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TARGETING CD5+ DENDRITIC CELL IN SKIN FOR THE TREATMENT OF CHRONIC DISEASES

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Background

Dendritic cells (DCs) are antigen-presenting cells that are essential to the adaptability of the immune system. Several subsets of DCs have been identified in tissues that interface with the environment (e.g. skin, mucosal lining). While the role of specific DC subsets are unknown, DCs present antigens to T cells and thus drive the inflammatory T cell response. Further work is needed in this area to understand the role of specific DC subsets and whether DCs can be manipulated to control T cell responses. If T cell responses could be controlled, there would be immense therapeutic potential in inflammation that occurs with chronic diseases and in skin cancers.

Technology Summary

Identification of a previously unknown population of DCs involved in promoting the inflammatory response associated with psoriasis. The novel population of dendritic cells (CD5+) can benefit the following applications:

1. Psoriasis and other inflammatory skin diseases

- Diagnoses and monitoring of disease severity – increased CD5+ expression is found in psoriatic inflamed skin
- Treatment - Inhibiting CD5+ through a modulation agent, IL-4 and/or STAT3 inhibitors

2. Autologous cancer “vaccine”

- CD5+ cells express IL-18 and thus can prime cytolytic T cell responses
- Patient-specific CD5+ cells could be isolated and amplified ex vivo
- The autologous vaccine could then be injected with an adjuvant immunostimulant to elicit a cytotoxic T cell response to kill tumor cells

Patents

Pending