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(54) Title: SYSTEM AND METHODS FOR IMMUNE CELLS EXPANSION AND ACTIVATION IN LARGE SCALE

(57) Abstract: This invention discloses a three-dimensional (3D) bioreactor for large scale expansion of immune cells and methods of use. The 3D bioreactor comprising at least one packed bed chamber comprising at least one porous scaffold; at least one porous scaffold coated with one or more extra cellular matrix protein (ECM); at least one container comprising a fluid media, the fluid media is configured to flow through said packed bed chamber with at least one porous coated scaffold; and at least one population of immune cells suspended in the fluid media, wherein, the at least one porous scaffold coated with said ECM is creates a stationary niche having low shear forces that imitate the natural growth environment of the immune cells and allows expansion of the immune cells population that flow through the coated porous scaffold in large scale.

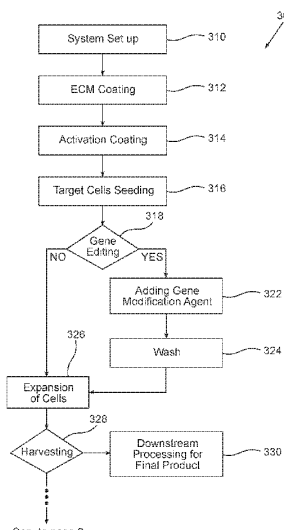


FIG. 2

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