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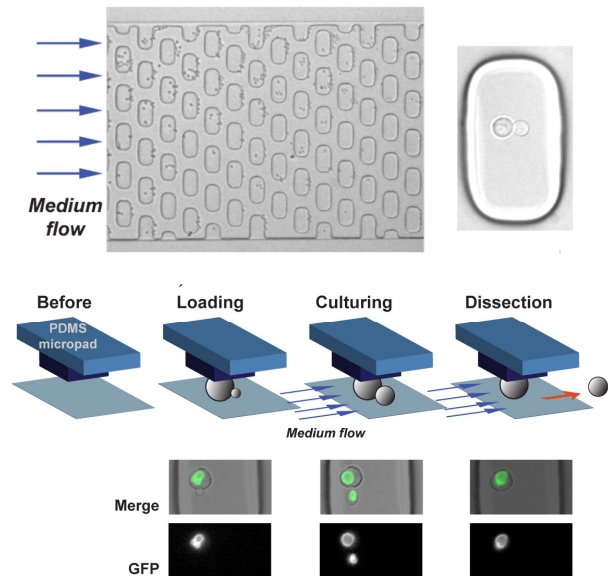
## Glucose metabolism in ageing cells

Although it is generally thought that ageing is accompanied with many metabolic alterations, it is still not documented what changes occur in the cell as it ages. This insight may however be crucial for understanding more about how metabolic interventions such as caloric restriction are able to extend lifespan. Or why humans become more prone to cancer as they age.

Until recently it was difficult to study ageing in a single yeast cell, because older cells are quickly overgrown by their offspring. However, due to a simple microfluidic device it is possible to follow a single yeast cell over its entire lifespan. As cancer and calorie restriction are both typified by a different utilization of glucose, we first want to know if there are any changes in how cells metabolize glucose as they age. We are hoping to measure these changes indirectly by measuring the expression level of fluorescently labeled marker proteins.

This project will involve the cultivation of yeast, simple genetic work such as GFP tagging of proteins, fluorescence microscopy, and microfluidics and image analysis using programs such as ImageJ.

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(Top) Picture of the microfluidic device used to study ageing yeast cells at the single cell level.

(Bottom) Schematic illustration of the same microfluidic device. Upon loading, mother yeast cells become stuck. As fresh media is continuously provided by flow, the smaller daughter cells are washed away after cell division.