Targeting split vaccines to the endosome improves vaccination.

Compared to 'live' vaccines, the immunogenicity of 'split' vaccines based on recombinant antigen (Ag) is poor, presumably because exogeneous recombinant Ag fails to efficiently access the major histocompatibility complex (MHC) class I processing pathway needed for 'cross-presentation'. Here we discuss recent evidence that targeting ligands of the Toll-like receptor 9 together with proteinaceous Ag to the endosome of dendritic cells conveys immunogenicity to Ag similar in magnitude to 'live' vaccines that produce Ag. Enforced endocytosis of Ag together with the adjuvant effect of Toll-like receptor 9 ligands might be key for the efficient cross-presentation of exogeneous Ag as well as for effective cross-priming of MHC class I restricted CD8 T effector cells.
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