TABLE 2. Relative rates of rRNA synthesis measured by pulse-labeling[a]

Pyrimidine source (concn) (μg/ml)	Doubling time (min)	$(^3H/^{32}P)_{rRNA}/(^3H/^{32}P)_{total\ RNA}$ at:	
		1.5 min	30 min
Uracil (20)	43	0.24	0.51
Orotate (50)	79	0.16	0.51

[a] Strain NF321 was grown in the minimal medium containing 0.3 mM inorganic phosphate supplemented with thiamine (1 μg/ml), leucine (20 μg/ml), glucose (1 mg/ml), adenine (5 μg/ml), and the pyrimidine source as indicated. The cultures were background labeled with ^{32}P (5 μCi/ml) for 2 generations and pulse-labeled (time = 0) with 200 μCi (i.e., 4,400 Ci/mol, final specific activity) of [^3H]adenine per ml. (Adenine was included in the growth medium prior to the pulse, because addition of even very small concentrations of adenine dramatically reduces the pool of 5-phosphoribosyl-1-pyrophosphate [1]. This, in turn, disturbs the orotate phosphoribosyltransferase reaction [44] upon which our experiments are based. The inclusion of adenine made it difficult for us to make very short pulses [the 1.5-min pulses represented only 630 hybridized ^3H cpm in the presence of uracil and 270 hybridized ^3H cpm in the presence of orotate], but on the other hand, we have not perturbed the steady states.) The ratio of ^3H to ^{32}P was determined in the total RNA and in RNA hybridized to λ *rnnX* DNA. The observation that at 30 min only 51% of the RNA hybridized to the λ *rnnX* DNA indicates that tRNA and mRNA do not hybridize to the probe and that the hybridization reactions were not complete.