

## **ABSTRACT (NON-TECHNICAL)**

We have been getting more and more evidences suggesting that immune system of the body does fight against cancer cells. Interleukin-12 (IL-12) is a molecule which can naturally be found in our body and has many important roles in regulating functions of white cells (i.e. T-cells and NK cells). We, along with other groups, have been demonstrated strong anti-tumor effects of IL-12. Based on the promising results in preclinical models, we started IL-12 gene therapy clinical trial to treat cancer patients. In this protocol, we insert the genes of IL-12 into the skin cells of the patients, and inject them into their tumors. The interim results obtained from this phase I clinical trial, which was primarily designed to find out the potential danger of this strategy, suggests that it is a promising strategy. Thus, we propose to initiate phase II protocol of the same strategy to examine whether this is truly an effective therapy or not. At the same time, we propose to do additional preclinical animal studies which we can ask clinically related questions. The results generated by these studies will be very useful for us to invent novel therapies for cancer patients.