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**Lifespan extension by calorie restriction in E. coli cells**

Morgan Maite, Hong Qin

Calorie restriction (CR) is an effective method for lifespan extension in eukaryotes. TOR mediated nutrient sensing pathway and mitochondria play key roles in the lifespan extension effect of CR in eukaryotes. E. coli is a prokaryotic bacterium without mitochondria, and no otholog for TOR has been found in E. coli. Here, we investigated whether CR can extend the lifespan of E. coli cells. We found that E. coli grown in low concentration of glucose live longer than those grown in higher concentration of glucose. We also studied the lifespan of E. coli cells treated with osmolarity shock and rapamycin. Rapamycin is an antibiotics that targets TOR complex in eukartyotic cells. Our study can address whether TOR-independent pathways can also play a role in lifespan extension effect of CR, and whether mitochondria is indeed an essential factor of CR.

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