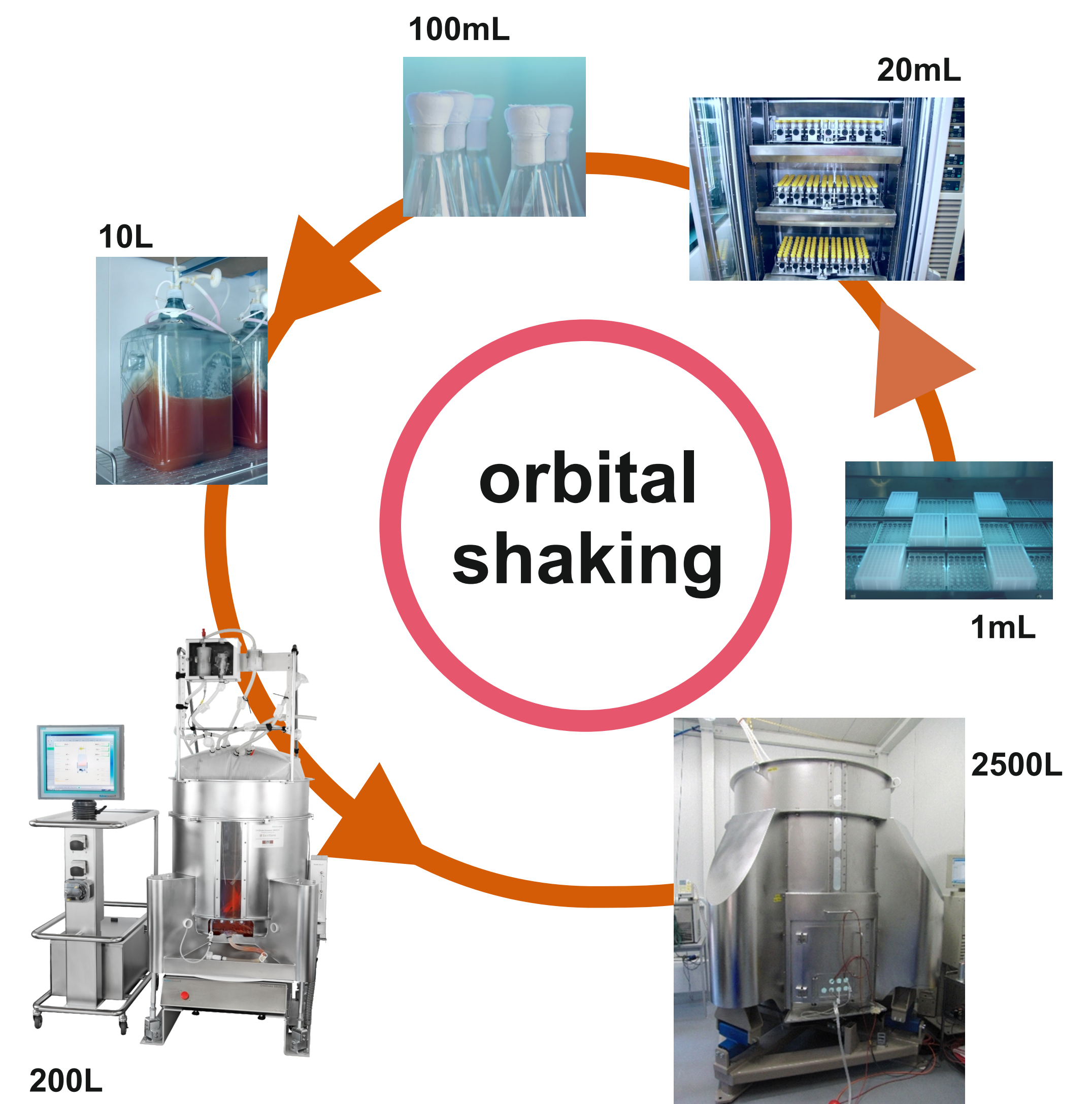


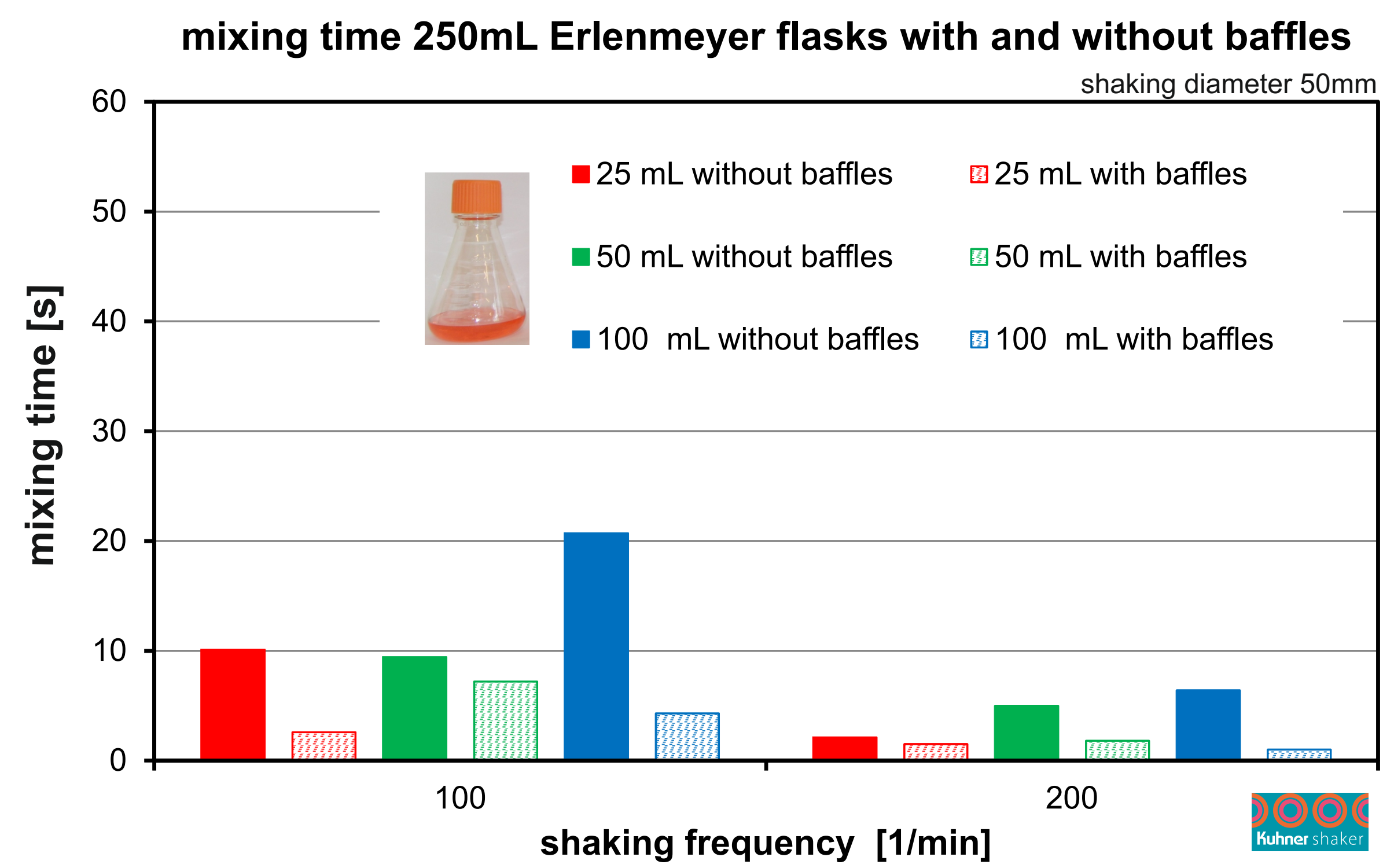
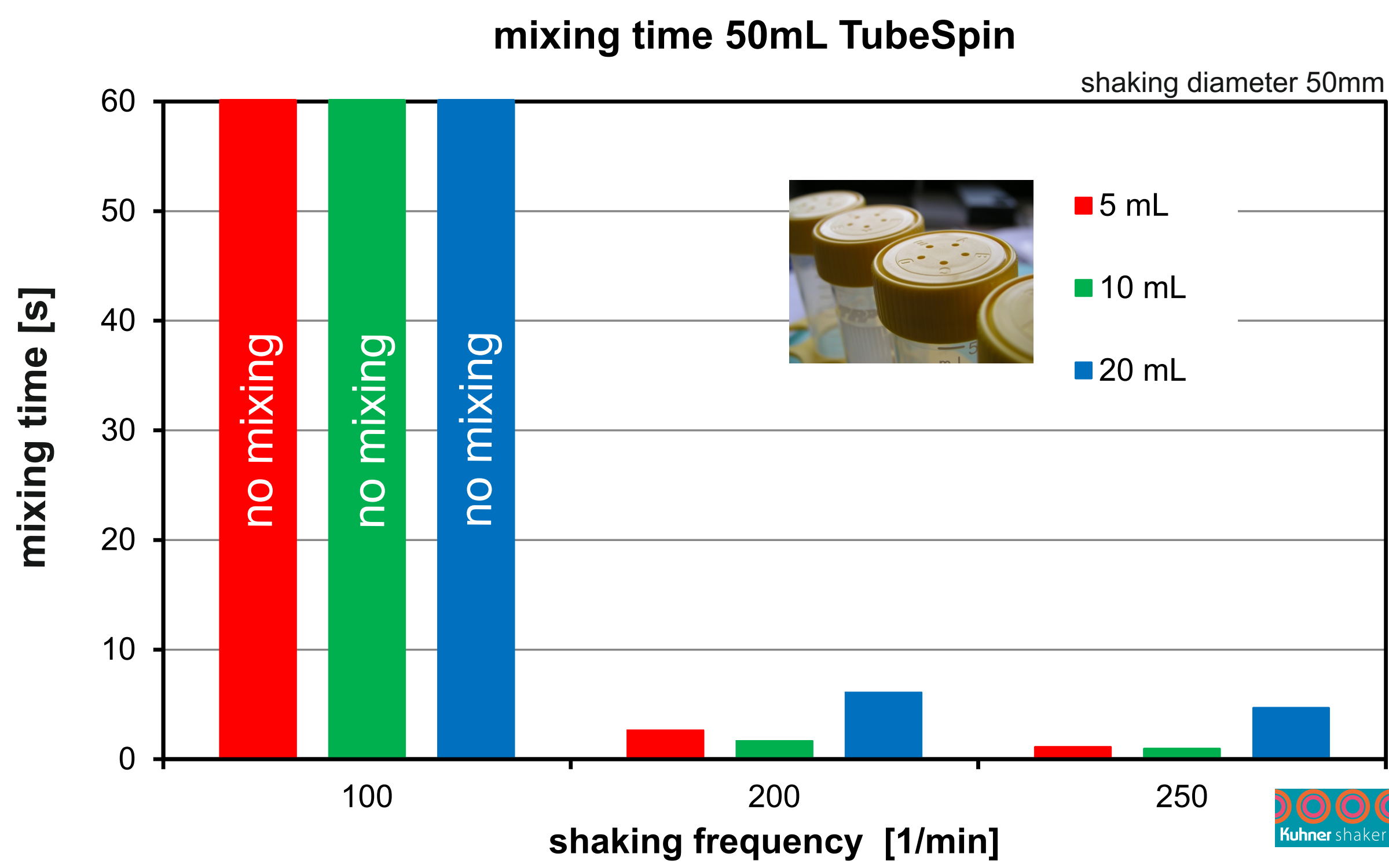
Orbital shaken bioreactors in the field of cell cultivation

Orbital shaking technology has been widely used in biotechnology because it offers ease-of-use, increased flexibility and reduced costs. Recently, orbital shaken bioreactors of capacities from 1mL - 2500L have been employed for cultivation of mammalian cells and are expected to become attractive alternatives to conventional stirred-tank bioreactors. Efficient mixing in shaken bioreactors is essential in order to avoid concentration gradients which can be harmful for mammalian cells. Therefore the mixing time in the different scales should be in the same range.

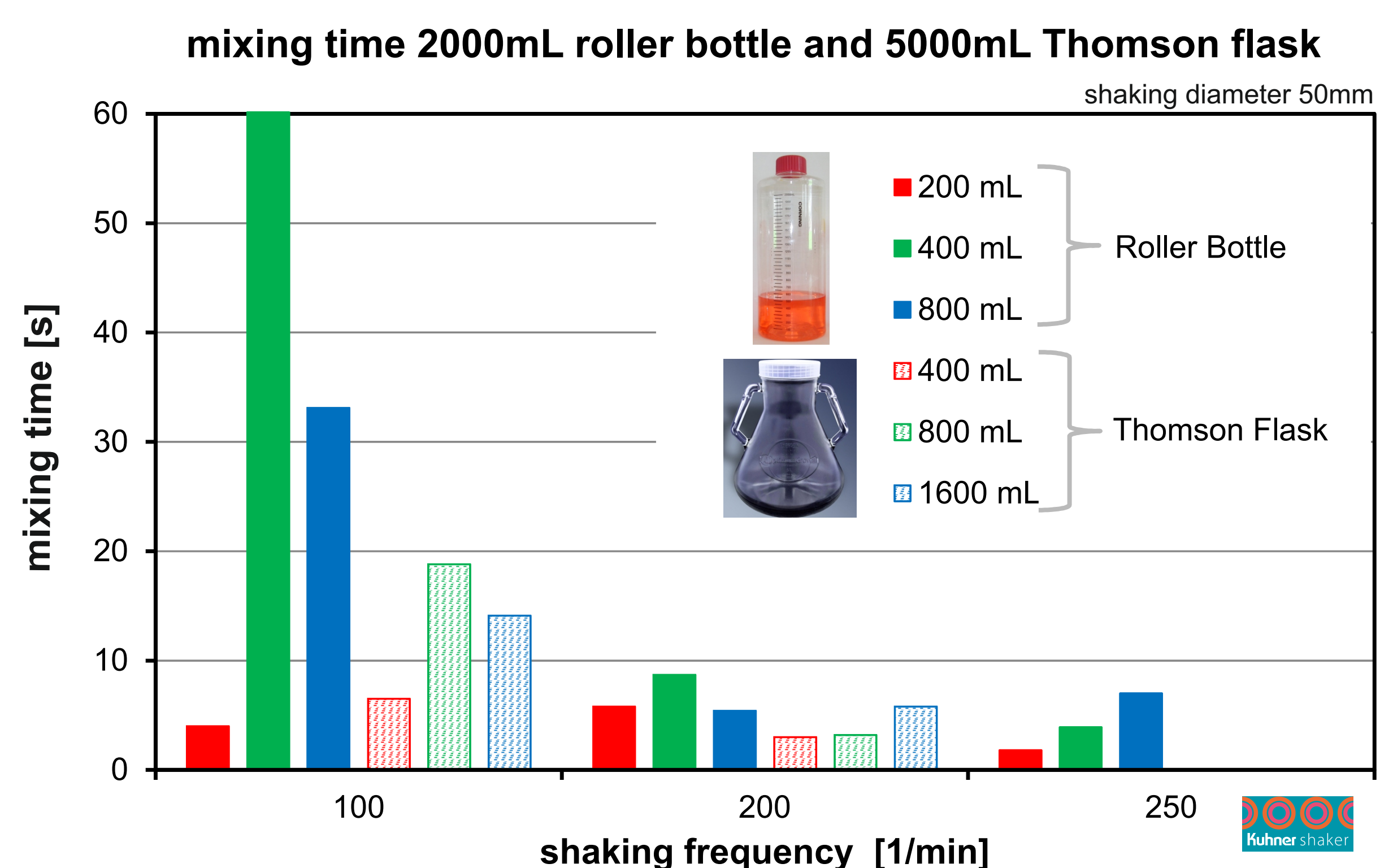
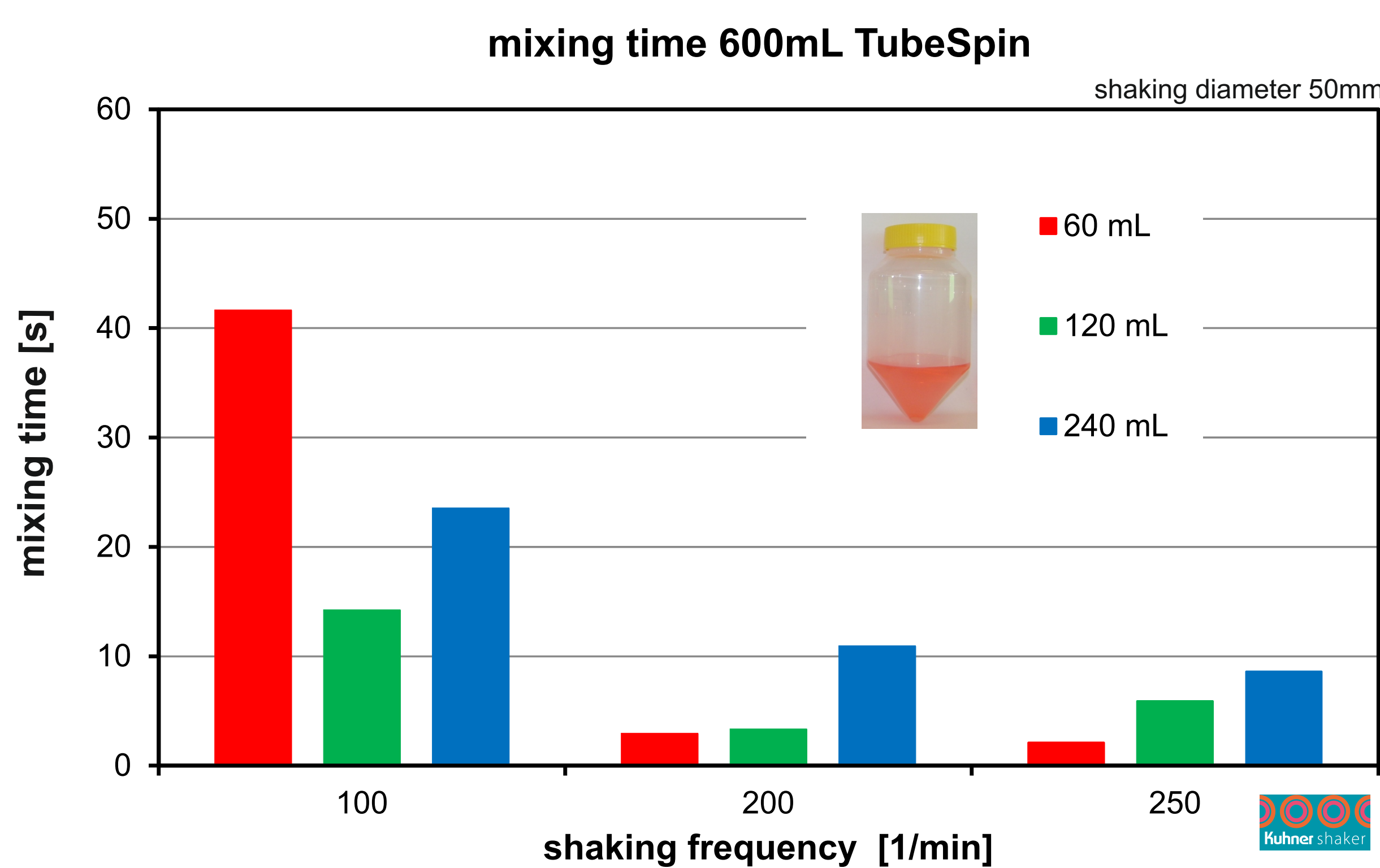
⇒ shaken bioreactors have a very consistent mixing time across all scales (less than 60 sec.)



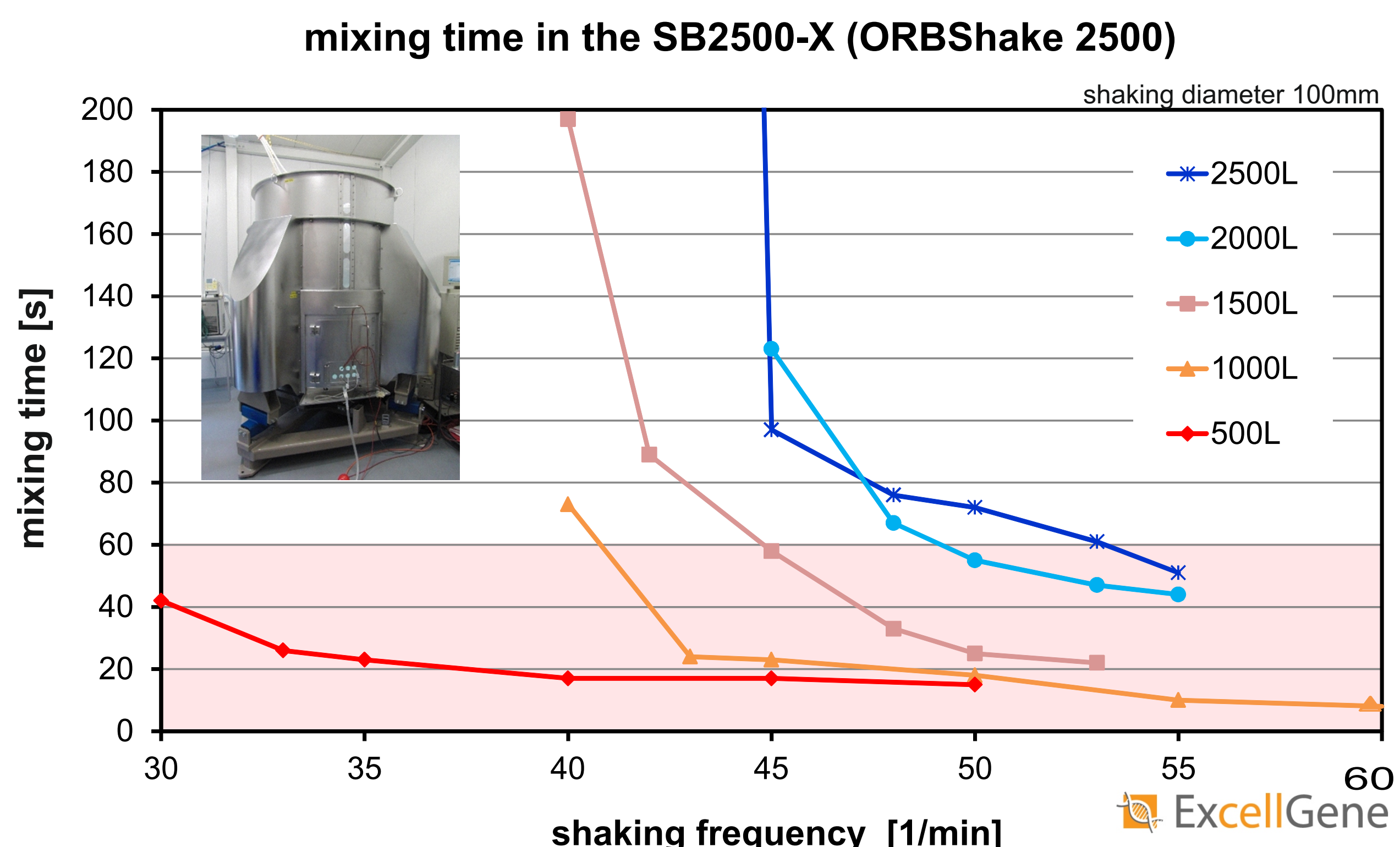
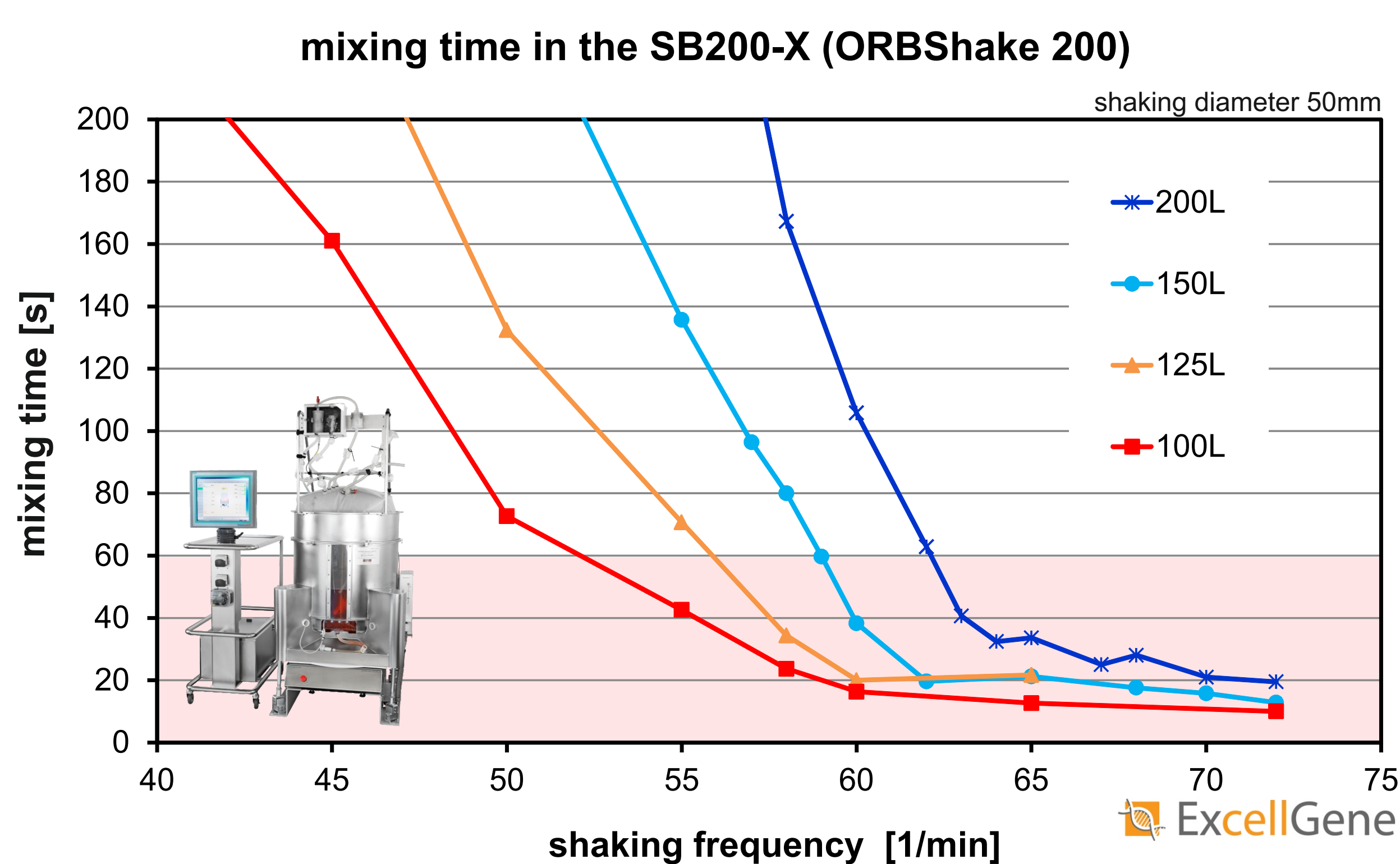
10-100mL scale



200-2000mL scale



50-2500L scale



factor 50'000