



MARKET CHALLENGES

Dendritic cells (DCs) are highly specialized antigen presenting cells of the immune system which play a key role in regulating immune responses. In vaccine development, a major aim is to improve the antigen delivery to DCs by targeting their cell surface receptors. If this strategy has been the subject of considerable recent investigations, it remains a lot of unmet needs to make this method fully efficient.



INNOVATIVE SOLUTIONS

The present invention is based on an optimized liposomal formulation to improve targeting and maturation of dendritic cells.

The liposome membrane bears a well-defined mannose motif in order to specifically target DC membrane receptors. This motif has the inherent ability to activate DCs, thereby facilitating antigen presentation and immune response initiation.

Consequently, these DC-targeting liposomes greatly improve the efficacy of mRNA vaccines.



SUGGESTED APPLICATIONS

Adjuvant for mRNA based therapeutic vaccination

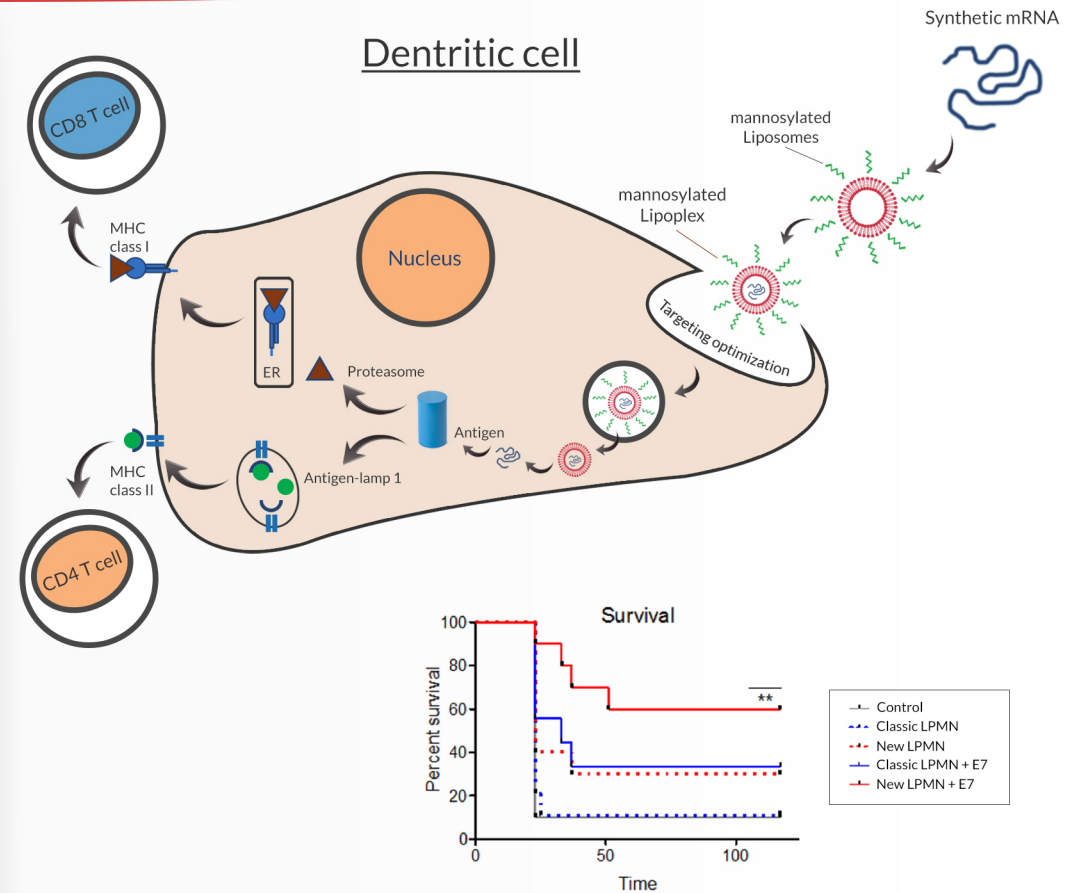


DEVELOPMENT STATUS

The investigations have been principally done in HPV-induced (Human Papillomavirus induced) cancer. Thus, studies were conducted with synthetic mRNAs of the E7 sequence which is responsible for HPV induction.

In vitro: demonstration of LPMN role in the activation of DC and their ability to present antigen

In vivo: studies in mice bearing tumors showed a protective role of LPMN vaccination (see figure above).



COMPETITIVE ADVANTAGES

- Targeting and activation optimization of dendritic cells
- Specific rRNA-based T immune response