

# Interleukin 2 helps to detect the allergen responsive lymphocytes in whole blood cultures



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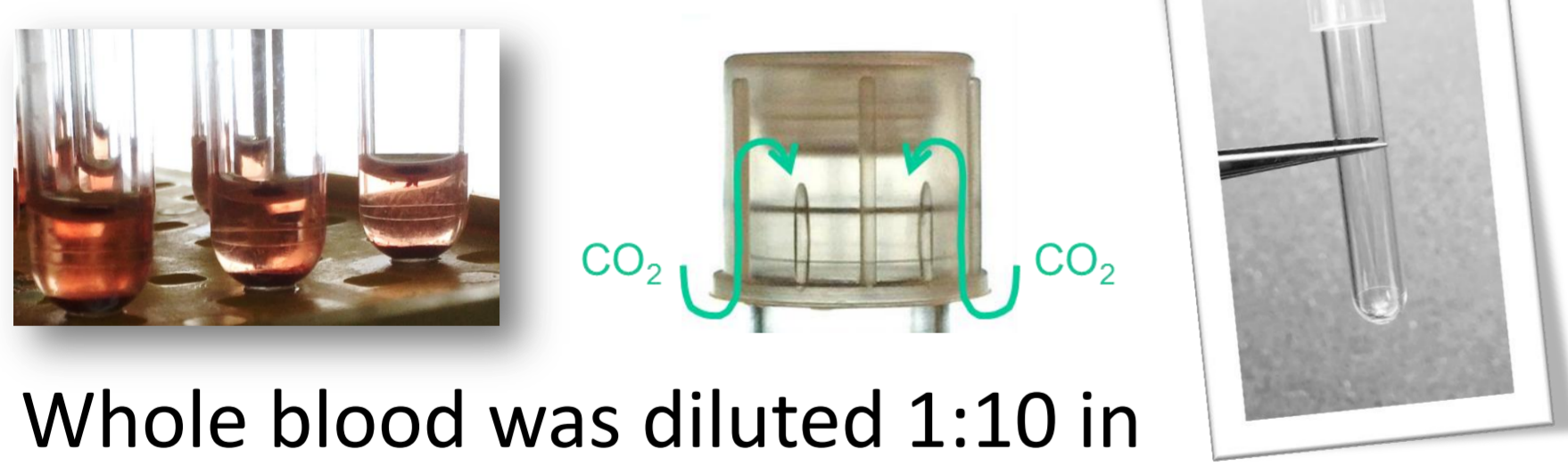
## Introduction

The *in vitro* tests for non-IgE mediated hypersensitivity are based on lymphocyte proliferative response to stimulation with the specific allergen. To simplify the methodology of the test we perform whole blood cultures in single use cytometry tubes with flow cytometry detection of the marker Ki-67. Initially IL-2 supplementation corrected our variable response rate to the tetanus vaccine stimulations.

## Objective

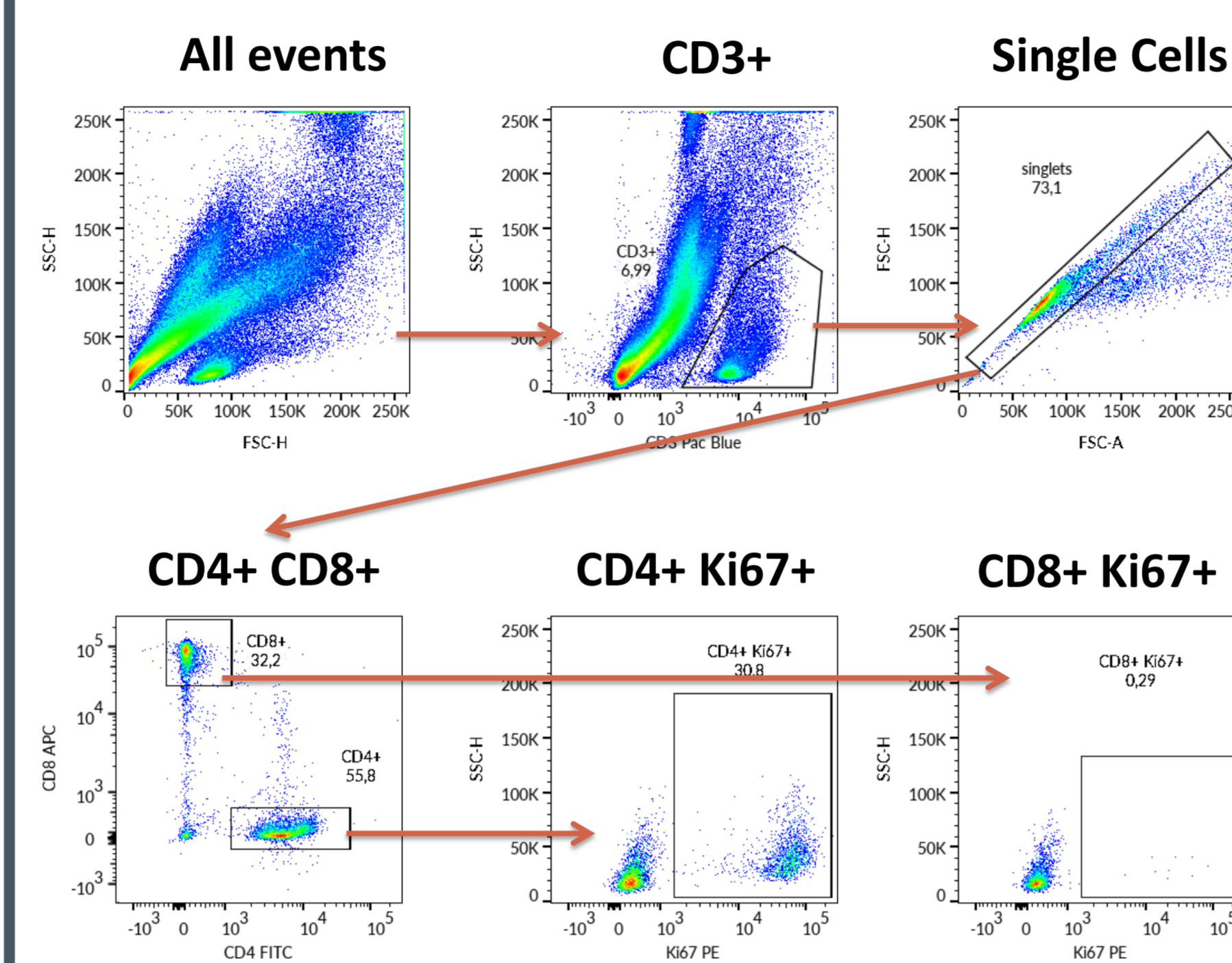
Evaluate the use of IL-2 in whole blood long term cultures (5-7 days) for the detection of lymphocyte proliferative responses to allergens in blood samples from allergic (BAT positive) patients and from patients diagnosed with non-IgE allergy.

## Methods



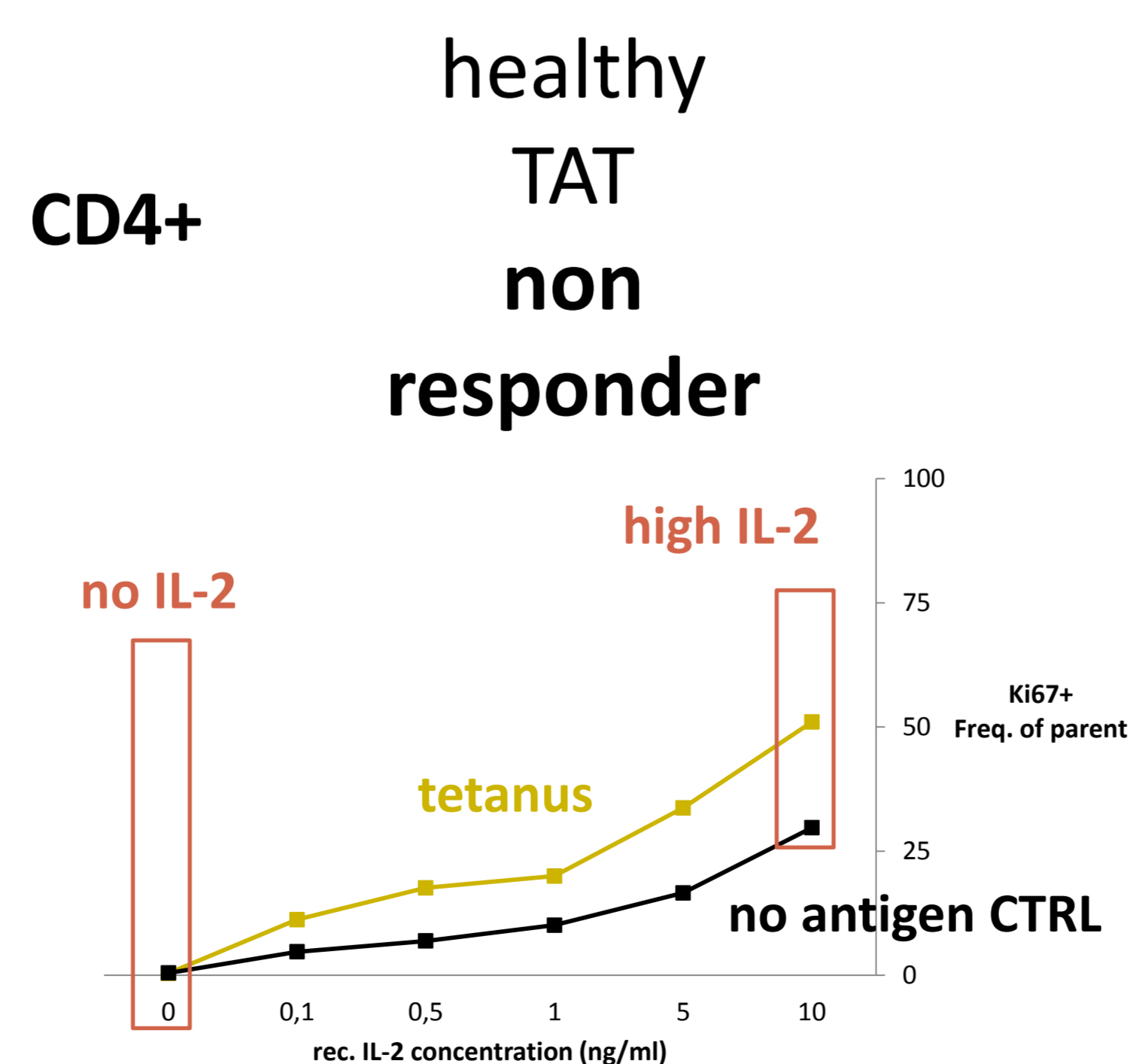
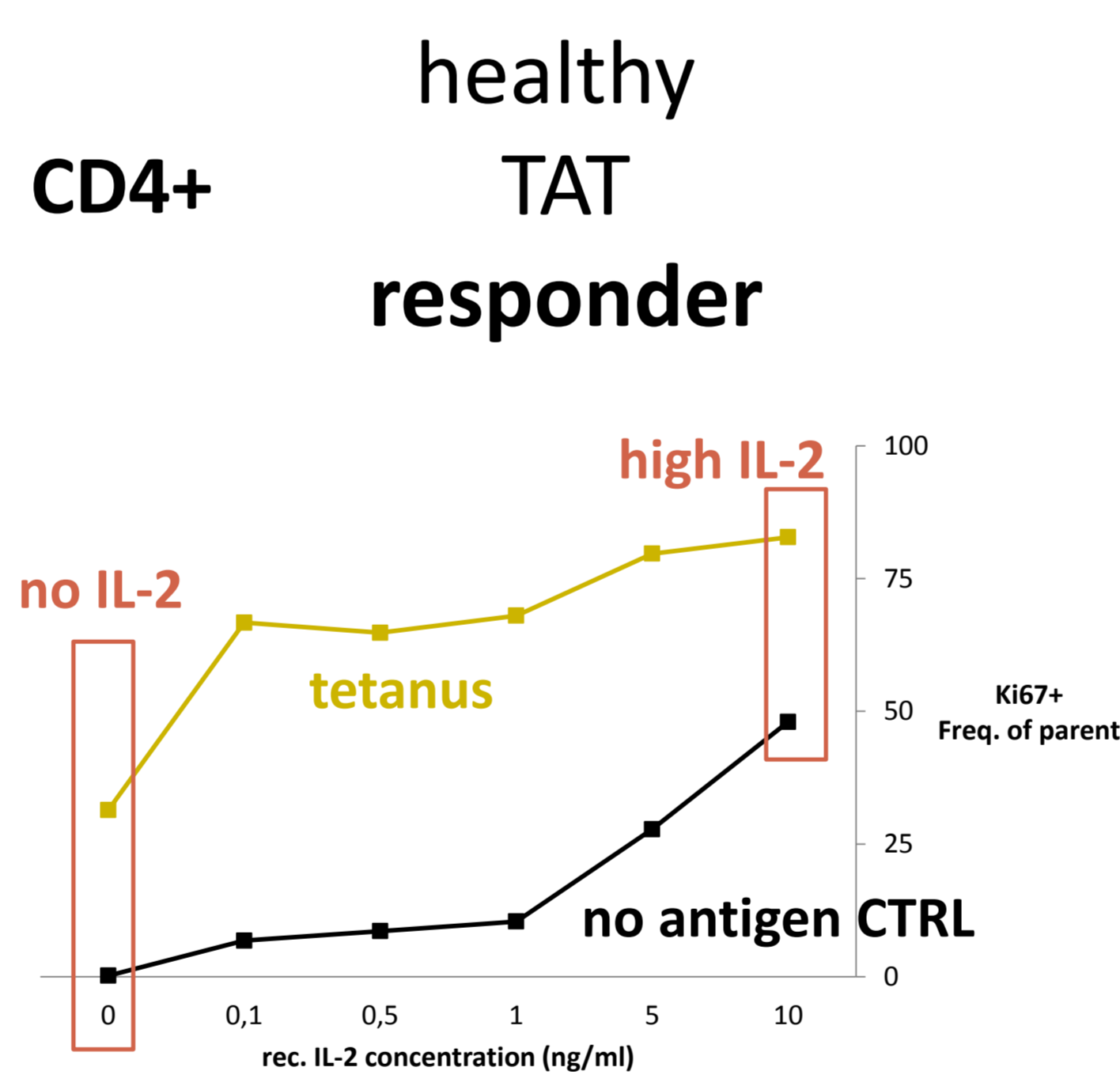
Whole blood was diluted 1:10 in X-VIVO culture medium and incubated with food allergen extracts (wheat, cow milk, carrot) in cytometer compatible tubes. Cultures were supplemented with recombinant interleukin-2 to promote the proliferation of activated lymphocytes. After 5-7 days the cultures were processed with T-cell BustoFlowEx Kit (EXBIO) and stained with anti-CD3/CD4/CD8/Ki-67 antibodies. Basophil activation test was performed with BasoFlowEx Kit (EXBIO) with the same allergen extracts.

## Gating strategy and the staining profile of stimulated whole blood



## Results (I)

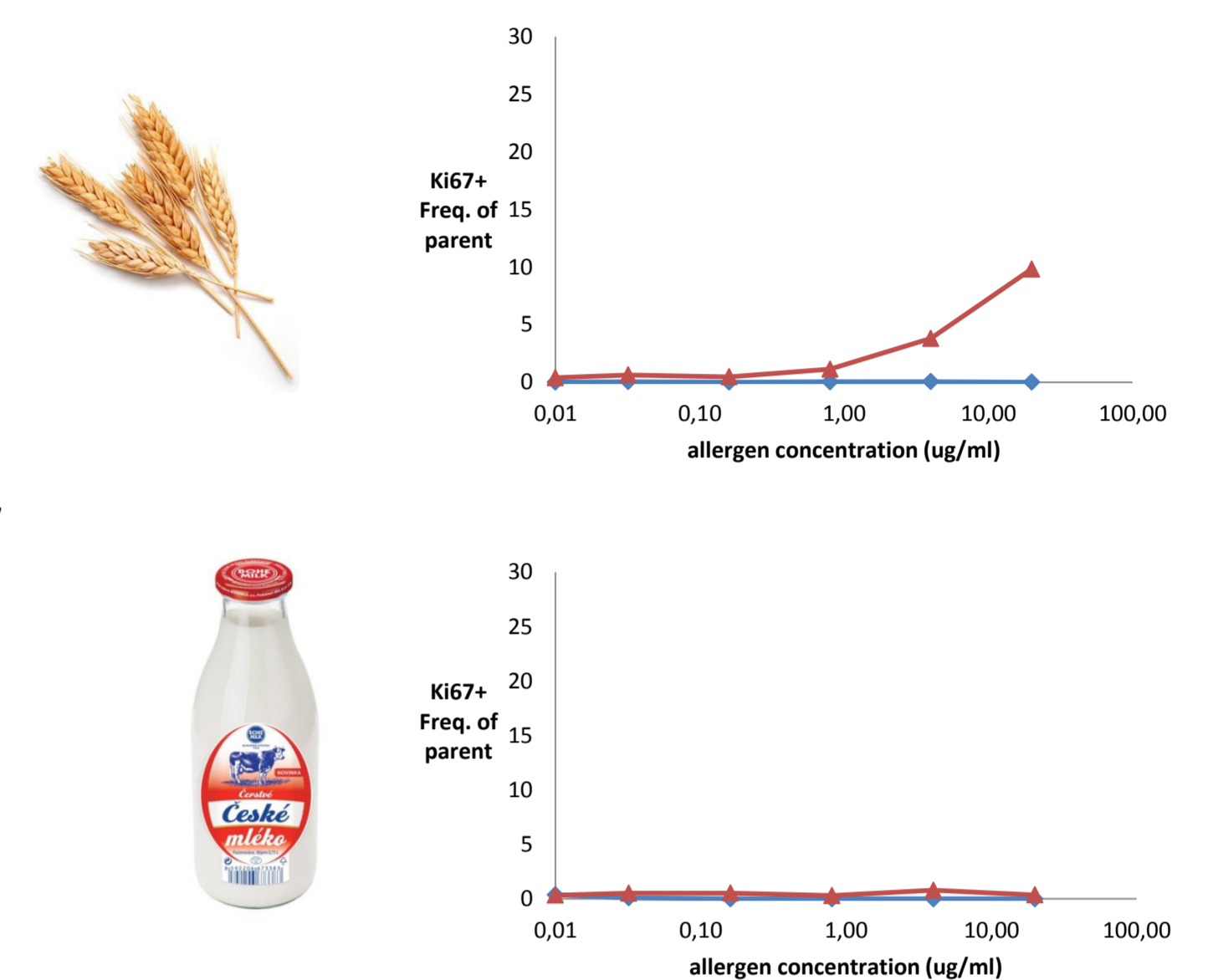
Low concentrations of IL-2 enhance the response *in vitro* to the Tetanus vaccine in non responding blood donors



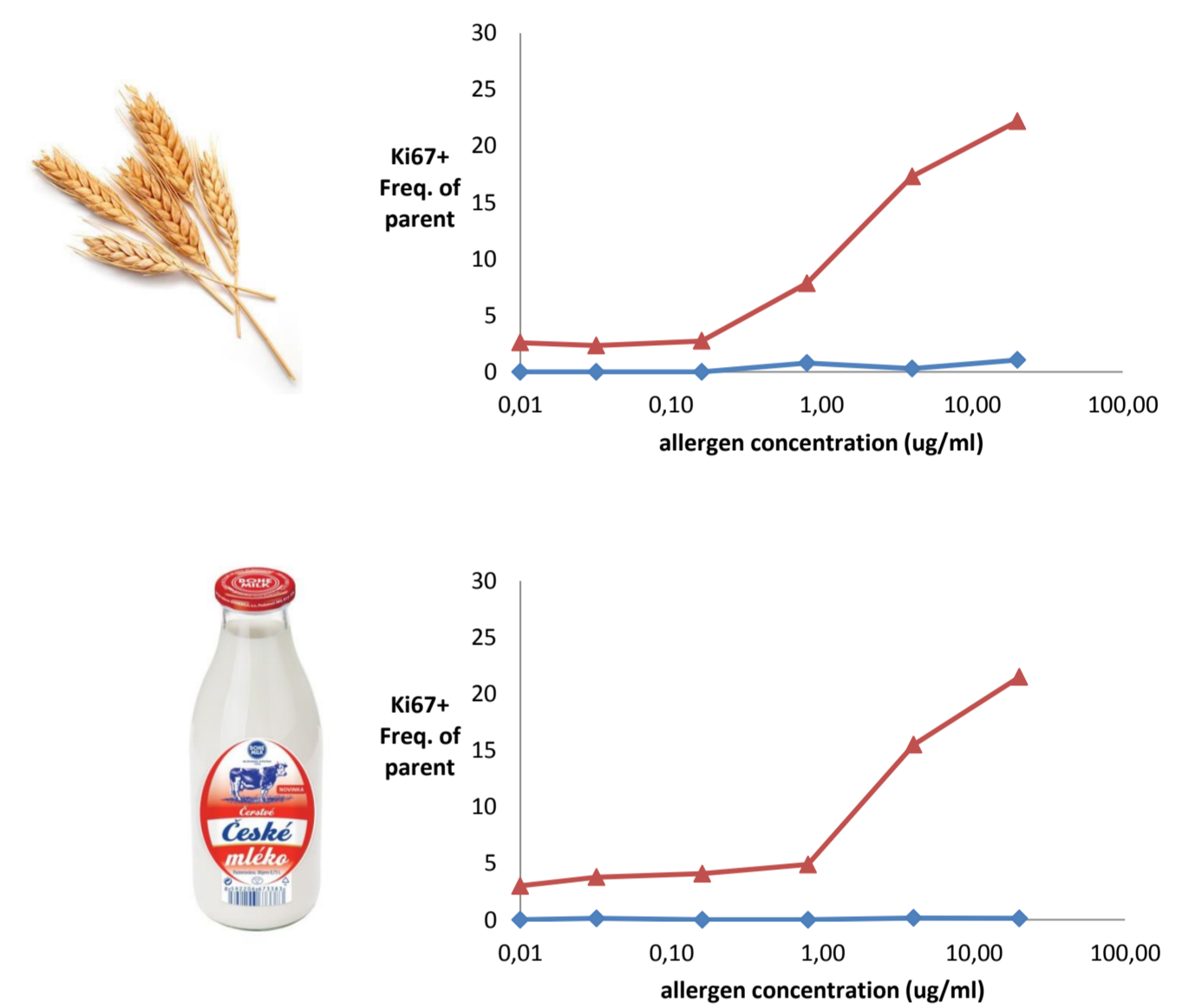
## Results (II)

IL-2 allows the detection of response to food allergens

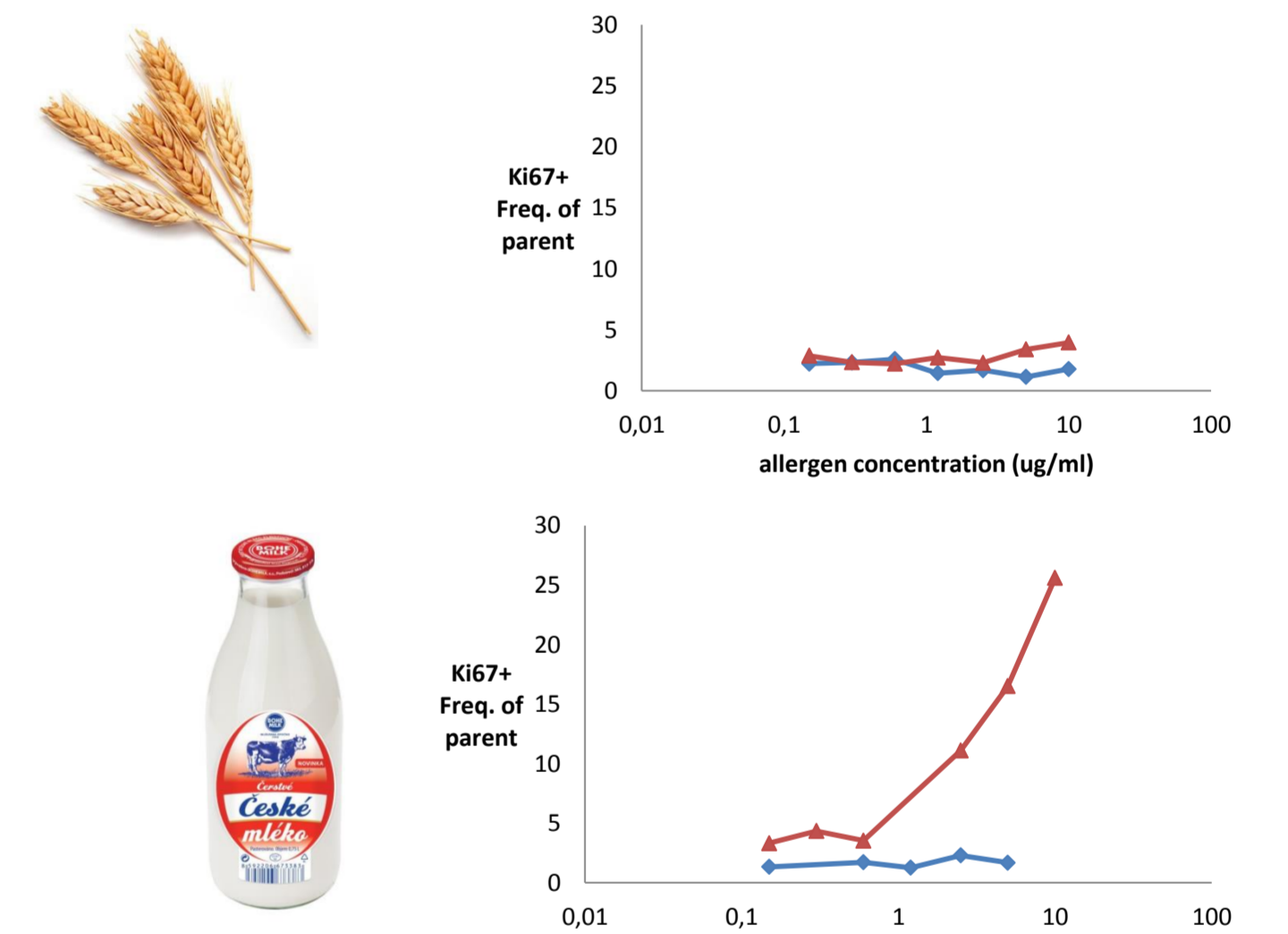
diagnosed non-IgE allergy gluten



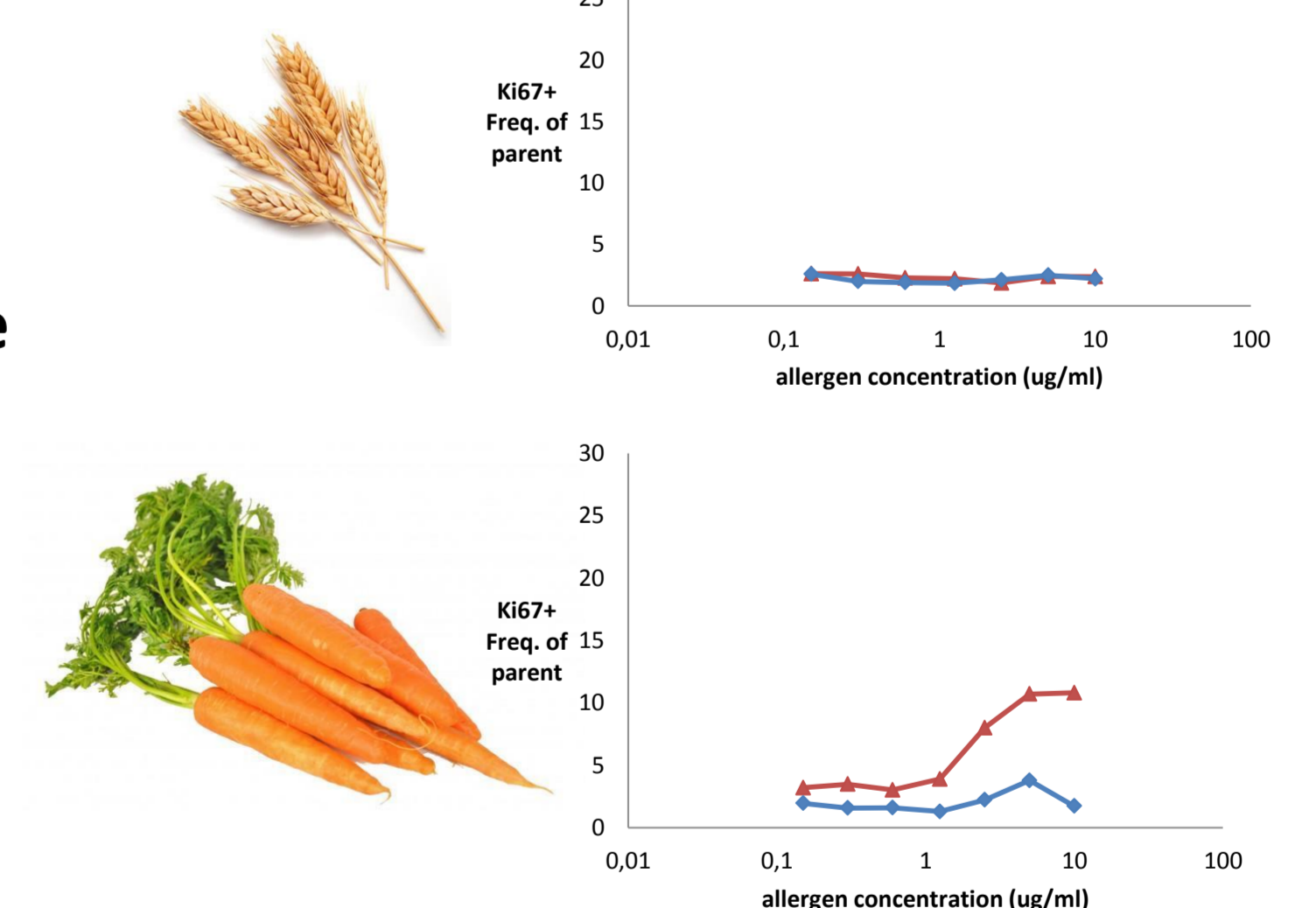
polyallergic patient (IgE)



BAT positive milk



BAT positive carrot



## Conclusion

Interleukin-2 enhanced the detection rate of antigen/allergen specific lymphocytes in whole blood cultures. Patients with IgE food allergy (BAT positive) had positive response to the same allergens in lymphocyte proliferation test.