Ncardia

Fact sheet

Ncyte® Plate-ready vCardiomyocytes

Human iPSC-Derived Plate-ready Ventricular-Like Cardiomyocytes

Skip pre-culture delays with Ncyte® Plate-ready vCardiomyocytes: assay-ready cells that deliver **faster, more reliable cardiac data.**

Key Benefits:

- High purity ventricular-like cardiomyocytes
- Assay-ready format: no pre-culture or dissociation required
- Visible beating clusters within 48 hours of seeding
- Fully functional and electrophysiologically active
- Ideal for electrophysiology and cardiotoxicity testing

Ready, Set, Plate

Ncyte® Plate-ready vCardiomyocytes are your convenient, timesaving solution for a wide range of cardiac functional assays. These cells retain all the core features of our standard Ncyte® vCardiomyocytes and can be used interchangeably, depending on your application.

Each cryopreserved vial of Ncyte® Plate-ready vCardiomyocytes contains sufficient cells for up to four standard 96-well MEA plates. Choose between two easy-to-use formats:

- Plate-ready — Allows direct seeding after thawing, eliminating the need for a 3-day pre-culture before assay setup to support rapid, high-throughput assays with minimal hands-on time
- Pre-Culture format — Includes a 3-day culture and dissociation step, offering greater flexibility for custom setups or long-term studies

Both formats deliver consistent quality and functional performance, allowing you to choose based on speed or experimental complexity.

Whether you're performing drug screening, assay optimization or disease modeling, Ncyte® Plate-ready vCardiomyocytes provide reliable, reproducible results with robust functional performance.

Specifications

Ncyte® Plate-ready vCardiomyocytes are characterized by flow cytometry to ensure a purity of ≥ 70% cardiac Troponin T (cTnT) positive cells right after thawing (Figure 1). They typically also express Myosin Light Chain 2v (MLC2v), indicating a ventricular-like phenotype.

Identity markers	≥ 70% cTnT+ cells by flow cytometry Expression of cTnT, MLC2v and actinin 2 by ICC when cultured as per user guide
Size	≥ 1.5 M viable cells at thawing according to user guide
Quality control	Cell count, viability, identity (flow cytometry), functionality (MEA: dofetilide, nifedipine, isoproterenol), mycoplasma
Format	Cryopreserved cells
Donor	Female
Reprogramming method	Non-viral
Shipping conditions	Dry shipper, -180° C to -135° C
Storage conditions	Vapor phase of liquid nitrogen

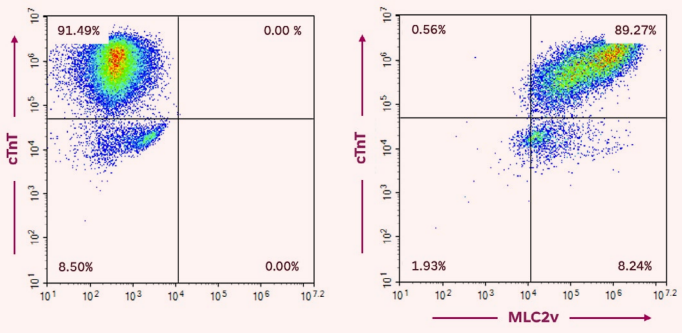

Figure 1. Flow cytometry analysis of a representative batch showing cTnT positive cells (91.5%) and cTnT/MLC2v double positive cells (89.27%).

Applications

Ncyte® Plate-ready vCardiomyocytes can replace standard formats in workflows where time, consistency and high-throughput readiness are critical, making them a versatile and scalable tool for:

- Cardiotoxicity screening
- Electrophysiological assays (e.g., MEA)
- Drug development (from hit identification to lead optimization)
- Mechanistic and disease modeling studies
- Regenerative medicine research

By skipping the 3-day pre-culture and dissociation step, Ncyte® Plate-ready vCardiomyocytes give you immediate access to a robust and reproducible model of human ventricular cardiomyocytes.

Pacing and Electrophysiological Activity

Ncyte® Plate-ready vCardiomyocytes are a physiologically relevant model for the phenotypic study of cardiac diseases. They feature well aligned myofibrils and intact structural sarcomere organization (Figure 2), enabling robust pacing and electrophysiological readouts. Ncyte® Plate-ready vCardiomyocytes also present a robust electrode coverage (Figure 3A) and a relatively slow and uniform beating rate, similar to the Ncyte® vCardiomyocytes (Figure 3B).

Functional Testing of Cell Responses to Drug Candidates

Ncyte® Plate-ready vCardiomyocytes are highly responsive to pharmacological modulation like adrenergic stimulation with isoproterenol and to ion channel blockers including nifedipine (L-type calcium channel blocker) and dofetilide (hERG channel blocker; Figure 4A–C). Therefore, they can be used for biomarker identification as well as functional assays including imaging, impedance, capacitance, and contractility, metabolic and cell viability assays.

Faster, More Reliable Cardiac Data Stem From Ncyte® Plate-ready vCardiomyocytes

Whether you want to leverage our custom iPSC-based services — from disease modeling to *in vitro* pharmacology and cardiotoxicity screening — to de-risk candidate selection and advance your drug discovery pipeline or combine Ncyte® Plate-ready vCardiomyocytes with our validated cardiotoxicity assays for a comprehensive evaluation of cardiac safety, your discoveries stem from Ncardia.

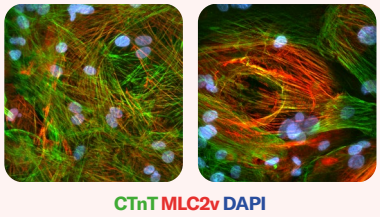

Figure 2. Immunofluorescence staining of Ncyte® Plate-ready vCardiomyocytes showing Cardiac Troponin T (Green), MLC2v (Red) and DAPI (Blue). 60x magnification.

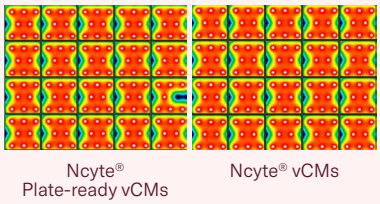

Figure 3A. Heatmaps show consistent electrode coverage and electrical activity (>300 µV).

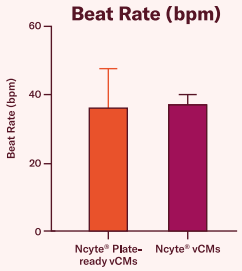

Figure 3B. Microelectrode array baseline beat rate of a 96-well plate with Ncyte® Plate-ready vCardiomyocytes and Ncyte® vCardiomyocytes.

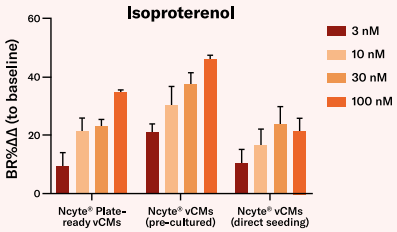

Figure 4A. Acute exposure to isoproterenol increased the beat rate of Ncyte® Plate-ready vCardiomyocytes, as seen alongside pre-cultured Ncyte® Cardiomyocytes and directly seeded Ncyte® vCardiomyocytes. Data presented as mean ±SD (n = 3) of the percentage change to baseline recordings for each well.

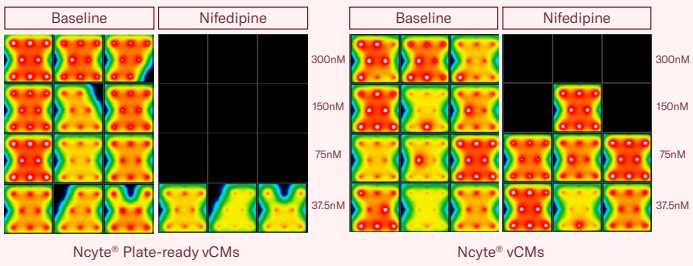

Figure 4B. A 30-minute exposure to nifedipine, an L-type calcium channel blocker, causes beating arrest in Ncyte® Plate-ready vCardiomyocytes.

Figure 4C. Representative MEA traces after 30-minute exposure to dofetilide, an hERG (Ikr) channel blocker, at concentrations ≥ 10 nM, showing notable arrhythmias in Ncyte® Plate-ready vCardiomyocytes.

Get in Touch

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