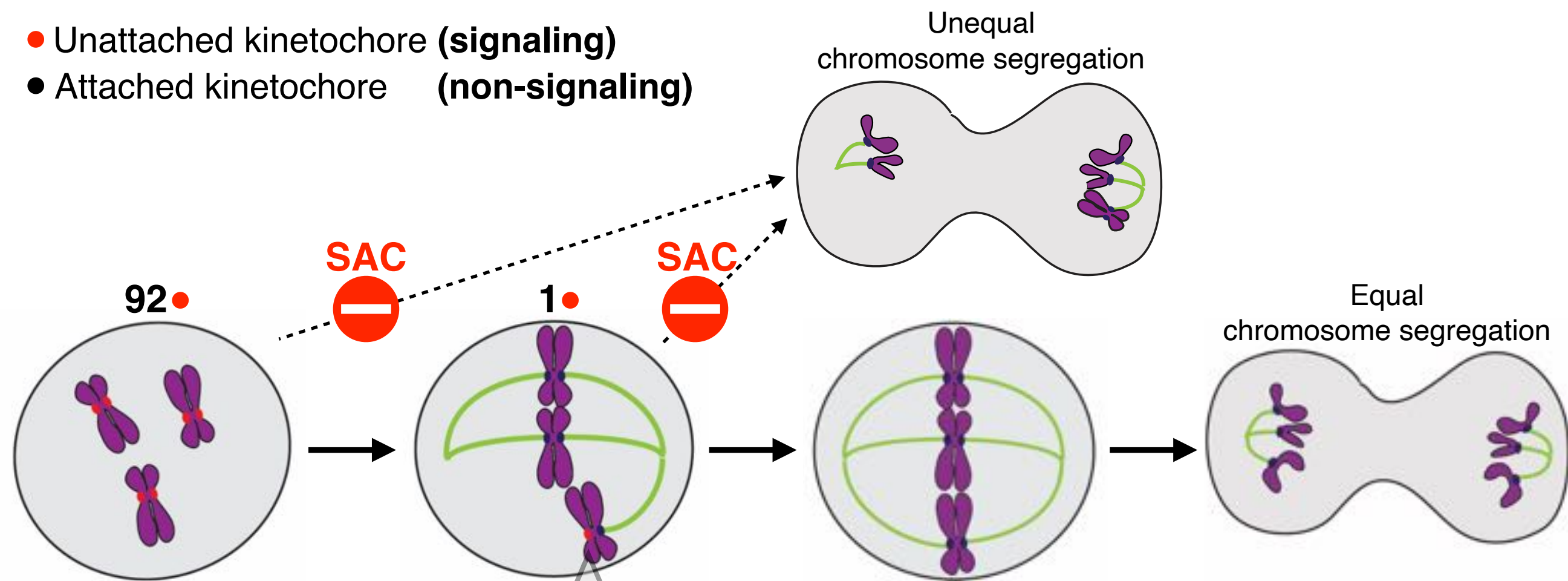


- Unattached kinetochore (**signaling**)
- Attached kinetochore (**non-signaling**)



i) **Small molecule: fast production/high mobility**  
(cAMP,  $\text{Ca}^{2+}$ , etc.)

ii) **Catalytic cascade: chain reaction/positive feedback**  
(MAPK, Caspase, etc.)

iii) **Transcriptional regulation: central dogma**