ALS THERAPY DEVELOPMENT INSTITUTE

AT-1501

"The most effective potential treatment tested at the ALS Therapy Development Institute."

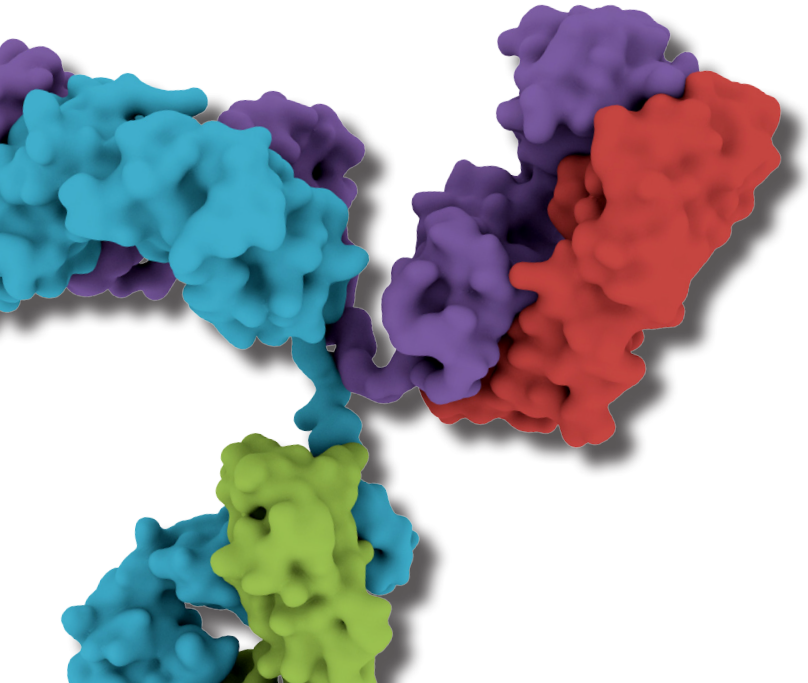
- Steve Perrin, Ph.D. CEO/CSO

An Unmet Need

ALS is a progressive, fatal, neurodegenerative disease, typically causing death within 3-5 years of diagnosis. The only FDA approved drug for ALS is Riluzole, which at best prolongs life by 90 days. There are few potential treatments in ALS clinical trials.

What we know

Based on our data, about 70% of people with ALS have an immune response at some point during its progression. ALS tends to progress and then plateau, progress and then plateau. The immune system may be highly active during the progression stages and less active during the plateau stages. The immune system appears to be involved in both familial and sporadic forms of ALS. These findings make targeting immune response in ALS extremely important in developing effective treatments quickly for everyone with ALS.



What is AT-1501?

AT-1501 is an antibody therapeutic with comprehensive and promising preclinical data. It blocks specific immune cell activation and may protect nerves against the progression of ALS.

Why we are excited about AT-1501

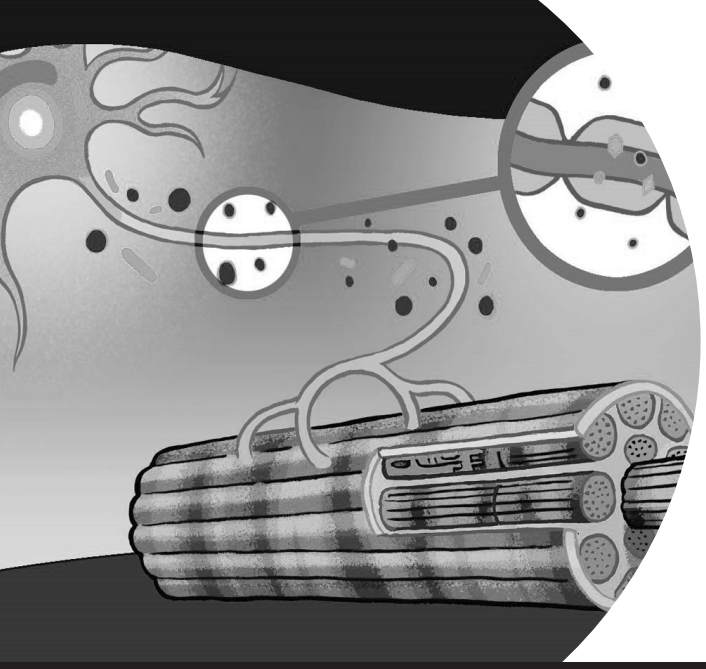
In preclinical testing, AT-1501 produced the most exciting outcomes we have seen in the over 300 drugs tested since the inception of ALS TDI. In the gold standard SOD1 mouse model:

- AT-1501 extended life span significantly; beyond any other drug that has been advanced into human ALS clinical trial.
- AT-1501 delayed disease onset.
- AT-1501 improved body weight, signaling that muscle is healthier.
- AT-1501 improved the percentage of neuro-muscular junctions that remain intact, allowing muscle to remain functional.
- AT-1501 decreased indications of inflammation in nerves and spinal cord.

All of these data have been consistently reproduced, enhancing our excitement and confidence that AT-1501 is one of the best drug candidates ever developed for advancement to clinical trial for ALS.

What is needed to advance it?

We have been developing AT-1501 since 2013. Currently it is being evaluated for safety in non-human primates. To move AT-1501 through a Phase 2 clinical trial, we will need to raise $30 million.



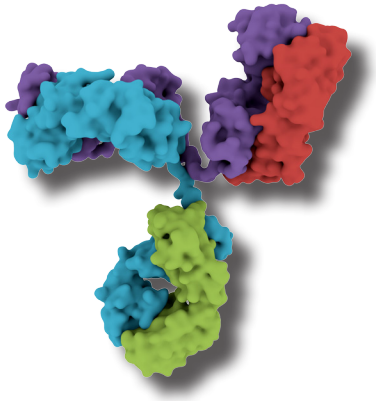
ALS THERAPY DEVELOPMENT INSTITUTE

We believe that in ALS, there are two distinct disease-driving events that can potentially be slowed down or halted by AT-1501.

By blocking CD40 Ligand on T cells, AT-1501 is inhibiting both events by:

1. Helping to keep the connection at the neuro-muscular junction intact because it prevents macrophages from attacking it.

2. Helping to decrease a different population of T cells that cause neuro-inflammation and neuro-toxicity. So instead of activating the natural immune cells in the spinal cord, it keeps them quiet so that they don't attack the neuron and eliminate it.



Work to date

2008 Completed the first unbiased comprehensive study of 12 tissues in the mouse over time and identified pathway. Sourced antibodies to explore if blocking the pathway in mice would produce a result. Tested the hypotheses and saw that drug was slowing disease down. Repeated the experiment. 3 months later, the results from the repeat were the same!

2008-2010 Spent two years investigating exactly how the antibody blocked the pathway in mice. Discovered that 1) it improves the percentage of neuro-muscular junctions that do not die, 2) It decreases the macrophage attack on nerves, and 3) It decreases the activation of microglia and astrocytes.

2011 Tested versions of mouse antibodies to see if they would work. Made human antibody that blocks CD40 Ligand.

2013 Began working with our own human version of the antibody, confirming its impact in mice and confirming its potential in clinical trials for people with ALS.

2014 Settled on the final analog of the antibody.

2015 Signed the manufacturing contract with Lonza.

2016 In late summer, Lonza work resulted in stable and scalable manufacturability of AT-1501.

2017 Non-human primate studies began to ensure safety of drug before human clinical trials.