

## Non-technical abstract.

Metastatic melanoma is a cancer of the skin cells that has spread to other organs and is presently not curable with current treatment using drugs or radiation. This protocol represents an investigational approach to treating patients with metastatic melanoma using killer T cells that the body may produce in response to the cancer. These killer T cells destroy the cancer cell by recognizing a specific target on the cell. Tyrosinase is a target protein produced by melanoma cells that killer T cells are able to recognize. Tyrosinase-specific killer T cells can be isolated from the peripheral blood of patients with melanoma and large numbers of these T cells can be grown in the laboratory. By infusing tyrosinase-specific T cells in the patient it may be possible to shrink and potentially eliminate the tumor. This process is called adoptive immunotherapy. However, tyrosinase is a protein that is also found in some normal cells of the body and it is possible these cells could be damaged by the transfer of tyrosinase-specific killer T cells. Therefore, the initial infusions of killer T cells will contain a potential suicide gene as a safety measure. The suicide gene is a piece of genetic material or DNA that has no normal function but can be activated to kill the T cell carrying it, in a sense have the cell commit suicide. Insertion of this suicide gene into the T cells is known as gene transfer, and is being done for two purposes. The first is to make it possible to eliminate the T cells if they cause side effects due to inflammation or damage if the transferred T cells contact normal cells that produce the tyrosinase protein. The second purpose is to provide a marker or tag on the transferred cells to measure the duration of time the cells survive after they are given, in order to learn how long such cells can possibly be helpful and when more cells should be administered.