

Human cardiomyocytes and related products

Cardiomyocytes are highly specialized heart muscle cells. The main function of these cells is to propel blood throughout the body by self-excitatory and involuntary contraction. They comprise 20% of the total number of cells in the heart, and due to their unique architecture, more than 90% of its mass (1). The remaining cells are endothelial cells and fibroblasts. The heart was considered a terminally differentiated organ till very recently, when the existence of human cardiomyocyte progenitor cells was described, thus challenging a long-standing dogma (2).

Heart disease is the No.1 cause of death in USA. This justifies the need for an in vitro system which enables the studies of human cardiac muscle cell differentiation, growth, development, and regenerative medicine. In addition, an in vitro system would facilitate cardiac drug toxicology studies. DV Biologics is now highlighting a set of products that will undoubtedly help in the most sophisticated studies. DV Biologics offers human cardiac

cells (uncultured) (SKU: pC001-f), human cardiomyocyte progenitor cells (SKU: pC015-f) (Fig.1), and human cardiomyocytes (SKU: pC008-f). Human cardiac cells are derived from heart dissociated into single cells, and can be used for isolation of cardiomyocyte progenitor cells and differentiated cardiomyocytes (Fig 2, 3). DV Biologics human cardiomyocyte progenitor cells express transcription factors indicative of cardiomyocyte predisposition and successfully differentiate into cardiomyocytes as shown by expression of sarcomeric structural

proteins (Fig. 3). Our cardiomyocytes exhibit similar expression patterns with multinucleated features (Fig. 2), guaranteeing an excellent in vitro system even for your most demanding studies. Order DV Biologics cardiomyocytes and related products—we are setting the pace for industry standards!

1) Lafontant, P.J.E., Field, L.J. Novartis Found Symp. 2006; 274; 196-276.

2) Smits, A.M, et al. Nature Protocols 2009; 4(2); 232-243.

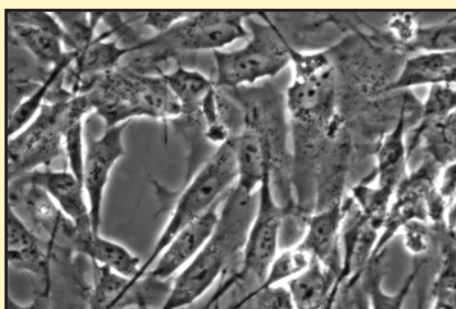


Fig 1. Phase-contrast photomicrograph of cardiomyocyte progenitor cell culture.

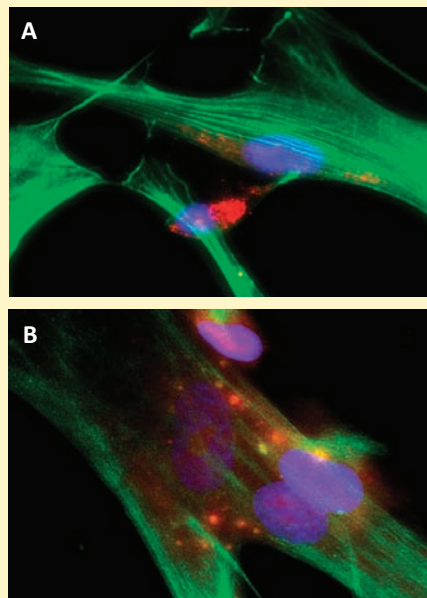


Fig 2. Immunocytochemical analysis of cardiac lineage markers in DV Biologics cardiac cells and cardiomyocytes. (A) Cardiac cells were stained with actin (green) and troponin T (red) antibodies. (B) Cardiomyocytes express myosin heavy chain (green) and troponin T (red). Note the multinucleated pattern.

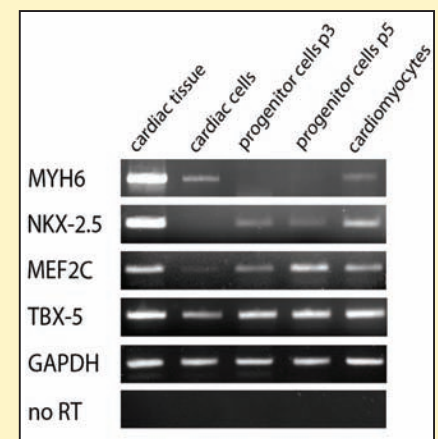


Fig 3. RT-PCR analysis of DV Biologics cardiac and cardiomyocyte progenitor cells. Whole cardiac tissue was used as a positive control. Our cardiac cells represent a mixture of cells that express cardiac structural proteins as well as cardiac transcription factors. Cardiomyocyte progenitor cells can be propagated in culture (see passage 3 and 5(p3, p5)) and differentiated into functional cardiomyocytes expressing myosin heavy chain 6 after 2 week treatment. The markers used in the study were NKX-2.5, MEF2C, TBX-5, all transcription factors characteristic for cardiac lineage, as well as myosin heavy chain 6 (MYH6, also known as MyHC-alpha), one of the major structural proteins in heart muscle.

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Shipping and Handling will be added to the order by DV Biologics. Please call for estimate.

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Conditions

Products are sold for laboratory research use only and are not to be used in humans for any purpose. As a condition of purchase, the purchaser shall not make products available for the purpose of further resale or alter the product label and the DV Biologics mark of origin without the express written permission of DV Biologics LLC.

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