

We found significant differences in the number of ribosomes per cell between all phases except between the stationary and the log phase (Table I). This confirms earlier observations that the number of ribosomes per cell changes during the cell cycle (Mendelsohn and Tissières, 1959). This parameter has been determined by other methods and is known to increase in correlation to the growth rate in the logarithmic phase (Bremer and Dennis, 1987; Liveris et al., 1991). At the growth rate corresponding closest to that in Table I (one doubling per hour), the number of ribosomes per cell previously reported was 4777 (Bremer and Dennis, 1987) and 25,000 (Liveris et al., 1991), which shows a fair agreement with our data. However, since different strains and growth media were used, the results are not directly comparable. Furthermore, in the log phase the peak at 38 nm may represent polysomes, indicating the presence of more polysomes in this phase than in the other phases.

The differences in mass fraction of ribosome observed in the various growth phases were all significant (see Table I). The highest values were observed in the log