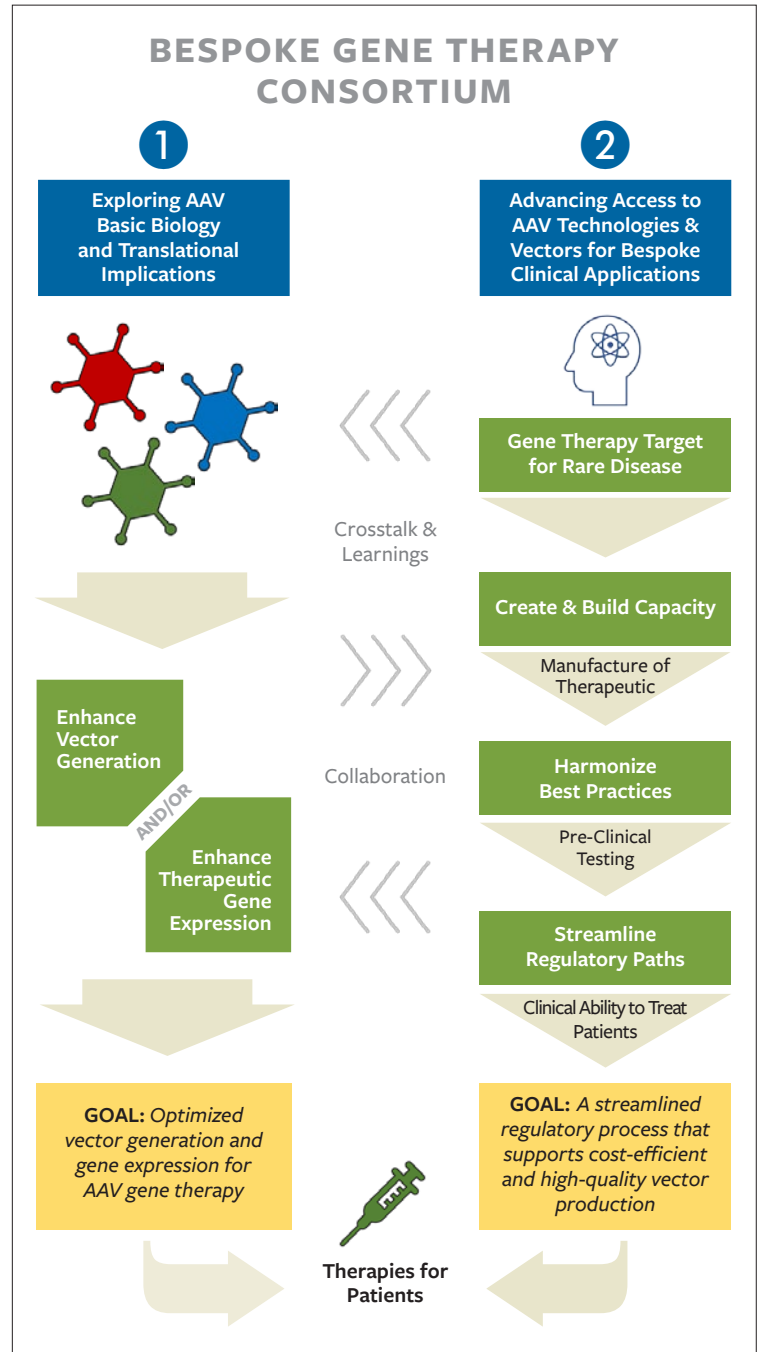


Addressing an Unmet Need

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 \$81.4 million over six years, the BGTC is the largest effort of its kind to streamline the development of therapies for rare diseases, bringing together the resources of 35 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

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

Private-Sector Partners

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

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