In format provided by Cornforth and Foster (APRIL 2013)

Supplementary information S3 (figure) | **Simulation to evaluate correlations in the information provided by nutrient levels, cell damage and quorum related information.** The information provided by nutrient levels, cell damage and quorum related information (cell density) will often be correlated. We used a mathematical model of competition among bacterial strains (detailed in Box 2 and S2) to test the correlation among the three sources of information across a range of parameter values to support the cartoon in Figure 1. Plot A is an example output from the model with an example data point to show how the correlation plots are built. In practice, we ran 2000 such simulations to generate plots B to D. These show the potential for correlations in information (Figure 1) but also the potential for variation that could lead to one form of information being favoured over another. Each simulation run consists of randomized starting conditions (below), with one time point chosen randomly between the beginning of growth and when nutrients are depleted (here we arbitrarily picked this second boundary to be when growth is 10% of u_{max}); the three variables at this point are recorded. Then the process is repeated. Sometimes the focal type grows without other genotypes which appear on the x-axis on the top and bottom plot since there are no foreign toxins in this case. In these cases, cell damage might be a more useful predictor of ecological competition than the other two information sources. Parameters of the focal species are $K_N \sim 7000$, $Y \sim 0.6$, and the competitors produce bacteriocin constitutively and have parameters drawn from normal distributions: $\beta_T \sim N(0.1, 0.02)$, $K_N \sim N(7000, 200)$, $a \sim N(10, 1)$, $f \sim N(0.2, 0.05)$, $k_T \sim N(10^{-6}, 10^{-7})$, $Y \sim N(0.6, 0.05)$; starting nutrients are drawn from $N(0) \sim N(5000, 100)$; and for all strains $u_{max} = 1$. The starting cell density of the focal species and a competitor species are drawn from two independent Poisson distributions each with mean 2, but only runs with at least one focal type are considered. Parameter units are the same as in S2.