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| Phase | Characteristics |
| 1. Lag Phase | Slow growth or lack of growth due to physiological adaptation of cells to culture conditions or dilution of exoenzymes due to initial low cell densities. |
| 1. Exponential or Log Phase | Optimal growth rates, during which cell numbers double at discrete time intervals known as the mean generation time. |
| 1. Stationary Phase | Growth (cell division) and death of cells counterbalance each other resulting in no net increase in cell numbers. The reduced growth rate is usually due to a lack of nutrients and/or a buildup of toxic waste constituents. |
| 1. Death Phase | Death rate exceeds growth rate resulting in a net loss of viable cells. |