



**Fig. S1.** Measurement of Time-to-peak by Calcium transient analysis. Representative fluorescence time-lapse calcium imaging in 2-dimensional (2D)-cardiomyocytes (CMs) and 3D hiCOs loaded with the intracellular calcium indicator FLIPR Calcium 6 dye (green) was monitored during 10 seconds. The real-time quantitative intensity value was exported in Excel software and time-to-peak were converted through an in-lab-developed calculation method from 3 independent experiments. The statical analysis were conducted by multiple t-test of 3 independent experiments (\*\* $p < 0.001$  versus 2D-CMs;  $n=3$ ).