Visualization and Quantification of Antibody-Dependent Cellular Phagocytosis (ADCP) Using a Live-Cell Imaging High-Throughput Automation System

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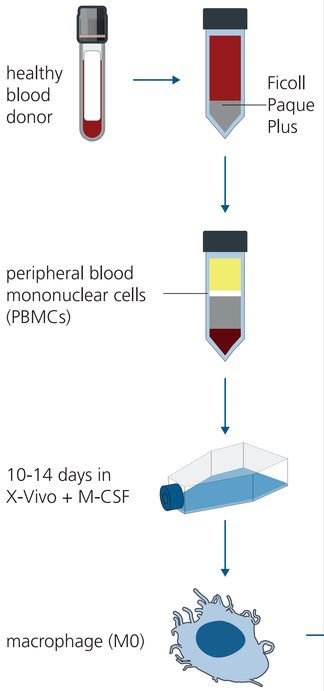
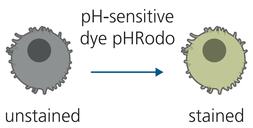
Macrophage Preparation

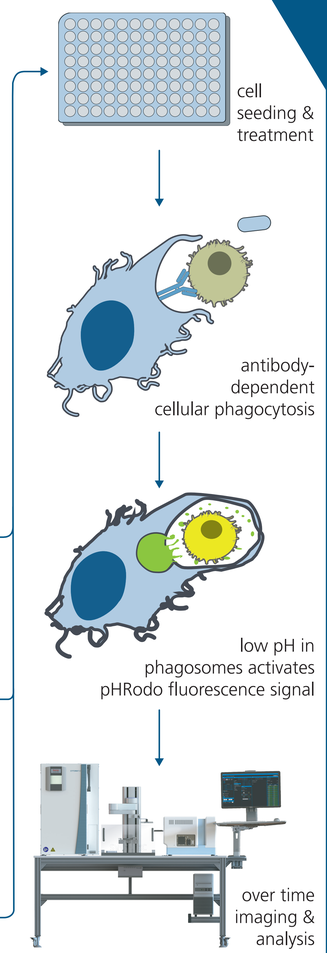


Staining of Cancer Cells



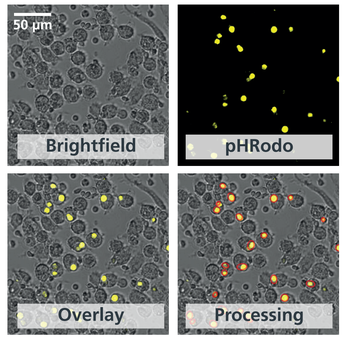
Therapeutic Agents

Imaging of Phagocytosis & Image Analysis

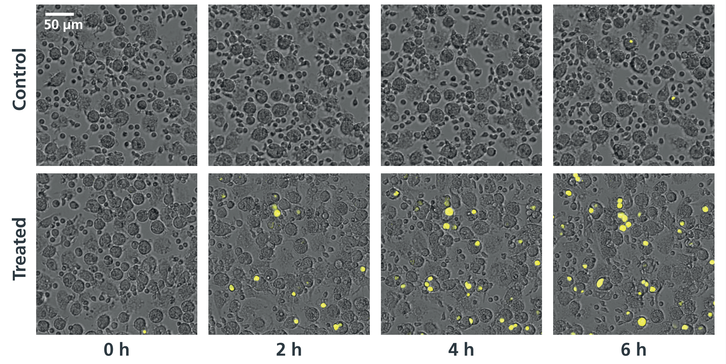


Antibody-based treatment strategies have revolutionized the therapy of various cancer entities, including hematological malignancies. Yet, assessing antibody-based immunotherapy approaches is methodologically challenging. One central mode of action of therapeutic antibodies involves Fc-mediated antibody-dependent cellular phagocytosis (ADCP). ADCP targets cancer cells with monoclonal antibodies for clearance by phagocytic immune cells. Standard phagocytosis assays rely on endpoint measurements, lacking kinetic information. In contrast, many live-cell imagers have limited capacity, hindering high-throughput screening and image analysis is often cumbersome. This study analyzes ADCP on acute lymphoblastic leukemia (ALL) cells in a high-throughput format using SYNENTEC's live-cell imaging automation system (CELLAVISTA 4K®, SYBOT-1000®, CYTOMAT™).

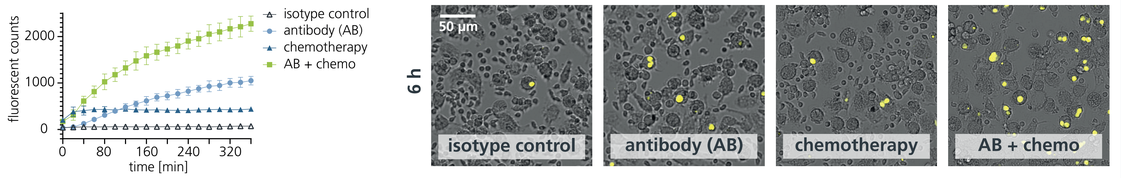
Image Analysis



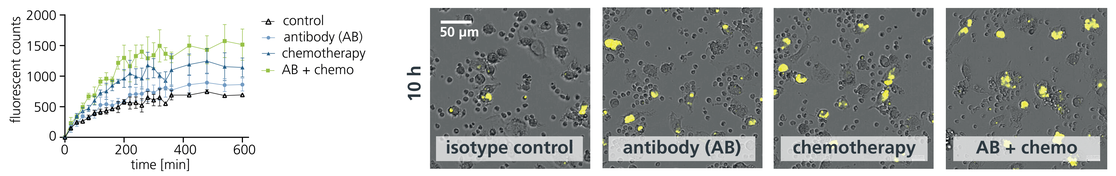
Over Time Imaging of Phagocytosed Cancer Cells



Quantification of Treatment Effects Over Time With the ALL Cell Line REH



Analysis of Treatment Effects with Cells from Patient-Derived Xenografts



Benefits

Monitor ADCP over time.

Automatically analyse the data.

Increase throughput by imaging several plates in parallel.

Reduce time and ressources.

Contact & Acknowledgment

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