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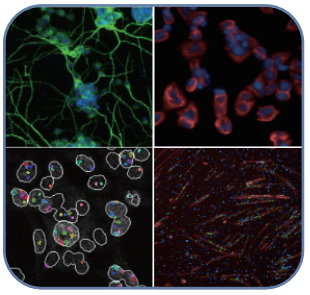
WuXi Biology

High Content Imaging: Dissecting Complexity of Biology

" **High content screening (HCS)**,which combines **automated fluorescence microscopy** with **quantitative image analysis** , allows the acquisition of **unbiased multi-parametric data** at the **single cell** level."

Capabilities and Highlights

- >10 years of experience, with ~100 accumulated projects, >30 types of applications
- MOA study with correlation of morphological changes to compound activity
- Simultaneous multiple-parameter measurement within single cell level
- High content screen/analysis at automated and high-throughput
- Flexibility and adaptability during development process at QC control



General Application

- 2D/3D Cytotoxicity
- Protein degradation
- Receptor cluster formation
- Receptor internalization
- Membrane-cytosol-nucleus translocation
- Mitochondria classification (membrane potential)
- Autophagy
- Cell cycle
- Apoptosis
- In-cell Western

CNS

- Neuroinflammation
- Alzheimer's disease (AD)
- Parkinson's disease (PD)
- Amyotrophic lateral sclerosis (ALS)
- Other Neurological disorders & Pathway related assay

Oncology

- Angiogenesis and tumor formation
- Phagocytosis
- Foci formation

Kidney Disease

- MDCK 3D cyst model
- Renal fibrosis

Metabolic Disease

- Adipogenesis
- Cholesterol lipolysis

Safety Assessment

- Drug induced liver toxicity evaluation
- Drug induced cholesterolosis
- Drug induced steatosis
- Drug induced phospholipidosis
- Micronucleus
- DNA damage

Contact Us

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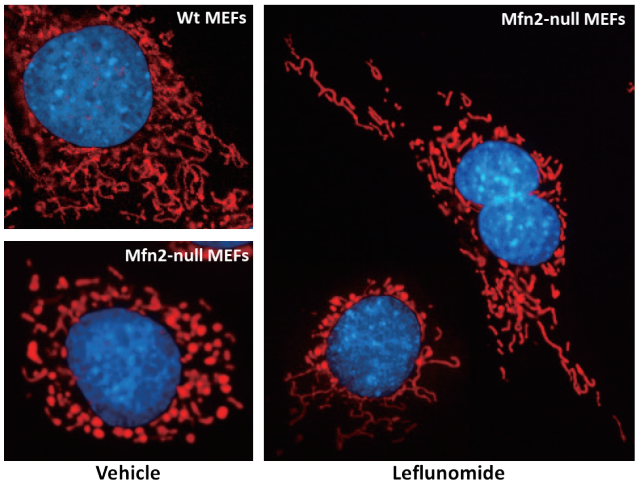
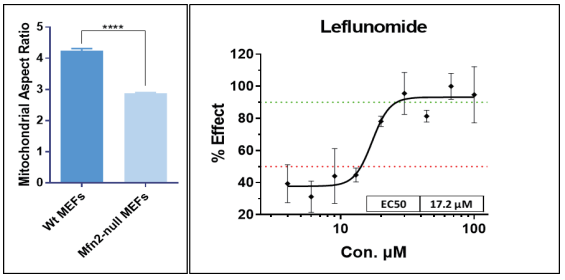
Screening for Mitofusin Activators

An imbalance in mitochondrial dynamics is thought to contribute to the progression of neurodegeneration, cancer, and cardiac diseases.



In Mfn2-null MEFs there is a low mitochondrial aspect ratio (AR), which indicates poorly fused mitochondria. This assay was used to screen mitofusin activators targeting Mfn2 (outer mitochondrial membrane GTPase, critical for mitochondrial fusion).

Leflunomide: immunosuppressive disease-modifying antirheumatic drug (DMARD).

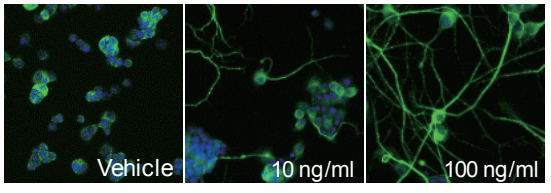


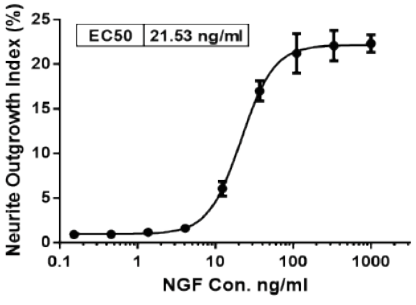
Mitofusin Mfn2 activators restore mitochondrial aspect ratio (AR) in mouse embryonic fibroblasts (MEFs).

Case study: Neurite Outgrowth & Neuronal Differentiation

The cells neuronal differentiation could be profiled and quantified using HCS, including the neurite outgrowth evaluation, neuron-specific markers characterization, etc.

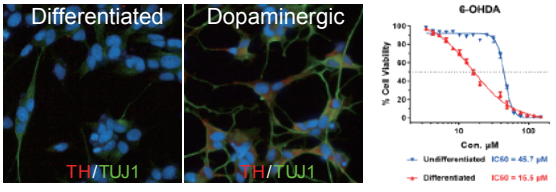
Neurite Outgrowth



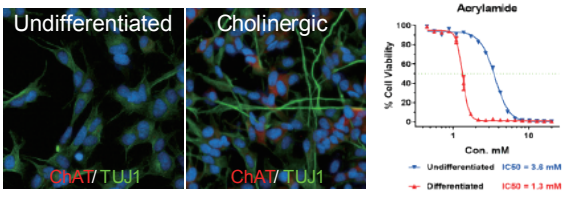


Cells were induced to neuron-like under NGF incubation. The neurite outgrowth process could be measured by neurite profile and quantification using HCS.

Neuronal Differentiation



Cells were differentiated towards a **Dopaminergic** phenotype that express **Tyrosine Hydroxylase** (TH) with robust neurite outgrowth (TUJ1).The differentiated cells showed increased sensitivity to **6-OHDA**



Cells were differentiated towards a **Cholinergic** phenotype that express Choline Acetyltransferase (ChAT) with robust neurite outgrowth(TUJ1). The differentiated cells showed increased sensitivity to **Acrylamide.**