multiple origins of replication skew gene dosage in favor of additional ribosomes 150 (A) (C) $\langle \# \text{ ori} \rangle = 2^{t_{cyc}} \times \lambda / \ln(2$ t_{cyc} [min] 100 growth rate [hr-1] 50 0 0.0 0.5 ori 1.0 1.5 2.0 ter growth rate [hr-1] (B) 140000 (D) 120000 ribosomes per cell 0 growth rate [hr-1] average copy number 100000 relative to mean 0 80000 104 60000 0 40000 20000 0 genomic position (Mb) 0 6 10 2 4 8 ■ oriC ■ terA/C ■ R-proteins ■ rRNA operons estimated (# ori)