

Technology Offer

GMP-compliant protocol for highly efficient generation of IL-12 secreting human mature DC

Reference Number: TO 01-00683

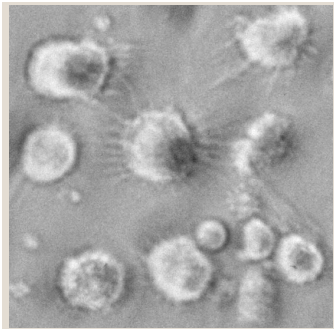


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Challenge

Dendritic cells (DC) have a high potential as adjuvants in the induction of tumor-specific killer and helper cells in the patient. For this purpose, mature DC which have been matured *in vitro* from immature DC are loaded with tumor-specific antigens and reinjected into the body. For therapy with DC it is essential that a sufficient number of mature DC are available. Since only 0.2% of white blood cells are DC it is necessary to have an efficient method for the *in vitro* production of mature DC. However so far, all these cells fail to produce efficient biological active IL-12, which is the most important factor for the induction of Th1 cells in the lymph nodes.

Technology



Dendritic cells
Source: HMGU, Institute of
Molecular Immunology

At the Helmholtz Zentrum Munich a novel highly efficient GMP-compliant protocol for generation of mature human DC have been developed. The protocol is based on the finding that a TLR7/8 agonist is especially suitable for promoting the *in vitro* maturation of DC. The mature DC obtained by using the new protocol

- secrete significantly higher amounts of IL-12(p70)
- express significantly increased amounts of CCR7 chemokine receptors on their surfaces
- have an increased capacity to retain viable CD8⁺ T cells
- have a low adherence, therefore providing high yield
- augment the expression of co-stimulatory molecules.

Commercial Benefit and Opportunity

This new protocol allows for obtaining mature DC with improved and optimized immunostimulatory activity. The functional capacity of the mature DC populations to activate antigen-specific T cells is a crucial aspect of efficient T cell mediated immunity. Accordingly, this protocol enables the production of optimized and superior mature DC as an important tool for clinical purposes.

The technology is available for non-exclusive licensing. Parties interested in collaborative research and development are highly welcomed.

Developmental Status

The protocol has been widely used to generate mature DC with the capacity to be used in clinical settings. An *in vivo* proof-of-concept in mice has been successfully performed. A clinical phase I study using DC obtained with this protocol is in preparation.

Patent Situation

Patent applications are pending in EP (2004807), US, CA, and AU.

Relevant Publication

Zobywalski et al. (2007), J. Transl. Med. 5:18.

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