American Society of Gene + Cell Therapy

April 29, 2025

The Honorable Susan Collins
413 Dirksen Senate Office Building
Washington DC 20510

The Honorable Patty Murray
154 Russell Senate Office Building
Washington DC 20510

RE: United States Senate Committee on Appropriations Hearing, “Biomedical Research: Keeping America’s Edge in Innovation”

Chairwoman Collins, Vice Chairwoman Murray, and members of the United State Senate Committee on Appropriations:

Thank you for the opportunity to submit a public comment for this hearing, “Biomedical Research: Keeping America’s Edge in Innovation.” The American Society of Gene & Cell Therapy (ASGCT) is a nonprofit professional membership organization that is comprised of more than 6,400 scientists, physicians, patient advocates, and other professionals working in cell and gene therapy (CGT) in settings such as universities, hospitals, and biotechnology companies.

The mission of ASGCT is to advance knowledge, awareness, and education leading to the discovery and clinical application of genetic and cellular therapies to alleviate human disease. ASGCT's strategic vision is to be a catalyst for bringing together diverse stakeholders to reshape the practice of medicine by incorporating the use of these transformative therapies. Many of ASGCT’s members have spent their careers in this field performing the underlying research that has led to today’s robust pipeline of CGTs.

The Gene Therapy Pipeline

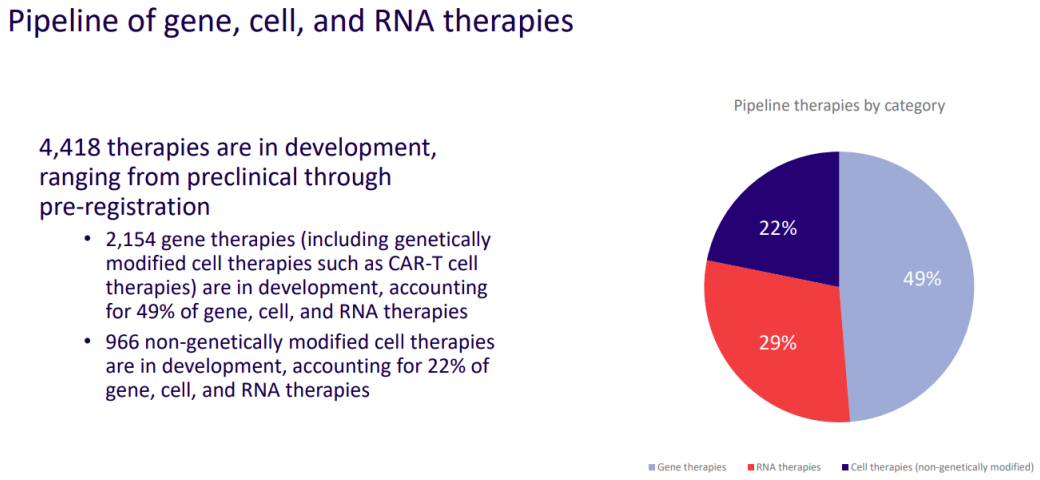
CGTs can address the root causes of disease by modifying the expression of a patient’s genes or by repairing, or replacing, abnormal genes. If you think of genes as the blueprint to our bodies, these therapies can fill in missing parts and/or correct errors in the drawings. CGTs typically only need to be administered once and are considered durable and sometimes curative. Oftentimes patients who receive a genetic therapy are living with diseases that have few to no other treatment options available.

CGTs have changed the treatment paradigm and patient outcomes for a broad range of diseases. In 2017 the US Food & Drug Administration (FDA) approved the first gene therapy, a chimeric antigen receptor (CAR) T-cell therapy to treat cancer.[1] Currently [2] there are 8 FDA approved CAR T-cell therapies for different forms of blood cancers and 14 gene therapies for a range of diseases including sickle cell disease and hemophilia. In addition, there are a number

[1] US Food and Drug Administration. (2017). *BLA Approval - STN: BL 125646/0.* https://www.fda.gov/media/106989/download?attachment
[2] US Food and Drug Administration. (Accessed April 2025*). Approved Cellular and Gene Therapy Products*. https://www.fda.gov/vaccines-blood-biologics/cellular-gene-therapy-products/approved-cellular-and-gene-therapy-products

of FDA-approved genetic medicines built on antisense oligonucleotides (ASOs), tumor-infiltrating lymphocytes (TILs), and other immunologic approaches.

In 2024, the pipeline for gene, cell and RNA therapies grew by 7%. There are over 4,400 therapies in development today, ranging from preclinical through pre-registration (filing for regulatory approval).[3] With a robust pipeline, biotechnology holds immense potential for improving the lives of everyday Americans.[4] Investments in biomanufacturing can enable better, and less invasive, treatments that extend and improve lives. With the continued growth of the development pipeline, CGTs could provide targeted and effective treatments for a broad range of diseases. According to one estimate, 45 percent of the total global burden of disease could be treated with existing biotechnologies.[5]



Source: Gene, Cell, & RNA Therapy Landscape Report: Q1 2025 Quarterly Data Report

Investments in Research

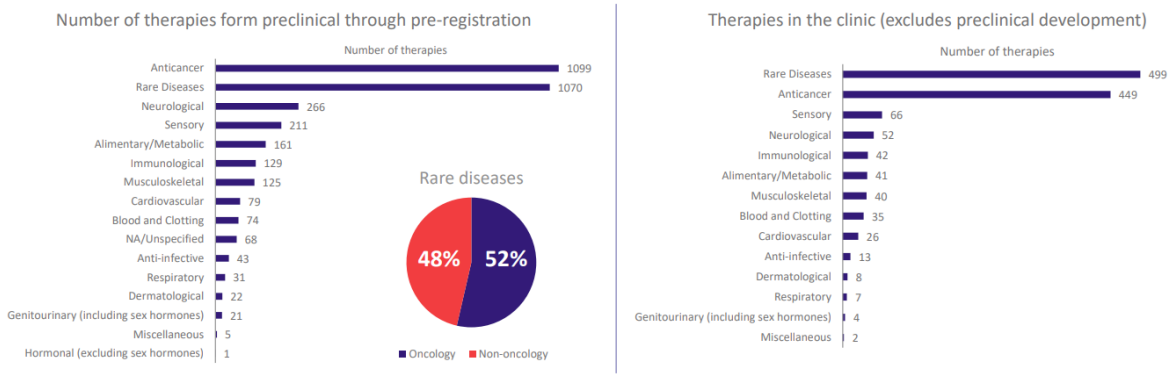
The transformative nature of CGTs holds great promise for people who previously had few to no treatment options. While there is a strong therapeutic pipeline, continued investments in basic, translational, and early clinical research are needed to build on deep scientific underpinnings.

[3] American Society of Gene & Cell Therapy & Citeline. (2025). *Gene, Cell, & RNA Therapy Landscape Report: Q1 2025 Quarterly Data Report.* https://www.asgct.org/publications/landscape-report
[4] National Security Commission on Emerging Biotechnology. (2025). *Charting the Future of Biotechnology.* https://www.biotech.senate.gov/final-report/chapters/
[5] Chui, M. et al. (2020). *The Bio Revolution: Innovations Transforming Economies, Societies, and Our Lives.* https://www.mckinsey.com/industries/life-sciences/our-insights/the-bio-revolution-innovations-transforming-economies-societies-and-our-lives.

Though manufacturing efficiencies[6] and platform technologies[7] can help accelerate development, each genetic disease essentially requires a different product. Different diseases vary in which organs and cell types need to receive the corrective gene in order to address the underlying disease. Some therapies target the liver, brain, or spinal cord, while others home in on the eye or smooth muscle. Each different target requires a specially designed vehicle, or vector, to be developed and tested.[8] There can be limited medical and scientific knowledge, natural history data, and drug development experience for any given disease, especially for very rare indications. This is why robust research is needed to help close the knowledge gap.

Gene therapy pipeline: most commonly targeted therapeutic areas

- Oncology and rare diseases remained the top areas of gene therapy development in both the overall pipeline (preclinical to pre-registration) and in the clinic (Phase I to pre-registration)
- Development for rare diseases most commonly occurred in oncology, representing a majority of 52% compared to non-oncology rare disease gene therapy pipeline development, two percentage points lower than the previous quarter



Source: Gene, Cell, & RNA Therapy Landscape Report: Q1 2025 Quarterly Data Report

Scientists at the National Institutes of Health (NIH) have provided foundational resources for biomedical research – for example, the National Human Genome Research Institute's (NHGRI) Human Genome Project successfully sequenced over 90% of the human genome. Additionally, scientists at the NIH Intramural Research Program[9] have contributed to major breakthroughs in treating genetic diseases.[10,11] Continued investments in basic, translational, and early clinical research is necessary to build the scientific underpinnings of CGTs. There remains a great scientific need to investigate the preclinical application of gene therapies to treat new diseases

[6] American Society of Gene & Cell Therapy. (2024). *RE: ADDENDUM - Comments for Docket No. FDA-2023-D-4974 "Advanced Manufacturing Technologies Designation Program; Draft Guidance for Industry."* https://www.asgct.org/advocacy/policy-statement-landing/2024/advanced-manufacturing-technologies-designation-pr

[7] American Society of Gene & Cell Therapy. (2024). *RE: Comments for Docket No. FDA-2024-D-1829 "Platform Technology Designation Program for Drug Development; Draft Guidance for Industry."* https://www.asgct.org/advocacy/policy-statement-landing/2024/platform-technology-designation-program-for-drug-d

[8] American Society of Gene & Cell Therapy. (2024). *Vectors 101.* https://patienteducation.asgct.org/gene-therapy-101/vectors-101

[9] National Institutes of Health. (Accessed April 2025). *Intramural Research Program*. https://irp.nih.gov/

[10] Duncombe, C. (2022). Discovering a Cure for Sickle-Cell Disease. *The NIH Catalyst.* https://irp.nih.gov/catalyst/28/3/discovering-a-cure-for-sickle-cell-disease

[11] MacDougall, R. (2015). *NIH Researchers Tackle Thorny Side of Gene Therapy.* https://www.genome.gov/news/news-release/NIH-researchers-tackle-thorny-side-of-gene-therapy

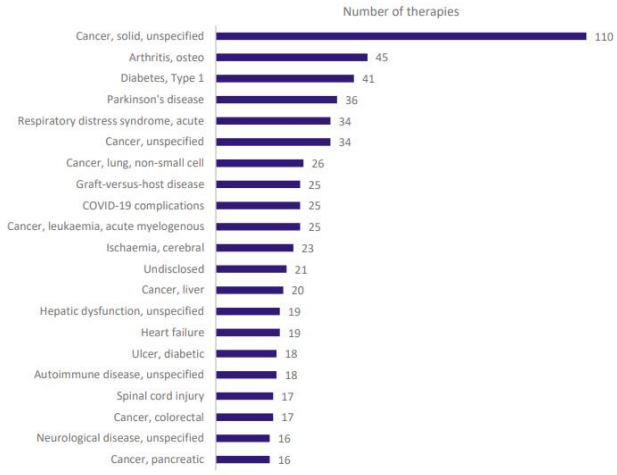
and improve the design of technologies, so that therapies currently in the clinic or advancing toward clinical trials have a better chance of success.

ASGCT supports robust funding for NIH to ensure the US remains a global leader in medical innovation. To sustain current scientific advances and enable future discoveries, ASGCT asks that the Appropriations Committee ensure NIH receives at least the $1.77 billion increase proposed in the bipartisan Senate FY25 Labor-HHS-Education Appropriations bill,[12] for a total FY26 appropriation of $51.303 billion.

Non-genetically modified cell therapy pipeline: most common diseases targeted

Of the therapies for which indications are specified, in the same order as found in the previous quarter, the most targeted indications in Q1 2025 were:

1. Osteoarthritis
2. Type 1 diabetes
3. Parkinson's disease



Source: Gene, Cell, & RNA Therapy Landscape Report: Q1 2025 Quarterly Data Report

NIH grants have supported medical breakthroughs in CGT therapy research, providing hope for patients and caregivers facing both rare and common diseases. CAR T-cell therapies, many of which were supported in the earliest stages by NIH research grants, have treated more than 34,000 people with blood cancers worldwide since 2017.[13] NIH funding also supported research for a gene therapy to treat spinal muscular atrophy (SMA). The earliest children to be successfully treated during clinical trials, who would otherwise be expected to die from SMA in their first two years of life,[14,15] are reaching their 10th birthdays in 2025.[16]

[12] United States Senate, 118th Congress. *S.4942 - Departments of Labor, Health and Human Services, and Education, and Related Agencies Appropriations Act, 2025.* https://www.congress.gov/bill/118th-congress/senate-bill/4942/text
[13] Levine, B., et al. (2024). Unanswered Questions Following Reports of Secondary Malignancies After CAR-T Cell Therapy [Comment]. *Nature Medicine,* 30, 338-341. https://www.nature.com/articles/s41591-023-02767-w
[14] American Society of Gene & Cell Therapy. (Accessed April 2025). *Spinal Muscular Atrophy.* https://patienteducation.asgct.org/disease-treatments/sma
[15] Boston Children's Hospital. (Accessed April 2025). *Spinal Muscular Atrophy (SMA).* https://www.childrenshospital.org/conditions/spinal-muscular-atrophy-sma
[16] Eckford, C. (2023). Novartis releases long-term data for SMA gene therapy. *European Pharmaceutical Review.* https://www.europeanpharmaceuticalreview.com/news/180780/novartis-releases-long-term-data-for-sma-gene-therapy/

In addition to the transformative benefits for patients, NIH-supported research also brings distinct economic benefits. Every $1 of NIH funding generates $2.56 in economic activity after one year, and each $1 of NIH basic research stimulates an additional $8.38 of industry R&D investment after 8 years. NIH funding supported 407,782 jobs across all 50 states and Washington, DC in FY24.[17]

Direct grants are not the only funding stream by which NIH enables innovative research: a critical component of NIH funding is facilities and administrative (F&A) cost reimbursements. These are funds provided to an institution when a scientist receives a grant; they are neither supplemental nor insignificant. CGT research, for example, requires high upfront investments in specialized staff, machinery, and biologic components, which generally cannot be paid for by any single NIH research grant. F&A reimbursements allow institutions to recoup some of those costs, as well as underlying maintenance and utilities. Resources funded by F&A reimbursements may be utilized by several labs at an institution or even shared between multiple cooperating institutions, increasing efficiency.

F&A reimbursements for CGT research may include, but are not limited to:

Manufacturing and Materials

- Institutions establish complex patient cell and vector production facilities that can be utilized across multiple research groups. While some project-specific machinery may be paid for with grant funding, costs of other shared equipment such as bioreactors or incubators, centrifuges, chromatography systems, and cryopreservation storage are shouldered by the institutions and supported through F&A. F&A funds also support the engineering staff who install, calibrate, maintain, and repair those apparatuses.
- Specialized disposal services are required for biological, chemical, or radioactive waste products created in the course of research.

Research Outputs

- Research design and compliance programs oversee informed consent and monitor patient safety in clinical trials. Principal Investigators (PIs) may run multiple clinical trials simultaneously; therefore, they rely on specialized teams at their institutions to help streamline processes. This allows PIs to maximize the clinical trials performed and the number of patients who can safely enroll in any given trial.
- Staff experts help ensure promising research can advance beyond the lab to patients' bedside.
- Access to advanced data systems play a keystone role in CGT research, including cloud-based data management, high performance on-site computing resources, and specialized image rendering software.

F&A costs are reviewed and audited on average every five years. During the audit, NIH verifies the administrative expenses associated with hiring and retaining staff. A major change at an academic institution, such as the opening of a new research building, could make the institution

[17] United for Medical Research. (2025). *NIH's Role in Sustaining the U.S. Economy: 2025 Update.* https://www.unitedformedicalresearch.org/annual-economic-report/

eligible for a two-year review extension while they establish the baseline costs associated with maintenance, utilities, and upkeep of the new facility. The F&A review process also provides NIH the opportunity to verify any debt payments or depreciation allowances claimed by the institution.

If F&A cuts are enacted, institutional efficiency and the speed of scientific advancement will be severely curtailed. From the bench to the bedside, research on CGTs has improved the lives of patients – but ongoing, stable investment is necessary to continue the positive trajectory.

Regulatory Challenges and Opportunities

Gene therapies are often developed for the treatment of diseases with a high unmet need. Many gene therapy trials may have Phase I and II trials of 5 – 20 patients for initial dose-finding and efficacy.[18] This is significantly smaller than trials for common diseases with multiple treatment options. Fortunately, gene therapies often demonstrate efficacy earlier in development compared to traditional small molecule therapies; promising results can be seen as early as Phase I.[19] With the potential to aid countless patients, it is imperative to work expeditiously to address this significant unmet need for diseases that often have no good treatment options. With this in mind, the overarching question for the field is: *how can we accelerate the path from discovery to the patient's bedside?*

ASGCT strives to work collaboratively with the Food & Drug Administration (FDA) to create a regulatory framework that encourages and supports the development and availability of these treatments for patients. The creation of the Office of Therapeutic Products in 2023 [20] acknowledged the robust CGT development pipeline and the need for expanded capacity to meet future growth and support continued gene therapy access and the needs of the biotechnology industry.[21] FDA has made great strides in that direction, but there is more work to be done to ensure that the regulatory system keeps pace with science and innovation while ensuring patient safety and product quality. The Society has requested additional guidance from the Agency on topics such as platform technologies,[22] advanced manufacturing,[23] potency

[18] Marks, P. (2020). *FDA Evidence Requirements and Determination of Treatment Population for Gene Therapies* [Presentation, American Society of Gene & Cell Therapy 23rd Annual Meeting]. https://youtu.be/pEqoLkEHZ-w?si=CRRyc-aFP_XF4yFi&t=4360
[19] Tufts NEWDIGS. (2023). *Are Gene and Cell Therapy Programs a Better Bet?* https://newdigs.tuftsmedicalcenter.org/wp-content/uploads/2023/10/NEWDIGS-Success-Rate-Comparison-2023F210v056.pdf
[20] US Food and Drug Administration. (2023). *Establishment of the Office of Therapeutic Products.* https://www.fda.gov/vaccines-blood-biologics/cellular-gene-therapy-products/establishment-office-therapeutic-products
[21] Bryan, W. (2022). *FDA/CBER Office of Tissues and Advanced Therapies (OTAT) Update*. https://www.asgct.org/publications/news/december-2022/fifth-annual-fda-asgct-liaison-meeting?_ga=2.240527621.764641688.1745855678-858574922.1722261708&_gl=1*1jou3lv*_ga*ODU4NTc0OTIyLjE3MjIyNjE3MDg.*_ga_Q37QKR6TCJ*MTc0NTg5NjA2Ni4zOTQuMS4xNzQ1ODk5Mzc4LjAuMC4w*_gcl_au*MTkxNzQxMTg2NS4xNzQ1ODU1Njc4*_ga_6FB6X4L6XF*MTc0NTg5NjA2Ni4zOTUuMS4xNzQ1ODk5Mzc4LjUzLjAuMA..
[22] American Society of Gene & Cell Therapy. (2024). *RE: Comments for Docket No. FDA-2024-D-1829 "Platform Technology Designation Program for Drug Development; Draft Guidance for Industry."* https://www.asgct.org/advocacy/policy-statement-landing/2024/platform-technology-designation-program-for-drug-d
[23] American Society of Gene & Cell Therapy. (2024). *RE: ADDENDUM - Comments for Docket No. FDA-2023-D-4974 "Advanced Manufacturing Technologies Designation Program; Draft Guidance for Industry."* https://www.asgct.org/advocacy/policy-statement-landing/2024/advanced-manufacturing-technologies-designation-pr

assays,[24] and innovative clinical trial designs.[25] ASGCT is thankful for the invaluable knowledge and expertise of the countless dedicated public servants who have enabled the field to advance transformative therapies and lead the world in scientific achievements. Agency staff hold deep knowledge of CGT products and understand the need to expedite access to transformative therapies. ASGCT welcomes additional opportunities to serve as a partner and resource to FDA as the Agency undertakes its work.

Conclusion

CGTs hold immense potential to address numerous complex diseases that currently lack effective treatments. However, ASGCT believes there is a need to accelerate research and development efforts to expand the therapeutic reach of these cutting-edge modalities. The CGT pipeline is strong, with US institutions and scientists frequently leading the way to new discoveries and technological applications. Strong federal funding for NIH, including for F&A reimbursements, is a critical component of that success. Similarly, funding and staffing FDA at levels where the Agency can rapidly respond to challenges with policies and guidance is imperative. These are core building blocks for safe, efficient clinical trials and product commercialization.

ASGCT appreciates your attention to this critical matter. If you would like to hear more from ASGCT's member experts, please reach out to Margarita Valdez Martínez, Chief Advocacy Officer, at mvaldez@asgct.org.

Sincerely,

David Barrett
Chief Executive Officer
American Society of Gene & Cell Therapy

[24] American Society of Gene & Cell Therapy. (2024). *RE: Comments for Docket No. FDA-2023-D-4299 Potency Assurance for Cellular and Gene Therapy Products; Draft Guidance for Industry.* https://www.asgct.org/advocacy/policy-statement-landing/2024/potency-assurance-for-cellular-and-gene-therapy-pr

[25] American Society of Gene & Cell Therapy. (2023). *RE: Comments for Docket No. FDA-2022-D-2983, "Considerations for the Design and Conduct of Externally Controlled Trials for Drug and Biological Products Guidance for Industry."* https://www.asgct.org/advocacy/policy-statement-landing/2023/considerations-for-the-design-and-conduct-of-exter