Personalized peptide vaccine: a new treatment modality for advanced cancer

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We conducted personalized peptide vaccination (PPV) for various types of advanced cancers in the past 10 years. A maximum of four HLA–matched peptides, which were selected based on the pre-existing host immunity before vaccination, were subcutaneously administered at PPV trials. Recent study of a randomized phase II trial for patients with castration resistant prostate cancer showed the favorite clinical responses in the PPV group. PPV was also conducted for recurrent or progressive glioblastoma multiforme patients with median overall survival of 10.6 months, resulting in initiation of randomized phase III clinical trial. We also investigated immunological biomarkers in 500 advanced cancer patients who received PPV from October 2000 to October 2008. Both lymphocyte counts prior to the vaccination (P = 0.0095) and increased IgG response (P = 0.0116) to the vaccinated peptides, along with performance status (P < 0.0001), well correlated with overall survival. Collectively, PPV could be a new treatment modality for advanced cancer patients. A randomized phase III trial is essential to prove clinical benefits of PPV.