

**Setup:** We have a growth condition for *B. subtilis* in which sigB and sigW are both active.

**Question:** How are sigB and sigW activities related to each other? Are they positively correlated, negatively correlated, or simply independent?

**Method:** Take fluorescent strains that report on sigB and sigW activity in 2 different fluorescent channels, and assess the 2 fluorescent signals via microscopy. A constitutive RFP channel is included for segmentation purposes.

**Dataset:**

This dataset contains microscopy snapshots of 4 different strains, denoted 'snaps001', 'snaps002', 'snaps003', and 'snaps004'. These 4 strains differ only in the fluorescent reporters they contain, and are otherwise identical. Specifically, these 4 strains are:

snaps001 : sigB-cfp, sigW-yfp, with constitutive RFP

snaps002 : sigB-cfp, sigB-yfp, with constitutive RFP

snaps003 : sigW-cfp, sigW-yfp, with constitutive RFP

snaps004 : only constitutive RFP, no cfp or yfp

Note that 'sigB-cfp' means that sigB is driving the production of cfp mRNA, via a sigB binding sequence fused to cfp coding sequence. Thus these strains contain promoter fusions, not protein fusions. In other words, the sigB protein is NOT tagged with cfp.

**Example of Parsing Image Names:**

Consider the image 'snaps001-007-r.tif'.

The 'snaps001' means this strain is looking at sigB-cfp, sigW-yfp

The '007' is simply the 7th field of view that was acquired. There is no other special meaning.

The 'r' means this is the RFP channel. Note 'p', 'y', and 'c' refer to the phase, yfp and cfp channels, respectively.

**Misc:**

The RFP images were taken with a camera binning of '1x1', whereas all other channels were taken with a camera binning of '2x2'.