Fig. S4. **Vector autocorrelation of the growth rate of gained area in vegetative cells.**

Autocorrelation of the gain vector $G(t)$ is defined so that its direction points from the cell centroid at $t-1$ towards the 'centroid' of the gained area, and its size is given by the growth rate of gained area. The definition of the size is different from that of Weber and colleagues (1995). The autocorrelation function of vector $G(t)$ was defined as

$$vecACF_i(\tau) = \frac{\sum_{t=0}^{T} G(t) G(t+\tau)}{\sum_{t=0}^{T} G(t)^2}$$

The average was calculated for a cell population. Wild-type (WT: red and green) and myosin II-null (myosin II-: blue and orange) cells in buffer without (SB: red and blue) and with 100 mM sorbitol (HI: green and orange). The averages of correlation functions from 59 (red), 59 (green), 50 (blue), and 49 (orange) cells are shown. The line width represents mean ± s.e.m. The red curve in bleb-mode condition decays faster than other curves in filopodia/lamellipodia mode indicating that changes of direction occur more frequently. But movement is persistent at times over a minute.