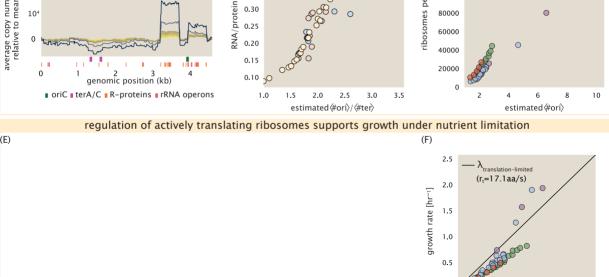
multiple replications forks skew gene dosage in favor of additional ribosomes (A) (C) t_{c} [min] t_{cyc} [min] 100 100 growth rate [hr-1] 50 50 0.0 0 ori 1.0 2.0 0.0 1.5 2.0 0.5 1.5 0.5 1.0 ter growth rate [hr-1] growth rate [hr-1] ○ Si et al. 2017 Li et al. 2014 0.45 O Dai et al. 2016 140000 0 Peebo et al. 2015 Schmidt et al. 2016 (B) 0.40 120000 Valgepea et al. 2013 ribosomes per cell RNA/protein ratio average copy number relative to mean growth rate [hr-1] 0 0.35 100000 0.30 10⁴ 0 80000 0.25 60000 0 0.20 40000 0.15 20000 2 3 genomic position (kb) 0.10 0 ■ oriC ■ terA/C ■ R-proteins ■ rRNA operons 1.0 1.5 2.0 2.5 3.0 3.5 10 estimated (#ori) / (#ter) estimated #ori regulation of actively translating ribosomes supports growth under nutrient limitation (F) 2.5 ↑ translation-limited $(r_{r}=17.1aa/s)$ 2.0 00 1.5 1.0



0.0

0.2

active ribosomal fraction $(\Phi_R \cdot f_a)$

0.3

0.4

0.5