Dietary restriction and mitochondrial function link replicative and chronological aging in Saccharomyces cerevisiae

Chronological aging of budding yeast cells result in a reduction in a subsequent replicative life span through unknown mechanisms. Here we show that dietary restrictions during chronological aging delays the reduction in subsequent replicative life span up to at least 23 days of chronological age. We further show that among the viable portion of the control population aged 26 days, individual cells with the lowest mitochondrial membrane potential have the longest subsequent replicative lifespan. These observations demonstrate that dietary restriction modulates a common molecular mechanism linking chronological and replicative aging in yeast and indicate a critical role of mitochondrial function in this process.