

# Human Skeletal Muscle Progenitor Cells (Myoblasts)

The muscular system plays a crucial homeostatic role in generating movement and maintaining body temperature. Out of the three major muscle types (skeletal, smooth and cardiac), skeletal muscles are responsible for voluntary movement, in tight association with the somatic nervous system.

The elementary unit of skeletal muscle is the fiber—a long, multinucleated cell generated by the fusion of individual mononuclear myoblasts. The process of muscle formation, myogenesis, is an intricate process involving multiple intracellular signaling pathways<sup>1</sup>, characterized by the expression of various muscle specific markers.

DV Biologics now offers human skeletal muscle progenitor cells (pM002-f) from normal, healthy tissue for your research needs. If you are a researcher interested in myogenesis, development or signaling, we are confident this product will facilitate your studies.

Furthermore, DV Biologics is introducing a unique set of products from our disease specific lines - human skeletal muscle progenitor cells (aM002-f-DMD) from Duchenne Muscular Dystrophy (DMD)

patients (Fig.1). This is an unprecedented opportunity for researchers to study not only this devastating disease, but also gene and cell therapy in general. This previously unavailable very important tool is now accessible from DV Biologics. Human skeletal muscle myoblasts (aM002-f-DMD) from DMD patients are fully characterized. They express myoblast specific markers MEF2C, Myf4, Myf5, vimentin and desmin (Fig.2). In addition, when subjected to differentiation they express myotube specific markers (Fig.3).

**Use our Muscle Cellutions Medium for optimal growth of your myoblasts.**

**Muscle Cellutions Media**

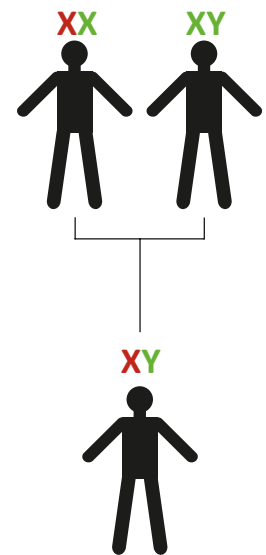
500mL SKU: M-Gro-001-500 \$250

**Muscle Cellutions Differentiation Media**

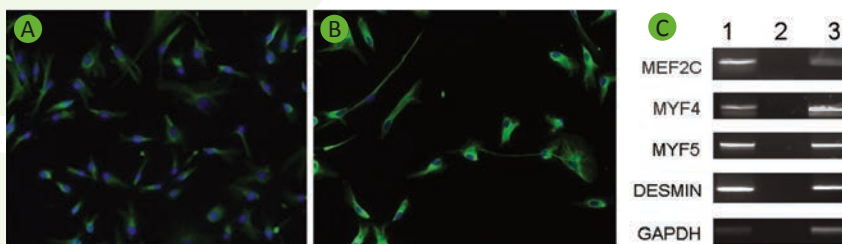
500mL SKU: M-Diff-001-500 \$225

100mL SKU: M-Diff-001-100 \$70

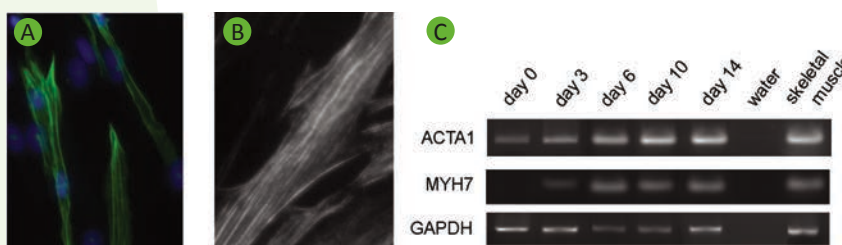
1. Kontaridis, M.I. et al. (2004) Mol Cell Biol 24(12):5340-52.
2. Gunning, P. et al (1987) Mol Cell Biol 7(11): 4100-14.



**Figure 1:** Duchenne Muscular Dystrophy is a X-linked recessive disease. The affected individuals have a mutation in the dystrophin gene. DV Biologics DMD myoblasts (aM002-f-DMD) are genetically analyzed as well.



**Figure 2:** DV Biologics myoblasts from DMD patients express myoblast specific markers. (A) Immunofluorescent image of the myoblasts stained with desmin antibody (green) and nuclear dye DAPI (blue). (B) Cells were processed for immunofluorescence and stained with vimentin antibody (green) and DAPI (blue). (C) RT-PCR analyses indicate that the cells express mRNA for additional myoblast makers: MEF2C, Myf4, and Myf5, in addition to desmin. Lane 1 contains myoblast RNA, lane 2 is a water control, whereas lane 3 is a skeletal muscle RNA, which serves as a positive control.



**Figure 3:** Upon differentiation, DV Biologics myoblasts upregulate the expression of myosin heavy chain (MYH7), skeletal muscle actin (ACTA1) and troponin I. (A) Immunofluorescent image of cells stained with troponin I antibody (green) and DAPI (blue). (B) Myosin heavy chain immunofluorescent staining. (C) RT-PCR analyses of cells collected at different time points after the start of the differentiation. Note that ACTA1 is present in confluent myoblasts (day 0), but its levels are upregulated as the differentiation progresses<sup>2</sup>.



## Ways To Place An Order

Orders may be placed by phone, fax, email or through the online ordering system. Please visit the website to download DV Biologics PDF Order Form to place an order via fax or use the form below.

### Shipping & Delivery

**US.** All North American orders are shipped from DV Biologics headquarters in Southern California and freight is pre-paid and added to your invoice as a separate item. Orders are shipped within 1 or 2 working days, depending upon the availability of the item. Shipments are sent every Monday to Thursday via overnight courier service for delivery on the next business day.

**International.** International orders are shipped from DV Biologics headquarters in Southern California every Monday unless specially requested to be shipped on another date.

### 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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Order anytime, 24 hours a day, 365 days a year by email or fax. If your order arrives outside our normal business hours, it will be quickly processed at the beginning of the next business day.



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