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New genetic vaccines using self-replicative RNA

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The discovery that naked plasmid DNA can elicit humoral and cellular immunity has prompted the development of genetic vaccines against many viruses for which no prevention currently exists. In the 1 May *Journal of Infectious Diseases*, Marina Fleeton and colleagues from the *Karolinska Institute* in Stockholm suggest the possibility of using the recombinant alpha virus RNA molecule - which replicates in the cytoplasm of transfected cells - as a novel approach in genetic vaccine development.

Fleeton *et al.* immunized mice with recombinant Semliki Forest virus RNA encoding envelope proteins from influenza A, RSV or tick-borne encephalitis virus and found that antigen-specific antibody responses occurred after vaccination. IgG isotyping indicated that predominantly Th1 type immune responses were induced following immunization with RNA encoding the RSV F protein, suggesting protection against RSV infection had been generated. Challenge infection showed that RNA immunization had elicited significant levels of protection against the 3 model virus diseases (*J Infect Dis* 2001, **183**:1395-1398).

In contrast to the viral vector approach the rSFV RNA vaccine contains none of the highly immunogenic viral structural components. This may be of considerable benefit in situations where booster immunizations are desired.

References

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2. Karolinska Institute, [http://info.ki.se/index_en.html]