CannaLean Biotech Ltd: Attacking World Enemy – Lowering Blood Lipids

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CannaLean Biotech Ltd.'s aim and vision focus on solving common health problems with minimal adverse effects, taking a novel approach. Our current main interest is controlling dyslipidemia (lipid disorders).

Elevated blood lipids, both cholesterol and triglycerides, are global common problems. About 86 million U.S adults aged 20 or older have total cholesterol levels above 200mg/dL. Nearly 25 million US adults have total cholesterol levels above 240 mg/dL. Only 54% (47 million) US people who could benefit from cholesterol medicine are currently taking it. About 30% of global population suffer from elevated blood triglycerides. Although asymptomatic, these disorders are involved in atherosclerosis, cardiovascular-heart diseases, stroke, arterial disorders, and others.

CannaLean's solution is based on **cannabidiol (CBD)**, a synthetic derivative of cannabis, with anti-inflammatory and antioxidant effects. CBD has been suggested as potential treatment in various clinical conditions, including diabetes, diabetes-related cardiomyopathy, cardiovascular diseases (including stroke, arrhythmia, atherosclerosis, and hypertension), autoimmune disorders, cancers, arthritis, anxiety, psychosis, epilepsy, multiple sclerosis, neurodegenerative disease (i.e., Alzheimer's), inflammatory bowel disease and skin diseases. More specifically, CBD has been shown to decrease blood lipid levels by its effect on several genes involved in lipid metabolism.

Our scientific group produced a patent-protected formulation (granted in USA), combining **CBD, Lecithin and Chitosan (CLC)**. Chitosan is a non-toxic, non-immunogenic biocompatible mixture, with a synergistic effect on lipid reduction, serving as a CBD solvent and acting on intestinal cells, increasing CBD absorption. It is FDA Generally Recognized as Safe (GRAS) agent. Lecithin is a natural human phospholipid. Thus, CLC should be safe. The good safety profile of CBD has also been shown by Epidolex^{R}, an FDA approved pediatric CBD based anti-epileptic agent.

Several **pre-clinical in vivo experiments** conducted by our group were encouraging: Both CBD and chitosan decreased the blood cholesterol in rats, in contrast with untreated rats, while the combination CBD-chitosan was synergistic and more potent. Similar outcomes were obtained with a guinea-pig model. The positive effect was achieved for triglycerides too. Finally, animals benefited from reduced lipid levels while they were on CLC treatment, and lost the effect when treatment was discontinued.

CLC-01 is a CannaLean-sponsored ongoing phase I-II multicenter, prospective, randomized, double blind, placebo controlled clinical trial to evaluate the safety, tolerability and efficacy of CLC therapy as a second line treatment in subjects with hypercholesterolemia. The study drug is supplied as powder and is transformed by

the patient to an oral suspension of CLC (x2/day) including CBD (100mg) with chitosan/lecithin carrier (2gr). Patients with mild elevation of blood cholesterol are randomized 2:1 to CLC or placebo for 3 months, as a post statin 2nd line treatment. The study is conducted in 4 community Clalit HMO clinics, and 22 (out of the planned 48) patients have been recruited so far. We expect the trial to be completed in early 2025, and we are optimistic about the efficacy data. Fortunately, no new or serious safety signals have been reported.

The **future plans** include a) Completing the current trial for hypercholesterolemia. b) Producing a non-sugar chocolate CLC product. c) Launching a similar trial for hypertriglyceridemia (the protocol was submitted to the IRB approval). d) Completing the required regulatory trials on the way to the market. e) Product commercialization as a non-drug solution, and as an FDA approved drug on the long-term.