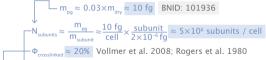
## average amino acid $-m_{amino\ acid} \approx 110\ Da$ BNID: 104877 molecular weight ∟m<sub>murein sugar</sub>≈ 250 Da average molecular weight GIcNac and NAMA

 $-m_{\text{subunit}} \approx 5 \times m_{\text{amino acid}} + 2 \times m_{\text{murein sugar}} \approx 10^3 \text{ Da} \approx 2 \times 10^{-6} \text{ fg}$ 



peptidoglycan crosslinking

fraction of crosslinked PG crosslinking rate

number of transpeptidase

complexes

PG mass per cell

 $L_{r_{transpeptidase}} \approx 2 \text{ crosslinks / sec}$  Catherwood et al. 2020  $N_{\text{transpeptidases}} \approx \frac{N_{\text{subunits}} \times \Phi_{\text{crosslinked}}}{r_{\text{transpeptidase}} \times t_{\text{division}}} \approx \frac{5 \times 10^6 \frac{\text{subunits}}{\text{cell}} \times 0.2}{2 \frac{\text{crosslinked}}{\text{sac}} \times 5000 \frac{\text{sec}}{\text{cell}}}$