



**Figure 7.11** Effect of arginine compounds on (a) viscosity and (b) aggregation as measured by decrease in monomer by SEC for an IgG<sub>4</sub> mAb. SEC, size-exclusion chromatography. From Tom Scherer (unpublished observations).

shown that the Halozyme technology can result in significant improvements in pharmacokinetics and bioavailability (Bookbinder et al., 2006).

Another way to administer large volumes by the SC route is to use injection delivery devices. The next chapter will discuss some of those options as well as the technical challenges for development of such devices coupled with the protein drug, especially the interplay between device and formulation design.