

MDA holds follow-up summit to address challenges in gene therapy

In continuing to provide leadership in gene therapy for the neuromuscular disease field, MDA held its second summit this February with key opinion leaders to continue discussions on the safe translation of AAV-based gene therapies.

According to Dr. Sharon Hesterlee (Chief Research Officer of MDA): “As more gene therapies for neuromuscular diseases enter clinical translation, it is imperative that MDA provide a forum for all stakeholders to align, share knowledge and support each other. In addition, MDA is proactively building a gene therapy support network for clinicians across our care center sites in anticipation for near-future approvals of gene therapies. This is an exciting time for the field – MDA has been there from the very beginning of gene therapy, and we would now like to see it cross the finish line.”

Due to the overwhelming positive feedback from MDA’s first summit in 2022, additional sponsorship was secured in 2023 from Pfizer, Sarepta, AskBio, Astellas Gene Therapies, Vertex, and REGENXBIO, enabling an increase in attendee capacity. A total of 106 in-person attendees included clinicians, researchers, industry and non-profit stakeholders, all of whom contributed to extensive discussions on their respective areas of expertise. Specific challenges associated with gene therapy for neuromuscular diseases covered in our meeting included gene therapy durability, redosing strategies, complement-mediated adverse events, specific organ toxicities observed in clinical trials, immune suppression strategies, practical considerations for clinical trials, and other non-clinical barriers such as reimbursement, economic and advocacy issues. A meeting report will be submitted for publication in a peer-review journal. The 2022 meeting report can be accessed [here](#).

Following our first summit, MDA released a request for grant applications to address the heavily discussed issue of transgene-triggered safety concerns in DMD gene therapy. We subsequently made two awards with a committed funding total of \$400k to the following investigators:

1. Jeffrey Chamberlain (University of Washington) – “Expression of enhanced dystrophins via AAV”
2. Carrie Miceli (University of California, Los Angeles) – “Single cell transcriptomics to assess transgene related responses in DMD”

MDA is anticipated to release a similar request for grant applications following this year’s summit, which will be determined in consultation with scientific advisors, and after in-depth review of the issues raised in this year’s meeting.

Following this year’s summit, Dr. Bonnemann notes: “The field has made progress in understanding the different possible immune responses following gene therapy. It is encouraging that we are beginning to identify the mechanisms and risk factors for patients, which should allow for better selection and proactive management of patients who are candidates for gene therapy.”

Dr. Barry Byrne adds: “The field of gene therapy is moving so fast, and the summit provides a forum for us to share and receive updates specifically on developments in the neuromuscular disease programs. As a field, we need to be prepared for an exponential increase in patients receiving gene

therapy over the next few years. This includes a framework for managing risk and long-term follow up post treatment.” MDA looks forward to hosting a similar meeting in 2024, with a likely focus on the logistical and practical aspects of gene therapy administration and long-term monitoring of patients.



Quotes from attendees:

John Day (Stanford University)

Its longstanding connections with patients and care centers, academic investigators, and biopharmaceutical developers, uniquely position the MDA to facilitate the rapid and safe deployment of genetic treatments for neuromuscular disorders. The MDA’s recent Gene Therapy Summit provided an essential forum for candid sharing of information and perspective among leaders in gene therapy and neuromuscular disease. These open discussions help refine optimal methods and products so we can provide patients with the power of genetic restoration while minimizing risk.

Julie Parsons (University of Colorado)

The Summit demonstrated the power of true translational medicine—basic scientists and clinicians sharing information and working together to find solutions to the challenges and real-world issues faced in the safe delivery of gene transfer therapy to our patients. MDA, once again, is there at the forefront fostering communication and leading the way forward in these efforts.

Nicholas Johnson (Virginia Commonwealth University)

The gene therapy summit is one of the most impactful events the MDA hosts. This is a key opportunity for stakeholders to discuss and advance our shared goals of bringing these therapies to patients with neuromuscular disease. I know I learned a lot about how to implement these best practices into my clinic. More importantly, it will take the continued engagement of all the stakeholders who attended to advance these therapies safely for our patients. I hope the MDA continues to host this event.

Richard Finkel (St. Jude Children’s Research Hospital)

This MDA gene therapy Summit galvanized discussions on the most pressing topics in the field. Experts from diverse fields of science and medicine collected for two days of presentations and dialogue. The amount of information shared was truly remarkable. As a clinical scientist working in this newer field of medicine I benefitted greatly from participating and learned a lot on the innate and adaptive immune responses and the clinical implications after dosing with a viral vector. Key knowledge gaps were identified and will help direct future research. I want to thank the MDA for organizing and sponsoring such an impactful event.