NanoBiotec
Min samples, Max info

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PHAGOCYTOSIS & PHAGOCYTE ACTIVATION ASSAY

INTRODUCTION

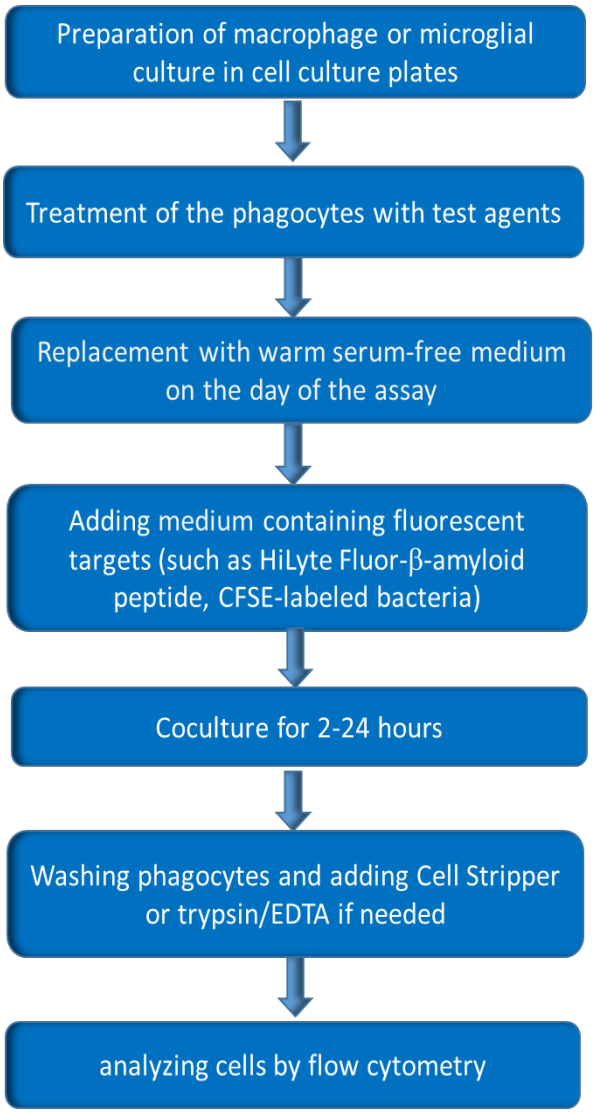
Phagocytosis by phagocytes (e.g., macrophages, dendritic cells, neutrophils, granulocytes, microglial cells) is essential for a variety of biological events, such as continuous clearance of dying cells. While multiple immune cell types mediate tumor surveillance, phagocytic cells such as macrophages also play a key role in regulating **cancer** cell growth through phagocytic clearance.

Phagocytosis represents an early and crucial event in triggering host defenses against invading pathogens. Study of host macrophage ability is important for understanding the host-pathogen interaction and can help to elucidate the pathogenesis of **infection**.

Aberrant phagocytosis has been implicated in serval diseases such as multiple sclerosis, **Alzheimer's disease**, etc. Microglia, the resident macrophages of the CNS, rapidly activate in nearly all kinds of neurological diseases. Modulating phagocytosis and degradation of fibrillar Aβ by microglial cells might be a potential treatment of AD.

Phagocytosis can be measured by utilizing fluorescent targets that will be quantitated by conventional flow cytometry or by a fluorescence plate reader. These fluorescent targets can consist of various materials, ranging from fluorescence labeled latex beads, zymosan particles, bacteria, Aβ peptides, to others. The phagocytic cells engulf the fluorescent targets and then become fluorescent, allowing for quantitative detection of phagocytosis with flow cytometry.

HOW DOES OUR ASSAY WORK?



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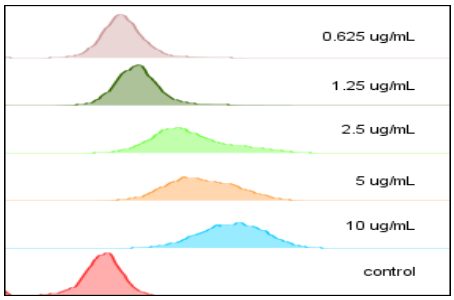
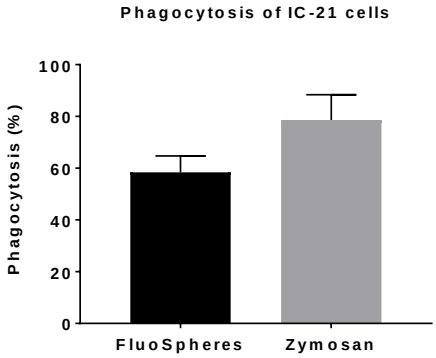
OUR SERVICE FEATURES

- **High throughput**: 12-96-well assay
- **Robust and highly reproducible** assay for small to large scale screening
- **Multiple types of phagocytic cells:** primary human and mouse cells or cell lines such as macrophages, dendritic cells, neutrophils, granulocytes, microglial cells
- **Multiple endpoints**: % of phagocytosis and cytokines (such as IL-1, TNF-α), clearly understand the immune-modulatory profile of test agents
- **State-of-art platforms**: **CytoFLEX S** (Flow cytometer with 4 lasers 13 colors) for counting individual cells. **Luminex-200** for multiplex cytokine analysis; **Tecan Infinite M200** Plate Reader

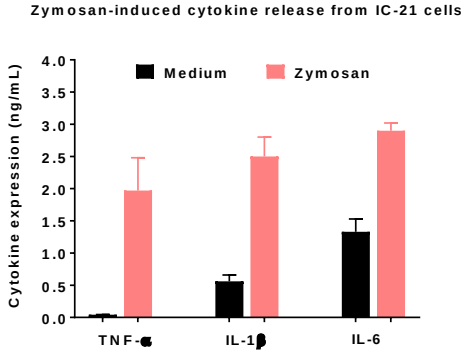
- Fully validated and quality-controlled
- Multiple concentrations in triplicate
- Positive and negative control included
- Timely data delivery
- 20+ years of experience: Expert data analysis and interpretation, scientific and technical support



Example 1. Phagocytosis of aggregated amyloid β (1-42). Macrophages were incubated with serially diluted Aβ (1-42) aggregates labeled with HiLyate™ Fluor 647 for 2 h at 37°C. After washing, Aβ take-in was analyzed with CytoFlex.



Example 2. Phagocytosis of FluoSpheres or bioparticals. Macrophages were incubated with yellow-green carboxylate-modified FluoSpheres, or BODIPY fluorescently conjugated zymosan A bioparticles for 2 h at 37°C. Cells were washed and analyzed with CytoFlex.



Example 3. Cytokines induction. Macrophages were stimulated with 400 μg /mL zymosan. Cytokines in culture were determined by the Luminex assay.