2026

ANNUAL REPORT

RARE DISEASES

CLINICAL RESEARCH NETWORK

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PREFACE



Tiina K. Urv, PhD

Rare Diseases Clinical Research Network (RDCRN) Program Director

Division of Rare Diseases Research Innovation (DRDRI)

National Center for Advancing Translational Sciences (NCATS)

National Institutes of Health (NIH)

There are an estimated **10,000 rare diseases** that collectively impact millions of people in the United States. These disorders frequently cause substantial morbidity and mortality. Although our understanding of the causes and mechanisms of rare diseases has advanced considerably, effective treatments are available for fewer than 5% of these conditions.

Researchers encounter numerous challenges when developing therapies for rare diseases. These include limited patient populations, a scarcity of disease experts, and often an incomplete understanding of the variability within each disorder and how it progresses over time. **Collaborative partnerships** are essential to address these obstacles and reduce the impact of rare diseases.

To facilitate progress in addressing these challenges, the **Rare Diseases Act of 2002** (Public Law 107-280) directed the National Institutes of Health (NIH) to support "Rare Disease Regional Centers of Excellence" for clinical research, career enhancement, and demonstration of diagnostic, prevention, control, and treatment methods for rare diseases.

Since the inception of this legislation, numerous NIH Institutes, Centers, and Offices (ICOs)—led by the Division of Rare Diseases Research Innovation (DRDRI) at the National Center for Advancing Translational Sciences (NCATS)—have partnered to **support the RDCRN**:

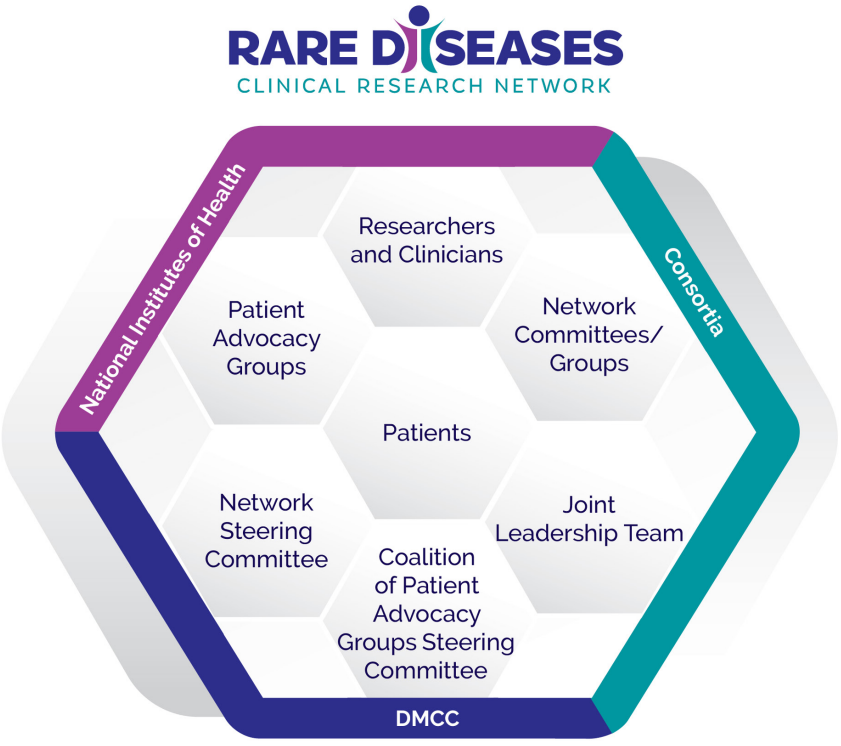
- National Center for Research Resources (NCRR)
- Office of the Director (OD)
- *Eunice Kennedy Shriver* National Institute of Child Health and Human Development (NICHD)
- National Institute of Neurological Disorders and Stroke (NINDS)
- National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)
- National Heart, Lung, and Blood Institute (NHLBI)

- National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)
- National Institute of Dental and Craniofacial Research (NIDCR)
- National Human Genome Research Institute (NHGRI)
- National Institute on Aging (NIA)
- National Institute of Mental Health (NIMH)
- National Cancer Institute (NCI)
- National Institute of Allergy and Infectious Diseases (NIAID)
- National Eye Institute (NEI)

The RDCRN was established to be a **collaborative and coordinated network** of investigators and patient groups committed to the investigation of rare diseases working in partnership with leaders in technology to enhance communication and sharing of resources through a multidisciplinary approach.

To date, this program has **successfully supported 43 individual Rare Diseases Clinical Research Consortia (RDCRCs)** that have conducted research on over 300 individual disorders, as well as a Data Management and Coordinating Center (DMCC). The research conducted within the RDCRN has contributed to the Food and Drug Administration (FDA) approving 13 treatments for rare diseases.

In this, the **first year of the fifth cycle of the RDCRN**, we are proud to support 10 brand-new consortia. We look forward to the many accomplishments of this community.



INTRODUCTION



Who We Are

We are the **Rare Diseases Clinical Research Network** (RDCRN), a network of research teams, patients, and advocates supported by the National Institutes of Health (NIH), promoting clinical research on rare diseases. Our rare disease research community is made up of consortia studying at least three related rare diseases at sites across the nation.

Our History

The RDCRN was established by the NIH after Congress passed the Rare Diseases Act in 2002. Led by the National Center for Advancing Translational Sciences through its Division of Rare Diseases Research Innovation, the network comprises multiple clinical research consortia funded by NIH Institutes, Centers, and Offices, and one Data Management and Coordinating Center (DMCC). Every five years, the NIH holds a competition to select groups to participate in the RDCRN. Over the years, many different consortia have received support from the network. In 2025, we entered our **fifth funding cycle**.

Our Vision

Faster diagnosis, better treatments, and improved quality of life for patients with rare diseases.

Our Goals

We pursue our vision by **promoting clinical trial readiness**; by advancing knowledge that makes it possible to test new treatments; by promoting the engagement of patients and patient advocates in the design and conduct of the research; and by promoting the career development of new researchers.

Our Mission

We **advance rare disease research** by providing support for clinical studies about the natural history of rare diseases, identifying biomarkers and potential clinical outcomes, and setting the stage for clinical trials of new treatments. Our consortia leverage a centralized research infrastructure and common, best-practice data standards to facilitate collaboration, study enrollment, data sharing, and rigorous research projects. Our website and outreach initiatives share our findings with the community. The collaborative environment we create promotes career development for the next generation of rare disease researchers.

RARE DISEASES
CLINICAL RESEARCH NETWORK

BY THE NUMBERS

OCTOBER 1, 2025 – SEPTEMBER 1, 2026

198
Diseases Studied

91
Patient Advocacy Groups

183
Clinical Sites

86
Publications

219,087
Website Visitors

25
Protocols Approved

30
Tools Available

7
Committees

22
Early Career & Pilot Project Awards

PATIENT & ADVOCACY IMPACT STORIES



PATIENT IMPACT STORY

Liz Bovee

Vascular malformations (ARDVARC)

Throughout my journey as a rare disease patient, I have often heard the phrases of how resilient and strong we are as a patient population. While most people intend to utilize these phrases as a positive, there is something that is often missed within these assessments—**how isolated you can feel** while still belonging to a community.

I have had the honor of being asked to serve as the **co-lead of the patient advocacy group** for the Advancing Rare Disorders: Vascular mAlformation Research Network with CaNVAS (ARDVARC) Research Group, which was newly welcomed into the RDCRN this year. This group focuses on multiple vascular and lymphatic diseases, which are inclusive of PIK3CA-related overgrowth spectrum with vascular malformations (PROSvm), extracranial arteriovenous malformations (eAVMs), and complex lymphatic anomalies (CLA).

Within this role, one of my first tasks was to work with my co-lead to help identify patients across these diseases who would be interested in serving as patient advocates across the various studies and projects being run by ARDVARC. As patient organizations have historically been disease-focused within these diagnoses, this involved connecting deeper across organizations to identify volunteers. In doing this, we were able to **deepen the connections** across the patient organizations.

It was exciting to be able to **meet the leaders of these groups in person** this past May as we were all in attendance at the International Society for the Study of Vascular Anomalies (ISSVA) World Congress 2026, an international conference focused on expanding research and care for our diseases.

Beyond the connections across the patients, it has been wonderful to **connect with researchers and clinicians** across the ARDVARC projects. Working with my fellow patients to help provide insights and input into the early stages of the projects has helped ignite hope and unity. Participating with my fellow patients, researchers, and clinicians through ARDVARC has helped me feel more connected and engaged, reducing the feelings of isolation.



PATIENT IMPACT STORY

Rob Purdie

Fungal disease (PFN-STRIDE)

PFN-STRIDE

As a patient living with disseminated coccidioidomycosis and co-founder of the Mycology Advocacy, Research & Education (MyCARE) Foundation, my involvement with the Pediatric Fungal Network STudy of Rare Invasive Fungal DisEases in Immunocompromised Pediatric Patients (PFN-STRIDE) and the RDCRN has **profoundly influenced both my advocacy and our organization's approach** to patient-centered research.

Through collaborations with PFN-STRIDE investigators and participation in RDCRN activities, I have gained a deeper understanding of how meaningful partnerships between patients and researchers can **improve study design, participant engagement, and dissemination** of research findings.

The RDCRN has demonstrated how patient organizations can move beyond traditional advocacy to **become active collaborators in research**. That experience continues to influence my work and has strengthened MyCARE's ability to connect patients, clinicians, researchers, and public health partners to improve the relevance and impact of fungal disease research.

PATIENT ADVOCACY IMPACT STORY

Batten Disease Support, Research, and Advocacy Foundation

Batten disease, neuronal ceroid lipofuscinoses (BDCRC)

The RDCRN partnership has truly **impacted our patient advocacy group** in a multitude of positive ways.

The ongoing natural history study **empowers our families** to directly contribute the clinical data essential for driving future therapeutic breakthroughs.

This momentum was on full display at the Batten Disease Support, Research, and Advocacy Foundation (BDSRA) July Annual Conference—our **largest gathering** in over eight years.

The event **brought together** Centers of Excellence and BDCRC collaborators, featuring presentations from more than 30 leading researchers and clinicians covering all forms of Batten disease.

By offering dedicated spaces for patients and families to enroll in clinical studies, the conference **fostered a collaborative energy** that deeply engaged and inspired our members.

PATIENT ADVOCACY IMPACT STORY

Spastic Paraplegia Foundation

Hereditary spastic paraplegia and primary lateral sclerosis (SP-CERN)

The Spastic Paraplegia Foundation (SPF) has been a founding patient advocacy partner of SP-CERN, helping **connect individuals and families** affected by hereditary spastic paraplegia (HSP) and primary lateral sclerosis (PLS) with the RDCRN.

Through this collaboration, SPF has **supported patient recruitment and engagement**, natural history studies, research prioritization, and dissemination of scientific advances to the community.

Participation in SP-CERN has **fostered collaborations** among academic investigators, patients, the Critical Path Institute (C-Path), and international partners to advance biomarker discovery, standardized clinical outcome assessments, and trial readiness.

By **integrating patient perspectives with collaborative science**, SP-CERN is building the infrastructure needed to accelerate the development of effective therapies and improve care for individuals living with HSP and PLS.



CONSORTIA SPOTLIGHTS

ACT

Advancing **Craniosynostosis** Treatment Rare Diseases Consortium

BY THE NUMBERS

5
Diseases Studied

5
Clinical Sites

*Advancing care for **syndromic craniosynostosis**, a set of rare diseases in children characterized by premature hardening of the skull, leading to asymmetric skull shape as the brain is forced to grow in other areas.*

Principal Investigators: Eric Chien-Wei Liao, MD, PhD; Jing Huang, PhD; Jesse A. Taylor, MD; Mark Urata, MD, DDS

Lead Institution: Children's Hospital of Philadelphia | **Funded Since:** 2025

TOP ACHIEVEMENT

What was your consortium's most significant achievement from the past year?

Eric Liao, MD, PhD, Principal Investigator, ACT: ACT's most significant achievement this year is our multi-site collaboration across our Cores and Clinical Projects. Thanks to our ACT sites and collaborators at the RDCRN Data Management and Coordinating Center (DMCC) and National Institutes of Health (NIH), the ACT Administrative Core established the necessary contracts, submitted IRB protocols for review, and integrated into the RDCRN. We hosted a patient engagement session, received IRB approval for Clinical Project 1 (Natural History Study of Syndromic Craniosynostosis), and initiated the REDCap database builds, now working to start recruitment for Clinical Project 1. Our ACT Career Core brought together researchers across all career stages to learn in virtual seminars and brainstorm new collaborations. Alongside this, the ACT Pilot Core awarded our Cycle 1 project to create a syndromic craniosynostosis-specific patient-reported outcome. Overall, ACT's collaboration in Year 1 primes our team to advance into the upcoming years as part of the RDCRN.

What did this achievement accomplish?

Dr. Liao: ACT's multi-site collaboration accomplished the critical start of our consortium's activities. With the administrative and operational infrastructure set up in Year 1, ACT is now able to work towards establishing the single IRB for the Clinical Projects and human subjects recruitment in Year 2. The collaboration also brought together our ACT research community for continuous learning and funded an innovative pilot project to create a patient-reported outcome focused on syndromic craniosynostosis.

How will this impact the rare disease community?

Dr. Liao: ACT's collaborative efforts will enable the first prospective multi-site studies for syndromic craniosynostosis across leading craniofacial centers in the United States. The ACT team learned from patients and families in patient engagement sessions, using their perspective to focus our clinical projects and ensure their voices guide ACT's research to deliver meaningful information. For the rare disease research community, ACT's collaboration enables investigators across all career stages to learn from each other and enhance their own projects to engage patients and share tools to drive impactful research centered on syndromic craniosynostosis.

How will this advance the goals of your consortium and/or the RDCRN at large?

Dr. Liao: Multi-site collaboration advances us towards ACT's goal of conducting the first prospective multi-site studies for syndromic craniosynostosis and fostering the craniofacial research ecosystem. By working together across leading craniofacial care centers (Children's Hospital of Philadelphia, Children's Hospital Los Angeles, Boston Children's Hospital, and Seattle Children's Hospital), we have built the core relationships to set the stage for our research in the upcoming years. We aim to exemplify the mission of the RDCRN and extend collaboration across consortia to share learnings and tools.

ARDVARC

ADVANCING RARE DISORDERS: VASCULAR MALFORMATION RESEARCH NETWORK WITH CANVAS

BY THE NUMBERS

3
Diseases Studied

8
Clinical Sites

*Strengthening research and improving care for people living with **vascular malformations**, conditions that happen when blood vessels and lymph vessels grow in an abnormal way that causes an immature vessel, which is usually caused by changes in certain genes that control how cells grow and multiply.*

Principal Investigators: Denise Martin Adams, MD; Michael R. Jeng, MD

Lead Institution: Children's Hospital of Philadelphia | **Funded Since:** 2025

TOP ACHIEVEMENT

What was your consortium's most significant achievement from the past year?

Michael R. Jeng, MD, Principal Investigator, ARDVARC: The ARDVARC Career Enhancement Core (CEC) successfully launched the Arkansas Children's Hospital fourth-year medical student Vascular Anomalies Elective (ACGME accredited), which represents an important milestone in developing the next generation of rare disease clinicians and investigators. The first student began the rotation on July 6, 2026, and eight medical students have applied. The elective provides immersive, multidisciplinary exposure to the diagnosis and management of vascular anomalies while introducing students to clinical and translational research in rare diseases. By engaging learners early in their careers, the program raises awareness of the ARDVARC target diseases as well as the broader spectrum of vascular anomalies and encourages students to consider careers in pediatric and adult rare disease medicine, research, and multidisciplinary care.

What did this achievement accomplish?

Dr. Jeng: The Vascular Anomalies Elective begins to expose fourth-year medical students to vascular anomalies, allowing them to gain exposure and a better awareness of the vascular anomalies as rare disease entities.

How will this impact the rare disease community?

Dr. Jeng: This elective strengthens the future workforce dedicated to caring for individuals with rare vascular anomalies across the lifespan. Students gain firsthand experience caring for both pediatric and adult patients through collaboration with Arkansas Children's Hospital, reinforcing the importance of coordinated transition and lifelong multidisciplinary care. Early exposure to rare diseases, patient advocacy, and research helps cultivate future clinicians and physician-scientists who are equipped to improve diagnosis, expand access to specialized care, and advance research for patients with rare vascular disorders. Finally, we feel this exposure with faculty who are excited and gain professional reward from these patients and diseases will inspire future clinicians and researchers to pursue careers focused on rare diseases.

How will this advance the goals of your consortium and/or the RDCRN at large?

Dr. Jeng: This initiative directly supports the ARDVARC Career Enhancement Core and the RDCRN mission by expanding the pipeline of future rare disease investigators and multidisciplinary clinicians. The elective integrates clinical education, mentorship, scholarly activity, and exposure to ongoing ARDVARC research, creating opportunities for students to participate in rare disease research early in their training. By fostering collaboration across specialties and introducing learners to the infrastructure of an RDCRN site, the program advances RDCRN's goals of developing the next generation of investigators, increasing awareness of rare diseases, promoting collaborative research, and ultimately improving outcomes for patients with rare vascular anomalies.

ARISEN

Autoimmunity, Rasmussen's, Inflammation & Status Epilepticus research Network

BY THE NUMBERS

3
Diseases Studied

24
Clinical Sites

*Rising together to advance hope, healing, and outcomes for **neuroinflammatory diseases**, a group of conditions characterized by inflammation of the brain, which can lead to memory loss, changes in thinking, changes in behavior, seizures, and progressive brain damage.*

Principal Investigators: Grace Gombolay, MD; Kristy Murray, DVM, PhD

Lead Institution: Emory University | **Funded Since:** 2025

TOP ACHIEVEMENT

What was your consortium's most significant achievement from the past year?

Grace Gombolay, MD, Principal Investigator, ARISEN: Our most significant achievement over the past year was successfully establishing the operational, scientific, and governance infrastructure needed to launch ARISEN as a fully functioning research consortium.

What did this achievement accomplish?

Kristy Murray, DVM, PhD, Principal Investigator, ARISEN: We made significant progress in establishing the ARISEN consortium during the reporting period. Key accomplishments included forming both an Executive Committee and an External Advisory Committee; identifying 24 participating sites and site principal investigators; and strengthening engagement with patient advocacy group (PAG) partners. The consortium finalized and received IRB approval for a unified study protocol and informed consent forms across all three consortium projects, while also developing data-sharing and publication policies. REDCap databases were created for all studies to support data collection and management. In addition, the consortium launched pilot and early stage investigator funding programs, established regular meetings with the National Institutes of Health (NIH), the RDCRN Data Management and Coordinating Center (DMCC), and PAG partners, and introduced the ARISEN website and branding. The team also developed the curriculum for ARISEN Research Rising, a career development program for early career investigators. These efforts culminated in the first in-person consortium meeting, which brought together 32 attendees from across the United States, including eight representatives from patient advocacy organizations.

How will this impact the rare disease community?

Dr. Gombolay: ARISEN is creating a sustainable infrastructure that will accelerate research, improve collaboration, and expand opportunities for patients and families affected by rare neuroinflammatory disorders. By bringing together two previously independent initiatives, the CONNECT registry and the NORSE biorepository, ARISEN has united pediatric and adult researchers, patient advocacy organizations, and clinical sites into a single collaborative network. This integration expands access to both patient registry and biospecimen resources across the lifespan, increases research participation opportunities for patients, and enables larger, more comprehensive studies that would not be feasible at individual centers. ARISEN is fostering a unified rare disease community that brings together patients, caregivers, advocacy groups, clinicians, and researchers to accelerate discovery and improve outcomes for individuals living with rare neuroinflammatory disorders.

How will this advance the goals of your consortium and/or the RDCRN at large?

Dr. Murray: ARISEN will advance both the consortium's goals and the broader mission of the RDCRN by establishing the infrastructure, resources, and collaborative network needed to accelerate research in rare neuroinflammatory disorders. Through its three projects, ARISEN will generate longitudinal natural history data, evaluate patient- and caregiver-reported outcomes, and identify immunologic and biomarker signatures that may improve diagnosis, treatment selection, and long-term outcomes for patients with autoimmune encephalitis, Rasmussen syndrome, and new-onset refractory status epilepticus (NORSE)/febrile infection-related epilepsy syndrome (FIRES). ARISEN will also contribute valuable resources to the rare disease research community. The expansion of the Children's Clinical and Translational Discovery Core at Emory to house the ARISEN biorepository will create a centralized resource for biospecimen collection and future biomarker discovery efforts to support the RDCRN.



EARLY CAREER INVESTIGATOR SPOTLIGHT

Alexander Sandweiss, MD, PhD

Assistant Professor, Baylor College of Medicine and Texas Children's Hospital
Rare Disease Research Focus: Anti-N-methyl-D-aspartate receptor encephalitis (NMDARE)

What are your research goals?

Dr. Sandweiss: My short-term research goals are to identify risk factors and early biomarkers that may predict the onset of NMDARE. My long-term research goals are to understand the underlying mechanisms that drive this disorder in order to develop novel interventions that improve children's neurocognitive outcomes.

How are you involved with the RDCRN?

Dr. Sandweiss: I am a member of the Autoimmunity, Rasmussen's, Inflammation & Status Epilepticus research Network (ARISEN), a consortium supported by the RDCRN with the goal of advancing research in rare neuroinflammatory diseases, including NMDARE.

How does participating in the network support your long-term development?

Dr. Sandweiss: The resources and connectivity of the RDCRN will directly impact my rare disease research seeking to identify early biomarkers of disease. In the process, alongside my mentors and collaborators, I will develop the skill set necessary to become an independent investigator and ultimately play a role in teasing apart the underlying molecular mechanisms of autoimmune neurological disease.

Brittle BONE DISORDERS CONSORTIUM

BY THE NUMBERS

21
Diseases Studied

14
Clinical Sites

*Physicians, researchers, and educators focused on learning more about **osteogenesis imperfecta (OI)** and developing new and better treatments to improve the care of patients with OI, a group of inherited connective tissue disorders associated with a wide range of symptoms, including fragile bones that break easily.*

Principal Investigator: Brendan Lee, MD, PhD

Lead Institution: Baylor College of Medicine | **Funded Since:** 2014

TOP PUBLICATION

"A qualitative exploration of child, caregiver, and clinician perspectives on mental health in children with osteogenesis imperfecta"

JOURNAL
Journal of Child Health Care

DOI
10.1177/13674935251379181

In addition to physical symptoms, OI can contribute to negative mental health outcomes. Previous research has focused on mental health among children with OI and their caregivers, as well as the perspectives of clinicians who care for individuals with OI. However, no studies have compared mental health-related themes among all three of these groups.

In this study, researchers explored child, caregiver, and clinician perspectives on mental health in children with OI. The team conducted semi-structured interviews with these groups and analyzed their answers to find common themes.

Results reveal themes of depressed and anxious moods, as well as risk factors and protective factors for these symptoms. Authors note that further work may be needed to tailor psychotherapy and pharmacotherapy for children with OI.

TOP ACHIEVEMENT

What was your consortium's most significant achievement from the past year?

Brendan Lee, MD, PhD, Principal Investigator, BBDC: Through the Brittle Bone Disorders Consortium (BBDC), investigators completed the systematic collection, harmonization, and analysis of the largest radiographic imaging cohort ever assembled for a rare bone disease population. This unique dataset, built through years of collaboration across sites, provides an unprecedented opportunity to characterize disease progression, skeletal outcomes, and clinical variability in osteogenesis imperfecta and related disorders. The resulting analyses establish a critical evidence base for developing disease-specific outcome measures and advancing future therapeutic studies.

What did this achievement accomplish?

Dr. Lee: The analysis transformed a large, longitudinal collection of imaging data into a valuable research resource capable of addressing clinically meaningful questions that were previously impossible to study at scale. By standardizing imaging assessments across participating sites, the consortium generated new insights into skeletal manifestations, disease progression, and variability across rare bone disease populations. This work also creates a foundation for identifying biomarkers and outcome measures that can be incorporated into future natural history studies and clinical trials. Importantly, it demonstrates the power of long-term multicenter collaboration to generate robust datasets that individual institutions could not assemble independently.

How will this impact the rare disease community?

Dr. Lee: Rare disease research is often limited by small patient populations and fragmented data. By creating and analyzing the largest radiographic cohort in rare bone disease, the consortium has established a resource that can improve disease characterization, support evidence-based clinical care, and accelerate therapeutic development. Patients, families, clinicians, and researchers will benefit from a deeper understanding of disease manifestations and progression. The dataset also provides industry and academic partners with critical information needed to design future studies, evaluate treatment effects, and identify meaningful endpoints for clinical trials, ultimately helping bring new therapies closer to patients.

How will this advance the goals of your consortium and/or the RDCRN at large?

Dr. Lee: This achievement directly supports the BBDC's mission to advance clinical trial readiness and improve outcomes for individuals with rare bone disorders. The imaging cohort provides essential infrastructure for future natural history studies, biomarker development efforts, and therapeutic trials. More broadly, it exemplifies RDCRN's core model of leveraging collaborative networks to generate high-impact datasets that would not be feasible at a single institution. By transforming long-term patient participation into actionable scientific knowledge, this work strengthens the rare disease research ecosystem and creates a platform for future discoveries, collaborations, and treatment development across the RDCRN community.





EARLY CAREER INVESTIGATOR SPOTLIGHT

Marie-Eve Robinson, MD, CM, MSc, FRCPC

Associate Professor of Pediatrics, McGill University and Shriners Hospital for Children Canada
Rare Disease Research Focus: Osteogenesis imperfecta (OI) and skeletal dysplasias

What are your research goals?

Dr. Robinson: My long-term research goal is to advance precision health approaches for individuals with skeletal dysplasias by defining disease phenotypes, identifying mechanisms of morbidity, and developing targeted therapeutic strategies that improve biological, psychological, and functional outcomes. A major focus of my program is to elucidate the mechanisms underlying chronic pain in OI and to develop evidence-based approaches to prevent and treat pain in individuals with primary bone disorders.

How are you involved with the RDCRN?

Dr. Robinson: My involvement with the RDCRN began during my postdoctoral fellowship with Dr. Frank Rauch at Shriners Children's Canada. During that time, I led research demonstrating that bisphosphonate therapy can be safely discontinued at final height in individuals with OI, helping inform long-term treatment strategies for this population. This work was presented at the Conference on Clinical Research for Rare Diseases hosted by the RDCRN. I have since become an independent investigator and participate in the scientific leadership of the consortium project “Reducing Pain Interference Among Adults with Osteogenesis Imperfecta,” a large randomized controlled trial evaluating mindful self-compassion versus relaxation training to reduce pain interference in adults with OI, alongside BBDC principal investigator Dr. Brendan Lee and trial co-principal investigator Dr. Eric Storch.

How does participating in the network support your long-term development?

Dr. Robinson: The RDCRN carried me from trainee to independent investigator. Its mentorship and multi-site infrastructure let me take pilot findings on pain interference in OI and scale them into a funded, network-wide randomized controlled trial, a trajectory that would not have been possible outside the consortium. Beyond this trial, I have contributed to several BBDC-led publications on psychosocial and quality-of-life outcomes in OI, which has broadened both my collaborator network and my methodological skill set. It was, in fact, BBDC-driven work that identified chronic pain as an unmet priority in OI research, directly shaping the focus of my research program. The consortium has also enabled me to work closely with the Osteogenesis Imperfecta Foundation (OIF), in partnership with the Osteogenesis Imperfecta Federation Europe (OIFE), to design and deliver the OI Pain Survey, extending my research reach to the global OI patient community. Looking ahead, this foundation positions me to lead the next generation of pain-focused therapeutic trials in OI—the very priority that individuals with OI identified through our survey work—and to mentor the trainees who will carry that work forward within the network.



Recent RDCRN-funded publication:

"Mindful Self-Compassion to Reduce Pain Interference Among Adults with Osteogenesis Imperfecta"

Journal of Clinical Psychology in Medical Settings

DOI: 10.1007/s10880-025-10092-2

BDCRC
Batten Disease
Clinical Research Consortium

BY THE NUMBERS

14
Diseases Studied

12
Clinical Sites

*Driving discovery for **neuronal ceroid lipofuscinoses (NCLs, Batten diseases)**, which are inherited, fatal lysosomal disorders that begin in childhood with symptoms such as vision loss, epilepsy, dementia, and movement disorders, resulting in lifelong disability and shortened lifespan.*

Principal Investigator: Erika Augustine, MD, MS

Lead Institution: Kennedy Krieger Institute | **Funded Since:** 2025

TOP ACHIEVEMENT

What was your consortium's most significant achievement from the past year?

Erika Augustine, MD, MS, Principal Investigator, BDCRC: This year, the BDCRC formally established its operating infrastructure, bringing together investigators, research coordinators, caregivers and advocacy partners, and centralized data management and coordination support, focused on the goal of advancing clinical research in Batten disease. Initial organizational efforts centered on a collaborative process to finalize research protocols and supporting materials, reflective of the stakeholder research priorities established during the initial formation of the BDCRC, and regular communication with the Batten disease community. Monthly meetings were a key forum for this collaborative work, and served as the setting for BDCRC Learning Labs, our educational series featuring 15-minute presentations from subject matter experts on topics relevant to the consortium. The year culminated in a two-hour BDCRC symposium for families and the Batten disease community at the annual Batten Disease Support, Research, and Advocacy (BDSRA) Foundation family conference.

What did this achievement accomplish?

Dr. Augustine: By centering stakeholder collaboration, we developed a robust and patient-centered research protocol and materials for IRB submission and review. The BDCRC infrastructure and processes established in year one will support the success of our future research and are critical to ongoing productive collaboration. Learning Labs, shared publicly through the RDCRN's YouTube channel, served as training tools and as a means to share expertise and information beyond the consortium. Presentations featured instrument developers explaining the tools to be used in our research studies, single IRB experts providing guidance on the submission process, and Child Life Specialists sharing best practices for respectful engagement with the Batten disease community. Finally, by introducing the BDCRC and its research directly to families, we continued critical conversations about research in Batten disease and set the stage for launch of one of the most comprehensive studies of Batten disease to date.

How will this impact the rare disease community?

Dr. Augustine: The BDCRC, through its newsletters, symposia, Learning Labs, and other communications, ensured not only strong within-network operations, but also strong communication with the rare disease community. The creation of accessible materials means that families have access to the science behind the study measures, the steps researchers need to take before a study begins, and resources and support systems that may be available when participating in research. Making this information accessible promotes transparency, supports informed participation, and helps strengthen partnerships between the BDCRC and families impacted by rare disease.

How will this advance the goals of your consortium and/or the RDCRN at large?

Dr. Augustine: The Learning Labs served as a platform for engagement and served as an effective training tool for our network. The growing library of recorded presentations will serve as an onboarding resource for new team members, reducing administrative burden and helping ensure that study teams across sites are equipped with the knowledge they need to conduct research consistently and effectively. Overall, in year one, the BDCRC established the foundational infrastructure and resources needed to move forward in our aim of carrying out high-quality research that advances our understanding of Batten disease and generates novel tools for efficient and impactful clinical trials.



EARLY CAREER INVESTIGATOR SPOTLIGHT

Aikaterini Chatzipli, PhD

Postdoctoral Research Fellow, Boston Children's Hospital and Harvard Medical School
Rare Disease Research Focus: Batten disease (neuronal ceroid lipofuscinoses)

What are your research goals?

Dr. Chatzipli: My research focuses on using high-resolution multi-omic approaches and human-specific model systems to bridge molecular discovery and clinical therapy for rare brain disorders. My primary goals are: (1) to generate the first single-cell atlas of Batten disease across multiple subtypes and healthy controls, identifying shared cellular and molecular mechanisms of neurodegeneration; (2) to evaluate the distribution and efficacy of individualized antisense oligonucleotide (ASO) and gene therapies in rare postmortem human brain tissue, addressing key barriers to clinical translation such as limited neuronal uptake despite promising animal studies; and (3) to develop and apply human-specific models, including brain organoids, to better predict therapeutic outcomes and improve the translation of novel treatments from the laboratory to patients.

How are you involved with the RDCRN?

Dr. Chatzipli: I am a computational geneticist and research fellow at Boston Children's Hospital and Harvard Medical School within the Division of Genetics and Genomics. I am an active member of the BDCRC at the Boston Children's Hospital site, where I collaborate with clinicians and researchers to advance translational research in Batten disease. My role within the RDCRN is to generate and analyze high-resolution single-cell transcriptomic datasets from human brain tissue to better understand disease mechanisms and evaluate responses to emerging therapies. By contributing these datasets and working within a multidisciplinary network, I support the consortium's efforts to accelerate biomarker discovery, improve our understanding of disease pathogenesis, and advance the development of new treatments for patients with Batten disease.

How does participating in the network support your long-term development?

Dr. Chatzipli: Participating in the RDCRN significantly advances my long-term goal of becoming an independent investigator leading translational research in rare neurodegenerative disorders. The RDCRN provides a unique environment where basic scientists, clinicians, patient advocacy organizations, and industry partners collaborate to accelerate therapeutic development. Through this multidisciplinary network, I will gain mentorship, establish collaborations, and contribute to natural history, biomarker, and therapeutic studies that will strengthen the clinical impact of my research. These opportunities will help me develop independent research programs, lead future investigator-initiated projects, and translate mechanistic discoveries into meaningful advances for patients with rare neurological diseases.

CReATe
Therapies for ALS & Related Disorders

BY THE NUMBERS

6
Diseases Studied

11
Clinical Sites

*Working to advance therapeutic development for **amyotrophic lateral sclerosis (ALS)**—a progressive motor neuron disease that leads to problems with muscle control and movement—and related disorders.*

Principal Investigator: Michael Benatar, MD, PhD

Lead Institution: University of Miami - Miller School of Medicine | **Funded Since:** 2014

TOP PUBLICATION

"Skeletal Muscle Biomarkers of Amyotrophic Lateral Sclerosis: A Large-Scale, Multi-Cohort Proteomic Study"

JOURNAL

Annals of Neurology

DOI

10.1002/ana.78046

Biomarkers play an essential role in developing new therapies for ALS. However, more biomarkers that can help monitor and demonstrate response to an experimental therapy are needed.

In this study, researchers identified new skeletal muscle biomarkers for ALS. The team performed a proteomics analysis to measure levels of proteins in plasma and cerebrospinal fluid samples from patients with ALS and healthy controls.

Results reveal a panel of 329 plasma proteins with levels that significantly vary between patients with ALS and controls. Authors note that these skeletal muscle biomarkers may help track ALS disease state and progression, aiding in the development of new therapies.

TOP ACHIEVEMENT

What was your consortium's most significant achievement from the past year?

Michael Benatar, MD, PhD, Principal Investigator, CReATe: Changing the dialogue around the best approach to early/mid-stage ALS clinical trials.

What did this achievement accomplish?

Dr. Benatar: Historically, early and mid-stage ALS clinical trials have relied too heavily on underpowered clinical outcome measures. Through the consortium's work to clinically validate biomarkers (e.g. neurofilament light chain) for defined contexts of use (e.g. prognostic and response), encourage a focus on biological (rather than clinical) measures of response, highlight the problems of multiplicity, and encourage better go/no-go decision making at the end of phase 2, CReATe investigators are slowly shifting the community's approach to early drug development.

How will this impact the rare disease community?

Dr. Benatar: The impact should be more efficient clinical trials that are more likely to be informative and more likely to correctly identify promising therapeutics.

How will this advance the goals of your consortium and/or the RDCRN at large?

Dr. Benatar: Experience of the ALS clinical trials field is directly relevant to the efforts of other rare disease communities to identify and develop therapeutics that deliver meaningful benefits to patients.



EARLY CAREER INVESTIGATOR SPOTLIGHT

Marijne Vandebergh, PhD

Postdoctoral Researcher, VIB-UAntwerp Center for Molecular Neurology
Rare Disease Research Focus: Frontotemporal dementia

What are your research goals?

Dr. Vandebergh: Frontotemporal dementia (FTD) is characterized by variability in age at onset, disease duration, and clinical presentation, ranging from language deficits to personality changes and impaired motor function. One-third of patients show a strong family history, with most common genetic causes of FTD being autosomal dominant mutations in the progranulin (*GRN*) gene, the microtubule-associated protein tau (*MAPT*) gene, and the chromosome 9 open reading frame 72 (*C9orf72*) gene. However, the presence of reduced or age-dependent penetrance adds further to the observed heterogeneity. A fundamental question is which mechanisms underlie this observed disease heterogeneity in FTD. The goal of my research is to reveal the genetic factors that contribute to patient-to-patient heterogeneity in FTD and understand their underlying biology. To this end, I aim to identify novel candidate genetic modifiers of disease onset by using a genome-wide association approach.

How are you involved with the RDCRN?

Dr. Vandebergh: I am a CReATe Scholar from a previous RDCRN funding cycle in 2024.

How does participating in the network support your long-term development?

Dr. Vandebergh: Being a CReATe Scholar provides me with the opportunity to network with leading experts in ALS and related neurodegenerative disorders, thereby it provides me with the opportunity to gain new perspectives and stay informed about the latest advances in the field.



Recent RDCRN-funded publication:

"Individualized Atrophy-Based Prediction of Dementia Progression in Familial Frontotemporal Lobar Degeneration With Bayesian Linear Mixed-Effects Modeling"

Annals of Neurology

DOI: 10.1002/ana.78167

Developmental Synaptopathies Consortium

BY THE NUMBERS

4
Diseases Studied

11
Clinical Sites

*Working together to improve the lives of patients and families affected by **developmental synaptopathies**, rare genetic syndromes that often cause autism spectrum disorder and intellectual disability. These diseases seem to affect certain shared pathways influencing the development of brain connections, or synapses.*

Principal Investigator: Mustafa Sahin, MD, PhD

Lead Institution: Boston Children's Hospital | **Funded Since:** 2014

TOP PUBLICATION

"Genomic modifiers of malignant and neurodevelopmental phenotypes in individuals with *PTEN* hamartoma tumor syndrome"

JOURNAL
npj Genomic Medicine

DOI
10.1038/s41525-026-00556-1

***PTEN* hamartoma tumor syndrome (PHTS)** is a spectrum of disorders caused by mutations in the *PTEN* gene, which typically suppresses formation of tumors. Individuals with PHTS can experience a wide variety of outcomes, including cancer, neurodevelopmental disorders, or both. Not much is known about why these phenotypes are so different, even among individuals with the same *PTEN* variants.

In this study, researchers identified genomic modifiers of phenotypes in PHTS. The team performed whole-genome sequencing of individuals with PHTS, family members, and other *PTEN* variant carriers.

Results show that PHTS phenotypes are shaped by complex interactions between many different genes, including *PTEN* and others. Authors note that these findings reveal more about the different cancer and neurodevelopmental disorder phenotypes, as well as potentially improve prediction of outcome risks for individual patients.

TOP ACHIEVEMENT

What was your consortium's most significant achievement from the past year?

Rajna Filip-Dhima, MS, Project Manager, DSC: The addition and onboarding of a new disease group, *SYNGAP1*-related intellectual disability (*SYNGAP1*-ID).

What did this achievement accomplish?

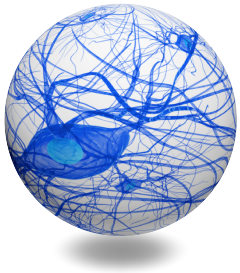
Filip-Dhima: The onboarding of the *SYNGAP1*-ID disease group will allow us to learn more about the disorder and establish a rich longitudinal dataset. It will help us characterize the phenotypes of *SYNGAP1*-ID, focusing on the domains of communication, sleep, and sensory reactivity, as well as examine neurophysiological biomarkers of *SYNGAP1*-ID. We also hope to develop an understanding of neuropsychiatric symptom profiles and regression in *SYNGAP1*-ID.

How will this impact the rare disease community?

Filip-Dhima: It will provide much-needed information about the progression and trajectory of the disorder.

How will this advance the goals of your consortium and/or the RDCRN at large?

Filip-Dhima: It will help expand our understanding of related disorders, as well as expand the consortium and network further by including new sites.



GLOBAL
LEUKODYSTROPHY
INITIATIVE

BY THE NUMBERS

18
Diseases Studied

24
Clinical Sites

*A consortium of scientists, industry stakeholders, and patient advocacy leaders working together to promote advances in the diagnosis and treatment of **leukodystrophies**, a complex, often progressive group of disorders affecting the white matter of the brain due to the loss or absence of myelin, the protective coating around nerves.*

Principal Investigators: Laura A. Adang, MD, PhD; Florian Eichler, MD; S. Ali Fatemi, MD, MBA; Robert Grundmeier, MD; Adeline Vanderver, MD

Lead Institution: Children's Hospital of Philadelphia | **Funded Since:** 2019

TOP PUBLICATION

"Differentiating Incidental From Pathologic Brain MRI Findings in Asymptomatic Boys With X-Linked Adrenoleukodystrophy: A Multicenter Study"

JOURNAL
Neurology

DOI
10.1212/WNL.0000000000214321

X-linked adrenoleukodystrophy (ALD) is a genetic disorder characterized by the disruption in fat metabolism (break down) which leads to the accumulation of long-chain fatty acids throughout the nervous system, adrenal glands, and testes. Newborn screening has enabled the widespread use of brain MRI scans for early detection and treatment of cerebral ALD (cALD). However, it can be challenging to differentiate early cALD lesions (pathologic, or disease-related) from incidental findings (non-disease-related).

In this study, researchers characterized features of incidental MRI findings in cALD. The team analyzed 390 MRI reports from 69 boys with ALD.

Results show that incidental findings were commonly reported during cALD surveillance. These incidental findings were distinguishable from true cALD lesions based on anatomic location, stability over time, and persistent absence of contrast enhancement. Authors note that these findings provide a practical framework for differentiating incidental findings from cALD lesions during surveillance.

TOP ACHIEVEMENT

What was your consortium's most significant achievement from the past year?

Adeline Vanderver, MD, Principal Investigator, GLIA-CTN: The Critical Path Innovation Meeting (CPIM) for Aicardi-Goutières Syndrome (AGS) took place on November 17, 2025. GLIA-CTN leveraged two of its core initiatives—a real-world, evidence-based approach to natural history studies and a novel method for identifying patient-centered clinical trial endpoints and outcome assessments for AGS—in alignment with the FDA's 2022 guidance on Patient-Focused Drug Development, to conduct a successful meeting with the FDA. This was done in close collaboration with patient advocacy leaders within the AGS space.

What did this achievement accomplish?

Dr. Vanderver: The CPIM provided a significant opportunity for GLIA-CTN investigators, patient advocates, and FDA experts to engage in direct scientific dialogue about critical barriers to clinical trial readiness in AGS. The discussion focused on two complementary approaches developed by the consortium: using real-world evidence to strengthen understanding of AGS natural history and developing a patient-centered method for identifying meaningful clinical trial endpoints and outcome assessments. Because CPIMs are specifically designed to allow FDA and external stakeholders to discuss innovative approaches to drug development in a non-binding scientific setting, the meeting provided valuable regulatory perspective at an early stage of development.

How will this impact the rare disease community?

Dr. Vanderver: The impact extends beyond AGS. Rare disease trials frequently face the same challenges: small and heterogeneous patient populations, incomplete natural history data, and difficulty identifying outcome measures that are both clinically meaningful and sensitive to treatment effects. The AGS CPIM demonstrated a framework for addressing these challenges by integrating real-world data with systematic input from patients and families. Importantly, representatives of the AGS Advocacy Association participated in the meeting, helping ensure that the lived experience of individuals and families affected by AGS was represented alongside scientific and regulatory perspectives. This patient-centered approach is consistent with FDA's emphasis on incorporating patients' experiences, priorities, and perspectives into drug development.

How will this advance the goals of your consortium and/or the RDCRN at large?

Dr. Vanderver: The CPIM directly advances GLIA-CTN's goal of moving rare leukodystrophies from natural history characterization toward clinical trial readiness and therapeutic development. For AGS, specifically, regulatory dialogue around natural history evidence and patient-centered endpoints helps clarify the work needed to develop trial designs and outcome measures that are scientifically rigorous, feasible, and meaningful to patients. More broadly, the experience creates a potentially transferable model for other leukodystrophies and RDCRN diseases facing similar trial-readiness challenges. This aligns closely with the RDCRN mission to promote collaborative, multi-site, patient-centered translational and clinical research, and to address unmet trial readiness needs to accelerate development of treatments for rare diseases.



EARLY CAREER INVESTIGATOR SPOTLIGHT

Giulia Porcari, MD

Leukodystrophy Fellow, Children's Hospital of Philadelphia
Rare Disease Research Focus: *TUBB4A*-related leukodystrophy

What are your research goals?

Dr. Porcari: My overarching career goal as a clinician-scientist is to improve care for children with leukodystrophies by advancing disease-modifying therapies. Once considered untreatable, several leukodystrophies now have FDA-approved therapies or active clinical trials, yet for many others, preclinical advances have outpaced the natural history work needed to design effective trials. This is particularly true for the hypomyelinating leukodystrophies, a growing group of >15 disorders with overlapping features of motor delay, slow regression, and deficient brain myelination, which largely lack validated outcome measures and biomarkers for clinical trials. My research focuses on closing these gaps in *TUBB4A*-related leukodystrophy by validating patient-centered clinical outcome assessments and characterizing neurophysiological biomarkers, aiming to ultimately build a clinical trial readiness framework transferable across hypomyelinating conditions.

How are you involved with the RDCRN?

Dr. Porcari: I am the recipient of a career development award through GLIA-CTN, which is affording me protected time to pursue clinical outcome assessment validation and biomarker exploration in *TUBB4A*-related leukodystrophy. I am also hoping to participate in the Rare Disease Clinical Research Training Program, which will complement my background in epidemiology and clinical research with specialized training in rare disease trial methodology.

How does participating in the network support your long-term development?

Dr. Porcari: Protected time at this stage of my career is essential—it will allow me to gather key preliminary data under expert mentorship and to pursue formative experiences in rare disease research. The network infrastructure and cross-site collaboration have also been instrumental in building a large leukodystrophy natural history study at the Children's Hospital of Philadelphia (CHOP). The *TUBB4A*-LD cohort alone includes >160 patients, exceedingly large for an ultra-rare disease, and a key prerequisite for this proposal. Meaningfully studying this disorder, as well as rarer hypomyelinating conditions such as *GJC2*-related leukodystrophy, would not be possible outside this setting. I expect to leverage these data, skills, and collaborations towards a K23 focused on advancing clinical trial readiness in *TUBB4A*-LD, with a framework ultimately transferable to other hypomyelinating leukodystrophies.

IMPACT
Thrombotic Microangiopathies

BY THE NUMBERS

3
Diseases Studied

6
Clinical Sites

*Enhancing research and improving care for people living with **thrombotic microangiopathies (TMAs)**, a group of rare blood disorders characterized by low platelets (thrombocytopenia), destruction of red blood cells (microangiopathic hemolysis), and organ injury due to abnormal clotting (microvascular thrombosis) and restricted blood flow.*

Principal Investigators: Robert A. Brodsky, MD; Spero R. Cataland, MD; Shruti Chaturvedi, MBBS, MS; Marshall Mazepa, MD

Lead Institution: Johns Hopkins University | **Funded Since:** 2025

TOP PUBLICATION

"Optimizing the management of congenital thrombotic thrombocytopenic purpura"

JOURNAL
Research and Practice in Thrombosis and Haemostasis

DOI
10.1016/j.rpth.2025.103270

Congenital thrombotic thrombocytopenic purpura (cTTP) is a disorder in which blood clots form in the small blood vessels throughout the body. cTTP is caused by mutations in the *ADAMTS13* gene, leading to microvascular thrombosis (abnormal clotting), hemolytic anemia (destruction of red blood cells), and organ damage.

In this review, researchers summarize the clinical course, complications, and advances in treatment of cTTP. The team reviewed registry data, clinical studies, expert guidelines, and real-world patient experiences, including pregnancy management.

Results suggest that recombinant ADAMTS13, a therapy that helps restore the ADAMTS13 enzyme, is more effective, safe, and convenient than the standard plasma therapy. Authors note that although recombinant ADAMTS13 represents a major advance in cTTP management, more studies are needed to evaluate its long-term safety, particularly during pregnancy, and to optimize treatment strategies.

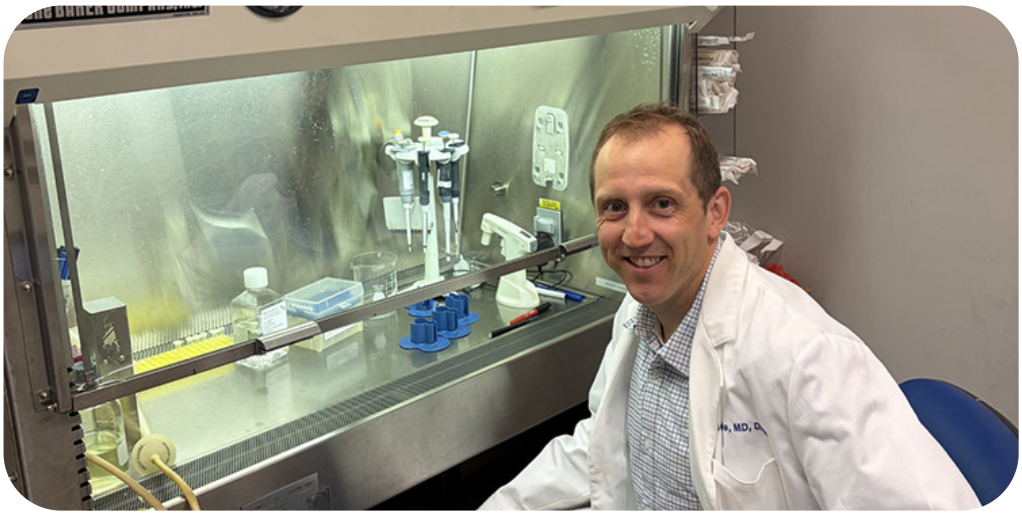
TOP ACHIEVEMENT

What was your consortium's most significant achievement from the past year?

Natalie Danish, CAP, Program Manager, IMPACT: As a new consortium, we were excited to work with the DMCC to finalize our study protocols and have started enrollment for both projects. This moves the consortium from building infrastructure to generating the prospective data and biospecimens that the TMA community has urgently needed. The studies will establish the natural history of thrombotic thrombocytopenic purpura (TTP) and complement-mediated thrombotic microangiopathy (CM-TMA), including clinically meaningful outcomes such as relapse, cardiovascular and renal disease, cognitive impairment, silent cerebral infarction, patient-reported outcomes, and quality of life.

What did this achievement accomplish?

Danish: We established the IMPACT cohort, which we hope will provide the infrastructure for meaningful research on the clinical outcomes of thrombotic microangiopathy, and targetable mechanistic insights into disease.

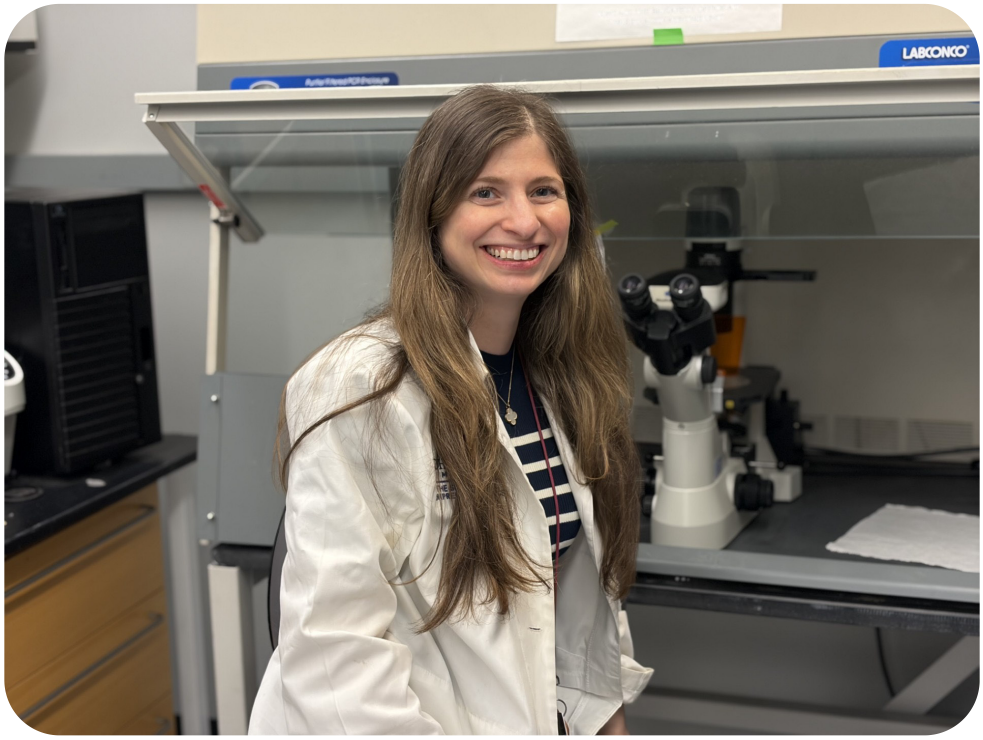


How will this impact the rare disease community?

Danish: IMPACT will shift the field from focusing primarily on survival from an acute thrombotic microangiopathy episode to understanding and preventing the long-term consequences of these diseases. By bringing together patients, expert clinical centers, investigators, and patient advocacy organizations around a common research infrastructure, the IMPACT consortium has the potential to accelerate meaningful discoveries, improve clinical care, and ensure that future therapies are evaluated based not only on their ability to treat acute disease, but on their ability to help patients live longer, healthier, and higher-quality lives.

How will this advance the goals of your consortium and/or the RDCRN at large?

Danish: IMPACT is designed not only to describe the burden of the rare thrombotic microangiopathies, but to identify why patients experience different outcomes and which patients may benefit from targeted interventions. The resulting longitudinal cohorts and biorepositories will create a durable research resource for the rare disease community. They will enable validation of biomarkers, identification of therapeutic targets, development of future clinical trials, and evaluation of how newly available therapies affect long-term health and quality of life; these questions have largely been beyond the scope of prior short-term, single-center studies.



MGNet

BY THE NUMBERS

5
Diseases Studied

6
Clinical Sites

*Enhancing discovery and treatment for **myasthenia gravis (MG)**, a neuromuscular disorder caused by an autoimmune response which blocks or damages acetylcholine receptors in muscles, causing disabling weakness.*

Principal Investigator: Henry Kaminski, MD

Lead Institution: George Washington University | **Funded Since:** 2019

TOP PUBLICATION

"A Distinct Immunological Signature in Late-Onset Myasthenia Gravis: Insights from an Exploratory Proteomics Study"

JOURNAL

Annals of Neurology

DOI

10.1002/ana.78017

Patients with early-onset MG develop symptoms before age 50, while patients with late-onset MG develop symptoms after age 50. Not much is known about how early-onset and late-onset MG affect the body differently.

Utilizing sera (the liquid part of blood that remains after coagulation) from the NIH-sponsored BeatMG clinical trial and MGNet, researchers performed proteomics analysis of 768 inflammatory proteins and uncovered a distinct immunological signature that differentiates late-onset from early-onset myasthenia gravis.

Pathways linked to leukocyte differentiation and myeloid cell migration were enriched in late-onset disease. Seven proteins were further replicated in the UK Biobank, and IL18R1, CXCL17, and CCL11 were validated in an independent cohort that were specific to late-onset MG. Investigators note that further studies are needed to confirm the use of these proteins as biomarkers of late-onset MG, as well as their use for improving therapeutic precision and patient outcomes.

TOP ACHIEVEMENT

What was your consortium's most significant achievement from the past year?

Henry Kaminski, MD, Principal Investigator, MGNet: We have established the MGToolKit in Epic to collect research-grade data in the context of routine clinic visits. We have also recruited the first subjects.

What did this achievement accomplish?

Dr. Kaminski: The MGToolKit demonstrates the ability to coordinate expert clinician feedback to develop standardized, in-clinic protocols for data collection. This required additional institutional agreements, IRB approval, and IT support.

How will this impact the rare disease community?

Dr. Kaminski: The ultimate goal is to proliferate this approach within the MGNet and beyond to all MG research centers in the country.

How will this advance the goals of your consortium and/or the RDCRN at large?

Dr. Kaminski: We will be able to produce the largest real-world natural history study in the history of myasthenia gravis research.

NASCARR

Network for Advancing Sex Chromosome Aneuploidy Research Readiness

BY THE NUMBERS

13 Diseases Studied

17 Clinical Sites

*Helping people with **sex chromosome aneuploidies (SCAs)**—a group of conditions in which an individual has either extra or missing X and/or Y chromosomes present in the cells of their body—live healthier lives.*

Principal Investigator: Nicole Tartaglia, MD

Lead Institution: University of Colorado Anschutz School of Medicine | **Funded Since:** 2025

TOP PUBLICATION

"Generating Advancements in Longitudinal Analysis in X and Y Variations: Rationale, Methods, and Diagnostic Characteristics for the GALAXY Registry"

JOURNAL

American Journal of Medical Genetics

DOI

10.1002/ajmg.a.64214

Although SCAs are the most common chromosomal abnormality, they are often underdiagnosed. Research in SCAs has been limited by over-representation of more severely impacted individuals in clinical studies, as well as low geographic and demographic diversity.

In this study, led by Dr. Shanlee Davis, researchers partnered with the SCA community to create a patient registry to improve health outcomes for individuals with SCAs. The Generating Advancements in Longitudinal Analysis in X and Y variations (GALAXY) Registry helps advance SCA research by collecting, storing, and analyzing clinical data from SCA patients with extra X and/or Y chromosomes.

To date, GALAXY includes hundreds of participants with a verified diagnosis of SCA. Next, researchers plan to recruit more individuals from underrepresented groups, extract medical record data into the registry, expand internationally, and continue to engage with the SCA community. Authors note that the GALAXY Registry is a powerful resource for future patient-centered clinical research.

In addition to the GALAXY Registry featured in the publication, the NASCARR consortium has also partnered with advocacy groups and families to create the InsighTS Registry. The InsighTS Registry includes over 900 individuals with Turner syndrome, a group of SCA conditions characterized by a missing X chromosome and variations of mosaicism or structural abnormalities of the X chromosome.

TOP ACHIEVEMENT

What was your consortium's most significant achievement from the past year?

Shanlee Davis, MD, PhD, Project 1 (InsighTS/GalaXY) Principal Investigator, NASCARR: Enrollment numbers in our natural history studies: InsighTS and GalaXY exceeding our goals, currently with >1500 participants!

How was this achievement accomplished?

Nicole Tartaglia, MD, Principal Investigator, NASCARR: NASCARR includes a large group of amazing research teams and clinicians from academic centers across the country. The dedication of these research teams and the InsighTS and GALAXY steering committees, combined with the strategic promotion and recruitment efforts of our partnering family advocacy groups, has driven the outstanding progress.









EARLY CAREER INVESTIGATOR SPOTLIGHT

Antoinette (Toni) Farrell, MD

Pediatric Endocrinology Fellow, PGY-5, University of California San Diego/Rady Children's Hospital
Rare Disease Research Focus: Turner syndrome

What are your research goals?

Dr. Farrell: My primary research interest is in Turner syndrome (TS), and I also am interested in hypoglycemia disorders. My interest in Turner syndrome stems from my own diagnosis of mosaic TS. I have a very close understanding of the research needs in the TS community, and my goal for my research and career is to help foster the connection of the TS community with the scientific community.

How are you involved with the RDCRN?

Dr. Farrell: I was recently selected as the NASCARR Career Enhancement Post-Doctoral Fellow. I am currently a pediatric endocrinology fellow at the University of California San Diego/Rady Children's, which is one of the NASCARR clinical sites.

How does participating in the network support your long-term development?

Dr. Farrell: The RDCRN, and specifically the NASCARR consortium, is a great resource for information for rare diseases, including SCAs. It is also a large but tight-knit network to share knowledge. These long-term connections I have made—and will make—will help with my goal of improving the connection of the TS community to the medical/scientific community.

PFN-STRIDE

A Study of Rare Invasive Fungal Diseases

BY THE NUMBERS

4
Diseases Studied

23
Clinical Sites

*Changing the world for **pediatric invasive fungal diseases**, infections caused by fungi that are present throughout everyday life, impacting individuals with weakened immune systems.*

Principal Investigators: Brian T. Fisher, DO, MPH, MSCE; William J. Steinbach, MD

Lead Institution: Children's Hospital of Philadelphia | **Funded Since:** 2025

TOP ACHIEVEMENT

What was your consortium's most significant achievement from the past year?

Brian T. Fisher, DO, MPH, MSCE, Principal Investigator, PFN-STRIDE: We were invited to present two talks at the National Institutes of Health (NIH)/National Institute of Allergy and Infectious Diseases (NIAID) Workshop on rare invasive mold diseases. The workshop was held on August 13–14, 2026.

What did this achievement accomplish?

Dr. Fisher: We met with fungal disease experts around the world and shared ideas on how to perform clinical trials in the rare disease space. We also discussed novel outcome approaches and use of control patients identified from prospective observational studies such as PFN-STRIDE.

How will this impact the rare disease community?

Dr. Fisher: We had the opportunity to amplify the existence of the RDCRN and more specifically our consortium. It will lead to improved connections with patient advocacy groups, industry partners, and other scientists interested in rare fungal infections.





EARLY CAREER INVESTIGATOR SPOTLIGHT

William R. Otto, MD

Attending Physician, Cincinnati Children's Hospital Medical Center
Rare Disease Research Focus: Bloodstream infections, invasive fungal infections, antimicrobial resistance

What are your research goals?

Dr. Otto: My research is based on the hypothesis that infections in immunocompromised children arise from identifiable clinical, microbial, and host-microbiome risk factors. I aim to leverage large-scale clinical data to better characterize the epidemiology of these infections and develop dynamic prediction models that incorporate changes in a patient's clinical course over time. Ultimately, this work is intended to support targeted infection-prevention strategies and more judicious use of antimicrobial and antifungal therapies in this vulnerable population.

How are you involved with the RDCRN?

Dr. Otto: I am involved with the RDCRN through PFN-STRIDE. I serve as a co-investigator at Cincinnati Children's Hospital Medical Center, a participating PFN-STRIDE enrolling site. I am also the recipient of a PFN-STRIDE Pilot Grant for my project, "Building Computable Phenotypes for Invasive Mold Infections in Immunocompromised Children Using Epic Cosmos." Through this project, I am developing and validating computable phenotypes for aspergillosis, mucormycosis, and fusariosis in immunocompromised children using Epic Cosmos. I will also compare and validate the Cosmos-based phenotype definitions against a local reference cohort. This work will help establish scalable methods for identifying and studying rare invasive fungal diseases across large patient populations.

How does participating in the network support your long-term development?

Dr. Otto: Participation in PFN-STRIDE gives me support to expand my research into new areas, particularly the use of large-scale electronic health record data to study rare invasive fungal diseases. The network has connected me with collaborators and mentors with deep expertise in rare invasive fungal disease, and the infrastructure and preliminary data generated through this pilot are directly informing my next round of extramural grant applications. Being part of a national consortium focused on rare disease research has also reinforced the importance of scalable, multi-institutional approaches for studying conditions that are individually uncommon but collectively significant in this vulnerable population.

Recent RDCRN-funded publication:

"Seroprevalence of Strongyloides stercoralis Among Pediatric Solid Organ Transplant Candidates at a Tertiary Pediatric Medical Center in the United States"

Pediatric Transplantation

DOI: 10.1111/petr.70334

RBDC
Rare Bronchiectatic Diseases Consortium

BY THE NUMBERS

4
Diseases Studied

4
Clinical Sites

*Rare disease insights driving progress in **bronchiectasis**, a progressive pulmonary condition marked by chronic infection and airway inflammation.*

Principal Investigators: Kenneth N. Olivier, MD, MPH; Richard Boucher, MD

Lead Institution: University of North Carolina at Chapel Hill | **Funded Since:** 2025

TOP PUBLICATION

"Airway epithelial heterogeneity and mucus plugging in asthmatic bronchioles"

JOURNAL

American Journal of Respiratory and Critical Care Medicine

DOI

10.1164/rccm.202409-1849OC

Bronchiolar disease is a group of conditions that damages small air tubes in the lungs called bronchioles. In people with asthma, bronchiolar dysfunction can exacerbate symptoms and make them difficult to control. However, not much is known about how asthmatic bronchiolar disease starts and spreads at the molecular level.

In this study, researchers explored the epithelial biology of asthmatic bronchioles. The team evaluated peripheral lung tissues from severe asthmatics, fatal asthmatics, and controls.

Results reveal that asthmatic bronchioles exhibit a type-2 inflammation (T2)-driven proximalization associated with mucus plugging. Findings also suggest that asthmatic bronchioles contain cellular niches which perpetuate T2-initiated epithelial remodeling.

TOP ACHIEVEMENT

What was your consortium's most significant achievement from the past year?

Joseph Hatch, MPH, Project Manager, RBDC: Key start-up activities for our new consortium have been accomplished in the previous year such that we should be poised to initiate our primary natural history study relatively soon into year 2 of the award.

What did this achievement accomplish?

Hatch: We have established both research protocols we proposed and are in the final stages of external advisory scientific review and NIH approvals, populated our External Advisory Committee (EAC) and Observational Study Monitoring Board (OSMB), are mid-process of setting up all required Data Use Agreements (DUAs) and Material Transfer Agreements (MTAs), and have identified and are completing contracting with our required vendor partners for the study. We've established agreements with additional collaborators to get key lung explant materials for the trancript and spatial -omics-heavy aims of Project 2 Aim 1.

How will this impact the rare disease community?

Hatch: The overall thrust of the RBDC is to understand the convergent and divergent clinical course and biological mechanistic underpinnings of four rare lung disease groups (primary ciliary dyskinesia, alpha-1 antitrypsin (AAT) deficiency, humoral immune deficiencies, and autosomal dominant hyper IgE syndrome) which lead to bronchiectasis. This is the first step towards that overall goal.



EARLY CAREER INVESTIGATOR SPOTLIGHT

Arianna Michaels, MD

Fellow, University of North Carolina at Chapel Hill
Rare Disease Research Focus: Primary ciliary dyskinesia

What are your research goals?

Dr. Michaels: To better understand and support development of treatments for primary ciliary dyskinesia.

How are you involved with the RDCRN?

Dr. Michaels: I am utilizing RDCRN research tools through my research mentor.

How does participating in the network support your long-term development?

Dr. Michaels: The RDCRN gives me access to databases, research, and funding.



ROAR

Rare Organic Acidemias Research Consortium

BY THE NUMBERS

5
Diseases Studied

5
Clinical Sites

*A collaborative network for advancing research in **organic acidemias**, a group of inherited metabolic disorders where the body cannot properly break down certain proteins and fats, leading to a buildup of organic acids.*

Principal Investigators: Lindsay Burrage, MD, PhD; V. Reid Sutton, MD

Lead Institution: Baylor College of Medicine | **Funded Since:** 2025

TOP ACHIEVEMENT

What was your consortium's most significant achievement from the past year?

V. Reid Sutton, MD, Principal Investigator, ROAR: ROAR's most significant achievement in its first year of RDCRN Cycle 5 was establishing the infrastructure needed to support multicenter research in rare organic acidemias. Through the ROAR Kickoff Meeting, investigators, patient advocacy partners, NIH representatives, the DMCC, and External Advisory Committee members aligned on study priorities, data standards, governance, and long-term scientific goals. ROAR subsequently finalized governance structures, executed data-sharing agreements, initiated REDCap development, obtained NIH approval for its flagship natural history study (ROAR9201), and developed Data and Biospecimen Use and Publication Policies. Together, these efforts created a sustainable framework for collaborative research, data sharing, and future biospecimen resources.

What did this achievement accomplish?

Dr. Sutton: These efforts transformed ROAR from a newly funded consortium into an operational, multicenter research network with a shared scientific vision and standardized processes for data and biospecimen sharing. The consortium established centralized stewardship through Baylor College of Medicine, Executive Committee oversight of data and biospecimen requests, publication governance procedures, and mechanisms for sharing de-identified data consistent with NIH and RDCRN policies. ROAR also created the framework for a longitudinal biorepository linked to clinical outcomes data. In addition, ROAR partnered with the Brittle Bone Disorders Consortium (BBDC) to develop a shared Career Enhancement Program that expanded mentorship, career development opportunities, and cross-consortium collaboration for early-career investigators.

How will this impact the rare disease community?

Dr. Sutton: ROAR9201 will create one of the largest prospective longitudinal clinical and biospecimen resources for rare organic acidemias in North America. The study will enroll approximately 300 participants across five institutions and collect standardized clinical data and optional biospecimens over multiple years. Patient advocacy organizations have been engaged since study inception, helping shape recruitment, dissemination, and family-centered research priorities. By implementing harmonized data standards, FAIR data principles, and transparent resource-sharing policies, ROAR is creating a durable platform for studies of disease progression, biomarkers, genotype-phenotype relationships, treatment outcomes, therapeutic development, and clinical trial readiness.

How will this advance the goals of your consortium and/or the RDCRN at large?

Dr. Sutton: This achievement directly advances RDCRN priorities by creating durable, shareable research resources that support collaboration, data harmonization, and long-term scientific reuse. ROAR established formal procedures for concept review, data access, biospecimen utilization, publication review, authorship attribution, and transfer of data to NIH-designated repositories. The consortium also collaborated with BBDC to develop a shared Career Enhancement Program that promotes mentorship, investigator development, and cross-consortium learning. Combined with ROAR9201 and the planned longitudinal biorepository, these efforts create a future-ready research platform that will accelerate discovery, support biomarker validation and therapeutic development, strengthen clinical trial readiness, and build the next generation of rare disease investigators.

SP-CERN

Spastic Paraplegia Centers of Excellence Research Network

BY THE NUMBERS

>90
Diseases Studied

13
Clinical Sites

*Advancing understanding and treatment of **hereditary spastic paraplegia (HSP)**, a large group of inherited disorders that affect the long nerve pathways carrying movement signals from the brain down the spinal cord to the legs.*

Principal Investigators: Darius Ebrahimi-Fakhari, MD, PhD; Michael Shy, MD; Stephan Züchner, MD, PhD

Lead Institution: Boston Children's Hospital | **Funded Since:** 2025

TOP PUBLICATION

"Genotype-structure-phenotype correlations define divergent natural history in early-onset spastic paraplegia type 4"

JOURNAL
Brain

DOI
10.1093/brain/awag150

Hereditary spastic paraplegia type 4 (SPG4) is the most common form of hereditary spastic paraplegia. SPG4 is caused by changes in the *SPAST* gene. People with SPG4 commonly experience difficulty walking due to muscle weakness and spasticity (muscle rigidity) in the legs, as well as hyperreflexia (overactive bodily reflexes), urinary urgency or bladder dysfunction, and mild loss of vibration sense in the feet. Symptoms and time of disease onset can be very different from person to person, even within the same family. Not much is known about the natural history of SPG4, making it difficult to conduct clinical trials and find new therapies.

In this study, researchers investigated genotype–phenotype correlations and the natural history of early-onset SPG4. The team used deep phenotyping to analyze 206 patients with genetically confirmed SPG4 from seven international centers. Researchers also studied data from an additional 146 patients from previous studies.

Results provide the most detailed natural history of SPG4 to date, creating a framework that links specific genetic variants to different clinical trajectories. Authors note that these findings can improve care and optimize clinical trial design for SPG4.

TOP ACHIEVEMENT

What was your consortium's most significant achievement from the past year?

Darius Ebrahimi-Fakhari, MD, PhD, Principal Investigator, SP-CERN: In its first year, SP-CERN enrolled more than 160 participants across the network—a pace that establishes the largest prospective cohort assembled to date for hereditary spastic paraplegia and positions the consortium to answer natural history and biomarker questions that no single center could address. This recruitment was made possible by the rapid operationalization of the network: harmonized standard operating procedures were established and adopted across all participating sites, three new affiliate sites were added to extend geographic reach and referral capacity, and the consortium completed validation work on a new clinician-reported outcome measure, the modified Spastic Paraplegia Rating Scale (mSPRS), which is now available for use in future interventional trials. Consortium investigators also published more than 10 peer-reviewed papers over the same period, reflecting both the productivity of the network and the collaborative culture it has built.

What did this achievement accomplish?

Dr. Ebrahimi-Fakhari: This work created capabilities that did not previously exist for hereditary spastic paraplegia. A prospectively characterized cohort of this size, assessed under harmonized protocols with a validated outcome measure, supplies the natural history comparator and statistical power needed to design and power interventional trials in disorders too rare for any single center to study. Harmonized standard operating procedures (SOPs) make data and biospecimens directly poolable across sites, enabling cross-site biomarker discovery and genotype-specific analyses. The three new affiliate sites extend specialized evaluation and research access to families in regions previously without it. Collectively, these outputs shorten the path from gene discovery to therapeutic trial.



How will this impact the rare disease community?

Dr. Ebrahimi-Fakhari: A trial-ready cohort changes what families can reasonably expect—when a therapeutic candidate emerges, the natural history data, validated outcome measure, and eligible participants are already in place, removing the multi-year delay that strands rare disease programs at the point a trial should begin. The methodological outputs are transferable: harmonized SOPs, a cross-site data model, and a template for adapting and validating an outcome measure for a mixed-age rare disease population can be adopted by other ultra-rare consortia rather than rebuilt. For industry and regulators, a characterized prospective cohort with a fit-for-purpose measure lowers the perceived risk of investing in a rare indication, which is often the practical determinant of whether these disorders attract development at all. More broadly, the year demonstrates that a distributed consortium can reach meaningful scale in a disease group where no single center sees enough patients.

How will this advance the goals of your consortium and/or the RDCRN at large?

Dr. Ebrahimi-Fakhari: For our consortium, the first year cleared the prerequisites—cohort, procedures, outcome measure—on which the remaining project period depends, freeing the coming years for genotype-specific progression, biomarker qualification, and trial design. It also builds assets that support sustainability beyond the current award. For the RDCRN, data collected under harmonized SOPs are structured for DMCC deposition and reuse by investigators outside the network, realizing the model's core leverage: a cohort assembled once and queried many times. The method we used to adapt and validate an outcome measure for a mixed-age, ultra-rare population addresses a rate-limiting problem shared across consortia and is directly transferable, as is our operational experience scaling a distributed network within a single year. The network also trains fellows and junior investigators in multi-site rare disease research, contributing to the pipeline the RDCRN depends on.



EARLY CAREER INVESTIGATOR SPOTLIGHT

Habibah Agianda, MD

Postdoctoral Research Fellow, Boston Children's Hospital
Rare Disease Research Focus: Hereditary spastic paraplegia

What are your research goals?

Dr. Agianda: My research goal is to accelerate the path to effective therapies for children with rare neurogenetic diseases by identifying and validating blood-based biomarkers that can serve as objective, minimally invasive outcome measures in clinical trials. I focus on hereditary spastic paraplegia (HSP), a heterogeneous group of disorders affecting the corticospinal tract, where the absence of validated biomarkers has slowed trial design and made it difficult to detect meaningful treatment effects over short timeframes. Using plasma proteomics platforms, my broader aim is to identify a biomarker robust enough to support regulatory-grade trial endpoints, so that as targeted and gene therapies reach clinical testing, sponsors and families have reliable ways to measure whether a therapy is working, shortening the distance between discovery and meaningful change in children's lives.

How are you involved with the RDCRN?

Dr. Agianda: I serve as the inaugural SP-CERN Career Enhancement Program Fellow, a role created to support early career investigators in building independent research programs within the RDCRN. In this position, I am leading a biomarker development project spanning the 13 SP-CERN sites across the United States, coordinating sample collection, harmonizing proteomic and clinical data, and analyzing plasma biomarkers across the spectrum of hereditary spastic paraplegia subtypes. This multi-site structure gives me access to a patient population far larger and more genetically diverse than any single institution could provide. The fellowship has also given me direct experience with the operational and regulatory complexity of rare disease research networks, from data-sharing agreements to cross-site quality control.

How does participating in the network support your long-term development?

Dr. Agianda: Participating in SP-CERN connects me to a network of physician-scientists across the country who are actively developing and testing therapies for spastic paraplegia, giving me mentorship and collaborative relationships I could not build within a single lab or institution. Being embedded in this community lets me see how biomarker science translates into real trial design decisions, and exposes me to the full arc of rare disease drug development, from natural history studies through regulatory engagement. These relationships are central to my long-term goal of becoming a physician-scientist in pediatric neurology who runs an independent biomarker-driven research program; the network provides both the scientific collaborators and the patient-facing perspective needed to keep my research grounded in what matters most to families.



Recent RDCRN-funded publication:

"Longitudinal Dynamics of Plasma Neurofilament Light Chain in Hereditary Spastic Paraplegia Type 11 (HSP-SPG11) and Type 15 (HSP-ZFYVE26)"

Movement Disorders

DOI: 10.1002/mds.70142

WELCOME, CYCLE 5B CONSORTIA!

In 2025, we began the fifth cycle of funding for the RDCRN. Now, we are welcoming **eight new research groups** to the network for Cycle 5b, expanding the network to 23 research consortia. Of the eight newly announced groups, seven are joining the network for the first time and one is continuing from the previous cycle.

The **Cycle 5b consortia** include:

Clinical Trial Readiness for Rare Lung Diseases (RLDC)

Grant number: 1 U54 HL188781-01
Principal Investigators: Francis X. McCormack, MD; Bruce C. Trapnell, MS, MD

Consortium for Hereditary Epidermal Differentiation Disorders (CHEDD)

Grant number: 1 U54 AR089183-01
Principal Investigators: Amy Paller, MS, MD; Keith Choate, MD, PhD

Consortium of Eosinophilic Gastrointestinal Disease Researchers (CEGIR)—*continuing from previous cycle*

Grant number: 2 U54 AI117804-11
Principal Investigators: Marc Rothenberg, MD, PhD; Glenn Furuta, MD

Pediatric Bone Marrow Failure Network (pBMFN)

Grant number: 1 U54 HD123051-01
Principal Investigators: Akiko Shimamura, MD, PhD; Janet Chou, MD

Peroxisomal Disorders Consortium (PDC)

Grant number: 1 U54 TR006478-01
Principal Investigator: Michael Wangler, MD

Precision Research in Inflammatory & Ischemic Myelopathies-CORD Consortium (PRIME-CORD)

Grant number: 1 U54 AI205727-01
Principal Investigators: Carlos A. Pardo-Villamizar, MD; Kathryn Fitzgerald, ScD; Elias Sotirchos, MD

Severe Cutaneous Adverse Reaction Clinical Research Consortium (SCAR CRC)

Grant number: 1 U54 AI205728-01
Principal Investigator: Elizabeth Phillips, MD

The Center for Polyamine Disorders Consortium (CPD)

Grant number: 1 U54 HD122910-01
Principal Investigators: André S. Bachmann, PhD; Caleb Bupp, MD, FACMG

DMCC SPOTLIGHT

RARE DISEASES CLINICAL RESEARCH NETWORK

Data Management and Coordinating Center

at Cincinnati Children's Hospital Medical Center

Facilitating RDCRN operations, research, participant engagement, and data sharing

Principal Investigators: Maurizio Macaluso, MD, DrPH, FACE; Michael Wagner, PhD

Lead Institution: Cincinnati Children's Hospital Medical Center

OUR AIMS

1. Advance the methods and the practice of rare disease clinical and translational research
2. Develop and maintain a leading-edge, shared knowledge base
3. Increase collaboration and accelerate clinical trial readiness

FOUR CORES



Administrative Core
Facilitates network operations, governance, and communications



Clinical Research Core
Supports best practices in protocol development



Data Management Core
Builds and maintains a robust, secure data infrastructure



Engagement and Dissemination Core
Promotes patient engagement and research dissemination

TOP ACHIEVEMENTS

• Refined existing and created new welcome package materials to successfully **onboard 15 consortia**. This includes the creation of 10 new RDCRN consortia websites.

• Established **DMCC-consortium teams** with all consortia to facilitate protocol and database development.

• Developed, deployed, and analyzed data from a **Clinical Trial Readiness survey** created by DMCC co-investigators. The purpose of the survey is to identify cross-cutting needs for DMCC or other coordinated support, such as consultation with the Trial Innovation Network.

• Increased visibility and access to information by creating network-wide **protocol and site databases** for all consortia sites and protocols.

• Established a collaborative infrastructure to define the structure, roles, and processes for **network groups and committees**, including the launch of the Early Career Enhancement Collaborative.

• Revised the format of the **Coalition of Patient Advocacy Groups (CPAG) networking events** to allow for more informal dialogue and engagement with subject matter experts.

• Trained consortia staff of 16 graduated and/or alumni consortia on RDCRN tools, platforms, and website maintenance to **ensure a smooth transition** after RDCRN performance periods ended.



ACKNOWLEDGMENTS

The RDCRN Annual Report reflects the collective efforts of the **RDCRN community**. We extend our sincere gratitude to the members of the **Editorial Board** for their guidance, review, and commitment to developing a report that highlights the network's accomplishments and impact. We also thank the **RDCRN consortia**, **patient advocacy partners**, and **Data Management and Coordinating Center** who contributed content to showcase the breadth and impact of the network. Lastly, the RDCRN would not be possible without many funding partners at the **National Institutes of Health**.

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- National Human Genome Research Institute (NHGRI)
- National Institute on Deafness and Other Communication Disorders (NIDCD)
- Office of Research on Women's Health (ORWH)

APPENDIX

Advancing Craniosynostosis Treatment Rare Diseases Consortium (ACT)

Grant number: 1 U54 DE035976-01

Patient advocacy groups:
- Born a Hero Research Foundation
- CAPPKIDS
- Children's Craniofacial Association

Advancing Rare Disorders: Vascular mAlformation Research Network with CaNVAS (ARDVARC)

Grant number: 1 U54 HL185006-01

Patient advocacy groups:
- CLOVES Syndrome Community
- K-T Support Group
- LGDA
- M-CM Network
- Parkes Weber Syndrome Support Group
- PROJECT FAVA

Autoimmunity, Rasmussen's, Inflammation & Status Epilepticus research Network (ARISEN)

Grant number: 1 U54 HD122209-01

Patient advocacy groups:
- Autoimmune Encephalitis Alliance
- International Autoimmune Encephalitis Society
- RE (Rasmussen's Encephalitis) Children's Project
- The NORSE Institute
- The Sumaira Foundation

Batten Disease Clinical Research Consortium (BDCRC)

Grant number: 1 U54 HD122210-01

Patient advocacy group:
- BDSRA Foundation

Brittle Bone Disorders Consortium (BBDC)

Grant number: 2 U54 AR068069-11

Patient advocacy group:
- Osteogenesis Imperfecta Foundation

Clinical Research in ALS and Related Disorders for Therapeutic Development (CReATe)

Grant number: 2 U54 NS092091-11

Patient advocacy groups:
- Association for Frontotemporal Degeneration
- Cure VCP Disease
- Muscular Dystrophy Association
- Spastic Paraplegia Foundation
- The ALS Association

Developmental Synaptopathies Consortium (DSC)

Grant number: 2 U54 NS092090-11

Patient advocacy groups:
- Cure SYNGAP1
- Phelan-McDermid Syndrome Foundation
- PTEN Hamartoma Tumor Syndrome Foundation
- PTEN Research Foundation Ltd
- TSC Alliance

Global Leukodystrophy Initiative Clinical Trials Network (GLIA-CTN)

Grant number: 2 U54 NS115052-06

Patient advocacy groups:
- ADLD Center
- Aicardi-Goutières Syndrome Advocacy Association
- ALD Alliance
- ALD Connect
- A Rare Ruby
- Arrivederci ALD

- Chloe's Fight Rare Disease Foundation
- CTX Alliance
- Cure GM1 Foundation
- Cure LBSL
- Elise's Corner
- End Alexander Disease
- Fight ALD
- Foundation to Fight H-ABC
- GliaConnect
- Global DARE Foundation
- Hunter's Hope Foundation
- Kinslow TUBB4A Foundation
- KrabbeConnect
- LCC Foundation
- MLD Foundation
- National Tay-Sachs and Allied Diseases Association
- PMD Foundation
- Remember The Girls
- Rosenau Family Research Foundation
- Sisters' Hope Foundation
- The Calliope Joy Foundation
- The Canavan Foundation
- The M.O.R.G.A.N Project
- The Stop ALD Foundation
- The Yaya Foundation for 4H Leukodystrophy
- Tori's Triumph
- United Leukodystrophy Foundation (ULF)
- United MSD Foundation
- VWM Families Foundation

Initiation of a cohort to define pathogenic Mechanisms, Precision diagnosis And Complications of Thrombotic Microangiopathies: The IMPACT Study (IMPACT)

Grant number: 1 U54 HL185004-01

Patient advocacy group:
- USTMA

Myasthenia Gravis Rare Disease Network (MGNet)

Grant number: 2 U54 NS115054-06

Patient advocacy groups:
- Conquer Myasthenia Gravis
- European Association of MG Patient Associations
- MG Foundation of America
- Myasthenia Gravis Association

Network for Advancing Sex Chromosome Aneuploidy Research Readiness (NASCARR)

Grant number: 1 U54 HD121580-01

Patient advocacy groups:
- Association for X and Y Chromosome Variations (AXYS)
- Chromodiversity Foundation
- Living with XXY
- The XXYY Project
- Turner Syndrome Carolinas
- Turner Syndrome Colorado
- Turner Syndrome Foundation
- Turner Syndrome Global Alliance
- Turner Syndrome Society of the US

Pediatric Fungal Network STudy of Rare Invasive Fungal DisEases in Immunocompromised Pediatric Patients (PFN-STRIDE)

Grant number: 1 U54 AI198184-01

Patient advocacy group:
- MYCology Advocacy, Research, & Education (MYCARE)

Rare Bronchiectatic Diseases Consortium (RBDC)

Grant number: 1 U54 HL185005-01

Patient advocacy groups:
- Alpha-1 Foundation
- COPD Foundation
- Immune Deficiency Foundation
- Job Research Foundation
- Primary Ciliary Dyskinesia Foundation

Rare Organic Acidemias Research Consortium (ROAR)

Grant number: 1 U54 HD121579-01

Patient advocacy groups:
- Organic Acidemia Association
- Propionic Acidemia Foundation

Spastic Paraplegia Centers of Excellence Research Network (SP-CERN)

Grant number: 1 U54 NS148312-01

Patient advocacy groups:
- Carter Foundation for Neurologic Research
- CureAP4 Foundation
- CureSPG4 Foundation
- CureSPG50 Foundation
- Lilly and Blair Foundation
- Spastic Paraplegia Foundation
- The Maurya Koduri Foundation
- Warburg Micro Research Foundation

Data Management and Coordinating Center (DMCC)

Grant number: 5 U2C TR002818-07

RARE DISEASES
CLINICAL RESEARCH NETWORK

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