**FIGURE S1.** Jak2 autophosphorylation *in vitro* without pre-phosphorylation of the SH2-Bβ binding site. Surface and contour plots of Jak2 autophosphorylation (Y2~P) for varying concentrations and dimerization $K_D$ values of SH2-Bβ, and with three different $K_D$ values of Jak2/SH2-Bβ binding, following the experimental conditions reported by Nishi et al. Here, unlike the results presented in Fig. 2, the SH2-Bβ binding site (Y1) is not pre-phosphorylated. Rather, Jak2 is allowed to dimerize in the absence of SH2-Bβ (with $k_{on} = 1 \mu M^{-1}s^{-1}$ and $K_D = k_{off}/k_{on} = 100$ nM), which must happen if Y1 is to be phosphorylated. Under these conditions, SH2-Bβ has very little effect (note the scale of the z-axis); if Y1 has been phosphorylated, it is likely that Y2 has been phosphorylated as well, in which case SH2-Bβ binding has no bearing on the Jak2 phosphorylation status of that complex.