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(54) Title: METHODS AND COMPOSITIONS FOR TREATING DISEASE

(57) Abstract: The present invention relates to methods and compositions for treating a subject comprising destroying diseased cells in the subject. The methods comprise obtaining a population of cells from a subject and determining the activity of at least one disease marker gene within the population of the obtained cells. A polynucleotide molecule that encodes a polypeptide that is lethal to the cells is then introduced into the cells, where the expression of the lethal polypeptide is controlled by the promoter of at least one of the disease marker genes previously identified. After introduction of the polynucleotide, the cells are treated with conditions to induce expression of the lethal polypeptide to destroy the cells that are expressing the disease marker gene(s). After destruction of the diseased cells, the remaining live cells, which did not express the lethal polypeptide to an extent necessary to kill the cells, are separated from the dead cells, and the live cells are restored to the subject.