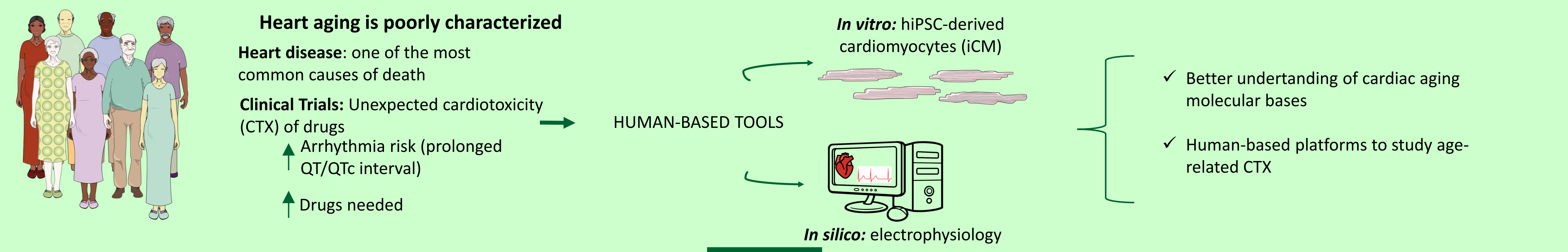


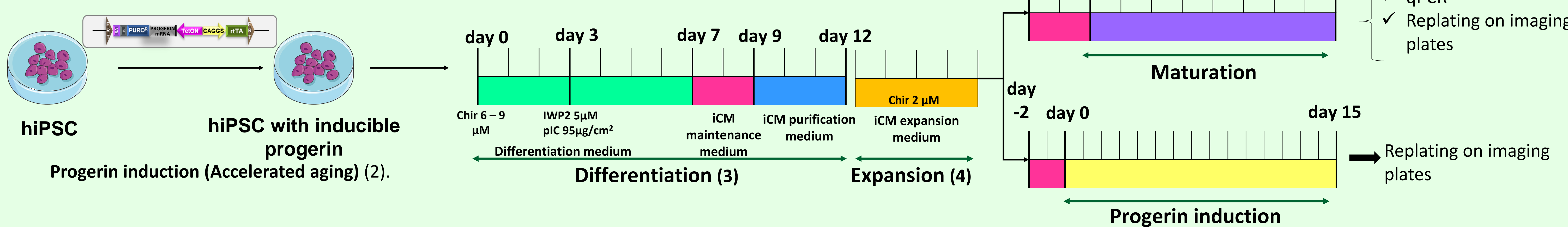
## INTRODUCTION



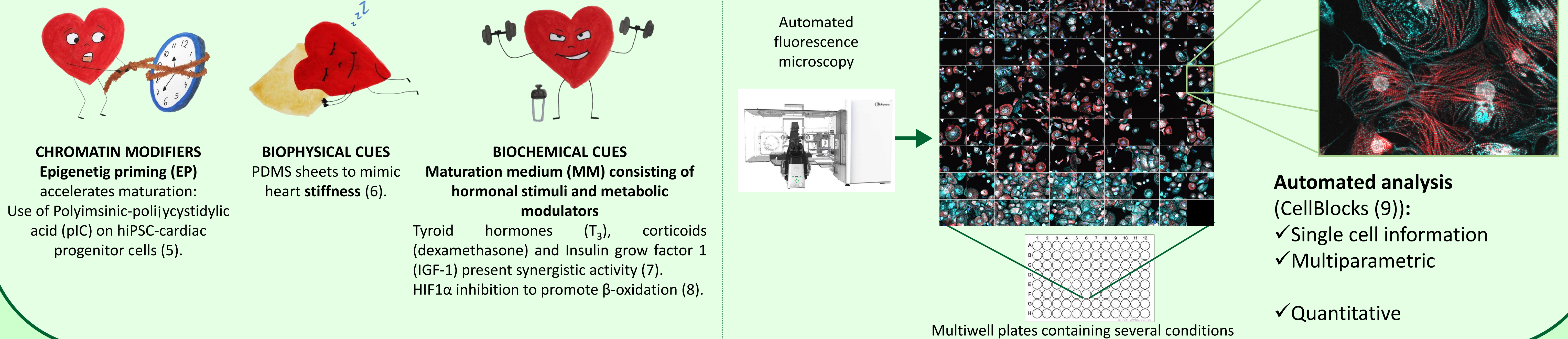
## GOAL

The general goal is to establish a human cardiac cell aging model that enables the study of its molecular basis and that constitutes a platform for age-related cardiotoxicity assessments. Specific goals are: (i) to obtain mature cardiomyocytes from human induced pluripotent stem cells & (ii) characterize a model based in the accelerated aging effect of progerin observed in Hutchinson Gilford Progeria Syndrome patients.

## METHODS



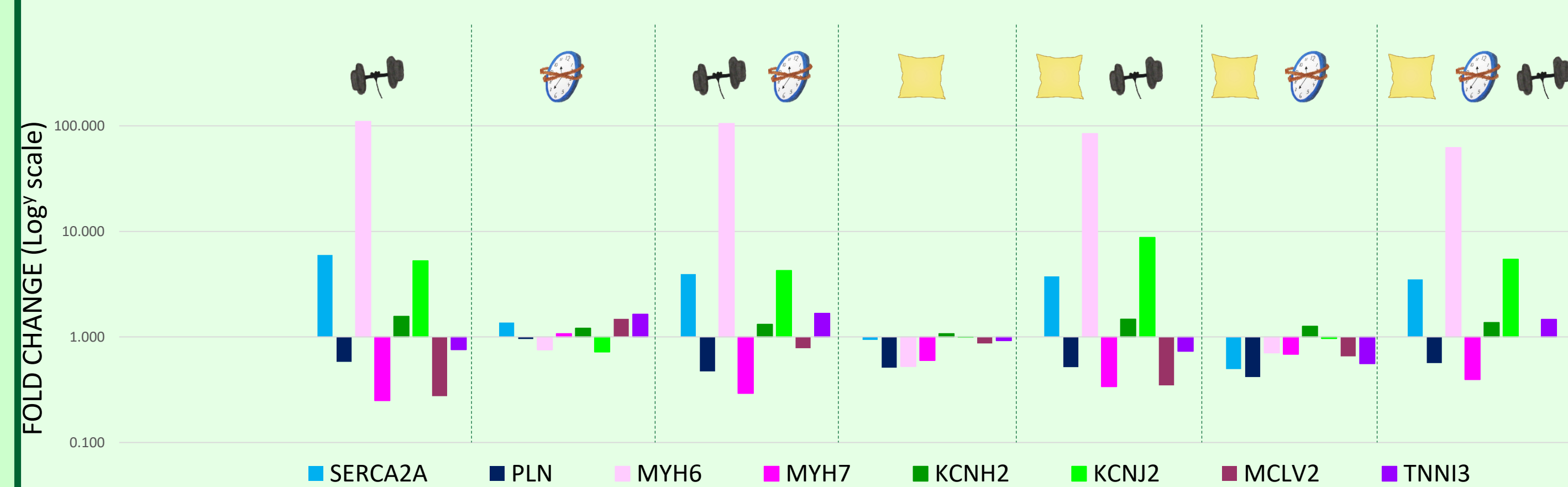
## MULTIFACTORIAL 2D MATURATION STRATEGY



## RESULTS

### Gene expression analysis

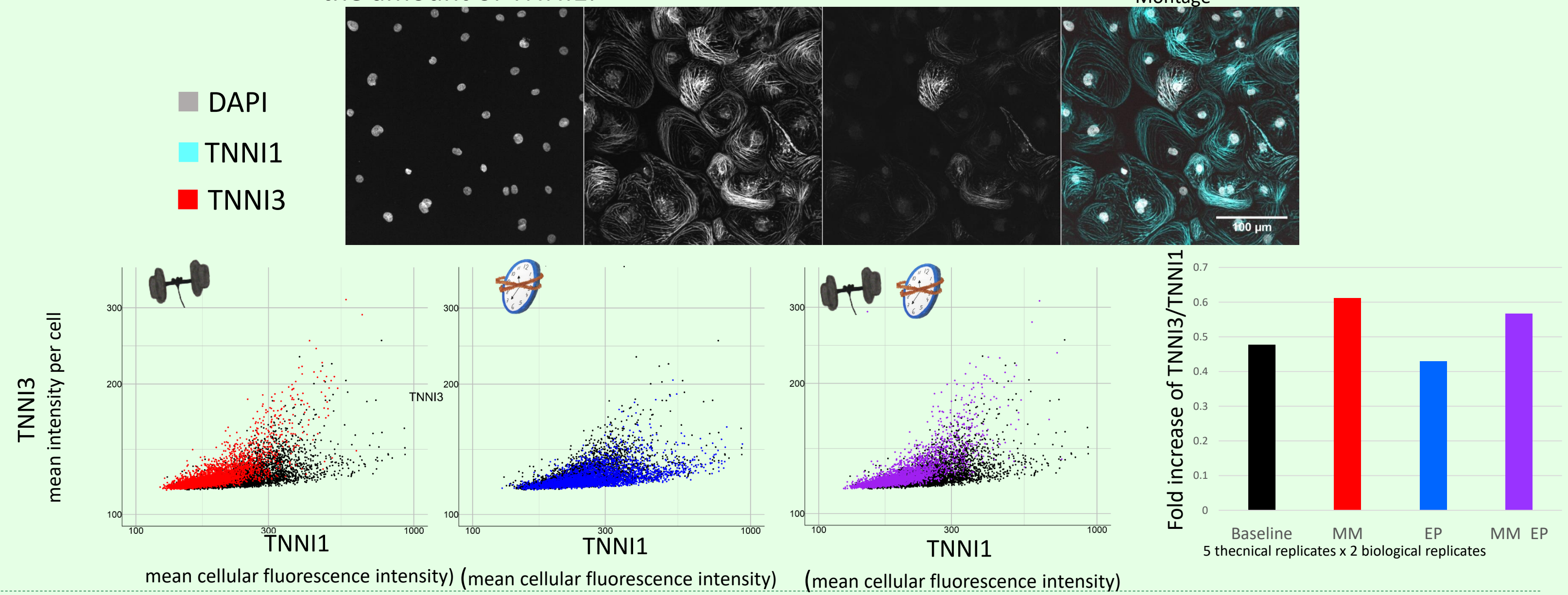
3 technical replicates x 2 biological replicates



### MATURATION

**Image analysis:** 3 technical replicates, 2 biological replicates

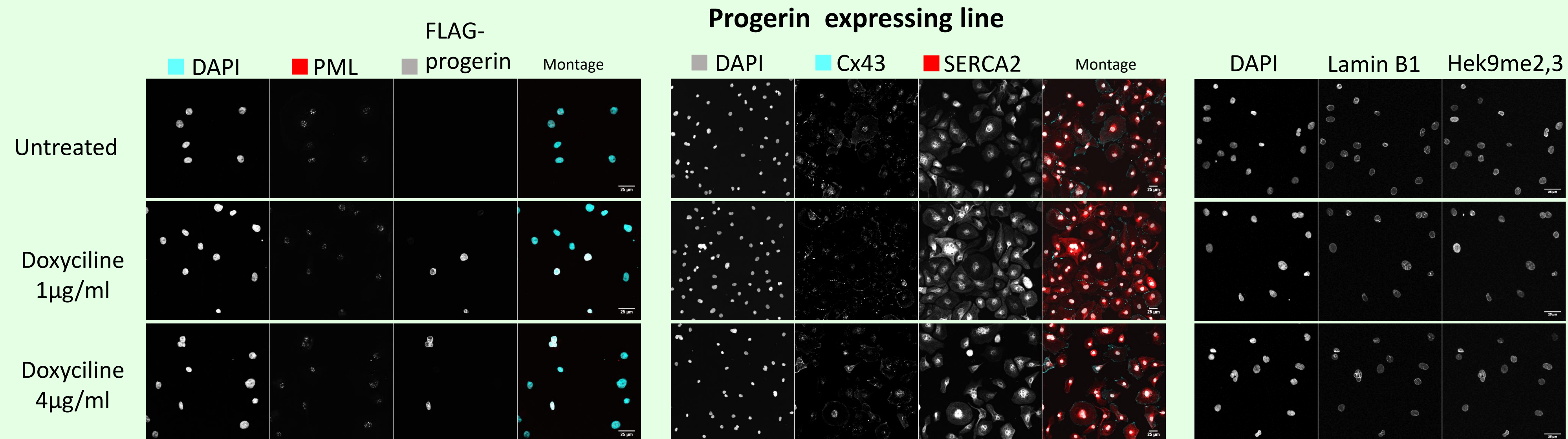
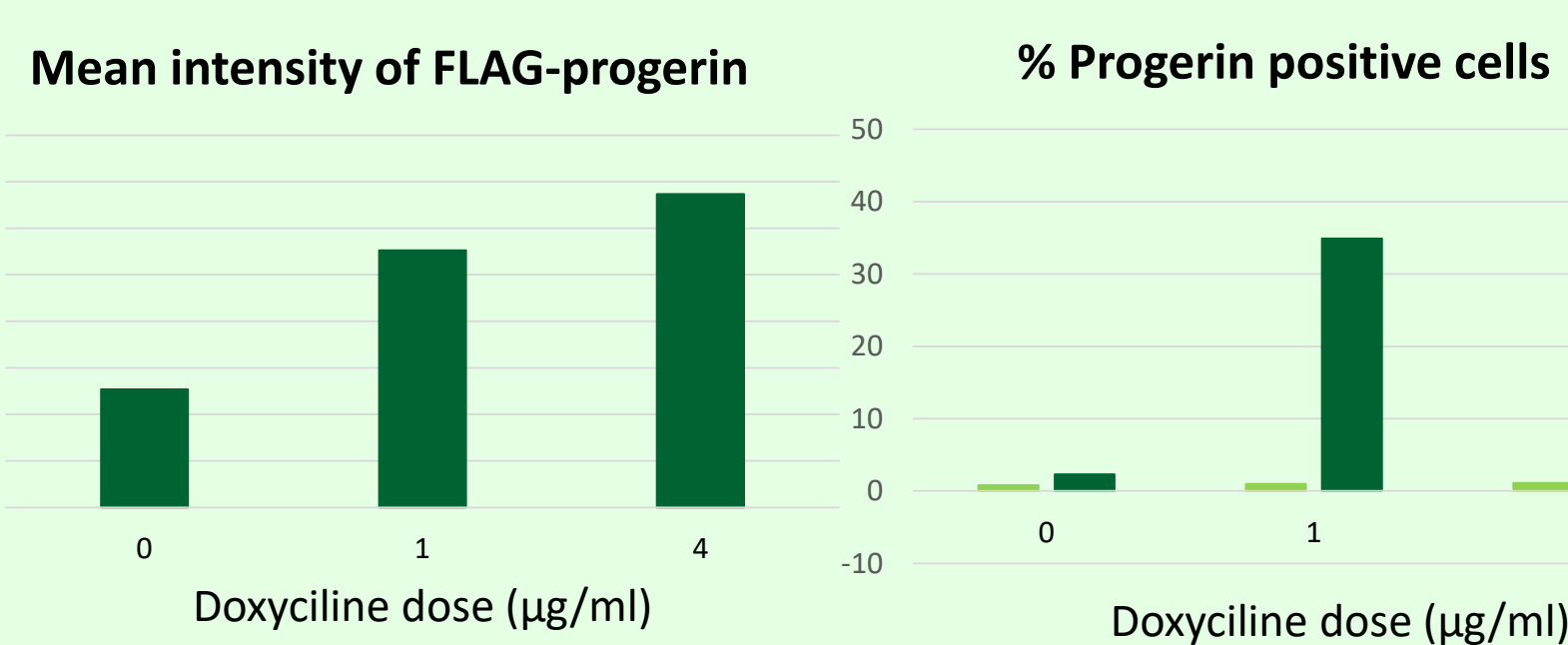
MM alone or in combination with EP seem to increase the expression of TNNI3 and decrease the amount of TNNI1.



### PROGERIN INDUCTION (ACCELERATED AGING)

3 technical replicates x 2 biological replicates

1 μg/ml is enough to achieve 35% of progerin positive cells



## CONCLUSIONS

- ✓ The maturation media seems to achieve improvements in both the sarcomeres structure of the iCMs as well as in the expression of genes related with electrophysiology and calcium handling, of great importance for the cardiac function.
- ✓ For some markers, there seems to be high variability among biological replicates. More replicates are needed.
- ✓ Our generated line is able to induce the expression of progerin in the iCMs, although suboptimal, and the amount of progerin seems to increase with higher doses of doxycycline.
- ✓ Although many markers related with aging have been optimized, a more extensive study is needed to fully characterize the effects of progerin induction on cardiomyocytes and ideally in the mature ones.

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