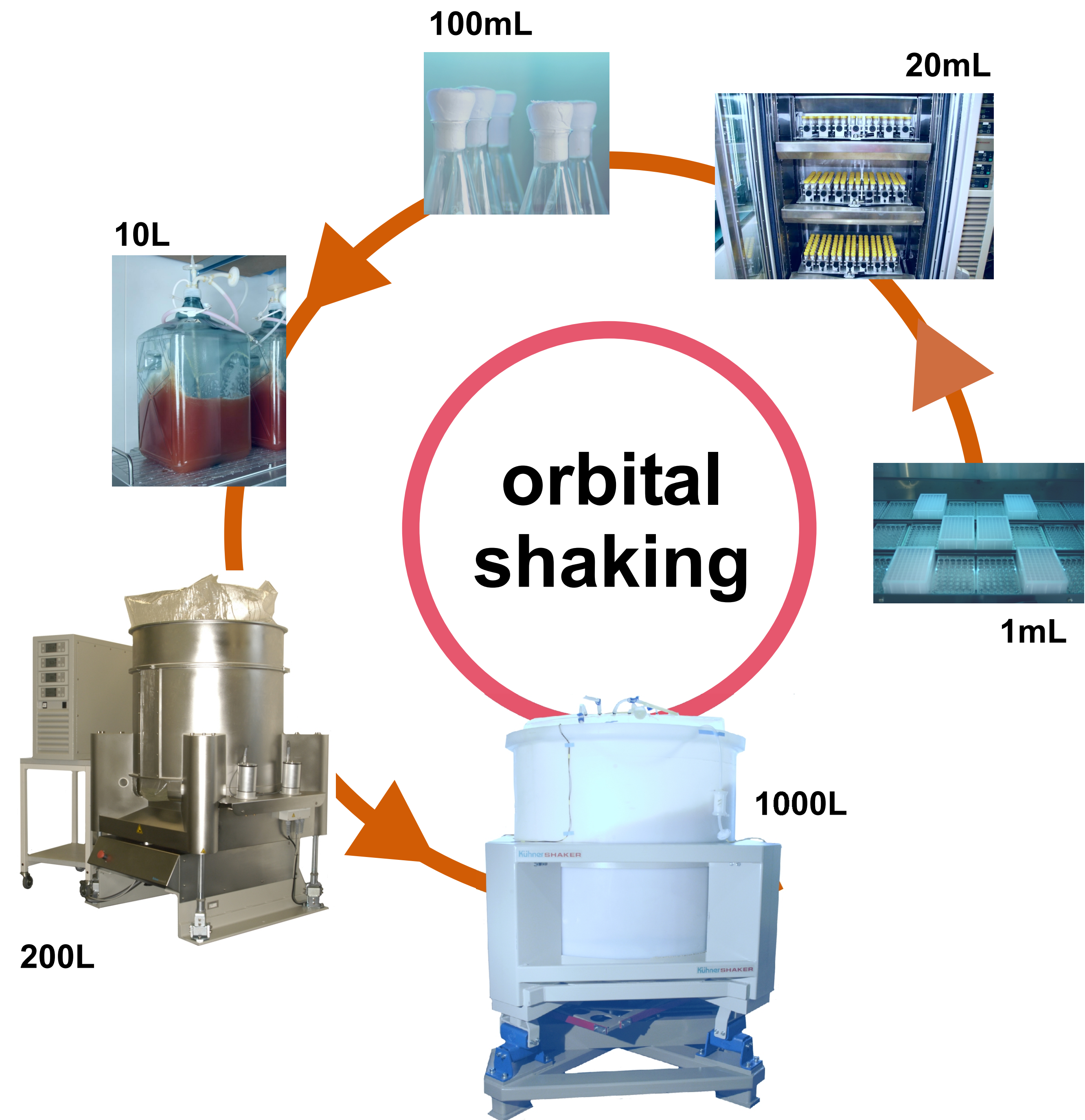


Orbital Shaken Bioreactor for Cell Cultivation

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 - 1000L have been employed for cultivation of mammalian cells and are expected to become attractive alternatives to conventional stirred-tank bioreactors.

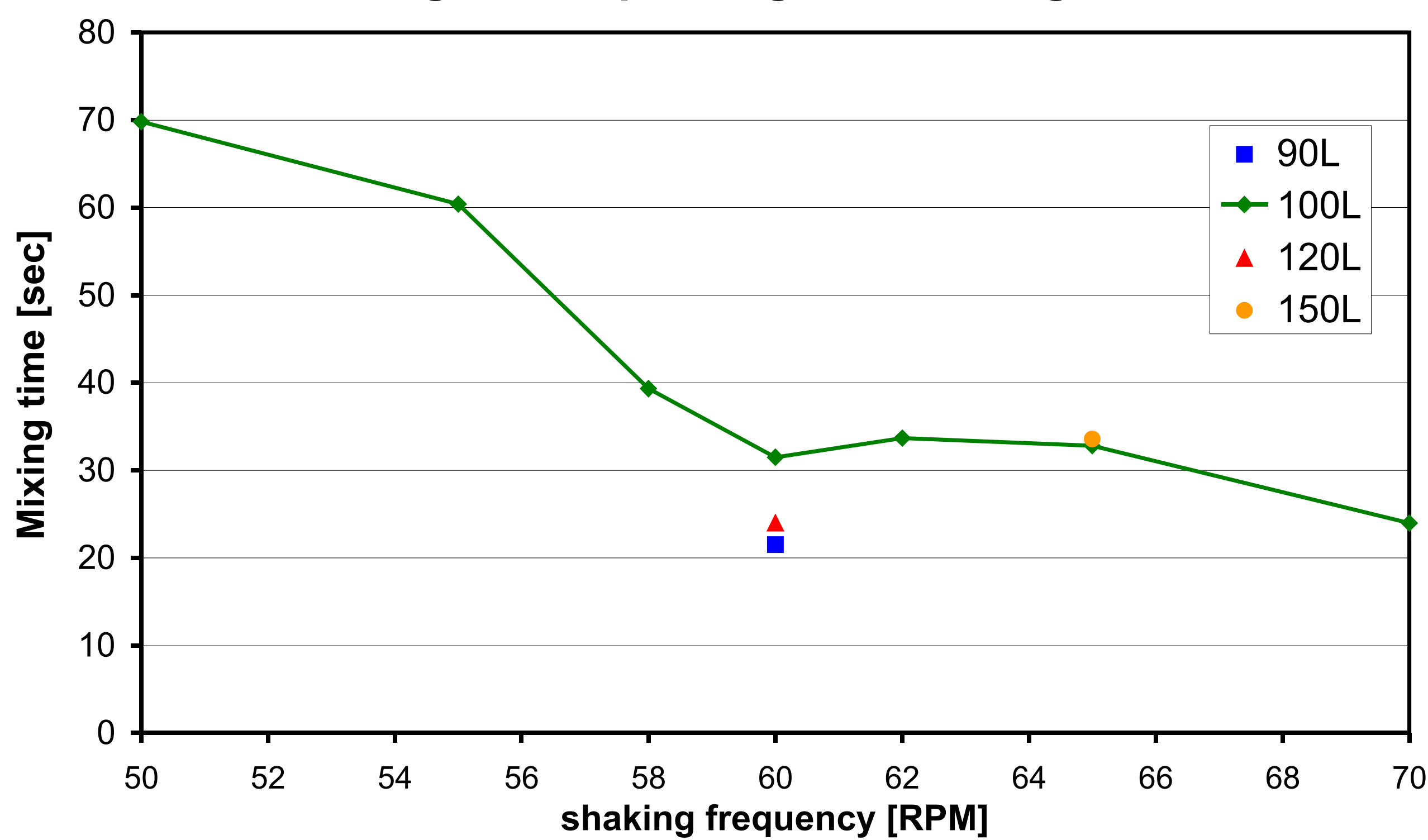
Good Scalability:

- + same hydrodynamics
- + surface aeration
- + calculable
- + no foam
- + no bubbles

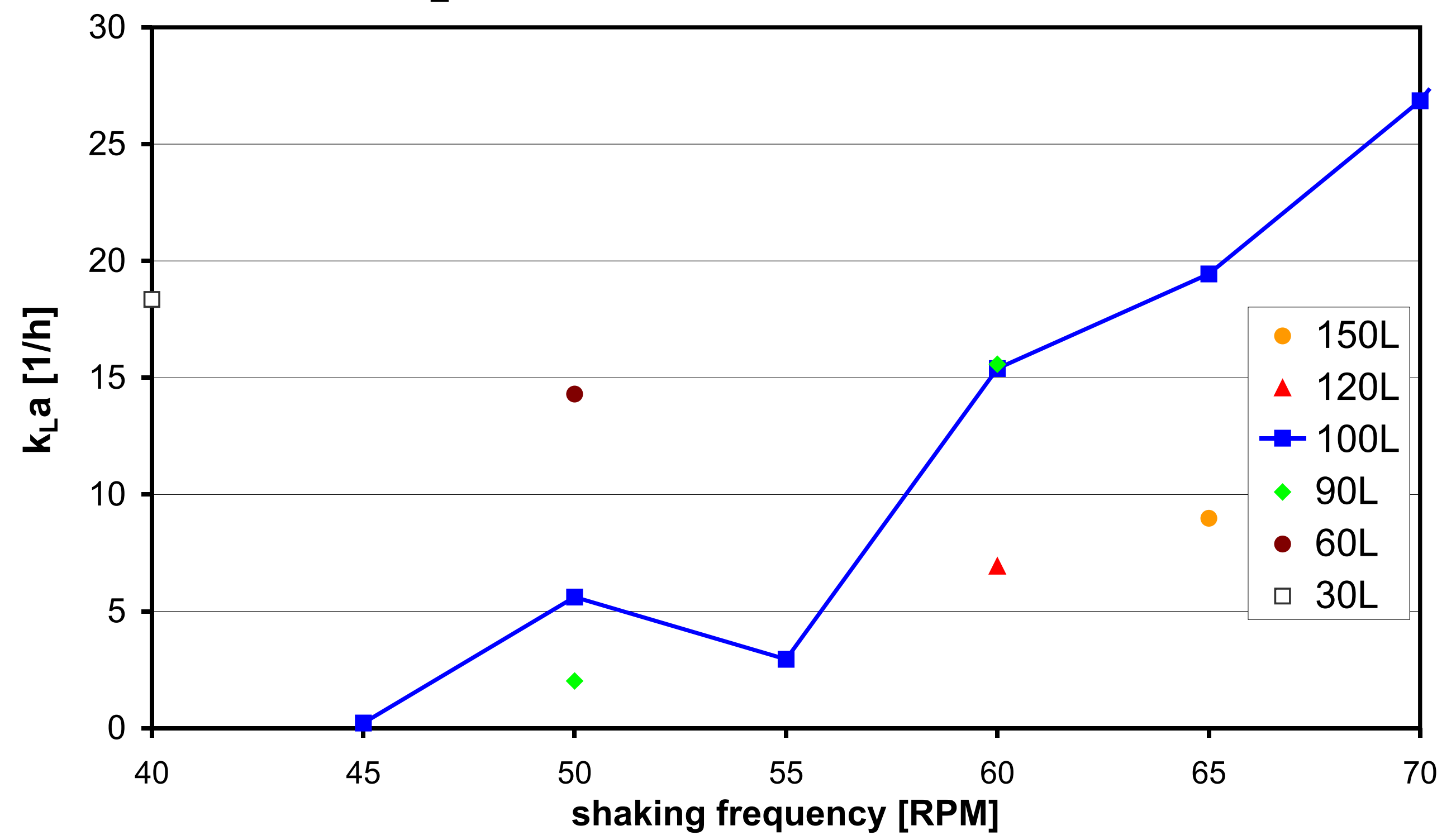


Results from the 200L-bioreactor system

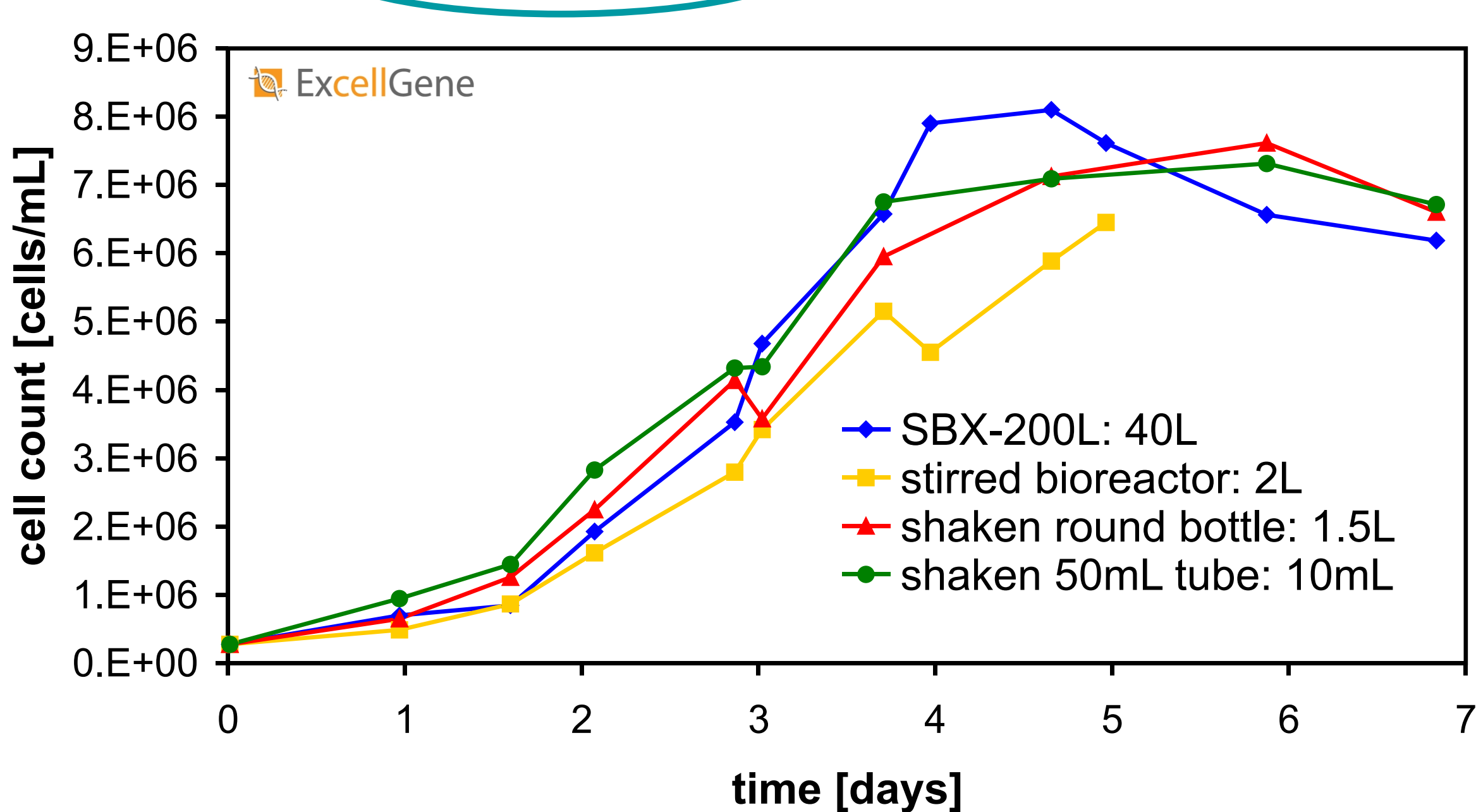
mixing time depending on the filling volume



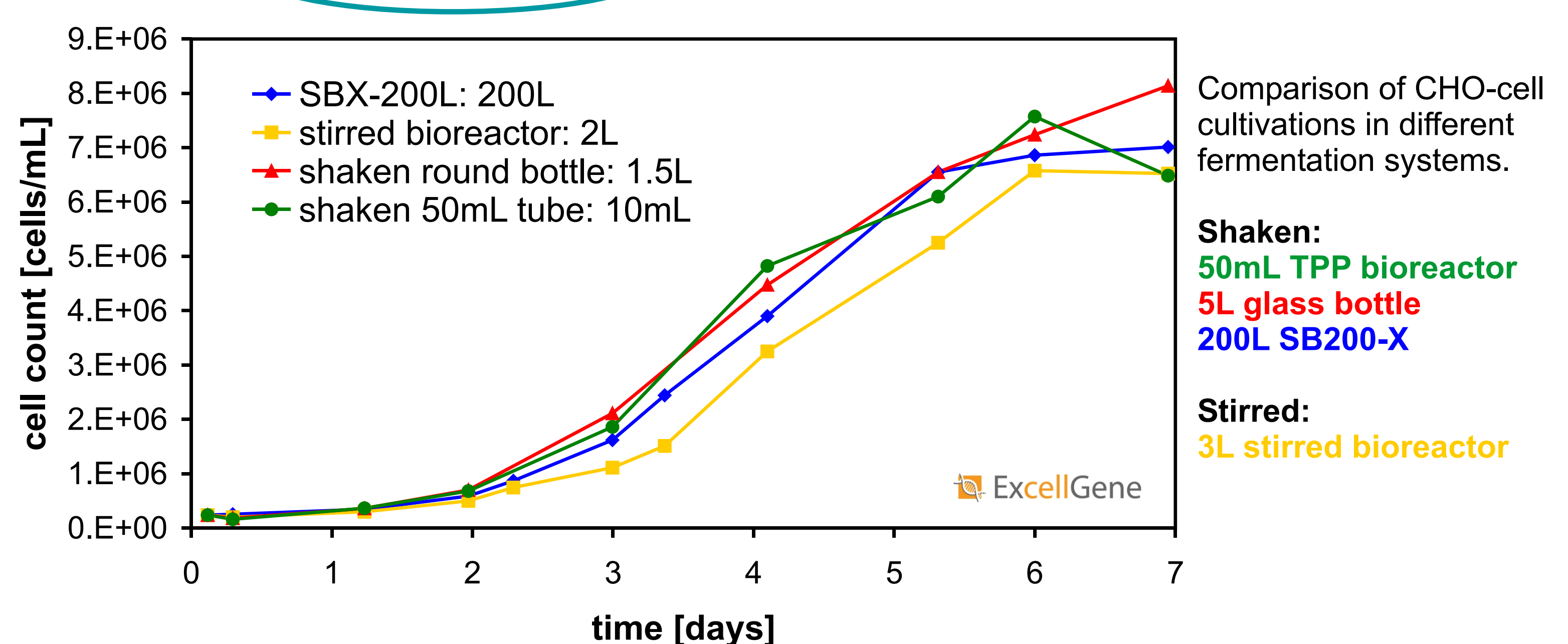
$k_L a$ depending on the filling volume



40L working volume in the shaken bioreactor



200L working volume in the shaken bioreactor



ENGINEERING

COMPARISON