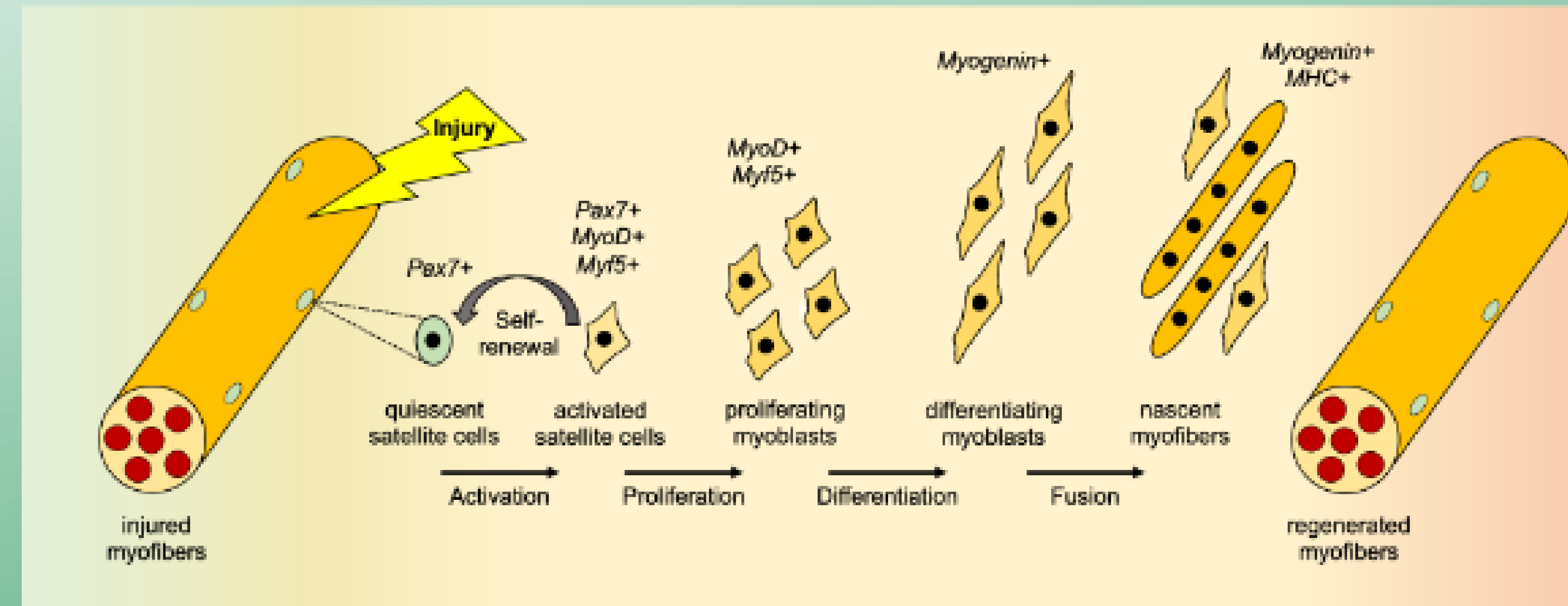


AN *IN VITRO* EXPERIMENTAL SYSTEM OF MUSCLE FORMATION

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Overview:

Muscle Regeneration

- Muscle formation occurs at two points in time:
 - Embryonic development
 - Adult Muscle regeneration
- Muscle is one of few tissues capable of robust regeneration
 - Due to the presence of quiescent stem cells known as satellite cells
- Muscle regeneration is an intricate process with multiple transitions that must take place
 - These transitions can be regulated by many factors

Our Aim:

Although some of these regulators and their roles have been uncovered, there are many other factors present during regeneration to be discovered.

The Problem:

The regeneration niche is a complex system to replicate. We can do experiments in muscles but it's time consuming and expensive to screen numerous factors.

We need:

- 1.Quick, easy to use
- 2.Consistent results
- 3.Imitates the regeneration process

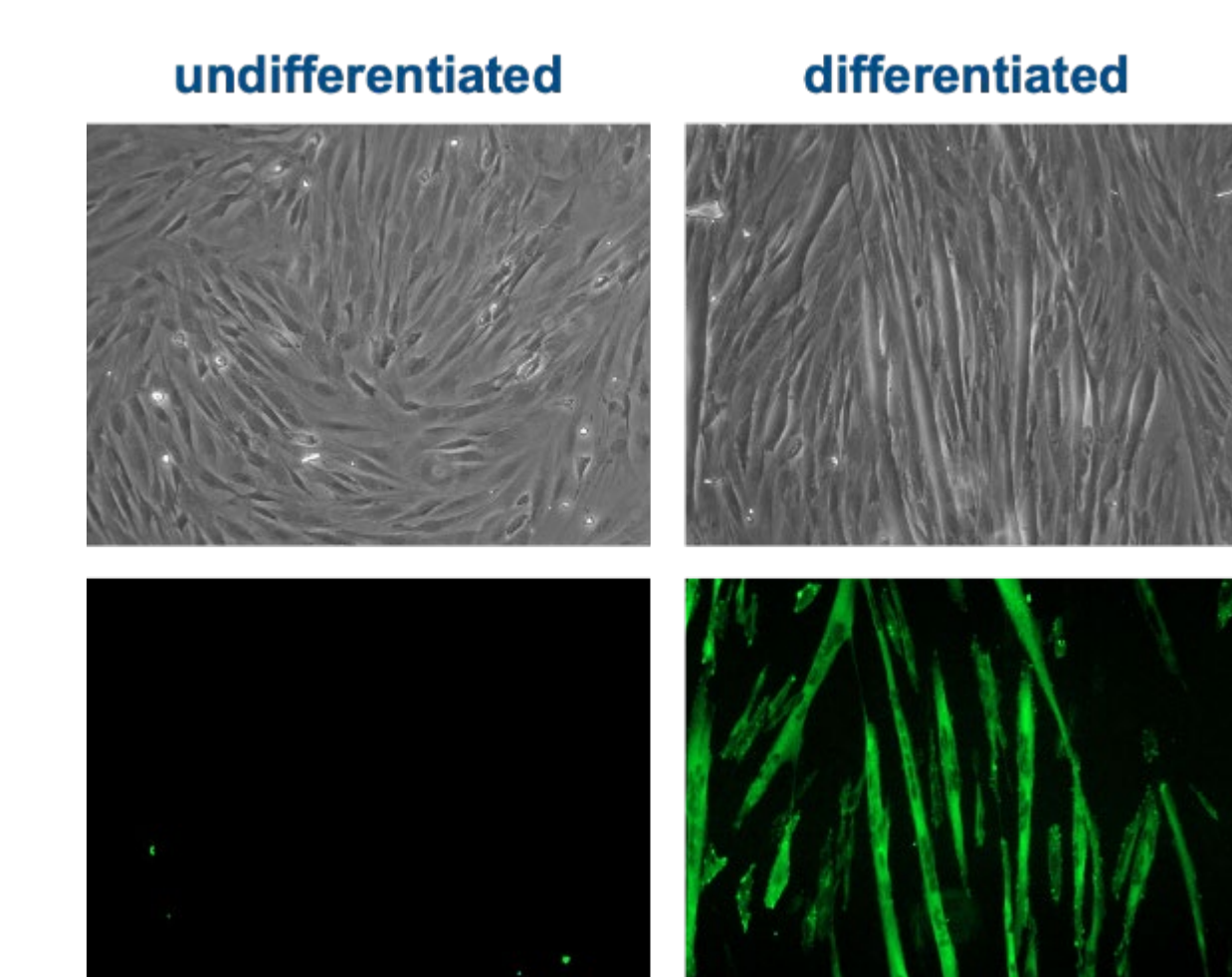
The Solution: C2C12 Cells!

- Mouse myoblast cell line of satellite cells that mimics the steps of muscle formation
- Cells can proliferate, differentiate, and fuse together to form multi-nucleated myotubes
- Induce differentiation through growth factor removal

C2C12 cells undergo differentiation

Myosin heavy chain (MHC):

Protein found in late stages of fusion that is important for contraction



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