6:20646.


Meara A, Chan R, Husa M. A Case of TAILs, *Archives of Rheumatology*, in press


