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(54) Title: RNA-BASED SYNTHETIC CIRCUIT FOR PRODUCING ENGINEERED IMMUNE CELLS FOR AN EXTRACORPOREAL CELL THERAPY

(57) Abstract: The present disclosure relates to a method of producing cells, e.g., immune cells, for an extracorporeal cell therapy by contacting a synthetic circuit that can be used to selectively express a payload in a target cell, e.g., immune cell, with the target cell, e.g., immune cell. In some aspects, a synthetic circuit comprises a payload sequence comprising a sensor. In some aspects, a synthetic circuit further comprises a regulator sequence comprising a sensor. Also provided herein are methods of using such synthetic circuits to treat a wide range of disease or disorders using an extracorporeal cell therapy.



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