Abstract: Influenza virus strains mutate constantly, therefore the seasonal flu vaccine must be updated annually to keep it current. The vaccine is updated by swapping the influenza strains contained in the vaccine by those recommended by the World Health Organization (WHO). Since it takes almost six months to make the flu vaccine, the update begins about six months ahead of the upcoming flu season. Between the time the vaccine production begins to when it is made available to the public, the influenza strains can continue to change, and the strains that in fact end up circulating in a flu season can be different from those incorporated in the updated vaccine. The degree of match between the vaccine strains and the circulating strains dictates vaccine efficacy, which can range from high (high match) to zero (complete mismatch). The high mutation rate of influenza strains could also result in a novel pandemic strain, and the current flu vaccines would be ineffective against such a strain. For flu pandemic preparedness, and for making a seasonal flu vaccine that does not require an annual update, there are ongoing efforts to create ‘universal’ flu vaccines. In this presentation, a design of a universal flu vaccine being developed in our lab will be presented. The presentation will describe the basis of such a universal flu vaccine design, the use of different nanoparticle systems evaluated by us to enhance immune response of the universal flu vaccine, and its efficacy in animal models (mice and ferrets). In addition, the thermal stability of the vaccine and use of microneedles to deliver the universal flu vaccine will also be discussed.