2022
Annual Report

ANRF Develops Strategic Plan for the Future

ANRF Hosts Annual Symposium

Launch of Researcher Spotlight Webinar Series

Contents

Our Mission

To provide initial research funding to brilliant, investigative scientists with new ideas to cure arthritis and related autoimmune diseases.

Board of Directors

Scientific Advisory Board

Message from CEO

ANRF Community,

In my first fiscal year as ANRF Chief Executive Officer, I have been tremendously impressed and motivated by the passion, dedication and strong sense of purpose from the ANRF Community. In November 2021, we set out to develop the architecture of a five-year strategic plan to help guide the organization moving forward, while staying true to our mission. At the conclusion, we identified four goals to:

- Grow Revenue
- Increase Research
- Engage Communities
- Accelerate Discovery

These goals are instrumental in how we will continue to build the organization on many fronts. As our mission clearly states, we exist to fund research to find a cure for arthritis. While on this journey for a cure, we recognize the obstacles and opportunities that we face as an organization. Focusing on these key goals will allow us to continue growing the organization, funding valuable research, seeking opportunities to accelerate the exploration of new therapies, and engage our ANRF Community in a meaningful, long-term way.

Throughout the past year, we have brought on new industry partners to the organization and identified ways to work with them beyond corporate partnerships. We recognized the strong presence of individuals affected by arthritis and autoimmune disease within our community and created enlightening, research-based educational programming to help them in their journey with arthritis through our successful Researcher Spotlight Webinar Series. We also had the incredible opportunity to host the first ANRF Research Symposium, which allowed us to once again gather with ANRF Scholars, past and present, and provide them with the opportunity to showcase their amazing work amongst their peers and leaders in the field.

As we begin to emerge from a couple of pandemic-centric years, we recognize the power, presence and dedication of the ANRF Community. We will call on you to continue funding valuable research, especially early-stage research for people living with arthritis, connect with us throughout the year and help spread the word about the amazing work ANRF supports whenever you can. You are the source of our success, and we look forward to working with you on all that we will accomplish this year!

Sincerely,

Emily Boyd Stormoen

Emily Boyd Stormoen
CEO, Arthritis National Research Foundation

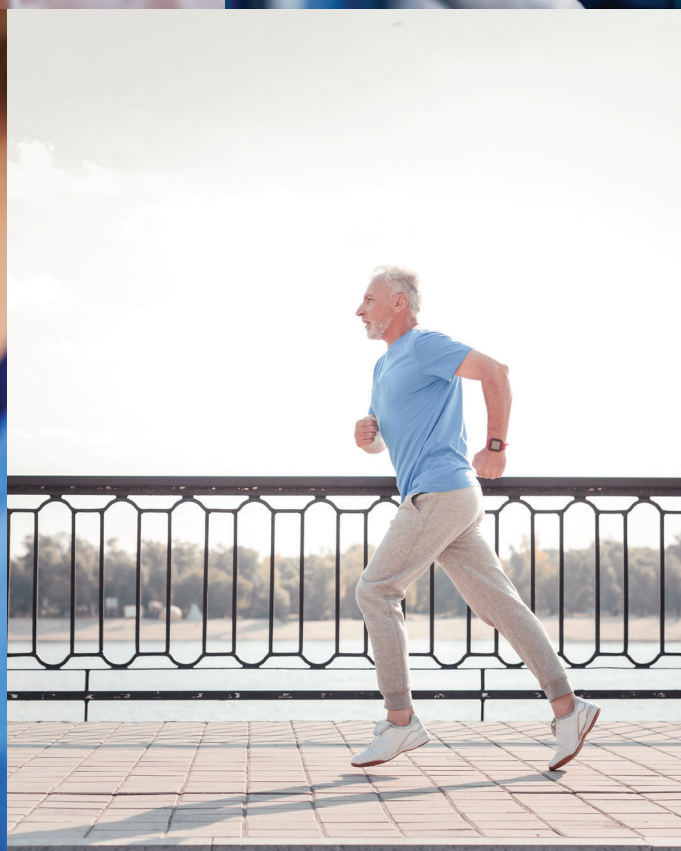
Our Work Is Not Done

Since 1970, the ANRF has funded arthritis research to understand the causes, prevention and development of new treatments for osteoarthritis, rheumatoid arthritis, lupus, juvenile arthritis and related autoimmune diseases.

180+
Scientists Funded

250+
Grants Awarded

$22+ Million
in Grant Funding Awarded



Financials

2020, 2021 AND 2022
Audited Statements of Public Support • Fiscal Years Ending March 31st

Operating Statement

	2020	2021	2022
Total Unrestricted Assets*	$7,504,037	$9,828,563	$10,480,441
Total Restricted Assets*	$336,390	$326,104	$226,104
Total Assets	$7,840,427	$10,154,667	$10,956,545
Total Liabilities	$32,830	$78,521	$84,948
NET ASSETS AT END OF YEAR	**$7,840,427**	**$10,154,667**	**$10,956,545**

Revenue and Expenses

PUBLIC SUPPORT AND REVENUE	2020	2021	2022
Contributions and Bequests	$1,799,375	$1,446,537	$2,969,125
Investment Income Net	$741,837	$123,323	$114,558
Unrealized Gain (loss) on Investments	($1,268,816)	$2,924,126	$454,966
TOTAL SUPPORT AND REVENUE	**$1,272,396**	**$4,493,986**	**$3,674,799**

EXPENSES	2020	2021	2022
Program Services			
Research	$1,802,401	$1,567,125	$1,991,402
Education	$308,666	$254,691	$427,351
Total Program Services	$2,111,067	$1,821,816	$2,418,753
Supporting Services			
Management and General	$194,436	$273,643	$201,561
Fund Development	$92,897	$84,287	$252,607
Total Supporting Services	$287,333	$357,930	$454,168
TOTAL EXPENSES	**$2,398,400**	**$2,179,746**	**$2,872,921**
Change in Net Assets	($1,126,004)	$2,314,240	$901,878
Net Assets at Beginning of Year	$8,966,431	$7,840,427	$10,154,667
NET ASSETS AT END OF YEAR	**$7,840,247**	**$10,154,667**	**$10,956,545**

*Beginning in 2019, new accounting regulations require reporting restricted and unrestricted assets as seen above.
Major planned gifts (bequests over $100K) in the 2020-2021 fiscal year totaled $550,178.

2021-2022 News to Note

STRATEGIC PLAN

The ANRF Board of Directors and the ANRF staff held an in-person retreat in November to focus on developing a five-year strategic plan for the organization. Outcomes included four specific goals: grow revenue, increase research, engage communities and accelerate discovery.

FIVE-YEAR STRATEGIC PLAN **Fiscal Year April 1-March 31**

1 — Grow Revenue

Achieve annual revenue of at least $5-10 million per year by the end of FY2027.

2 — Increase Research

Increase investment in early-career researchers with interest in arthritis and related autoimmune diseases.

3 — Engage Communities

Cultivate strategic relationships with scholars and supporters.

4 — Accelerate Discovery

Explore venture project that translates discoveries into therapies.

GRANTS INCREASE TO $125,000 ANNUALLY

The Scientific Advisory Board and Board of Directors discussed and agreed the annual grants should be increased from $100,000 to $125,000. The Board of Directors approved the increase and beginning in the 2023-2024 award year, awards will be granted for two-years, eliminating the need for applicants to apply each year.

BOARD MEMBERS

Five long-time ANRF Board members concluded their service to the organization with the expiration of their terms:

- Kevin Donohue, Morgan Stanley
- Kelly Rouba-Boyd, State Of New Jersey
- Debbie Sampson, Community Advocate
- Mark Schulten, TSG Wealth
- Carl F. Ware, PHD, SBP Medical Discovery Institute

ANRF thanks them for their distinguished service to the organization.

NEW BOARD MEMBERS

Two new directors began terms with the Board: Kelli Matthews teaches public relations and communications at the University of Oregon, as well as having her own business, Verve Northwest. Theresa Hansen is the Director of People and Culture at RISE Partnerships and brings a career of human resource experience to the board.

ADDITIONS TO THE SCIENTIFIC ADVISORY BOARD

ANRF welcomed Robert Colbert, MD, PHD, from the National Institute of Health to the Scientific Advisory Board. As the Clinical Director, a senior investigator, Head of Clinical Research at the National Institute of Arthritis and Musculoskeletal and Skin Diseases and Chief of the Pediatric Translational Research Branch, Dr. Colbert brings a wealth of experience, expertise and perspective to the board.

ANRF also welcomed Iannis Adamopoulos, D.Phil. Dr. Adamopoulos is the Director of Arthritis program, Co-Director of the Pathogens, Immunity and Inflammation Translational Hub at Beth Israel Medical Deaconess Center, Head of the Osteoimmunology Lab and faculty of Harvard Medical School.

ANRF NEWSLETTER

The newsletter reached more subscribers and readers as it increased its frequency and refocused its content. Offering the latest in arthritis and related autoimmune disease research, spotlights on current and formerly funded ANRF grant recipients, details on online and in-person events and recipes tailored for an anti-inflammatory diet, the newsletter is delivered via e-mail. In addition to the foundational topics listed, features also include a focus on donors, giving opportunities and organizational updates.

2021-2022 News to Note (continued)

CUREARTHRITIS.ORG

The ANRF website was relaunched with a refreshed look and new, refined content in April 2022. Focusing on the organization's research driven mission of funding early-career researchers, the website is organized to better tell the story of researchers, those impacted by arthritis and related autoimmune diseases, share the newest in research, diagnostics and products, and feature events and opportunities for each of the ANRF communities. As a nonprofit, it's also focused on telling the story of the organization and highlights opportunities to donate to the organization.

GIVING

In FY 2022, the Development Department focused on developing an updated fundraising strategy and growing our team. Working closely with the rest of the team, we honed in on strategy and goal setting as we created our new five-year strategic plan. We concentrated our efforts on diversifying revenue sources through individual giving appeals, major gifts, and corporate partnerships to meet new development goals. Fundraising remained strong with a total of $2,966,868 in donations from upwards of 1,760 donors. The "Ways to Give" section of the ANRF website was also refreshed and updated with a robust number of options for people to choose from to give to the organization.

Partners

CORPORATE PARTNERS

GOLD	SILVER	BRONZE
Janssen Pharmaceutical Companies of Johnson & Johnson	abbvie	Lilly, Pfizer, Bristol Myers Squibb™

EDUCATIONAL GRANT PARTNERS

AMGEN

THE SONTAG FOUNDATION

2021-2022 ANRF Scholars

SARAH BAXTER, MD, PHD
University of Washington

Lupus

Characterize the role of AIM2 in the autoimmune disease Systemic Lupus

JONATHAN BRUNGER, PHD
Vanderbilt University

Arthritis

Synthetically regulated cell-based therapeutics for targeted articular cartilage regenerative medicine

ROXANE DARBOUSSET, PHD
Brigham and Women's Hospital

Scleroderma

Platelets as neutrophil amplifiers in systemic sclerosis

MARIA GUTIERREZ-ARCELUS, PHD
Boston Children's Hospital

Lupus

Splicing Disruption in Systemic Lupus Erythematosus

LAUREN HENDERSON, MD, MMSC
Boston Children's Hospital

Juvenile Idiopathic Arthritis

The Function & Autoreactivity of Th1 Polarized & Clonally Expanded Tregs in Oligo JIA

MICHAEL JURYNEC, PHD
Carl Ware Fellowship
University of Utah

Osteoarthritis

Analysis of the NOD-RIPK2 signaling pathway in osteoarthritis

2021-2022 ANRF Scholars

PUI Y LEE, MD, PHD
Boston Children's Hospital

Juvenile Idiopathic Arthritis

mTORC1 in the pathogenesis of systemic juvenile idiopathic arthritis

SUSAN MACLAUCHLAN, PHD
Brigham and Women's Hospital

Rheumatoid Arthritis

Mechanisms by which clonal hematopoiesis augments inflammation and atherosclerosis in rheumatoid arthritis

RUTH NAPIER, PHD
Oregon Health & Science University

Ankylosing Spondylitis

Understanding how the CARD9-neutrophil-Th17 axis controls ankylosing spondylitis

RENUKA NAYAK, MD, PHD
University of California San Francisco

Rheumatoid Arthritis

Elucidating mechanisms of methotrexate metabolism by the human microbiome in rheumatoid arthritis

MICHAEL PALEY MD, PHD
Washington University

Spondyloarthritis

Mechanistic Insights into Organ-Specific Manifestations of Spondyloarthritis

TAM QUACH, PHD
Gale "Morrie" Granger Fellowship
The Feinstein Institute for Medical Research

Autoimmune Disease

The role of TNF and TNFR1 in breaking B cell tolerance

NISARG J SHAH, PHD
University of California, San Diego
Sontag Fellow

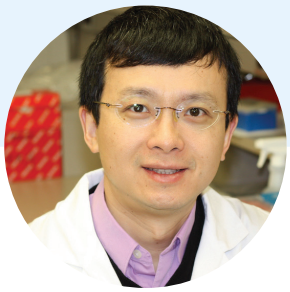
Rheumatoid Arthritis

Microparticle-assisted modulation of regulatory T cells in rheumatoid arthritis

ANIL KUMAR SINGH, PHD
Washington State University

Rheumatoid Arthritis

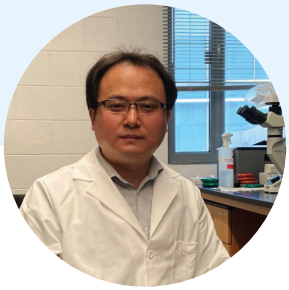
Molecular reprogramming of Rheumatoid arthritis synovial fibroblasts by interleukin 6



HU ZENG, PHD
Mayo Clinic

Rheumatoid Arthritis

Immune Checkpoint Inhibition Induced Inflammatory Arthritis Correlates with Imbalance Between T-cell Exhaustion and Senescence



CHENGHAI ZHANG, PHD
Harvard Medical School

Osteoarthritis

Investigating the role of gene Creb5 in lubricin expression during the development of osteoarthritis

SHOUAN ZHU, PHD
Ohio University

Osteoarthritis

Metabolic regulation of chondrocytes by Sirt5 and protein malonylation in osteoarthritis development

YU RAY ZUO, MD, MSCS
The Regents of the University of Michigan

Autoimmune

Mechanisms of infection-induced autoimmunity in COVID-19 and beyond

Research and Programming

RESEARCHER SPOTLIGHT SERIES

In Fall 2021, the Arthritis National Research Foundation hosted a five-part webinar series, with each session spotlighting a specific type of arthritis or related autoimmune diseases and featuring panelists, either currently or previously ANRF funded, presenting the latest in breakthroughs, diagnostic tools, procedures and research & development. All sessions were moderated by Scientific Advisory Board members.

1

AUTOIMMUNE

Iannis Adamopoulos, D.Phil., Beth Israel Deaconess Medical Center/Harvard University
PJ Utz, MD, Stanford University
Hal Hoffman, MD, University of California, San Diego

Moderated by:
Craig M. Walsh, PHD, University of California, Irvine

2

ANKYLOSING SPONDYLITIS

Ruth Napier, PHD, Oregon Health & Science University
Liron Caplan, MD, PHD, Colorado University
Tejpal Gill, PHD, Oregon Health & Science University
Michael A. Paley, MD, PHD, Washington University School of Medicine in St. Louis

Moderated by:
Craig M. Walsh, PHD, University of California, Irvine

3

RHEUMATOID ARTHRITIS

Anna Helena Jonsson, MD, PHD, Brigham and Women's Hospital
Theresa Wampler Muskardin, MD, NYU Langone Orthopedic Center
Tiphanie Vogel, MD, PHD, Baylor College of Medicine

Moderated by:
Elizabeth Mellins, MD, Stanford University Medical Center
Peter Nigrovic, MD, Harvard Medical School

4

LUPUS

Sarah Baxter, MD, PHD, University of Washington and Seattle Children's Hospital
Maria Gutierrez-Arcelus, PHD, Boston Children's Hospital/Harvard Medical School
Jason Knight, MD, PHD, University of Michigan
Timothy Niewold, MD, The Mayo Clinic
Jolien Suurmond, PHD, The Feinstein Institutes for Medical Research

Moderated by:
Betty Diamond, MD
The Feinstein Institute for Medical Research & Hofstra University/Northwell

5

OSTEOARTHRITIS

Denis Evseenko, MD, PHD, Keck School of Medicine of University of Southern California
Mick Jurynec, PHD, University of Utah
Rachel E. Miller, PHD, Rush University Medical Center

Moderated by:
Anne-Marie Malfait, MD, PHD, Rush University
Martin K. Lotz, MD, The Scripps Research Institute

Research Symposium

March 19th, 2022

Dr. Zuo presents during
the ANRF Research Symposium

On Saturday, March 19th, 2022, scientists from academia and industry gathered at the Newkirk Alumni Center on the University of California, Irvine, campus to present and discuss cutting-edge research and advancements toward a cure for arthritis and related autoimmune diseases.

The day began with a keynote presentation by Robert Colbert, MD, PHD, of the National Institute of Health (NIH), who had recently become an ANRF Scientific Advisory Board member. In the sessions following the keynote, current and former ANRF-funded researchers and industry partners presented current research and insights and had dynamic conversations with the presenters and other investigators and guests who attended. Early-career researchers presented their complex research, followed by a moderated discussion led by a mentor or Scientific Advisory Board member.

In addition, attendees were privy to presentations by industry partners featuring the latest in research and development from Thierry Sornasse, PHD, Senior Scientific Director in Precision Medicine Immunology at AbbVie and Soumya D. Chakravarty, MD, PHD, Senior Director & Strategic Lead Rheumatology Therapeutic Area at Janssen Scientific Affairs.

Presentations

HIROKI FURUYA, MD, PHD
Beth Israel Deaconess Medical Center

"Role of gd T cell in inducing neutrophilic inflammation in psoriatic arthritis"
Moderator: Iannis Adamopoulos, D.Phil., Beth Israel Medical Deaconess Center For Life Sciences

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SHOUAN ZHU, PHD
Ohio Musculoskeletal and Neurological Institute

"Metabolic regulation of chondrocytes by Sirt5 for osteoarthritis development"
Moderator: Anne-Marie Malfait, MD, PHD, Rush University

YU (RAY) ZUO, MD, MSCS
University of Michigan

"Anti-NET in APS and COVID-19"
Moderator: Bevra Hahn, MD, UCLA School of Medicine

SHAUN JACKSON, MD, PHD
Seattle Children's Research Institute & University of Washington

"Immune drivers of autoimmunity in STAT1 gain-of-function syndrome"
Moderator: Hal Hoffman, MD, University of California, San Diego

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JONATHAN BRUNGER, PHD
Vanderbilt University

"Synthetically regulated cell-based therapeutics for targeted joint repair"
Moderator: Anne-Marie Malfait, MD, PHD, Rush University

NISARG J. SHAH, PHD
University of California, San Diego

"Engineering the Joint Microenvironment in Inflammatory Arthritis"
Moderator: Nunzio Bottini, MD, PHD, University of California, San Diego*

*now at Cedars-Sanai

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RESEARCH FOUNDATION®

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