



# De-Risking Next-Gen Science: Cross-Disease Platform Approaches

A FasterCures TRAIN Webinar

April 29, 2026

# FasterCures Programs

**Mission: To build a biomedical innovation system that is effective, efficient, and driven by a clear vision: patient needs above all else**

## R&D Environment

- ENRICH-CT (Enabling Networks of Research Infrastructure for Community Health Through Clinical Trials)
- Representation in Clinical Trials
- Future of Biomedical Innovation



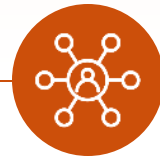
## Policy

- CMS/FDA Alignment: Accelerating Treatments to Patients
- Building Patient Engagement Capabilities at CMS
- Prevention-First Health



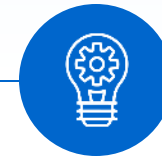
## Patient Engagement

- TRAIN (The Research Acceleration and Innovation Network)
- LeadersLink
- Patient Engagement in Medtech Development
- Vital Voices: Patient Engagement with CMS



## Innovation

- Future of Cancer Care in the US
- Cell, Gene, and RNA Therapies
- Emerging Technologies
- Data and AI



## International

- Project Prevent
- Global Cancer Care
- Anti-Microbial Resistance
- Early Warning System



# TRAIN: The Research Acceleration & Innovation Network



The objectives of TRAIN are to:

- To encourage a more strategic and entrepreneurial approach to funding medical research
- To create peer sharing and networking opportunities to amplify innovative approaches and ideas
- To provide platforms for patient foundations to leverage their perspectives to elevate and influence issues that impact patient-centered research and biomedical R&D policies, activities, and practices

# TRAIN Communities of Practice

- FasterCures launched Communities of Practice (CoPs) for members of TRAIN and the Rare As One Mentorship Program as collaborative opportunities for peer patient organizations to share promising practices, strategies, and ideas
- Community topics include the 4 domain areas represented in the [Research Partnership Maturity Model](#)
  - **Expertise**
  - **Patients**
  - **Money**
  - **Partnerships (June 17th)**
- Meetings take place every other month and topics rotate between the domain areas

To join,  
complete the  
following  
[intake form](#):



# Milken Institute Convenings

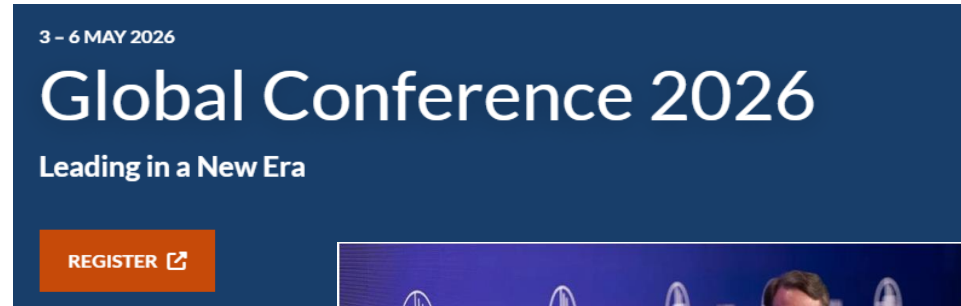
## Milken Institute Global Conference

May 3-6, 2026

The Beverly Hilton & Waldorf Astoria Beverly Hills

Los Angeles, CA

LiveStream: [Livestream | Milken Institute](#)



## Milken Institute Future of Health Summit

November 11-13, 2026

The Salamander Hotel  
Washington, DC

Save the date!



# Today's Webinar



Background: The 2026 TRAIN webinar series is designed to help patient organizations understand and engage in upstream strategies that meaningfully de-risk and accelerate the therapeutic pipeline.



Today's Objective: Highlight cross-disease platform approaches (shared research infrastructure, platform trial design, and collaborative funding models) that enable patient organizations to:

- Reduce scientific and financial risk
- Maximize the impact of limited patient populations, data, and resources
- Accelerate translation of next-generation science into treatments for patients

# Panelists



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**Jennifer Farmer**

CEO  
Friedrich's Ataxia Research  
Alliance (FARA)



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**PJ Brooks**

*Acting Director, Division of  
Rare Diseases Research  
Innovation (DRDRI)*  
NCATS, NIH



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**Gwen Nichols**

*Chief Medical Officer*  
Blood Cancer United



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**MODERATOR**

**Raymond Puerini**

*Director*  
FasterCures,  
Milken Institute



**Jennifer Farmer**

*CEO*

Friedrich's Ataxia Research  
Alliance (FARA)

# Shared Infrastructure and Regulatory-Relevant Data

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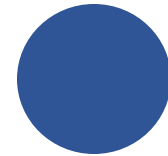
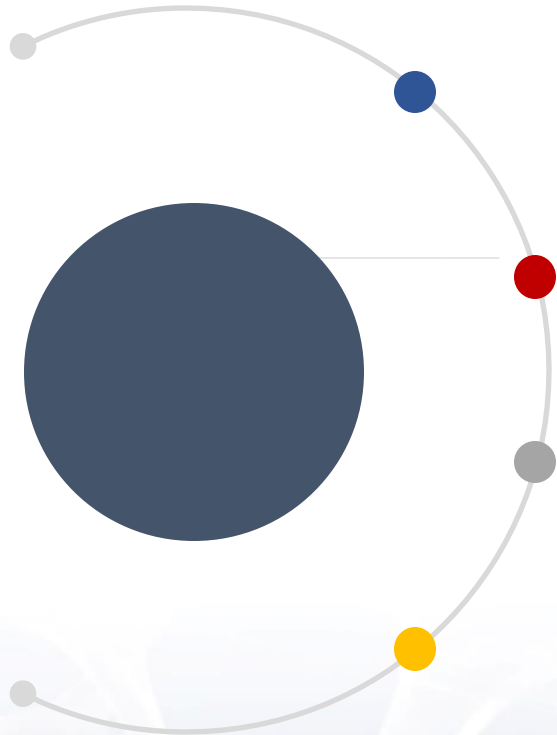
De-Risking Next-Gen Science

April 2026

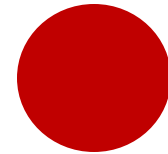
Jen Farmer, CEO, Friedreich's Ataxia Research Alliance (FARA)

# Disclosures

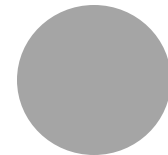
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The Friedreich's Ataxia Research Alliance (FARA) is an independent 501(c)(3) non-profit organization dedicated to the pursuit of scientific research leading to treatments and a cure for Friedreich's ataxia.



FARA does not endorse, recommend, or promote any specific treatment programs, products, or companies.



Information shared during this presentation is for educational purposes only.



FARA receives sponsorship and grant support from the following **companies**: Alexion, Amgen, Biogen, Biologics by McKesson, Design, Goldenrod, Larimar, Lexeo, Neurocrine, PTC, Solid Biosciences, and Voyager.

FARA holds common stock shares in a company, Bioelectron LLC, a company that is eligible to receive milestone payments contingent upon regulatory approval of vatiquinone and again upon commercialization.

# Mapping the relentlessly progressive FA journey: Loss of ambulation, coordination, cardiomyopathy

## Early Childhood



- Thinning of spinal cord
- Clinical symptoms may be present, but mild

## Childhood



- Stumbling and falling
- Scoliosis
- Diagnosed with FA

## Adolescence



- Full-time wheelchair user
- Dysarthria, dysphagia
- Impaired auditory processing
- Loss of visual acuity
- Cardiomyopathy
- Type 1.5 diabetes

## Adulthood



- Loss of upper limb function
- Significant vision and hearing impairment
- Dilated cardiomyopathy
- Advanced congestive heart failure



**UNIFAI NATURAL  
HISTORY STUDY**



**GLOBAL  
ALIGNMENT**



**POWERFUL  
PARTNERSHIPS**



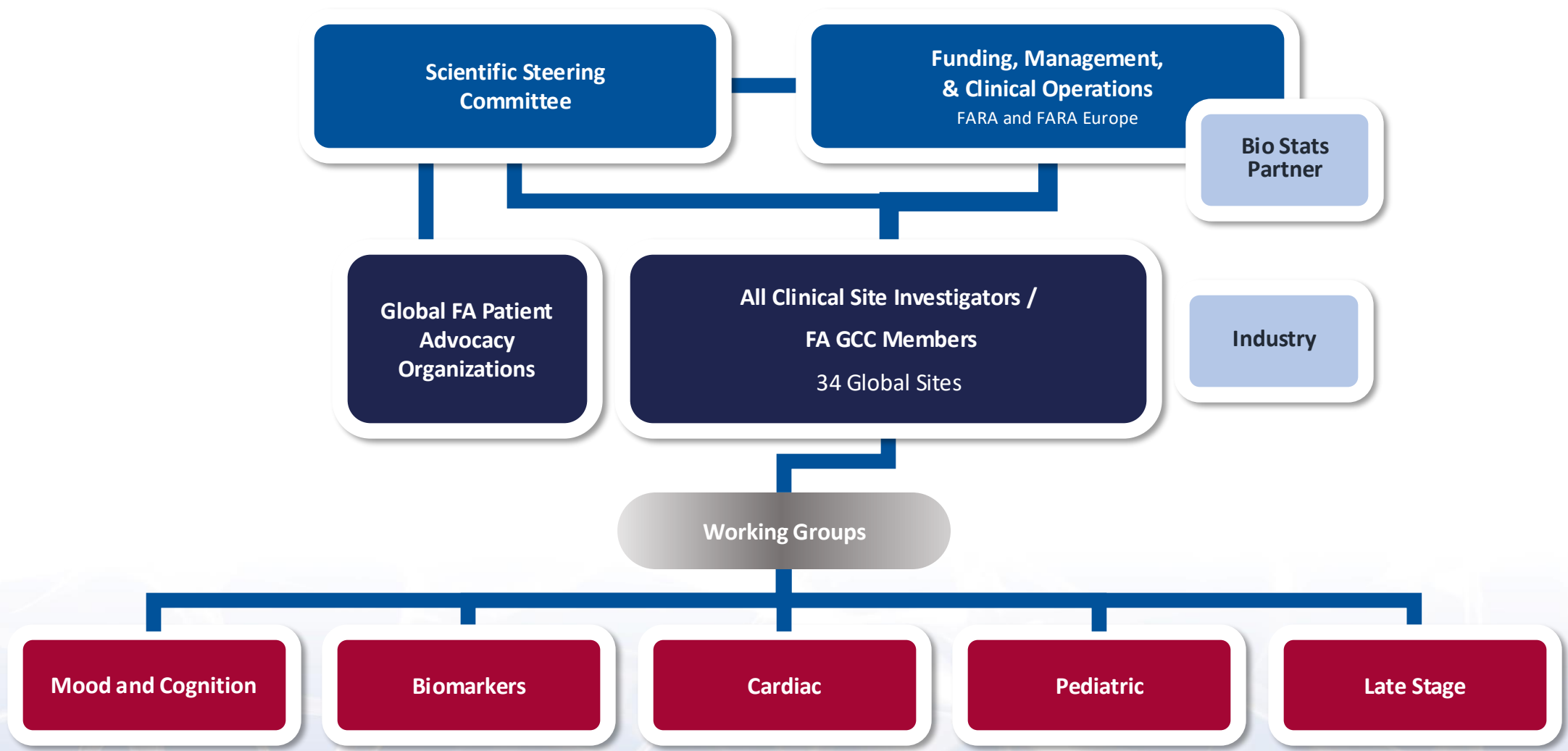
**SHARING DATA &  
RESOURCES**



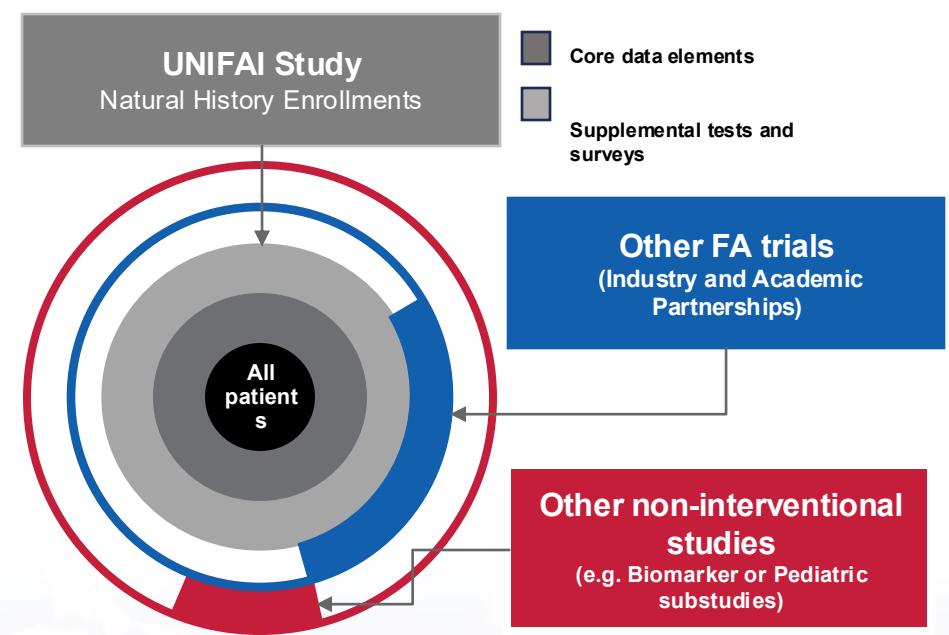
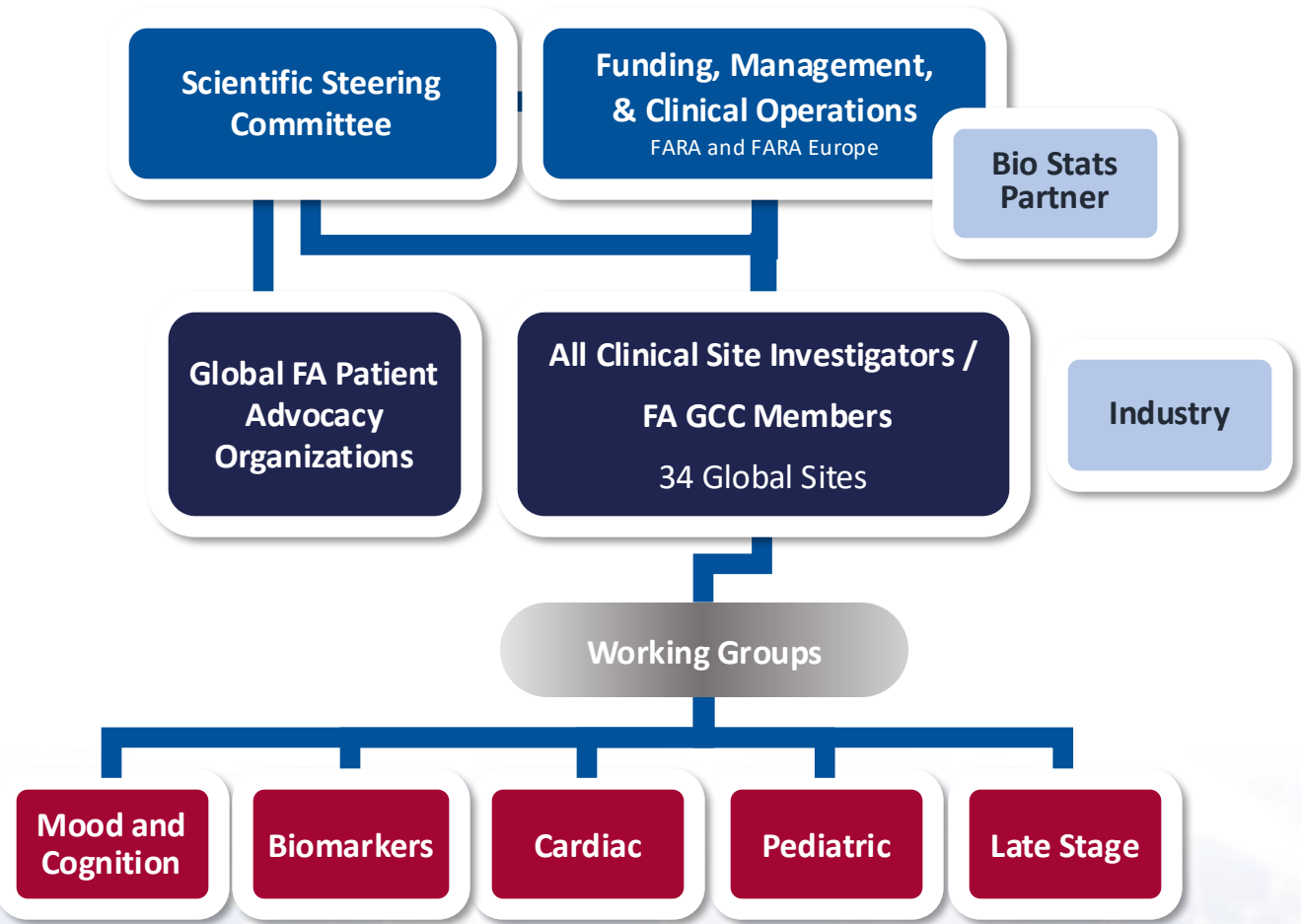
**RESEARCH  
INFRASTRUCTURE**



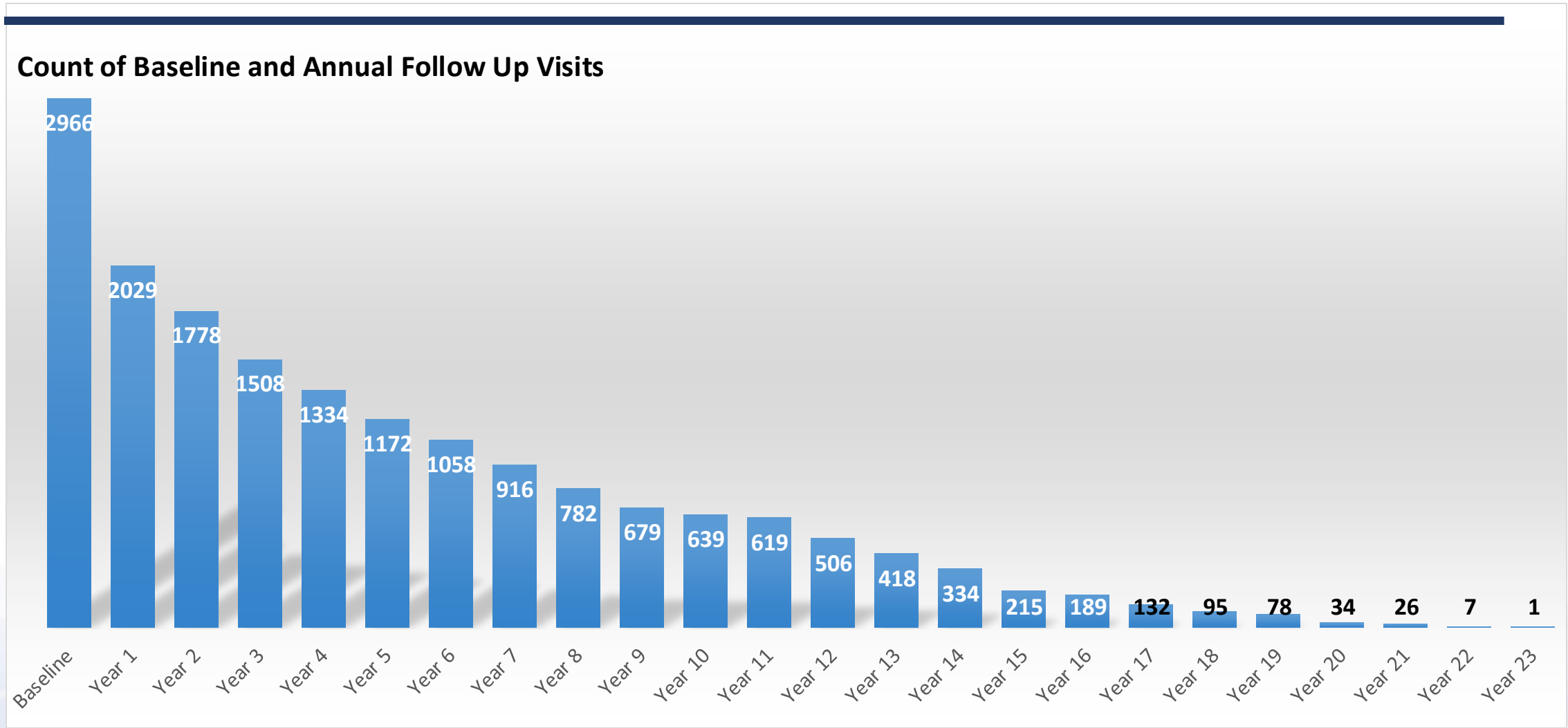
# FA Global Clinical Consortium



# FA Global Clinical Consortium



# FA Natural History Study is a longitudinal study with both contemporary enrollment and high retention rates



# How FARA's Natural History study began:



COAs for FA



2003: Co-funded grant

- *Original to FA*  
FARS, ADL, staging scale
  - *Borrowed measures from MS*  
9HPT, T25FW, PATA, Low Letter Acuity, MSQLI
- Contrast



Natural History Visits Begin

2006 : FARA commits to funding the natural history study and network



## Systemic Data Collection

Understand natural history of FA through systemic collection of clinical data



## Disease Measures

Develop outcome measures and inform clinical trial design



## Clinical Network

Create a network of clinical research centers in FA that will provide quantitative clinical data on patients.

# Quality of the Data



Common data elements



# Peer-reviewed publications share longitudinal data with the FA research community

> J Neuroophthalmol. 2020 Jun;40(2):213-217. doi: 10.1097/WNO.0000000000000878.

## Correlation of Visual Quality of Life With Clinical and Visual Status in Friedreich Ataxia

Parisa Afsharian <sup>1</sup>, Rachel Nolan-Kenney, Abigail E Lynch, Laura J Balcer, David R Lynch

Multicenter Study > Diabetes Res Clin Pract. 2022 Apr;186:109828.

doi: 10.1016/j.diabres.2022.109828. Epub 2022 Mar 14.

## Friedreich's Ataxia related Diabetes: Epidemiology and management practices

Jaclyn Tamaroff <sup>1</sup>, Anna DeDi...  
Karla Leavens <sup>4</sup>, Christian Rum...

Observational Study > Ann Clin Transl Neurol. 2021 Ju

doi: 10.1002/acn3.51352. Epub 2021 May 5.

## Scoliosis in Friedreich's ataxia: characterization in a large heter

Christian Rummey <sup>1</sup>, John M Flynn <sup>2</sup>, L...  
George Wilmot <sup>5</sup>, Sub H Subramony <sup>6</sup>

> Ann Clin Transl Neurol. 2020 Sep;7(9):1708-1712. doi: 10.1002/acn3.51118. Epub 2020 Aug 11.

## Test-retest reliability of the F rating scale

> Neurol Genet. 2019 Oct 29;5(6):371. doi: 10.1212/NXG.0000000000000371.  
eCollection 2019 Dec.

## Psychometric properties of the Friedreich A Rating Scale

Christian Rummey <sup>1</sup>, Louise A Corben <sup>1</sup>, Martin B Delatycki <sup>1</sup>, S H Subramony <sup>1</sup>  
Khalaf Bushara <sup>1</sup>, Christopher M Gomez <sup>1</sup>, Joseph Chad Hoyle <sup>1</sup>, Grace Yoon <sup>1</sup>, Be...  
Katherine D Mathews <sup>1</sup>, George Wilmot <sup>1</sup>, Theresa Zesiewicz <sup>1</sup>, Susan Perlman <sup>1</sup>,  
Jennifer M Farmer <sup>1</sup>, David R Lynch <sup>1</sup>

> EClinicalMedicine. 2020 Jan 8;18:100213. doi: 10.1016/j.eclinm.2019.1...  
eCollection 2020 Jan.

## Predictors of loss of ambulation in Frie

Christian Rummey <sup>1</sup>, Jennifer M Farmer <sup>2</sup>, David R Lynch <sup>3</sup>

>30 articles  
published based on  
the study's data

# Regulatory Engagement



2013: Clinical conference with FDA and EMA

- Presented first 10 years of data
- Informal feedback
- Beginning of evolution from FARS to mFARS



- Confidential meetings
- FARA attends as a guest of our industry partner
- Opportunity to discuss how natural history data informs trial design and endpoints



- Began in 2017
- FA-ICD (Integrated Collaborative Database)
  - Includes FA-COMS & trial data
  - Available to industry sponsors, FDA, and RDCA-DAP
  - Data in CDISC STDM standard



- Helped FDA and industry partners understand the lived experience of FA
- Communicated outcomes that are valued by the community

# The Path to the First Approval for Friedreich's Ataxia

2009

Nrf2 target first reported by research group in France



2013

California research group links Nrf2 to pathophysiology in FA Mice



FARA seeks out Reata: a company with a drug targeting the pathway

2017

Second clinical trial launched. Natural history data informed trial design & endpt selection.



2020

Multiple meetings with FDA



2021

FARA coordinates a petition to Reata and the FDA 74,000+ signatures collected!



2021

Natural History study provides confirmatory evidence through a propensity-matched study.



2022

Reata initiates rolling submission of NDA for omaveloxolone



2023

FDA approves first-ever treatment for Friedreich's ataxia: SKYCLARYS™



2024

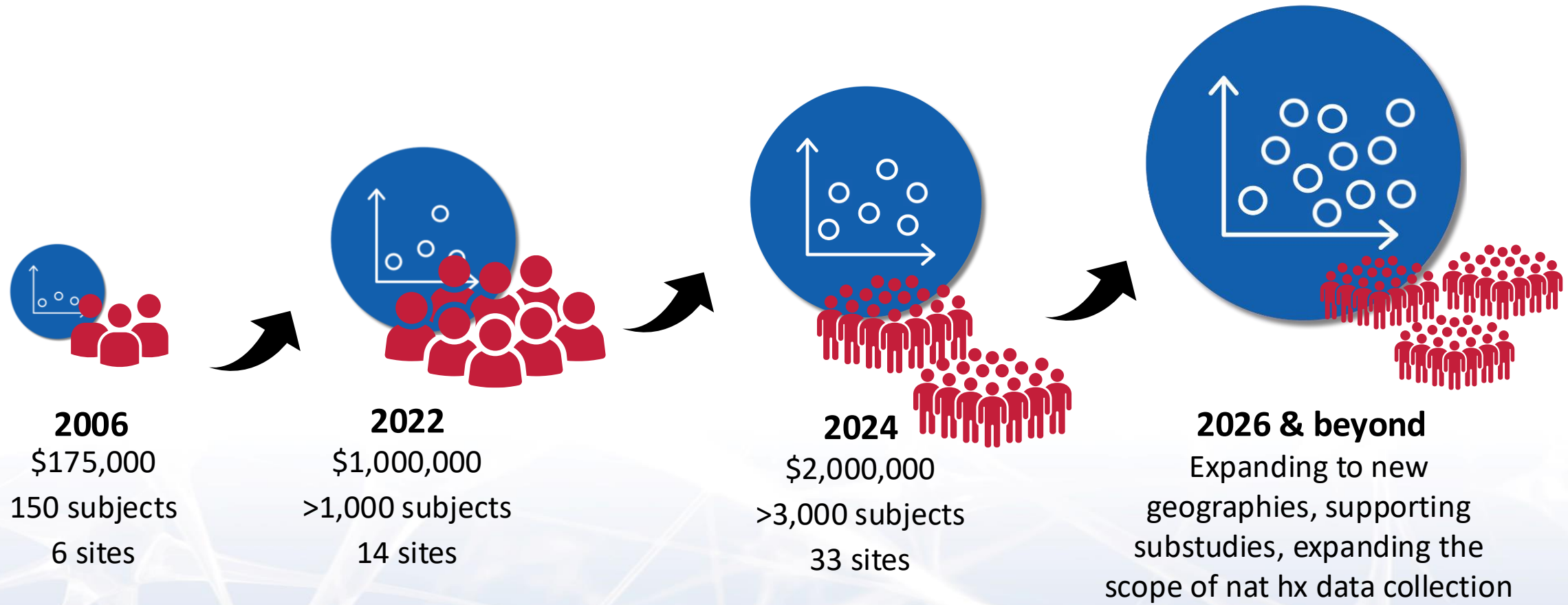
EMA approves SKYCLARYS™



Ongoing

Post-approval market studies conducted at FARA's Natural History sites

# A regulatory-relevant natural history study requires significant and sustained investment



# Objectives for the Natural History study have expanded over time

2003

2026  
& beyond



## Expanding Objectives:

Enable clinical trials with COAs. Use clinical observations to focus basic research.

Provide confirmatory evidence  
for regulatory filings

Collect real-world evidence  
and de-risk drug development

# Lessons Learned



Data ownership and stewardship is a big responsibility



Rigor drives data quality and reliability  
Running the natural history study with good clinical practice – as close to a clinical trial as possible – is essential for future use in regulatory decision-making

Academic researchers feel ownership over data.

Time delay the submissions to C-PATH



Sharing data on C-PATH creates greater returns  
External researchers expand the scope and bandwidth of how the data is used



Comparisons to other C-PATH disease datasets extends learnings



# Advice for building a regulatory-relevant dataset: Consistency and Comparability

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## Duration

Study initiated in 2003 and still ongoing today with strong participant retention



## Investigators

Same sites/investigators are conducting both the history study and clinical trials



## Assessments

The natural history study uses the same assessments as clinical trials



## Contemporary Data

Collection of the natural history dataset is contemporary to clinical trials

Thank You!



Acknowledgements:

FARA Natural History Study Site Investigators

Friedreich's Ataxia community

for participating in our natural history study, clinical trials, and for raising funds to enable these efforts



**PJ Brooks**  
*Acting Director, Division of  
Rare Diseases Research  
Innovation (DRDRI)*  
NCATS, NIH

## “Many diseases at a time” approaches to rare disease therapy development

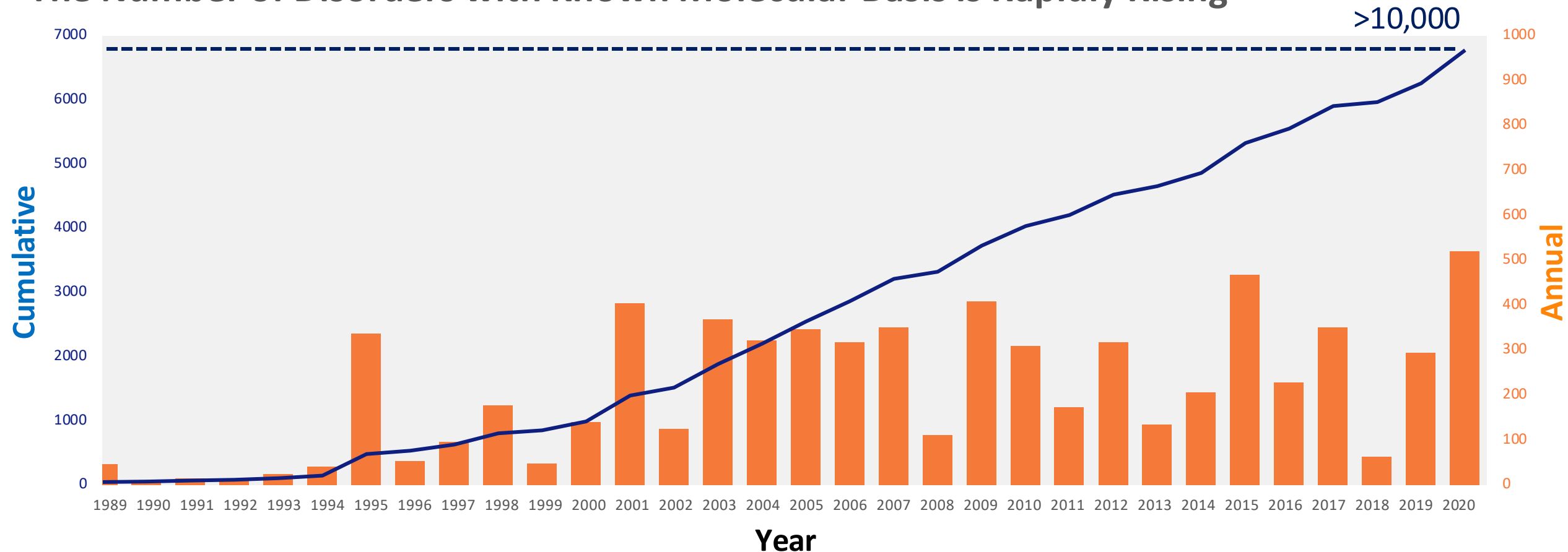
Philip John (P.J.) Brooks, PhD

Acting Director,

Division of Rare Diseases Research Innovation,

NCATS

# The Number of Disorders with Known Molecular Basis is Rapidly Rising



But the number of diseases with approved therapies is lagging far behind ( $\approx 600$ )

Adapted from Online Mendelian Inheritance in Man (OMIM),  
<https://www.omim.org/statistics/geneMap>



# Thousands of Rare Diseases, far fewer etiologies

- Limited number of mutation types
  - Nonsense mutations → premature stop codon
  - Missense mutations → abnormal protein folding
  - Abnormal RNA splicing
  - Dominant (gain of function) mutations
    - Signalopathies
      - RAS-opathies
      - MTOR-opathies
      - Interferon-opathies
      - Blank-opathies



Basket Clinical Trials of Drugs Targeting Shared Molecular Etiologies in Multiple Rare Diseases (UG3/UH3 Clinical Trial Required)

<https://grants.nih.gov/grants/guide/rfa-files/RFA-TR-20-031.html>

Emerging therapeutic candidates for rare maternally inherited mitochondrial diseases with shared etiologies

5UG3TR003897-02



 CHIARAMELLO, ANNE ELIANE GEORGE WASHINGTON UNIVERSITY  



GROPMAN, ANDREA LYNNE  


---

Safety and Efficacy of Itacitinib in treatment of JAK/STAT pathway disorders with activating mutations

5UG3TR003908-02

 FORBES, LISA  BAYLOR COLLEGE OF MEDICINE

TORGERSON, TROY R 





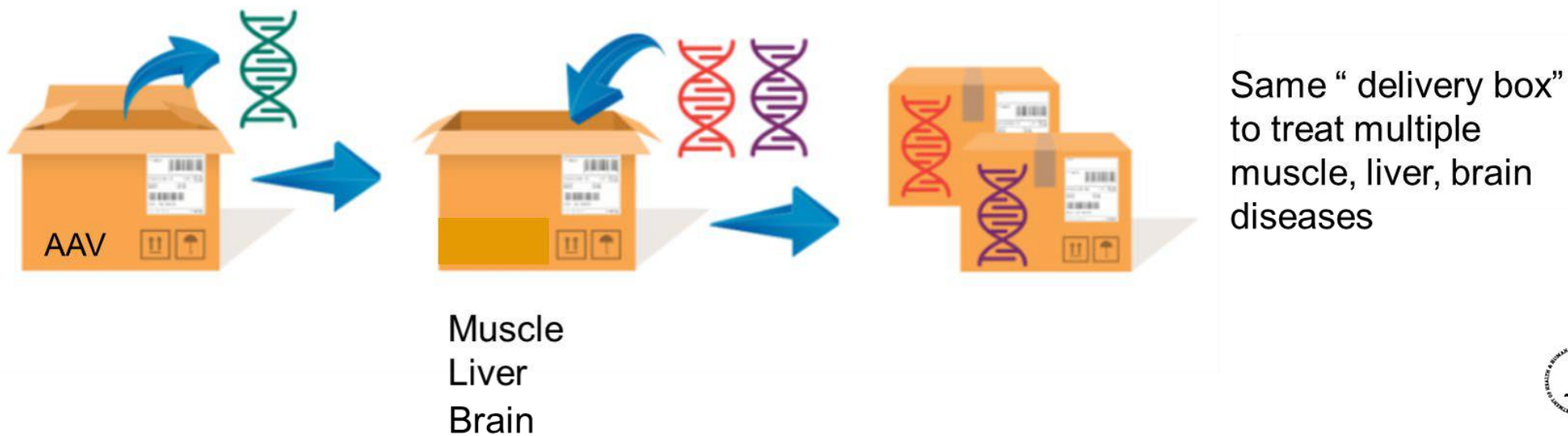
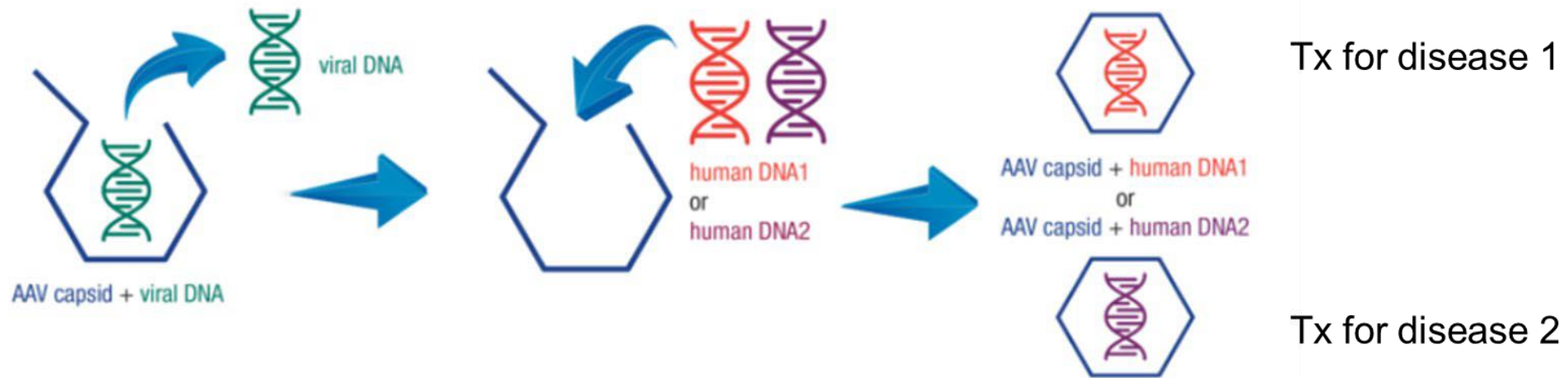
# Shared Molecular Etiologies (SaME) Underlying Multiple Rare Diseases

## MEMBERS

- P.J. Brooks, NIH, NCATS, USA (Chair)
- Marc Doms, University Hospital Leuven, Belgium (Co-Chair)
- Kate Baker, University of Cambridge, UK
- Daniel O'Connor, MHRA, UK
- Christina Waters, Rare Science, USA
- David Pearce, Sanford Research, USA
- Jason Wan, NIH, NIDCR, USA
- Simone Louisse, ePAG, ERN-Heart, Europe
- Kristina Larsson, EMA, The Netherlands
- Luis Castaño Gonzales, Cruces University Hospital, Spain
- Antony Hall, Healx, UK
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- Joanna Trubicka, Children's Memorial Health Institute, Poland
- Damjan Osredkar, Medical University of Lubijana, Slovenia
- Katie Donahue, FDA, CDER, USA
- Ralf-Dieter Hilgers, Aachen University, Germany
- Galliano Zanello, IRDiRC / EJPRD



Zanello G, Garrido-Estepa M, ..... Brooks PJ. *EMBO Mol Med*. 2023 Jul 10;15(7):e17159.  
doi: 10.15252/emmm.202217159.



# Accelerating Medicines Partnership® Bespoke Gene Therapy Consortium (AMP® BGTC)

## THE TWO CRITICAL PATHWAYS OF BGTC RESEARCH



## BGTC BY THE NUMBERS



**13** Industry Partners



**12** Government Agencies, NIH Institutes and cross-institute programs



**10** Non-Profits



**\$ 80.5** million project budget

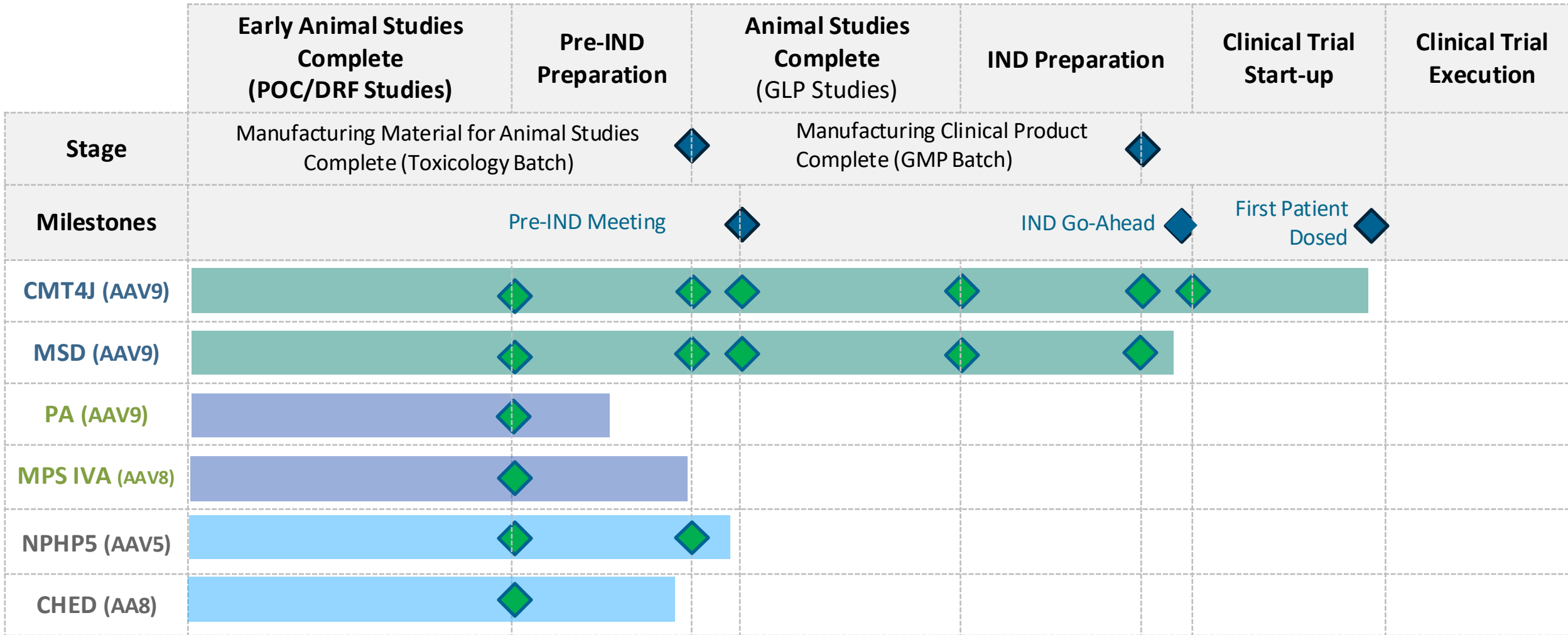


<https://fnih.org/our-programs/AMP/BGTC>

Learn more  
and subscribe  
for email updates



# BGTC teams advancing to pre-clinical and clinical milestones



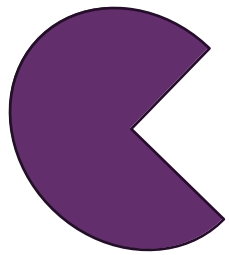
POC=Proof-of-Concept, DRF=Dose Range Finding, GLP=Good Laboratory Practice, IND=Investigational New Drug

 Milestone   
 Organ System:  Neurological   
  Systemic   
  Ocular

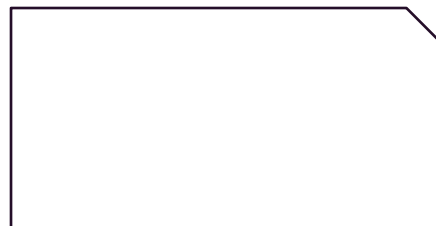
# AAV gene therapy



## Gene editing as a modular therapeutic



(or mRNA  
encoding)



delivery  
system



guide RNA  
(if necessary)



**Platform Clinical Trials of Somatic Genome Editing for Multiple Diseases (UG3/UH3, Clinical Trial Required)**  
**RFA-RM-22-016**

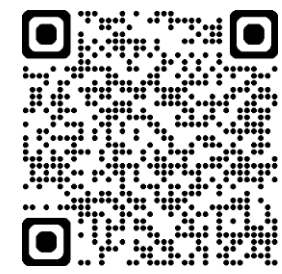
PI Name	Institution Name	Title
JIANG, YONG-HUI (contact) BERRY-KRAVIS, ELIZABETH MARA ZHOU, JIANGBING	YALE UNIVERSITY	A non-viral CRISPR-mediated genome editing delivery platform as a potential therapy for neurogenetic diseases

**IND-enabling Studies for Platform Clinical Trials of Genome Editors in Multiple Diseases (U01 Clinical Trial Not Allowed) RFA-RM-24-001**

PI Name	Institution Name	Title
AHRENS-NICKLAS, REBECCA CLARE (contact) MUSUNURU, KIRAN	CHILDREN'S HOSP OF PHILADELPHIA	Personalized prime editing as a platform for hepatic inborn errors of metabolism
CHEN, ZHENG-YI	MASSACHUSETTS EYE AND EAR INFIRMARY	AAV-mediated editing to treat human autosomal dominant hearing loss DFNA41 and DFNA2

Provide support for applications that propose a novel genome editing clinical trial that includes at least two different diseases, using the same genome editor, route of administration, and delivery system.







ORIGINAL ARTICLE | BRIEF REPORT



# Patient-Specific In Vivo Gene Editing to Treat a Rare Genetic Disease

**Authors:** Kiran Musunuru, M.D., Ph.D. , Sarah A. Grandinette, B.S., Xiao Wang, Ph.D., Taylor R. Hudson, M.S., Kevin Briseno, B.S., Anne Marie Berry, M.S., Julia L. Hacker, M.S.,  **+37**, and Rebecca C. Ahrens-Nicklas, M.D., Ph.D. [Author Info & Affiliations](#)

Published May 15, 2025 | DOI: 10.1056/NEJMoa2504747 | [Copyright © 2025](#)

<https://www.npr.org/sections/shots-health-news/2025/05/15/nx-s1-5389620/gene-editing-treatment-crispr-inherited>

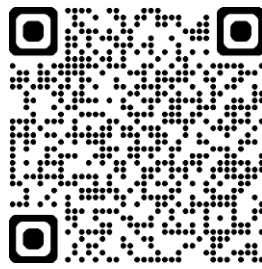


Rare Disease Day at NIH, 2026



# How to create personalized gene editing platforms: Next steps toward interventional genetics

Rebecca C. Ahrens-Nicklas<sup>1,2,3,\*</sup> and Kiran Musunuru<sup>1,2,3,4,5,\*</sup>

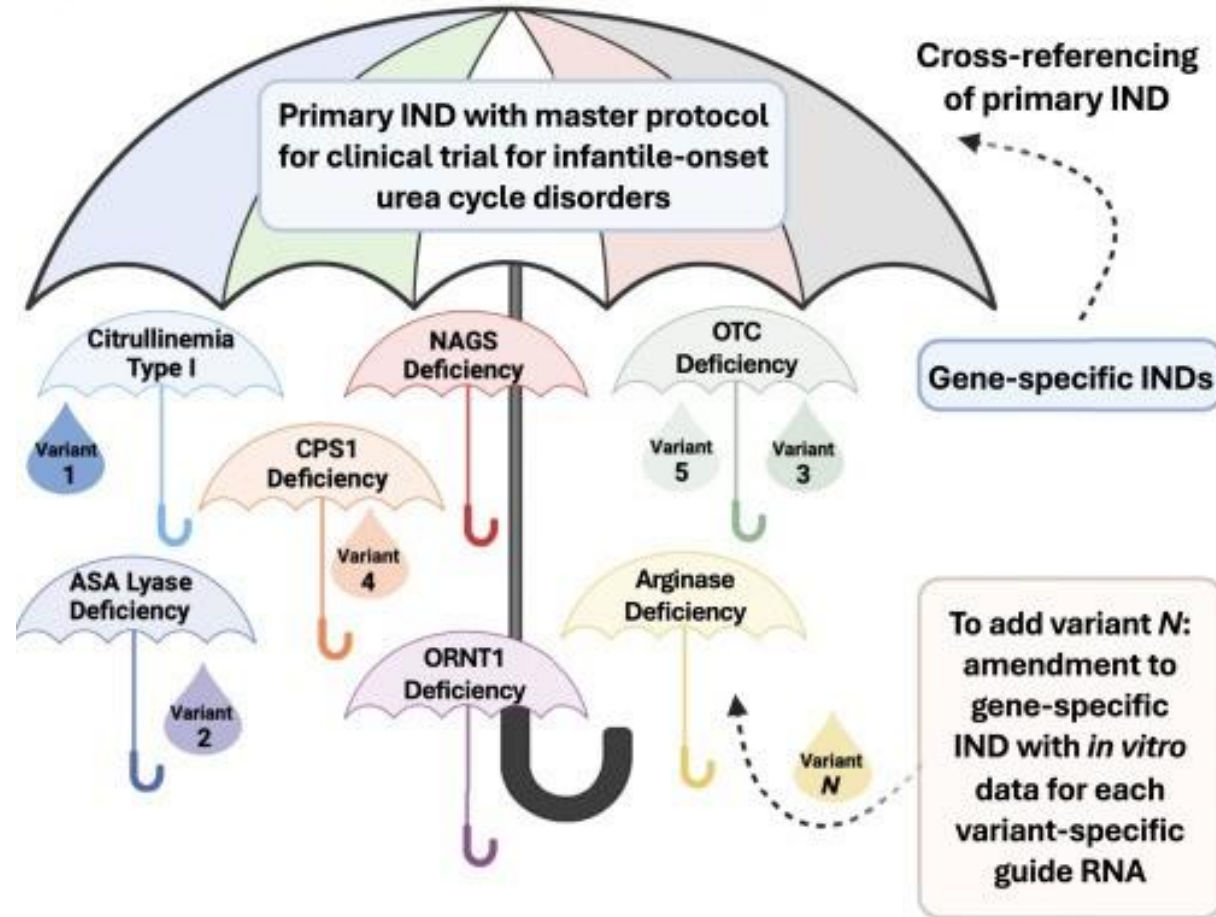


<https://pubmed.ncbi.nlm.nih.gov/41175865>

ONE toxicology  
biodistribution  
study

in ONE animal  
species for

ALL 7 diseases



Urea Cycle Disorders Consortium



National Center for Advancing Translational Sciences

*Many*

~~One~~ rare diseases at a time



[https://media.sciencephoto.com/image/z9430051/800wm/Z9430051-Herd\\_of\\_zebra.jpg](https://media.sciencephoto.com/image/z9430051/800wm/Z9430051-Herd_of_zebra.jpg)



National Center  
for Advancing  
Translational Sciences

# Team DRDRI



Philip Brooks



Sarah Dunsmore



Tiina Urv



Alice Chen



Jeanine D'Armiento



Eric Sid



Joanne Lumsden



Mary Baez



Meera Shah



Linda Ho





**Gwen Nichols, MD**  
*Chief Medical Officer*  
Blood Cancer United

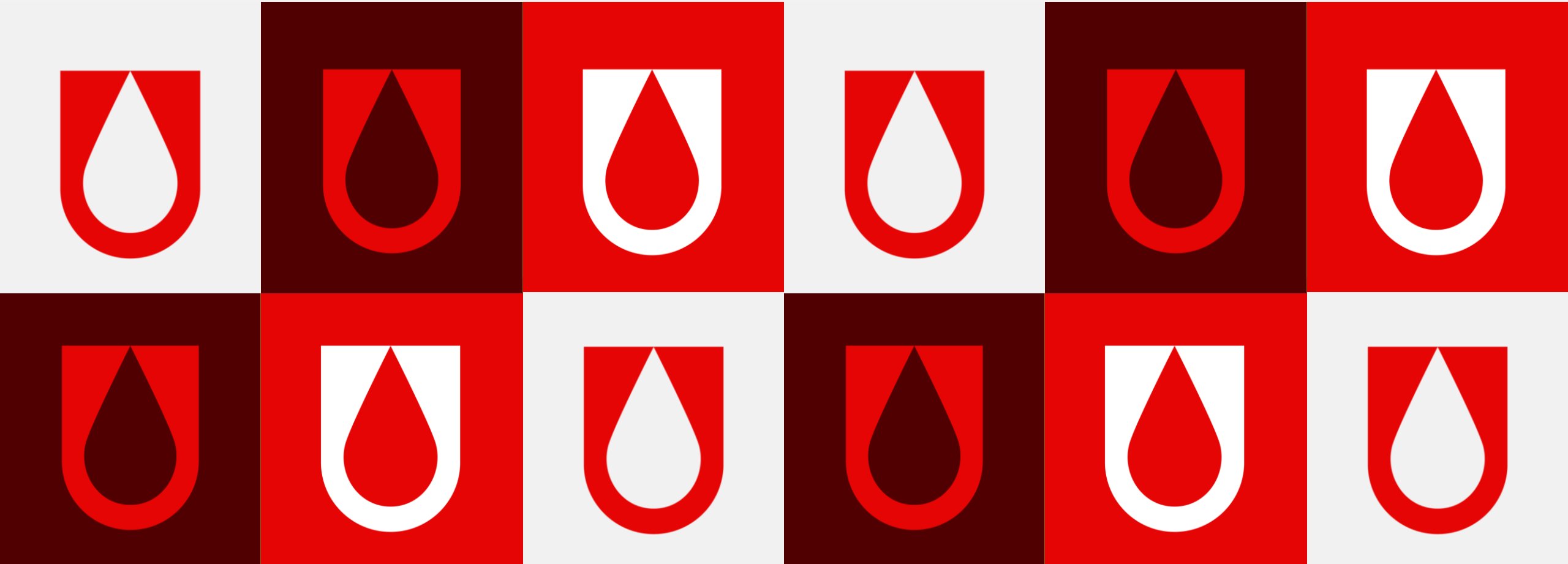
# FasterCures: Cross-disease platform

approaches - PedAL Master Trial

Gwen L Nichols, MD Chief Medical Officer

Blood Cancer United

April 2026





# The Challenge We Faced

- Pediatric leukemia is rare and there are many biologic subsets
- The biology of pediatric leukemia is distinct from leukemia in adults, yet new drugs are mostly developed in adults
- A comprehensive, global effort for trials is necessary to be successful
- Despite regulatory incentives, only seven drugs were approved for pediatric cancers (US) in the past 10 years, while more than 100 new drugs were approved for adults
- Essential data exists within individual international consortia and pediatric hospitals; data sharing has been a challenge (different endpoints, different standards of care)



# The Problem

Most new pediatric oncology drug approvals in the past 10 years have been based on small, single-arm phase 1/2 or phase 2 trials that have occurred years after the adult approval.

Drug	Approval Date	Indication	Trial Phase	Sample Size
Revumenib	Nov 2024	Pediatric R/R KMT2A AML	1/2	23
Bosutinib	Sept 2023	Pediatric CML	1/2	49
Azacitidine	May 2022	Pediatric JMML and Advanced MDS	2	18
Atezolizumab	Dec 2022	Alveolar soft part sarcoma	2	52
Tisagenlecleucel	Aug 2017	Pediatric B-ALL	2	63



# A solution: PedAL

- **SCREEN** - Via the PedAL screening trial, screen all children with relapsed leukemia for precision-medicine trial eligibility based on clinical data, leukemia cell surface markers and next-generation genomic sequencing
- **DISCOVERY** - sample acquisition for correlative biology, target discovery, and biobanking
- **ACCESS** - Partner with pharma, NCI and FDA/EMA, and European study groups to support drug development platform that achieves regulatory objectives to ensure that children have early access to effective therapies
- **DATA** - Create an internationally agreed data dictionary. Improve data collection to inform changes in primary outcome measures and toxicity definitions that are essential for approval of new therapies for children with leukemia
- **Blood Cancer United is the trial sponsor and works collaboratively with academia and pharma partners to collect regulatory quality data**

# PedAL Progress

screening  
trial



**182**  
sites



**611**  
patients

**4**  
countries



venetoclax  
subtrial



**88**  
sites



**102**  
patients

**20**  
countries



ziftomenib  
subtrial



**20**  
sites



**24**  
patients

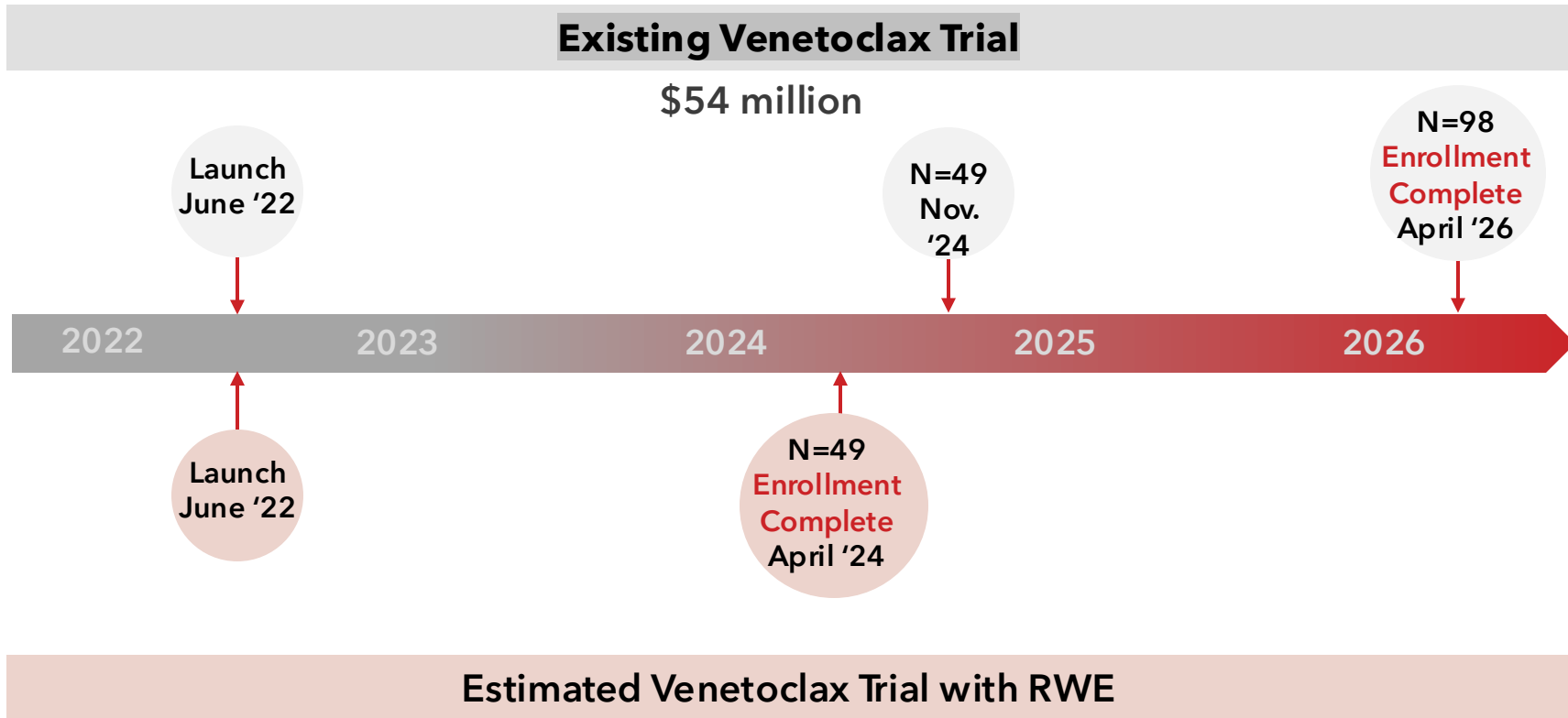
**7**  
countries



3<sup>rd</sup> trial  
in  
contract



# A Tale of Two Trials



Trial could enroll in less than half the time and no patient receives SOC

- All 49 enrolled patients receive experimental therapy
- 49 matched controls extracted from RWD

## Where we go next: Real World Evidence Project

- We've made substantial progress with PedAL, but we are not satisfied.
- It's not fast or efficient enough: time and cost for trials remains high.
- Large randomized trials are not feasible in targeted subsets of patients
- Having evidence for regulators of target efficacy and outcomes with standard of care could decrease the time and cost of trials in rare diseases

Blood Cancer United is partnering with Tempus AI to create a RWD repository in pediatric AML using parental/patient consent.

RWE can be generated from this database for proposed trials. This will be freely available for investigators and available at cost to pharma.

# The FDA is supportive of using RWD

FDA is committed to realizing the full potential of fit-for-purpose RWD to generate RWE to advance the development of therapeutic products and strengthen regulatory oversight of medical products across their lifecycle

The 21st Century Cures Act of 2016 was designed to accelerate medical product development and bring new innovations and advances faster and more efficiently to the patients who need them. FDA released guidance on using RWE in clinical trials in response

Under the Cures Act, FDA's RWE Program must evaluate the potential use of RWD to generate RWE of product effectiveness to help support approval of new indications for drugs approved under FD&C Act Section 505(c) or to help to support or satisfy post-approval study requirements

<https://www.fda.gov/science-research/science-and-research-special-topics/real-world-evidence>



# There is precedent for using RWD

## Eflornithine

Pediatric neuroblastoma (Dec 2023)

First time FDA relied on a single externally controlled trial to support an approval in oncology

Single-arm trial (n=90) compared with external control group derived from a COG-sponsored trial (n=270)

<https://pubmed.ncbi.nlm.nih.gov/37883734/>

## Avelumab

Adolescent & adult metastatic Merkel cell carcinoma (March 2017)

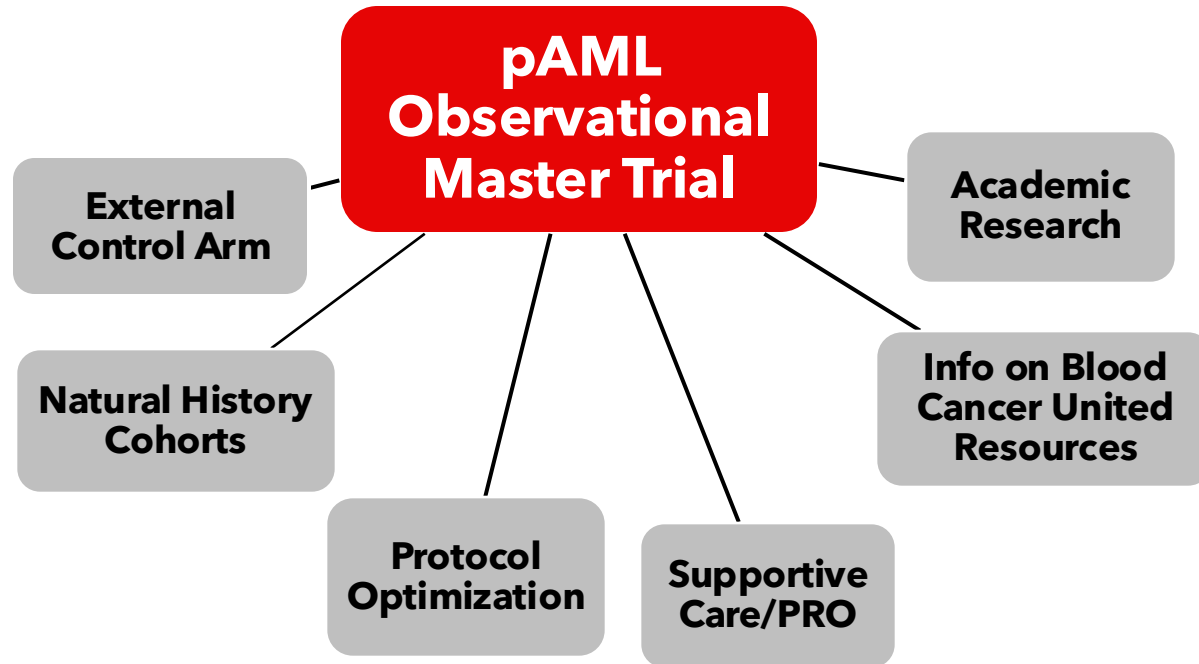
A single arm trial (n=88) generated from retrospective chart review of SOC-treated patients describing the natural history of metastatic Merkel cell carcinoma

Submitted alongside data from single-arm interventional trial to support regulatory approval

These were single use efforts and manually created. We are proposing a “reusable” resource to be shared by investigators and pharmaceutical partners



# pAML Observational Trial



## pAML Observational Master Trial

- Patients/parents consent electronically confirming access EMR data from all sources
- Parents have access to consolidated records and can analyze data using the with links to Blood Cancer United and other resources for support
- Data is de-identified for research purposes, and regularly updated
- Data is organized according to agreed data dictionary and modified for research purposes

# Conclusions

- While progress in the PedAL trial has been gratifying, the development of new agents in pediatrics remains expensive and lengthy
- We are initiating a registry of RWD for pAML in order to speed development for trials of more targeted agents for subsets of this already rare disease
- Parents and patients will become “citizen scientists” and have access to consolidated medical records from multiple sources
- We look forward to discussing further with the FDA and making certain we collect the elements which will provide the appropriate patient level data for regulatory purposes
- The registry will be a free resource for research, and available to pharmaceutical partners as needed to determine therapeutic targets or for regulatory purposes
- We believe this model is replicable for other rare diseases and look forward to sharing our learnings



Thank you

LEUKEMIA &  
LYMPHOMA  
SOCIETY is now

**Blood Cancer  
United**



Thank You!

For additional questions or to learn more  
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