Title: Impact of IMG-1 Supplement on Metabolic and Molecular Health Markers

Reasoning: Biologics and Peptides have gained significant attention in the medical field over the last decade due to their potential therapeutic applications, including cancer therapy, diabetes treatment, cardiovascular disease, and pain management. Imagine Pharma, led by Dr. Ngoc Thai, MD, PhD, identified a peptide named IMG-1, which has anti-diabetic and anti-inflammatory effects.

Studies have shown that IMG-1 binds to a nuclear receptor, which in-turn activates transcription factors that turn-on activation of progenitor cells. Dr. Jonathan Pollett, at Imagine Pharma, demonstrated that IMG-1 in vitro supplementation of culture media triggers cell repair and progenitor cell generation (thus cells characterized by the expression of the stem cell factor CD133) as observed in primary endothelial cells, keratinocytes, gut epithelium, and pancreatic cells. Moreover, further studies on primary endothelial cells have shown an increase in telomerase activity and telomere length.

Subsequent in vivo supplementation studies in Humans showed a statistically significant reduction in blood glucose levels and a trend of reduction of HbA1c, Cholesterol, LDL-Cholesterol levels, as well as for several liver and kidney byproducts. Parameters of kidney and liver function and metabolism in the study participants suggest that IMG-1 supplementation in vivo is safe. Increase in telomerase lengths of nucleated blood cells and buccal epithelium was observed, suggesting increase in telomerase activity.

IMG-1 has now been formulated into a once-daily dietary supplement called Progenalen™.

Objective: The Imagine Pharma Foundation, in partnership with the Lowcountry Center for Veterans Research (LCVR), is sponsoring a research study at the Ralph H. Johnson VAMC and providing therapeutic access to IMG-1 supplements for Veterans. ***The goal is to determine the health benefits of IMG-1 supplementation when added to standard of care;*** *Primary Aim:* improvement of blood glucose levels and HbA1c. *Secondary Aims: improvement of* blood pressure, cholesterol, HDL and LDL cholesterol, C-Reactive Protein, and telomere length+ DNA methylation in a diverse Veteran population.

Study Period: 12 to 18 months; approximately 6 months for patient recruitment and 6 months for the intervention.

Target Population: Normoglycemic, pre-diabetic, and newly diagnosed diabetic Adult Veterans Veterans who meet generally accepted inclusion criteria for nutritional supplementation, excluding pregnant or breastfeeding or those undergoing active cancer treatment.

Sample Size: 200 patients; one-third normoglycemic participants with an A1C below 5.7%, one-third prediabetic participants with an A1C between 5.7% and 6.4%, and one-third newly diagnosed diabetic patients with a minimum A1C above > 6.4%.

Intervention: Participants will be given IMG-1 gel capsules from the RHJ VAMC pharmacy to be taken as directed for a duration of 6 months **along with their prescribed standard of care**. Dosing and administration instructions will be standardized based on the supplement's guidelines (200mcg, once per day). The study will utilize RHJ VAMC pharmacy to mail 60-day supplies of IMG-1 to each enrolled Veteran. Fasting blood draws will be collected pre-supplementation and then at 2, 4, 6, and 12 month time points.