Bergen 16 December 2016

Dear Editor:

Response to the request for minor revision of ms bg-2016-313

We tried several options to include examples of balanced and P-limited situations in Fig.1, without cluttering the already detail-rich figure too much. We ended up with the suggestion below where we use a small extra panel with colors to illustrate the three cases.

We have also shaded the P-limited region in Panel A and we discovered a typo in one of the equations that has now been corrected.

The legend is changed accordingly.

Best regards

T. Frede Thingstad

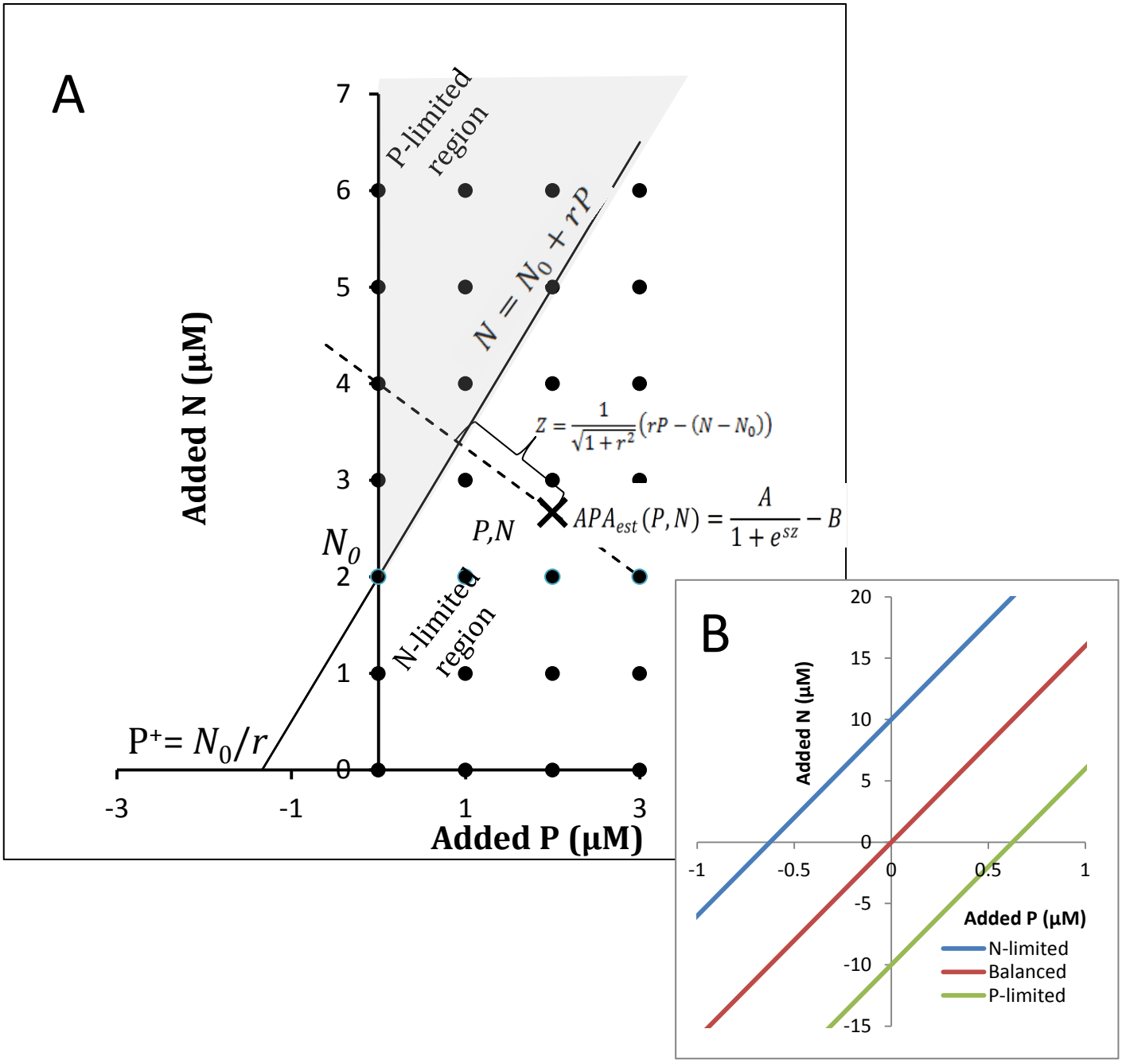


Figure 1. Illustration of the fitting algorithm used. With APA measured over a 4x7 matrix of combinations in additions of P and N (black dots, Panel A), the objective is to find the line that splits this *P*,*N*-plane in an upper P-limited region with high APA (shaded, Panel A) and a lower N-limited region with low APA. This is done by least square fitting of the surface $APA_{est} = \frac{A}{1+e^{sZ}} - B$ to the APA-values measured in each grid point. $APA_{est}$ is a sigmoidal function of the perpendicular distance $Z = \frac{1}{\sqrt{1+r^2}}(rP + (N - N_0))$ from the point *P*,*N* (marked X in Panel A) to the line. The situation illustrated in Panel A represents an N-limited system with the positive *N*-axis intercept ($N_0$) and excess-P ($P^+$) represented by the negative *P*-axis intercept $N_0/r$. Panel B illustrates the separating line for three hypothetical situations characterized by N-limitation (blue), N/P balance (red) and P-limitation (green). All three with r = 16, but with $P^+$ = 0.625 µM-P, $P^+ = N^+ = 0$, and $N^= $= 10 µM-N for the N-limited, the balanced, and the P-limited situation, respectively.