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Novel strategy for oral vaccine against pathogens

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Efficient oral vaccines potentiate mucosal and systemic innate immune cells, antibody avidity and increase T cell longevity, particularly in immune compromised individuals. An effective and tolerable oral vaccine should ideally be given in one or more doses that can induce protective immunity against pathogenic microbes. Such an oral vaccine should be safe and cost effective. Data show that such a vaccine strategy can be achieved if it is targeted and directed to intestinal dendritic cells (DCs) that induce mucosal and systemic immune responses against microbial or cancer challenge. A new generation of vaccine is being developed using small peptides derived from a phage display peptide library that target microbial antigens and expressed by *Lactobacillus* species, including *L. gasseri*. Data clearly show that the expression of anthrax protective antigen (PA), Flu-vaccine subunits or tumor associated antigens (rat new, legumain, γ -catenin), genetically fused to dendritic cell binding peptide (DCpep) and expressed by *L. gasseri* confers robust humoral and T cell mediated immune protection against pathogens or cancer challenge in mice. To further improve the efficacy of such an oral vaccine we are in the process to express it as a immunogenic fusion in *L. gasseri* by bacterial chromosomal insertion avoiding potential plasmid instability. By a double crossover recombination event, the genetic expression of the vaccine should be stabilized eliminating antibiotic selection. In this context, we currently investigate the genetic of such a vaccine expression and its efficacy and impact on the survival of mice when infect by pathogens.

Biography

Mansour Mohamadzadeh has completed his Ph.D at Johannes Gutenberg University in Mainz, Germany and postdoctoral studies from Johannes Gutenberg, and SWMU University School of Medicine. He is Department of Infectious diseases & pathology professor of Medicine at University of Florida Gainesville, Florida. He has published more than 60 papers in reputed journals. He is one of the leaders in vaccine and therapeutic strategies.