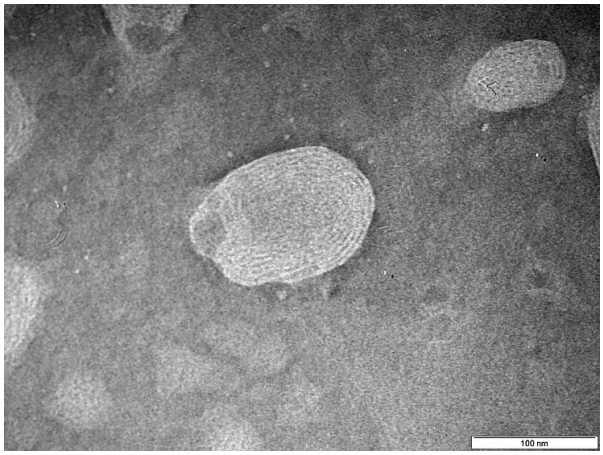
SciTech Advances ST-001 nanoFenretinide to Clinical Trials for SARS-CoV-2



A Detroit based clinical stage oncology-focused bio-pharmaceutical company, SciTech Development LLC, recently determined that its lead product has realistic potential for use as a multi-faceted COVID-19 treatment option. A recently completed in-vitro study established that the drug showed significant anti-viral activity against this coronavirus, thereby, establishing it as a viable candidate for immediate testing in humans.

SciTech reformulated a well-known and highly studied, safe drug, fenretinide, and in the process overcame its bioavailability shortcoming. Its lead product, ST-001 nanoFenretinide, is clinic ready with both an IND and IRB in hand for conducting a non-Hodgkin's lymphoma clinical trial starting at Rush University Medical Center in Chicago.

A company sponsored in-vitro study at Utah State University's Institute for Antiviral Research, confirmed that ST-001 inhibits SARS-CoV-2. Published data strengthen the rationale for using fenretinide. Fenretinide has previously demonstrated **antiviral activity** against MERS-CoV, Dengue, Zika, West Nile, and HIV, and *in vivo* it lowers inflammatory cytokine levels. In conjunction with fenretinide's established clinical safety and tolerability profile, this documented antiviral activity and desirable anti-inflammatory, pro-survival effects make fenretinide an ideal drug for repurposing for COVID-19. The drug product would provide high-strength fenretinide for rapid-acting, intravenous therapy. The drug's clinical safety profile also makes it an ideal candidate in combination

regimens with remdesivir, dexamethasone and other potential a agents, as per the model of HIV therapy.
Specifically, ST-001 is an immune modulator with specific antiviral activity against some virus families. It leverages;
§ The immunomodulatory capacity of fenretinide that decreases inflammation (acting on several inflammation mediators) +
§ The antiviral activity of fenretinide against SARS-CoV-2 as well as other viruses.

Fenretinide Mechanism of Action #1: – immune suppression of detrimental inflammation mediators:
Fenretinide can dampen acute inflammation by reducing levels of key cytokines and related mediators of inflammation (for e.g., IL-1β[1], IL-62, IL-10, IL-12, TNFα, IL-22BP, MCP-1/CCL2, AA/DHA, COX-2 and IL-8) thereby preventing cytokine storm and its associated organ failure and likely ARDS. Shown in the table to the right is a published list of COVID-19 clinical biomarkers (other than for AA/DHA & COX-2). Highlighted in bold red are the inflammation mediators favorably modulated by fenretinide. These observations will be substantiated through the experimental outcomes of the lab-workups of the COVID-19 patients in the planned Phase 1a/1b trial.

Fenretinide MOA #2: antiviral activity:
Fenretinide is the safer analogue of retinoic acid (vitamin A metabolite), for which the antiviral benefit has been known since 1932. As previously mentioned, SciTech has demonstrated *in vitro* **antiviral activity of ST-001 against SARS-CoV-2**. In addition, fenretinide was independently and unbiasedly identified as a drug for **inhibition of MERS-CoV-2**. These analyses indicated that fenretinide has a very promising dose-response curve for MERS-CoV-2. Fenretinide acts on both RAR and RXR receptors, which is important because efficient, simultaneous and maximum pharmacological action on RAR and RXR pathways are demonstrably beneficial in viremia reduction. Indeed, fenretinide inhibits the steady-state accumulation of viral genomic RNA and reduces viremia in murine models. The promise of ST-001 lies in both its ability to inhibit viral replication, and the immuno-modulatory capacity of fenretinide which decreases inflammation by acting on several inflammation mediators that lead to suppression of cytokine storm. This safe, multi-faceted down regulation of particular cytokines and inflammation mediators is unique in its potential to significantly impact COVID visa vie other drug alternatives.
[1] Note: Non-survival in ARDS was linked to sustained IL-6 and IL-1β elevations in COVID-19 patients
https://www.sciencedirect.com/science/article/pii/S1568997220300926