CD4⁺CD25⁺ T regulatory cells (Treg) are a novel population of lymphocytes responsible for inhibition of the immune response against autoantigens. In this study, we assessed the capacity of Treg to regulate the cytotoxicity of CD8<sup>high+</sup> T and NK cells in response to the antigens of the anti-influenza vaccine.

Blood samples of 25 donors vaccinated with the inactivated split anti-influenza vaccine in the epidemic season 2001/2002 were taken before, one month after and six months after the vaccination. The lymphocytes were separated into the following populations: CD14<sup>+</sup>, CD3<sup>+</sup>CD8<sup>+</sup>, CD16<sup>+</sup>, CD3<sup>+</sup>CD4<sup>+</sup>CD25<sup>+</sup>. Then CD3<sup>+</sup>CD8<sup>+</sup> and CD16<sup>+</sup> cells were mixed with CD4<sup>+</sup>CD25<sup>+</sup> Treg cells and cultured for 48 hours in the presence of culture inserts containing CD14<sup>+</sup> monocytes loaded with the antigens of the vaccine. The level of cytotoxicity was measured via cytometric tests measuring: the conjugates of K562 cells with CD16<sup>+</sup> or CD3<sup>+</sup>CD8<sup>+</sup> cells; the percentages of CD16<sup>+</sup> and CD3<sup>+</sup>CD8<sup>+</sup> cells secreting interferonγ (IFNγ) after stimulation <i>in vitro</i> with the antigens of the vaccine; and the cytotoxic activity in a colorimetric LDH-releasing test.

The cultures of both CD16<sup>+</sup> and CD3<sup>+</sup>CD8<sup>+</sup> cells mixed with Treg cells revealed a decreased secretion of IFNγ in response to anti-influenza antigens. However, only in the cultures containing the mixture of CD3<sup>+</sup>CD8<sup>+</sup>/Treg cells was there a decrease in the level of conjugates and cytotoxic activity.

Treg cells are able to modulate the response of CD8<sup>high+</sup> T and NK cells to the antigens of the anti-influenza vaccine. Only the cytotoxicity of CD8<sup>high+</sup> T lymphocytes stimulated by those antigens could be decreased by Treg cells.