Advanced liposomal vectors as cancer vaccines in melanoma immunotherapy


Malignant tumors represent a major source of disability and account for more than one of five deaths in Western countries. Among the different cancers, melanoma harbors two distinctive features. First, its has long been recognized as an immunogenic tumor, and second, an unprecedented rise in incidence is currently observed, in face of few therapeutic options. Thus, melanoma represent an ideal target for a cancer immunotherapy program. To date, a number of immunodominant epitopes from tumor associated antigens (TAA) are used as cancer vaccines in clinical trials, in spite of an acknowledged rapid degradation in vivo and low immunogenicity. However, most of the immunotherapy trials reported so far do not achieve consistent clinical results. Hence, there is an urgent need for the development of a carrier system and strong adjuvants suitable for a TAA-based cancer immunotherapy. Liposomes and their further development as virosomes with added adjuvancy may address both these issues. We report here our experience in the tailoring of dedicated advanced liposomal vectors that were developed in the context of an upcoming immunotherapy clinical trial for melanoma.