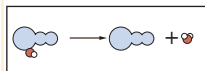


DNA SYNTHESIS

(A)

dNTP synthesis



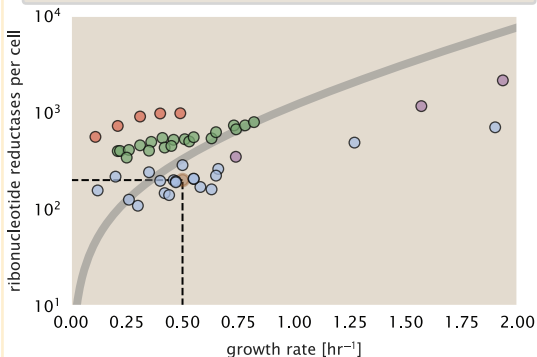
$$r_{\text{ribonucleotide reductase}} \approx \frac{10 \text{ dNTP / sec}}{\text{ribonucleo reductase}}$$

Ge et al. 2003

$$L_{\text{genome}} \approx 5 \times 10^6 \text{ base pairs} \quad \text{BNID:100269} \quad N_{\text{dNTPs}} \approx 2L_{\text{genome}} \approx 10^7 \text{ dNTPs}$$

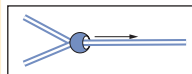
$$N_{\text{ribonucleotide reductases}} \approx \frac{10^7 \text{ dNTPs}}{1 \text{ cell}} \times \frac{1 \text{ sec}}{10 \text{ dNTPs}} \times \frac{1 \text{ cell}}{5000 \text{ s}} \approx 200 \text{ ribonucleotide reductases}$$

- replication fork dependence
- estimated value
- Li et al. 2014
- Peebo et al. 2015
- Schmidt et al. 2016
- Valgepea et al. 2013



(B)

DNA replication



$$N_{\text{replisomes}} \approx \frac{2 \text{ rep. fork}}{1 \text{ genome}} \times \frac{1 \text{ replisome}}{1 \text{ rep. fork}} \times \frac{2 \text{ DNA pol.}}{\text{replisome}} \approx 4 \text{ polymerase / genome}$$

- replication fork dependence
- estimated value
- Li et al. 2014
- Peebo et al. 2015
- Schmidt et al. 2016
- Valgepea et al. 2013

