

Biosafety Documentation: ***iCell® Cardiomyocytes and iCell Cardiomyocytes²***

Catalog Number(s): C1006, C1016, CMC-100-010-000.5, CMC-100-010-001,
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Donor ID Number: 01434

Cell Source and Biosafety Level Classification

iCell® Cardiomyocytes and iCell Cardiomyocytes² are human cells differentiated from a master bank of stably induced pluripotent stem (iPS) cells. Cellular Dynamics International, Inc. (CDI) classifies these cells as Biosafety Level 1 (BSL1) based on the United States Centers for Disease Control and Prevention publication: *Biosafety in Microbiological and Biomedical Laboratories*. We recommend handling iCell Cardiomyocytes and iCell Cardiomyocytes² according to the biosafety guidelines applicable in your region.

Reprogramming

The iPS cell lines were generated from human fibroblasts through ectopic expression of reprogramming factors (i.e. Oct4, Sox2, Nanog, Lin28) by retroviral transduction. The retroviral particles used in this process were obtained from the cell culture supernatant of HEK 293T cells transfected with plasmids containing the reprogramming factor genes as well as the coding regions of the gag, pol, and env retroviral genes. No retroviral gene expression was detected by PCR in the starting fibroblast material or the iPS cell line, confirming the iPS cell line cannot spontaneously produce infectious virus.

Engineering

The iPS cell clones were engineered through homologous recombination to exhibit blasticidin resistance under the control of a cardiomyocyte-specific promoter. Neomycin resistance was also included in the targeting vector to allow selection of the iPS cell clones. None of the engineering vectors used contain oncogenes.

Infectious Disease Testing

The iPS cell line is negative for HBV, HCV, HIV-1, and HIV-2.

Reference(s)

Ma J, Guo L, et al. (2011) High Purity Human-induced Pluripotent Stem Cell-derived Cardiomyocytes: Electrophysiological Properties of Action Potentials and Ionic Currents. *Am J Physiol Heart Circ Physiol* **301**(5):H2006-17.

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