

## SCIENCE REPORT

### Rapid Immune Responses to EpiCor® Consumption in Humans

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#### **Summary:**

*Previous research has indicated that it may take up to 2 to 4 weeks for the full benefits of EpiCor to take effect. In this human clinical, we demonstrate that some of the beneficial effects occur over a much shorter time period.*

*There are rapid changes in the levels of components of the immune system in the blood, including an increase in Natural Killer cell numbers. These rapid responses complement the slower, modulatory effects of EpiCor, such as the increase in salivary sIgA and the reduction of inflammation.*

#### **ABSTRACT**

The purpose of this study was to confirm possible short-term benefits occurring after consuming EpiCor. The results demonstrate that there are several immediate immune component responses that can be detected in less than two hours following ingestion of EpiCor, including an increase in the number of Natural Killer (NK) cells in the blood. These rapid responses complement the longer-term; modulatory affects of EpiCor, such as the increase in serum Immunoglobulin A (sIgA) and the reduced inflammatory response.

#### **METHODS**

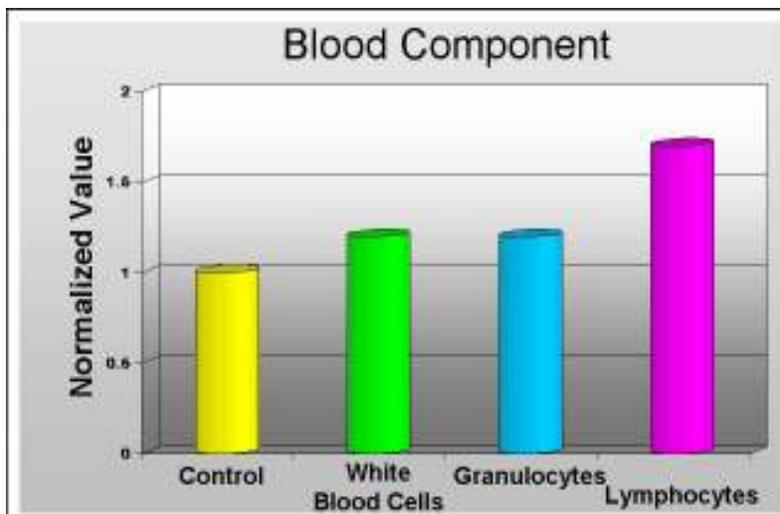
Twelve people were tested in this pilot study. On the clinic day, each subject fasted for 12 hours before arriving at the clinic. Questionnaires assessed previous meals, snacks, exercise, stressors, and recent sickness. After blood for baseline analysis was drawn, subjects consumed one gram of EpiCor. Thereafter, two more blood samples were drawn after one and two hours.

#### **RESULTS**

EpiCor consumption resulted in a rapid increase in white blood cells, granulocytes, and lymphocytes within one to two hours after consumption of one gram of EpiCor. By analyzing the lymphocyte population for percent NK cells, and using the absolute lymphocyte numbers to calculate the absolute numbers of NK cells in the blood, EpiCor consumption was shown to significantly increase numbers of NK cells in the blood.

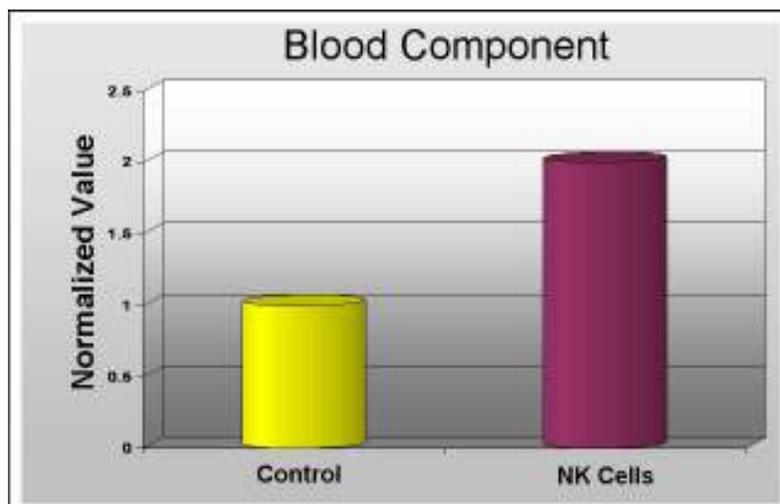
The effect of EpiCor consumption on White Blood Cell parameters (two hours after consumption) is shown in Figure 1 below.

**Figure 1. Changes in Select Blood Parameters Two Hours after Consumption of EpiCor**



The effect of EpiCor consumption on Natural Killer cell numbers (two hours after consumption) is shown in Figure 2 below.

**Figure 2. Increase in Natural Killer Cell Numbers Two Hours after Consumption of EpiCor**



The table below shows the statistical significance (p-values) for the relative changes in each of these parameters for the hour one and hour two post-consumption measurements.

<b>Increase in:</b>	<b>p-value (1 hour)&lt;</b>	<b>p-value (2 hours)&lt;</b>
White blood cells	0.003	0.005
Granulocytes	0.7	0.006
Lymphocytes	0.01	0.03
NK cells	0.02	0.03

## **CONCLUSION**

Previous studies demonstrate that EpiCor is an overall immune modulator that may take two to four weeks for its effects to be realized. This is most clearly shown in another study examining the capability of EpiCor to enhance sIgA levels (manuscript in preparation). The present study shows that EpiCor also has some very rapid beneficial effects on the immune system.

## **REFERENCES**

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- 2 GS Jensen, AN Hart, LAM Zaske, C Drapeau, N Gupta, DJ Schaeffer, and JA Cruickshank: Mobilization of human CD34+ CD133+ and CD34+ CD133-stem cells in vivo by consumption of an extract from *Aphanizomenon flos aquae* – related to mobilization of CXCR4 expression by an Lselectin ligand? *Cardiovascular Revascularization Medicine* 8 (2007) 189-202.