

This week in techniques

Approach	Summary	Licensing status	Publication and contact information
Computational methods			
Engineering live attenuated RNA vaccines through restriction of viral diversity	Restricting the diversity of RNA viruses through selective mutation of RNA polymerase might improve the design of live attenuated RNA vaccines, compared with current trial-and-error approaches, by providing less opportunity for live attenuated viruses to evolve into more virulent strains. <i>In vitro</i> , two poliovirus strains that expressed different single-amino-acid variants of RNA polymerase, G64S and G64A, had increased RNA polymerase fidelities and therefore significantly reduced genetic diversity compared with wild-type poliovirus ($p < 0.001$). In mice, the two mutant strains reduced viral shedding and tissue tropism compared with wild-type virus. In addition, mice vaccinated with the mutant strains had significantly more neutralizing antibodies against poliovirus than those given wild-type ($p < 0.01$) or Sabin ($p < 0.001$) poliovirus vaccines. Next steps include determining the efficacy of an engineered polio vaccine strain in humans.	Not patented; unlicensed	Vignuzzi, M. <i>et al. Nat. Med.</i> ; published online Feb. 3, 2008; doi:10.1038/nm1726 Contact: Raul Andino, University of California, San Francisco, Calif. e-mail: raul.andino@ucsf.edu