# Fitting the proliferation parameters in a wide pH range

$$f(pH) = \frac{f_{\max}}{1 + \left( \frac{pH}{IC_{50}^{pH1}} \right)^{hs1}} - \frac{f_{\max}}{1 + \left( \frac{pH}{IC_{50}^{pH2}} \right)^{hs2}}$$

In the equation, $IC_{50}^{pH1}$ and $IC_{50}^{pH2}$ represent the characteristic half maximum pH values of the two function branches, which increase and decrease with the Hill slopes $hs1$ and $hs2$, respectively. The function features a maximum theoretical plateau height of $f_{\max}$. Nevertheless, the overlap of the two branches usually results in the lower values $f_{max}^{graph}$ and deformed flanks.

| Parameter | Cell count | WST-1 metabolism | ATP content |
|---|---|---|---|
| $IC_{50}^{pH1} / IC_{50}^{pH2}$ | 9.10/8.99 | 8.09/8.93 | 8.02/8.98 |
| $hs1 / hs2$ | 56.61/-89.31 | 13.42/-5.07 | 9.78/-49.68 |
| $f_{\max}$ | 355.6 | 470.6 | 288.5 |