

Cord blood cytokines are modulated by maternal farming activities and consumption of farm dairy products during pregnancy: the PASTURE Study.

[Pfefferle PI](#), [Büchele G](#), [Blümer N](#), [Roaponen M](#), [Ege MJ](#), [Krauss-Etschmann S](#), [Genuneit J](#), [Hyvärinen A](#), [Hirvonen MR](#), [Lauener R](#), [Pekkanen J](#), [Riedler J](#), [Dalphin JC](#), [Brunekeef B](#), [Braun-Fahrländer C](#), [von Mutius E](#), [Renz H](#); [PASTURE Study Group](#).

Collaborators: [Weiss G](#), [Ublagger E](#), [Humer C](#), [Russegger M](#), [Hirvonen MR](#), [Juntunen R](#), [Tiihonen R](#), [Tiittanen P](#), [Kauppila T](#), [Nevalainen A](#), [Remes S](#), [Vuitton DA](#), [Dalphin ML](#), [Piarroux R](#), [Reboux G](#), [Roussel S](#), [Sudre B](#), [Schaub B](#), [Schmid S](#), [Illi S](#), [Korherr N](#), [Quast D](#), [Zimmermann M](#), [Bitter S](#), [Sennhauser FH](#), [Loeliger S](#), [Steinle J](#), [Frei R](#).

Source

Department of Clinical Chemistry and Molecular Diagnostics, Philipps-University of Marburg, 35033 Marburg, Germany.

Abstract

BACKGROUND:

Traditional farming represents a unique model situation to investigate the relationship of early-life farm-related exposure and allergy protection.

OBJECTIVES:

To investigate associations between maternal farm exposures and cytokine production in cord blood (CB) mononuclear cells in a prospective multinational birth cohort of 299 farm and 326 nonfarm children and their families.

METHODS:

Supernatants from phorbol 12-myristate 13-acetate/ionomycin-stimulated CB mononuclear cells were assessed for the production of IFN-gamma, TNF-alpha, IL-5, IL-10, and IL-12.

RESULTS:

Significantly higher levels of IFN-gamma and TNF-alpha in farm compared with nonfarm children were found, whereas IL-5, IL-10, and IL-12 levels did not differ between study

groups. Maternal contact with different farm animal species and barns and consumption of farm-produced butter during pregnancy enhanced the production of proinflammatory CB cytokines, whereas maternal consumption of farm-produced yogurt resulted in significant lower levels of IFN-gamma and TNF-alpha in umbilical blood.

CONCLUSION:

Maternal exposure to farming activities and farm dairy products during pregnancy modulated cytokine production patterns of offspring at birth.

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