



Studying intestinal immune effects of non-digestible carbohydrates and their fermentation products in an infant setting

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Introduction

Bacteria colonizing the infant mucosa guide the development of a balanced immune-system and also support maturation of the gut-barrier and the immune system. Mother-milk has been considered the golden standard for guiding this colonization. It contains energy sources for microbiota and also supports immune function directly. For those infants where mother-milk is not a feasible option, cow-milk derived formulas supplemented with non-digestible carbohydrates (NDCs) are used. An important function of these NDCs and their fermentation products is a preferred support of Th1-responses responsible for fighting infections. However, we recently found that not all NDCs currently applied, support Th1-responses and that induced responses are dependent on the composition of NDCs. **In this project we will study the immune and intestinal effects of various NDC's and their fermentation products.**

In vitro models

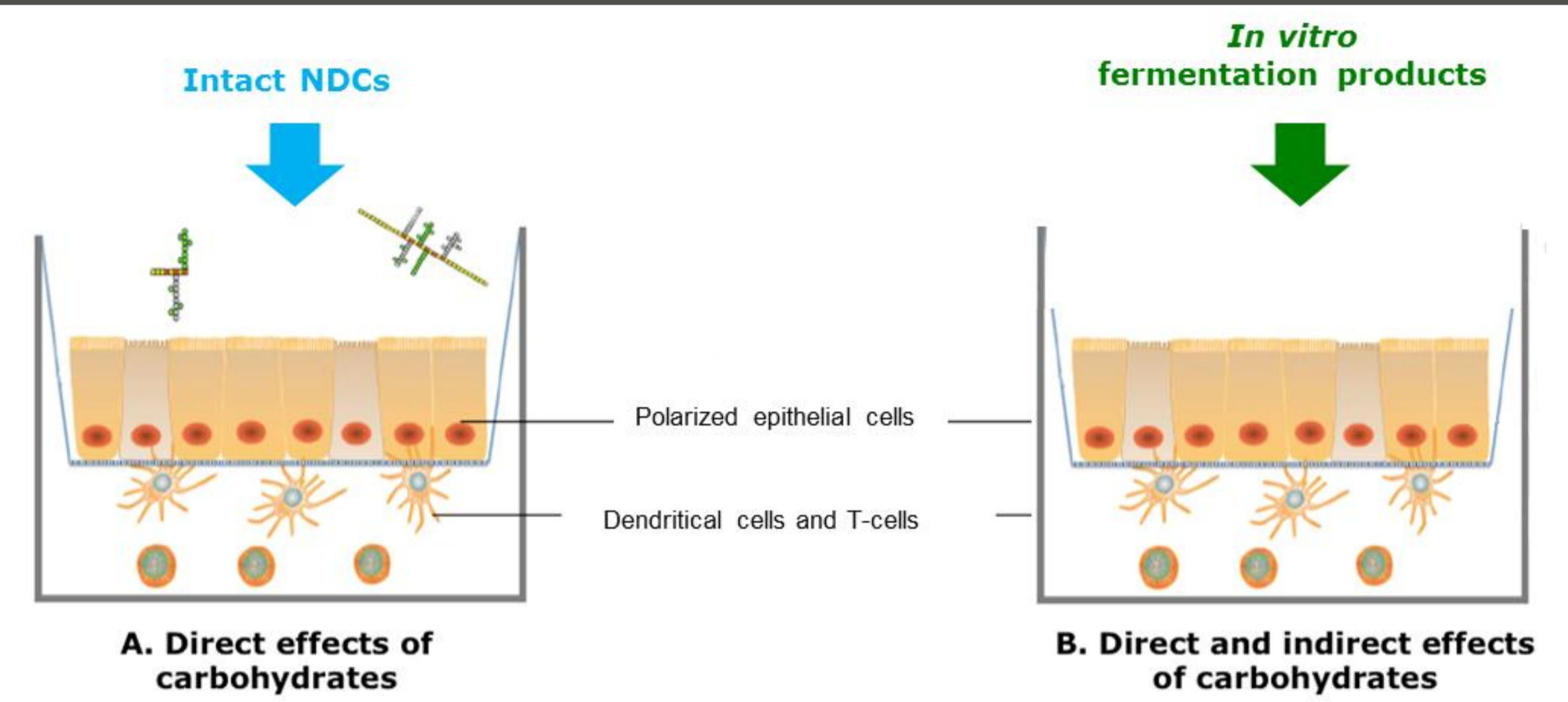
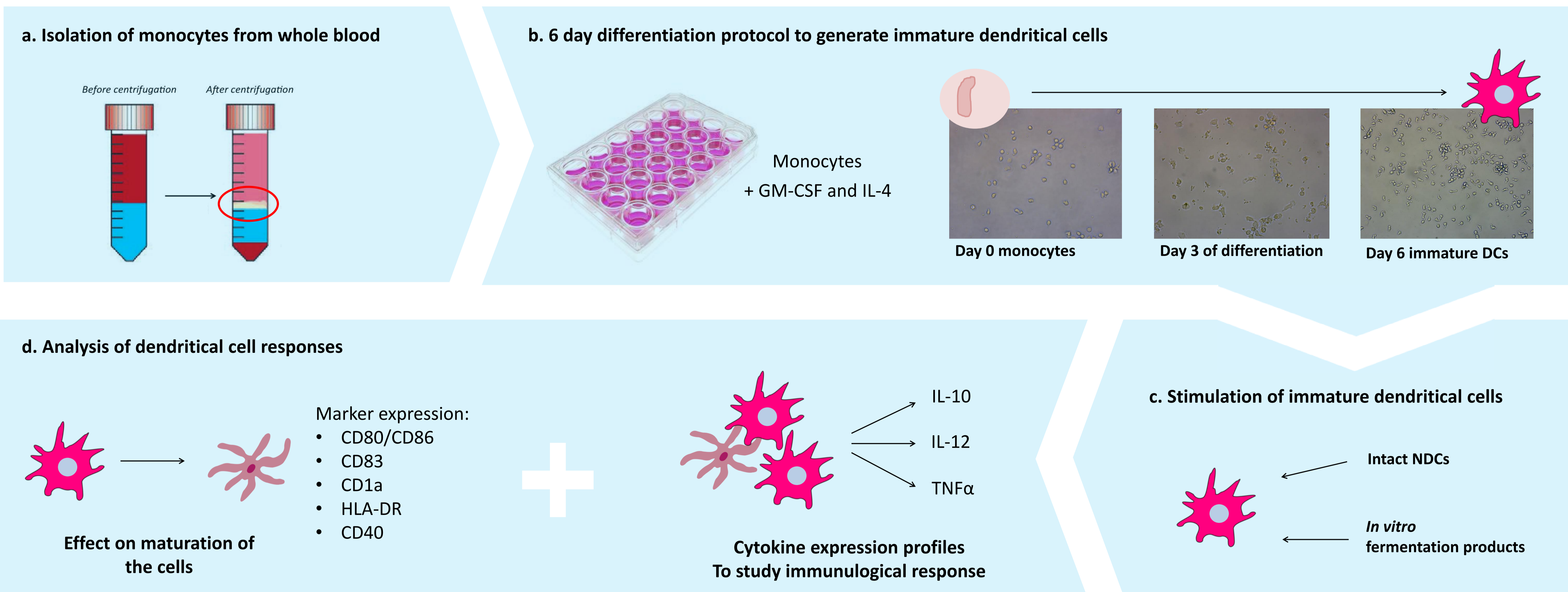


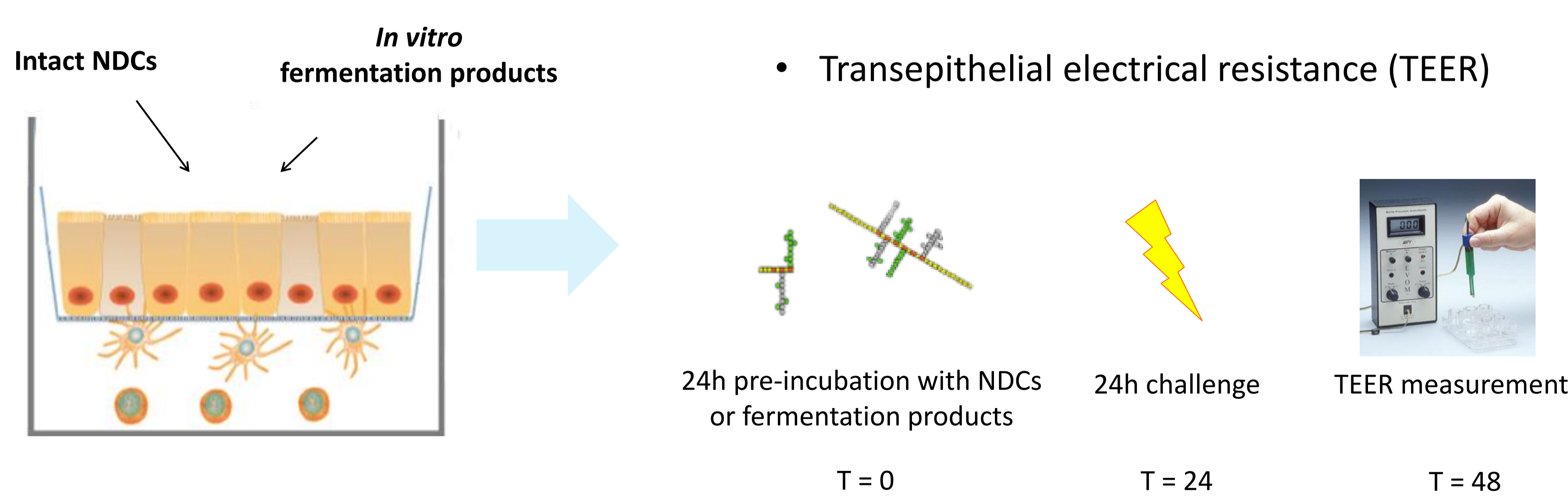
Figure 1: Schematic representation of the *in vitro* models to test (A) the direct effects of non-digestible carbohydrates and (B) their fermentation products

Dendrital and epithelial cell responses

Experimental set up: stimulation of monocyte-derived dendrital cells with NDCs and their fermentation products



Effects of NDCs and fermentation products on epithelial cells



Preliminary results intact NDCs

