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CTL responses of melanoma patients vaccinated with a MAGE antigen

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Abstract

Our group has used mainly antigens encoded by gene MAGE-3 to vaccinate metastatic melanoma patients. Most vaccinations were performed with a MAGE-3 peptide presented by HLA-A1 (peptide MAGE-3.A1). The MAGE-3 protein and a recombinant virus containing sequences coding for a MAGE-3.A1 and a MAGE-1.A1 peptide have also been used. To sum up the results of all our trials, we have observed tumor regressions (i.e. regression of at least one metastasis) in 20% of the vaccinated patients and complete or partial clinical responses in 10%.

Until recently, we failed to observe anti-MAGE-3.A1 CTL responses in the blood of vaccinated patients, even in those patients who made a clinical response, indicating that no massive CTL response occurred. This situation is changing: using new approaches we now observe weak CTL responses in some of the patients who show tumor regression. These responses are monoclonal or involve very few clones. The CTL-p frequencies in the blood vary from 3×10^{-5} to 6×10^{-7} of CD8 T cells. Is it reasonable to believe that such low frequencies of CTL could trigger tumor regressions? We believe that this is possible, because in mice large tumors can be rejected following the production of about 20,000 specific CTL. In man, who carries about 3,000 times more T lymphocytes than mice, this number corresponds to a frequency of about 3×10^{-7}.

References

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