MUSCLE CELL RESEARCH

Expand Mouse Myogenic Progenitors

MyoCult™ Expansion 10X Supplement (Mouse)

Mouse satellite cells (also known as skeletal muscle progenitor cells) are studied to better understand their fundamental biology and are used for preclinical investigations into muscle-related diseases and regenerative medicine. MyoCult™ Expansion 10X Supplement (Mouse) (Catalog #05985) is optimized to expand satellite cells that have been FACS-isolated from mouse muscle tissue and are characterized as $CD45^-/CD31^-/Sca1^-$, $alpha7\text{-}integrin^+/Vcam1^+$. Complete expansion medium is prepared by mixing MyoCult™ Expansion 10X Supplement with basal medium DMEM/F-12 with 15 mM Hepes (Catalog #36254). A 30-fold increase in $Pax7^+$ cell number can be achieved following 6 days of culture in Myocult™ Expansion 10X Supplement (Figure 1), with a cumulative 500-fold increase following 12 days of culture (Figure 2). The expanded satellite cells retain their capacity for in vitro differentiation into myotubes (Figure 3). MyoCult™ Expansion 10X Supplement can also be used to culture single isolated myofibers from mouse muslce without requiring additional supplements (Figure 4).

Why Use MyoCult™ Expansion 10X Supplement (Mouse)?

EFFICIENT. Superior cell expansion compared to commonly used homemade media.

CONSISTENT. Rigorous raw material screening minimizes lot-to-lot variability and eliminates the need for serum screening.

VERSATILE. Optimized for use with both primary satellite cells and single isolated myofiber cultures.

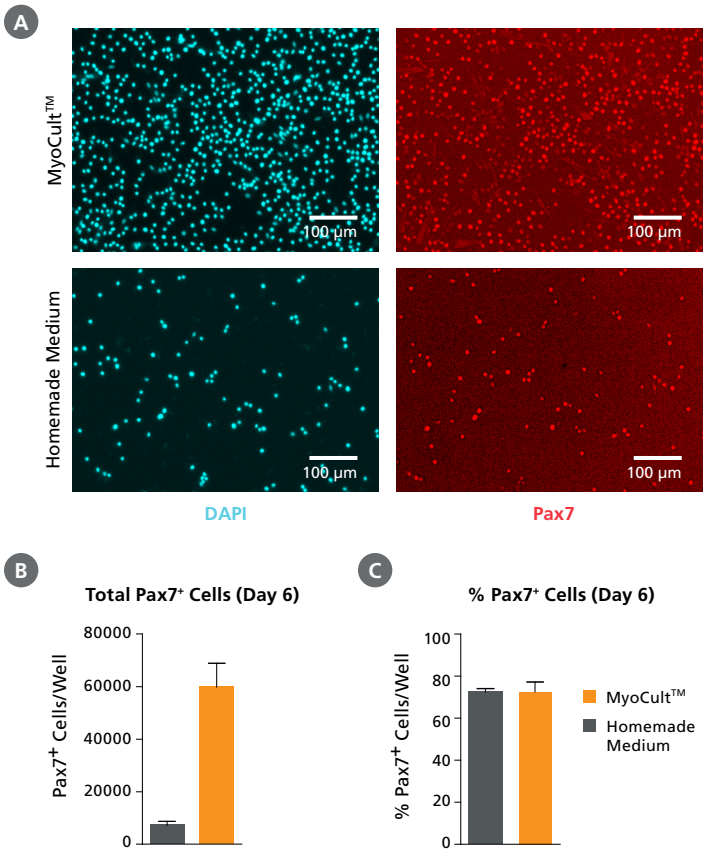

Figure 1. FACS-Isolated $Pax7^+$ Mouse Satellite Cells Cultured in MyoCult™ Expansion Medium Expand More Efficiently Than in Homemade Medium

FACS-isolated satellite cells were seeded at 2000 cells/well (24-well plate) and culture-expanded using complete MyoCult™ Expansion Medium (Mouse) or a commonly used homemade medium. Following 6 days of culture, (A) satellite cells were immunostained for nuclei (DAPI, blue) and Pax7 (red). Also, (B) total number and (C) percentage of $Pax7^+$ satellite cells were quantified (n = 3). Error bars represent standard error of mean (SEM). Homemade medium was provided by the lab of Dr. Fabio Rossi, University of British Columbia.

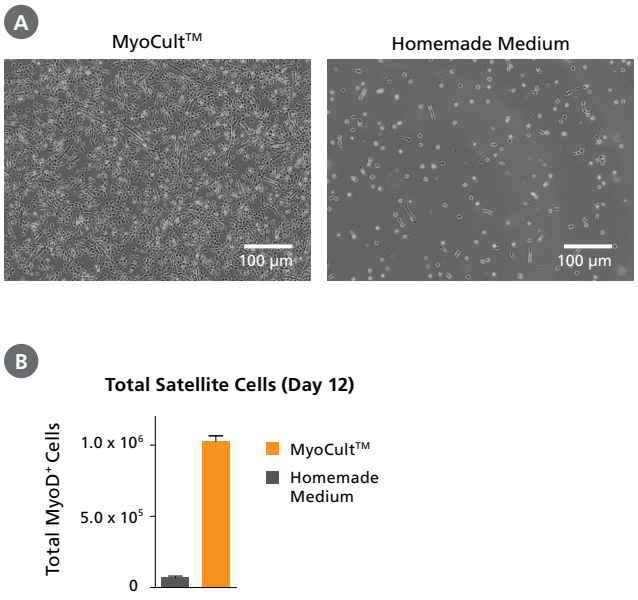

Figure 2. FACS-Isolated Mouse Satellite Cells Are Expandable Over Multiple Passages in Myocult™ Expansion Medium

FACS-isolated satellite cells were seeded at 2000 cells/well (24-well plate) and cultured using complete MyoCult™ Expansion Medium (Mouse) or a commonly used homemade medium. Following 12 days of expansion (2 passages), (A) satellite cells were imaged using phase contrast microscopy and (B) total numbers of MyoD+ satellite cells were quantified (n = 3). Error bars represent SEM. Homemade medium was provided by the lab of Dr. Fabio Rossi, University of British Columbia.

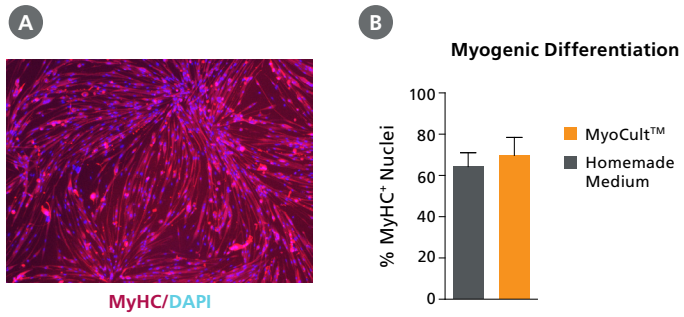

Figure 3. Mouse Satellite Cells Expanded in Myocult™ Expansion Medium Maintain Differentiation Capacity

FACS-isolated satellite cells were culture-expanded using complete MyoCult™ Expansion Medium (Mouse) or a commonly used homemade medium for 2 passages (12 days following FACS isolation) and then treated with differentiation medium (high glucose DMEM with 2% Horse Serum). Following 4 days of differentiation, (A) myotubes cultured in MyoCult™ Expansion Medium were immunostained for nuclei (DAPI, blue) and Myosin Heavy Chain (MyHC, red), and (B) percentage of nuclei localized within MyHC+ myotubes (fusion index) was quantified (n = 3). Error bars represent SEM. Homemade medium was provided by the lab of Dr. Fabio Rossi, University of British Columbia.

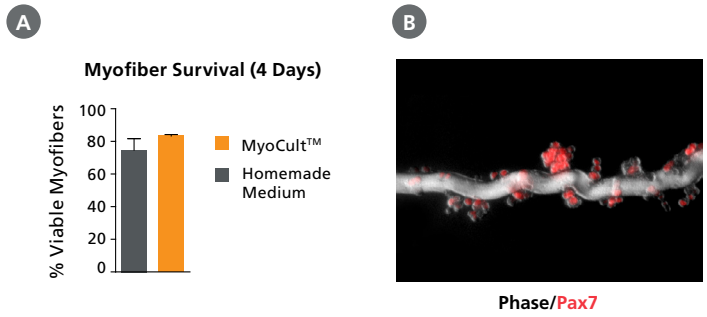

Figure 4. Mouse Single Isolated Myofibers Can Be Cultured in MyoCult™ Expansion Medium Without Requiring Additional Supplements

Single isolated myofibers were cultured in suspension using complete MyoCult™ Expansion Medium (Mouse) or a homemade myofiber culture medium. After 4 days, (A) intact, viable myofibers were quantified (n = 3) and (B) immunostained for Pax7 (Red). Error bars represent SEM. Myofiber homemade medium was provided by the lab of Dr. Fabio Rossi, University of British Columbia. A specific myofiber medium (or additional supplements) is not needed for myofiber culture when using MyoCult™ Expansion Medium.

Product Information

PRODUCT	SIZE	CATALOG #
MyoCult™ Expansion 10X Supplement (Mouse)	10 mL	05985

Supporting Products for Mouse Satellite Cell Research

PRODUCT	APPLICATION	CATALOG #
Collagenase Type II	Tissue dissociation and cell isolation	07418/19
Collagenase Type IV		07426/27
Dispase, ACF		07446
DMEM/F-12 with 15 mM HEPES	General cell culture	36254