Calculation of the number of vesicles produced per cell per generation, between two points during exponential growth (r) (typically the beginning and end of the time-course).

*r* = (Vb-Va) / (Na(eµ(b-a)-1)

where:

a and b are the starting and ending time points of the selected range

Va and Vb are the number of vesicles measured at times a and b, respectively

Na is the number of cells in the population at time a

µ is the instantaneous growth rate (time-1) for the cells. This can be determined by either (1) regression analysis of exponential growth phase relative fluorescence or cell concentrations; or (2) from cell counts via the equation µ=ln(Nb/Nb)/(b-a)

*r* is the measurement of vesicles produced per cell per generation, a metric allowing one to compare production rates across cell densities and/or growth conditions.