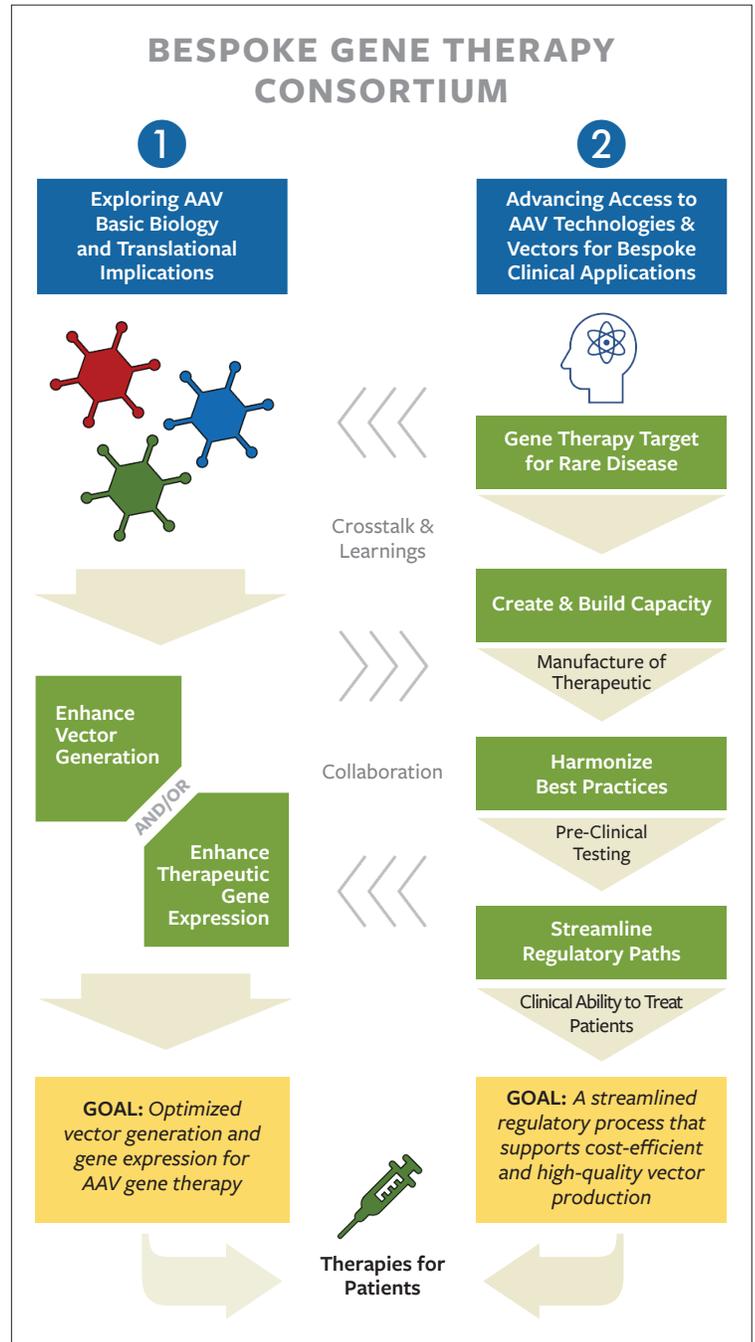


## Addressing an Unmet Need

Approximately 25–30 million people in the United States live with the devastating effects of rare diseases. There are over 5,000 rare diseases that are caused by genetic defects. These patients frequently lack access to effective treatment, as knowledge about many rare diseases, as well as funding for research, often lag behind more common diseases.

For the approximately 80 percent of rare genetic diseases caused by a single defective gene, one promising treatment to emerge is adeno-associated virus (AAV) gene therapy—a process that replaces the defective gene with a functional one. Gene therapies have been successfully used to treat genetic diseases and have received U.S. Food and Drug Administration (FDA) approval for human use (e.g., retinal dystrophy). These gene therapies can be tailor-made, or “bespoke,” for a very small population or even a single individual, but the development process is complex, expensive, and hampered by a lack of common biologic, manufacturing, and regulatory standards.

The Bespoke Gene Therapy Consortium (BGTC) aims to make gene therapy more accessible by creating a platform approach to deliver novel therapies for many different genetic disorders. The BGTC is one of the latest initiatives to emerge from the Accelerating Medicines Partnership® (AMP®) Program, a public-private collaboration among the NIH, the FDA, the pharmaceutical industry, and patient organizations—coordinated by the FNIH—to speed drug development across different diseases. At a cost of \$80.5 million over five years, the BGTC is the largest effort of its kind to streamline the development of therapies for rare diseases, bringing together the resources of 34 partner organizations spanning the public, private, and nonprofit sectors.



The Two Critical Pathways of BGTC Research

## Advancing Understanding of AAV Biology for Gene Therapy

While AAV technology is a popular platform for delivering functional genes to cells, many aspects of the underlying biology could be better understood and optimized for

treating rare diseases. The partnership will support a series of research projects to improve transgene expression and AAV manufacturing.

# Standardizing and Streamlining Regulatory Processes for Bespoke Gene Therapies

Leveraging four-to-six clinical trial test cases and the unparalleled combined expertise of Consortium partners, BGTC will develop a clinical development manual, or “playbook,” for developing gene therapies for

very rare diseases. This playbook will include templates and uniform analytical requirements to create a repeatable regulatory process for AAV-mediated gene therapies.

## TIMELINE



## BGTC Goals

- Make adeno-associated virus technology more accessible to a broader range of diseases
  - Optimized AAV vector production protocols
  - Improvements in AAV target gene expression
- Streamline preclinical and product testing
  - Harmonized and validated sets of manufacturing and pre-clinical testing requirements
- Facilitate scientific and regulatory advances that will ultimately benefit the entire field
  - Standardized regulatory submission package templates
- Bring gene therapies to all affected populations sooner
  - Clinical development manual to help advance all future AAV gene therapies for rare diseases

## Public-Sector Partners

National Center for Advancing Translational Sciences (NCATS)  
 National Institute of Neurological Disorders and Stroke (NINDS)  
 National Institute of Mental Health (NIMH)  
 National Human Genome Research Institute (NHGRI)  
 National Heart, Lung and Blood Institute (NHLBI)  
 Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)  
 National Eye Institute (NEI)  
 National Institute on Deafness and Other Communication Disorders (NIDCD)  
 National Institute of Dental and Craniofacial Research (NIDCR)  
 National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)  
 The Brain Research Through Advancing Innovative Neurotechnologies® (BRAIN) Initiative, a trans-NIH initiative involving 10 NIH Institutes and Centers  
 U.S. Food and Drug Administration (FDA)

## Private-Sector Partners

Alliance for Regenerative Medicine (ARM)  
 American Society of Gene & Cell Therapy  
 ASC Therapeutics Inc  
 Biogen Inc.  
 CureDuchenne  
 Danaher Corporation  
 Foundation Fighting Blindness  
 GENETHON  
 Janssen Research & Development, LLC  
 National Organization for Rare Disorders (NORD)  
 Novartis Institutes for BioMedical Research  
 Ovid Therapeutics Inc.  
 Pfizer Inc.  
 REGENXBIO Inc.  
 Rett Syndrome Research Trust  
 RTW Charitable Foundation  
 Spark Therapeutics  
 Takeda Pharmaceutical Company Limited  
 Taysha Gene Therapies  
 The National Institute for Innovation in Manufacturing Biopharmaceuticals (NIIMBL)  
 Thermo Fisher Scientific  
 Ultragenyx Pharmaceutical  
*Private-Sector Partners provide financial support for this program.*

ACCELERATING MEDICINES PARTNERSHIP and AMP are registered service marks of the U.S. Department of Health and Human Services.

For more information contact:

**Courtney Silverthorn**  
 Associate Vice President  
 Research Partnerships  
[csilverthorn@fnih.org](mailto:csilverthorn@fnih.org)

**Brad Garrison**  
 Senior Project Manager  
 BGTC  
[bgarrison@fnih.org](mailto:bgarrison@fnih.org)

[fnih.org/BGTC](http://fnih.org/BGTC)