

CYT-108, a novel protease inhibitor, shows promise in treating osteoarthritis.

Cliff Dominy PhD

Sep 9, 2024

Cytonics Corporation has announced the successful enrollment for their groundbreaking Phase 1 clinical study of CYT-108, a promising new therapy for osteoarthritis¹.

CYT-108 represents a novel therapeutic option for treating the disease. It is a genetically modified form of the alpha-2-macroglobulin blood serum protein - known as A2M. Genetic engineers at Cytonics introduced a novel “bait” region into the native A2M gene to produce CYT-108.

Cytonics hypothesised that the bait region in the mature protein would attract proteases that are overexpressed in the arthritic knee, thereby reducing the damage caused to the joint cartilage.

CYT-108 follows Cytonic’s earlier studies, which showed that an enriched injection of wild-type A2M into the knee joint benefits arthritis sufferers. Preliminary data indicates that CYT-108, like A2M, is well tolerated, with no observable adverse events reported thus far.

Osteoarthritis is a chronic inflammatory condition characterised by joint pain, stiffness and swelling for which few pharmacologic treatments exist. Risk factors, such as advancing age, genetics and female sex, are beyond the patient’s control. Exacerbating factors like obesity, smoking, and physical inactivity, therefore, need to be managed to mitigate the symptoms of the disease.

Therapy has traditionally involved treating the symptoms of arthritis with analgesia. However, in recent years, new targeted therapies have been developed and are currently in clinical development.

Since 2021, at least 52 trials have been registered looking at putting osteoarthritis into remission². These other drugs can be divided into three categories: inflammation targets (cytokines), pain modulation, and chondrocyte stimulation for new cartilage development.

CYT-108, acting as a protease attractant, represents a new type of therapy. It’s early days for CYT-108—phase 1 data will only be available mid-2025. If successful, larger, more rigorous phase 2/3 trials will be initiated at that point.

The more options we have for treating osteoarthritis, the better. CYT-108 may well prove to be an important component in putting this painful, debilitating condition into remission.

References

1. <https://prnmedia.prnewswire.com/news-releases/cytonics-announces-completion-of-enrollment-for-phase-1-clinical-study-evaluating-cyt-108-a-novel-recombinant-protease-inhibitor-in-patients-suffering-from-osteoarthritis-of-the-knee-302239925.html>
2. Ahmed L, Feather K & Sofat N. (2024) New Developments in Clinical Trials for Osteoarthritis: Are We Closer to Improving Pain Management and Disease Modification? EMJ; 9[3]:50-62. <https://doi.org/10.33590/emj/UNIY9778>