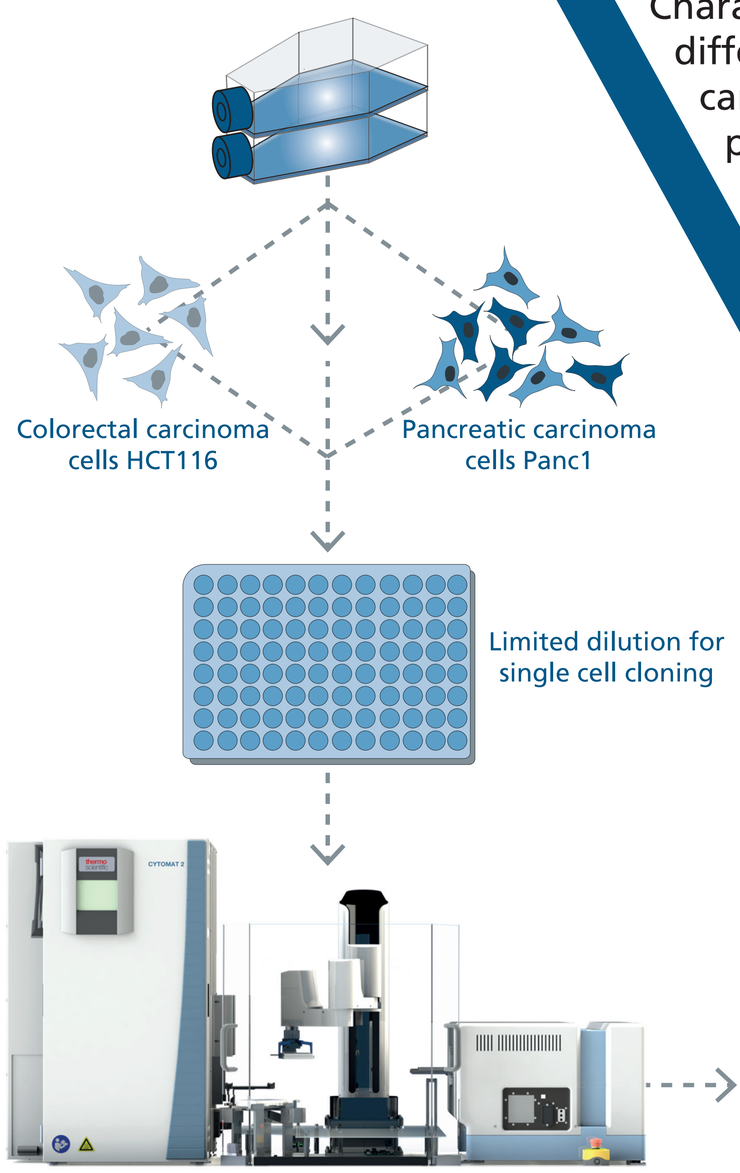
# Classification of Single Cell Colonies into Holo-, Mero- and Paraclones using CELLAVISTA® and YT-SOFTWARE®

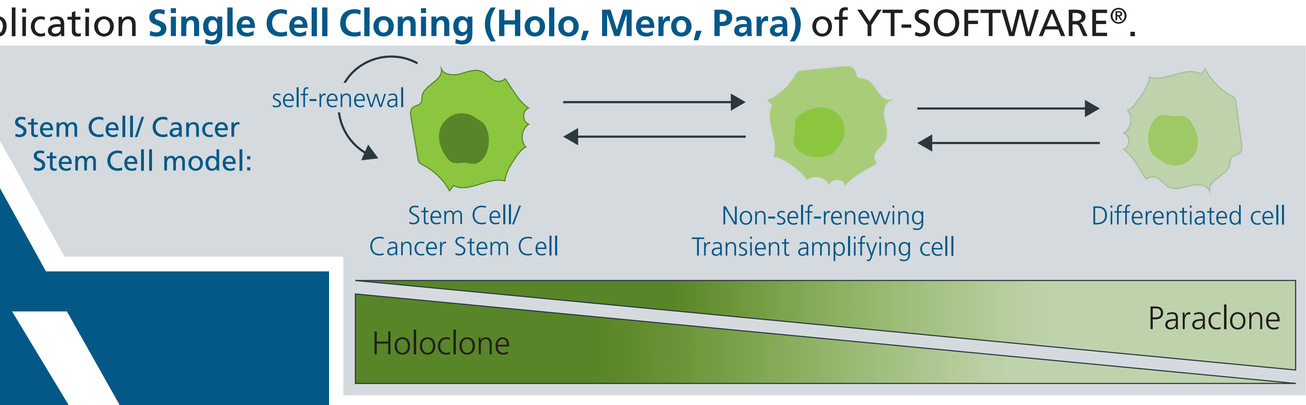
Willms A[1], Schaefer W[1], Philipp L-M[2], Sebens S[2], Christmann T[1], Guledani A[1], Stoehr M[1], Geisen R[1] & Pirsch M[1]
[1] SYNENTEC GmbH, Elmshorn, Germany
[2] Institute for Experimental Cancer Research, CAU + UKSH Kiel, Germany

## Method & Results

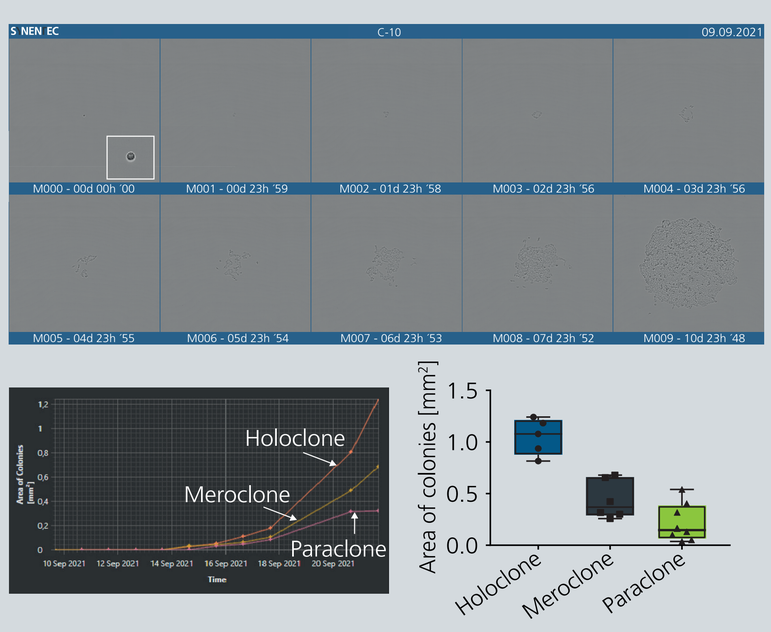



## Introduction

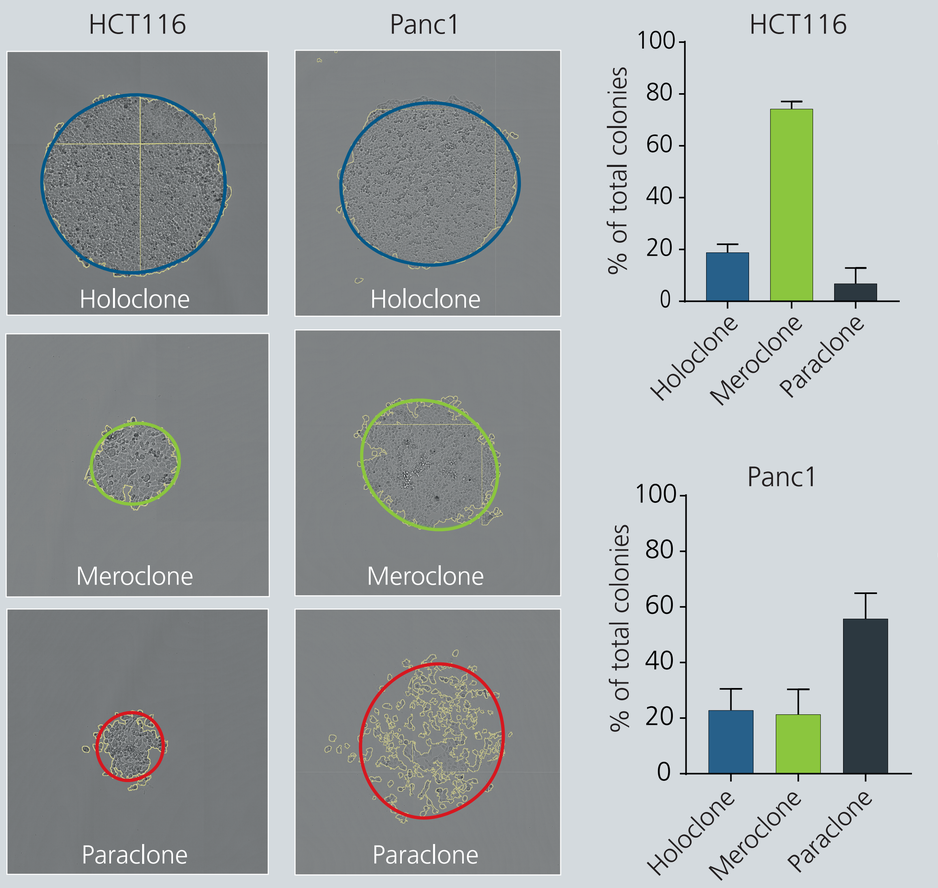
Characterization and analysis of (cancer) stem cells have become an emerging tool in different research fields. When seeded as single cells *in vitro*, epidermal cells or various cancer cells give rise to three types of colonies termed holoclones, meroclones and paraclones. These clones are distinguished by colony formation assays, in which the clones are fixed, stained and manually evaluated under a user-dependent microscope. This assay does commonly not consider monoclonality, it is time-consuming, and requires training and experience. Therefore, we aimed to automate this assay. For this purpose, we performed single cell cloning experiments of pancreatic and colorectal cancer cells and automatically monitored colony growth over-time using CELLAVISTA®, YT-SOFTWARE® and our automation system. Afterwards, colonies were classified into three colony types by the image analysis application **Single Cell Cloning (Holo, Mero, Para)** of YT-SOFTWARE®.




## Monitorig of Panc1 Colony Growth



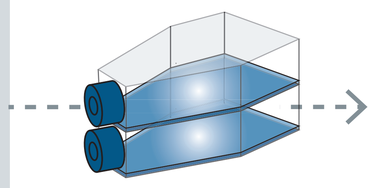

## Automated Colony Classification





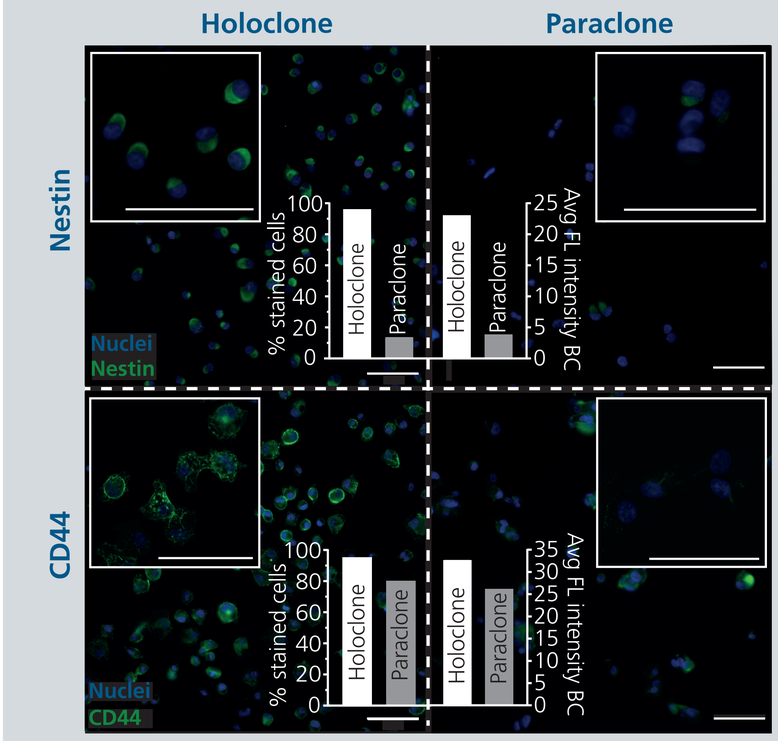


Training for AI-STUDIO+



Expansion and reseeding of Panc1 holo- and paraclones

## Immunofluorescence Stainings of Panc1 Holo- and Paraclones




Virtual Cytoplasm 1F application; scale bars: 100 µm

## Seed cells, start automation, walk away, get results

- Automation system conveniently images over time
- YT-SOFTWARE® proves monoclonality of the cells
- Image processing precisely detects and classifies colonies of different size and shape
- Method reduces hands-on time and allows high-throughput

Institut für Experimentelle Tumor-forschung

Contact
Anna Willms and Reinhild Geisen
A.Willms@synentec.com, R.Geisen@synentec.com

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