

[J. Gen. Microbiol., 132, 883 (1986)]

**Asymmetric Location of the Septum in Morphologically Altered Cells of the Fission Yeast *Schizosaccharomyces pombe*.**

MACHIKO MIYATA\*, HISAO MIYATA, BYRON F. JOHNSON

Cells of the fission yeast *S. pombe* changed to a round-bottomed flask (RBF)-like morphology during growth with aculeacin A. After being transferred to normal conditions, the RBF-like cells continued to grow at the cylindrical and/or spherical end (s) and then the various spheroidal and cylindrical progenys after the subsequent cell-divisions were formed. The values of the mean length (long/short) and volume (big/small) ratios of paired sibs in those cells were calculated. These results suggested that the more the morphology deviated from the cylindrical form, the greater was the degree of asymmetry. There was no rule relating the biases to the growth pole in these asymmetries.

[J. Gen. Microbiol., 132, 2535 (1986)]

**Establishment of Septum Orientation in a Morphologically Altered Fission Yeast, *Schizosaccharomyces pombe*.**

MACHIKO MIYATA\*, HISAO MIYATA, BYRON F. JOHNSON

Among the spheroidal fission-yeast (*S. pombe*) cells resulting from aculeacin A treatment were found cells whose putative growth axis and polarity differed from those of their progenitor, that is they were changed in the orientation of their septum. The ratio of cell length (measured perpendicular to the septum plane) to septum diameter of these cells equalled or exceeded unity without exception, whether the septum orientation changed or not and whether the cellular shape was spherical or cylindrical. We conclude that the septum is always oriented perpendicular to the plane including the longest axis of the cell even if the morphology is irregular or the new septum has become perpendicular to the previous septum.

[Can. J. Microbiol., 32, 528 (1986)]

**Patterns of Extension Growth of the Fission Yeast, *Schizosaccharomyces pombe*.**

HISAO MIYATA, MACHIKO MIYATA\*, BYRON F. JOHNSON

The growth of sausage-shaped cells of the fission yeast, *S. pombe* (NCYC 132), was followed in the second or third cycle by time-lapse photomicrography. Experimental cells were harvested from glucose-limited chemostat culture and were plated onto a slide with EMM3 agar (2% glucose). By observing their extension patterns, we found some rules of extension growth. Thus, (1) all sibs with walls newly formed in the previous cycle, whose progenitor cells grew at the old end, grow at the old end. (2) Sibs with old walls whose progenitor cell followed Mitchison's rule behave in one of three ways: (i) growth at the old end (follow Mitchison's rule); (ii) growth at the new end (violate Mitchison's rule); or (iii) growth at both ends (bipolar). (3) Both sibs whose progenitor grew at both ends (bipolar) always grow at the old end (follow Mitchison's rule).