

Non-Technical Abstract

Tumor cells can be genetically modified to increase their capacity to stimulate the immune system. In the case of Chronic Lymphocytic Leukemia (B-CLL), we previously demonstrated that this goal can be reached through the transgene expression of two genes namely hCD40L and hIL-2. This vaccine formulation was used in a Phase I clinical trial in B-CLL patients and allowed us to induce a specific anti-tumor response without any significant toxicity. However, this immune response was only transient. We and others found that a specific component of the immune system named regulatory T cells (Treg cells) are particularly abundant in cancer patients and might limit the efficacy of anti-tumor vaccination. In this study we propose to treat the patients with an immunotoxin (recombinant hIL-2 immunotoxin, ONTAK) that binds a molecule highly expressed by these Treg cells and that induces the selective death of these cells. After this procedure we will vaccinate the patients using the same vaccine preparation that we demonstrated to be safe and able to activate a specific immune response in these patients.