

Abstrakt

Yeast cells are able to differentiate during chronological aging and form different cell-types which acquire different viability. Chronological aging cells do not divide and thus mimic the aging of cells within multicellular organisms, such as mammals. Understanding of mechanisms of chronological aging of yeasts thus could help to understand similar processes of more complex organisms. Two types of cells, called „quiescent“ and „non-quiescent“ cells, are formed when yeast are grown in liquid medium. These cells have different morphology and gene expression and also differ in their metabolism. Yeast cells within agar-plate-grown colonies can sense different gradients of nutrients and signaling compounds and diversify to different cell types such as U and L cells, located in different colony regions. Both the „quiescent“ and U cells are more vital and able to proliferate, whereas „non-quiescent“ and L cells are less viable and exhibit stress features. Chronological aging involves many cellular processes including accumulation of storage compounds, mitochondrial activity, functions of specific genes and can be affected by calorie restriction and mild stress.

Key words: chronological aging, yeast, differentiation of cell populations, metabolic change