

# GENETIC VACCINE DECISION SUPPORT SYSTEM

## Summary

Genetic vaccines and especially recombinant viral vectors and virus-like particles are considered the most promising vehicles for delivery of antigens in prophylactic and therapeutic vaccines against infectious diseases and cancer. Several potential vaccine design systems exist but their cost-effective development cruelly lacks a standardized evaluation system. Solving the problem Genetic Vaccine Decision Support system (GeVaDSs, <http://www.compuvac.org>) has been implemented as a part of CompuVac project realized within 6th Framework Program of European Commission. Using GeVaDSs we have successfully developed and standardized methods for evaluation of the efficacy and safety of individual vaccine vectors, in a manner that allows comparison between different vaccine designs, tested in different laboratories, at different time points. With these methods, the efficacy of a unique set of vaccines has been analyzed

and compared with an intelligent database. GeVaDSs has allowed to make significant comparisons between different types of vaccines and to initiate novel vaccine design and vaccination regimens.

Besides monitoring of T- and B-cell immune responses, GeVaDSs is also aimed at monitoring vaccine “efficacy” and “safety” profiles by analyzing relevant molecular signatures obtained from transcriptomes studies. The “efficacy” and the “safety profile” have been validated, based on analyzing molecular signatures from whole liver and spleen after injection of vaccine vectors.

The results of these experiments will drive the development of HCV vaccines. The first HCV vectors generated in single immunization regimen were tested, and interesting results obtained suggest the great potential for the association of our two classes of vectors, viral and VLP derived.