



Identification of Immediate Dendritic Cell Precursor Populations and Uses Thereof

Dendritic cells (DCs) are antigen presenting cells (APCs) characterized by their extremely potent capacities to activate immunologically naive T cells. DCs play crucial roles in the induction of both innate and adaptive immune responses against infectious microorganisms, cancer cells, and other potentially harmful antigens. DCs capture and process antigens, converting proteins to peptides that are presented on major histocompatibility complex (MHC) molecules and are recognized by T cells. DCs also migrate to the lymph nodes, where they interact with T cells to bring about clonal selection. DCs possess all functional properties required for presenting relevant tumor-associated antigens (TAAs) to effector T cells and, thereby, protecting the host from tumor development. Thus, DCs are a potential target for clinical immunotherapy against cancer and infectious disease. Although recent studies have identified several progenitor populations for DCs, the pathway for DC development still remains relatively unclear, and immediate precursors for DCs remain to be determined. Therefore, a method for identifying a homogeneous population of leukocytes, called DC committed precursors (DC.com), that are capable of differentiating into dendritic cells has been developed.

The University of Toledo is seeking a company interested in utilizing the methods for the identification, purification, and expansion of this DC-committed population.

Applications:

1. Identification, purification, and expansion of a specific DC-committed population
2. Potential DC-based immunotherapy for cancer and infectious disease

Advantages:

1. DC.com population differs from the currently known DC progenitors in surface phenotype
2. DC.com population can be identified in human peripheral blood samples based on the cell size and the surface phenotype

This invention is patent pending

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