

## Quality control for QTempo (1/4)

1-a. Limits on acceptable size of beating cardiomyocyte cell clump:

When a cell clump is transferred to the assay chamber, clump diameter is between 100-300  $\mu\text{m}$  (about 10,000 cells, thickness not defined).

The measured diameter of the clump used is described in each report.

1-b. Limits on acceptable magnitude/amplitude of voltage from beating clumps:

- Na amplitude: 40  $\mu\text{V}$  or larger (between first positive and negative peak)
- K amplitude: 2  $\mu\text{V}$  or larger (between first positive and negative peak) and opposite polarity of Na wave. Prior to treatment, the start of the K-wave is within 600 msec. from start of the Na-wave.

The observed amplitude is described in each report.

1-c. Limits on acceptable beat rate:

30~120 beats/minute (average from 3-minute measurement of untreated cells)

Observed beat rate is described in each report.

Allowable variation in beat rate < 10bpm form single cluster

## Quality control for QTempo (2/4)

1-d. Spontaneously contracting clumps occasionally rest as shown figure 1. Cells are only used in QTempo assay if they beat continuously for more than 20 sec. In addition, any resting interval between beating states must be  $< 4$  sec.

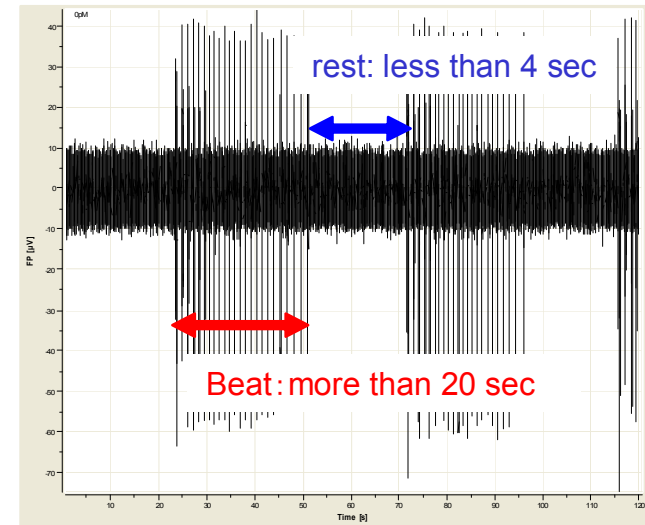


Figure 1: Beating and Resting

1-e. Untreated cell clumps producing an aberrant wave form that has lost shape, shown for example in figure 2, are not used

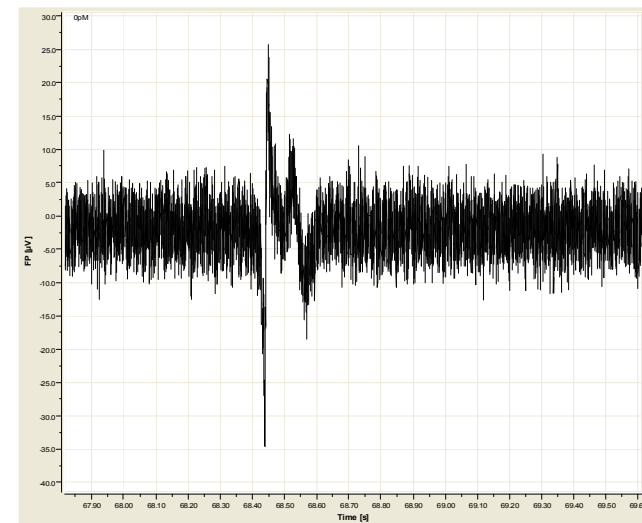


Figure 2: wave form collapsed

## Quality control for QTempo (3/4)

1-f. Untreated cell clumps producing a split peak are not used (fig. 3).

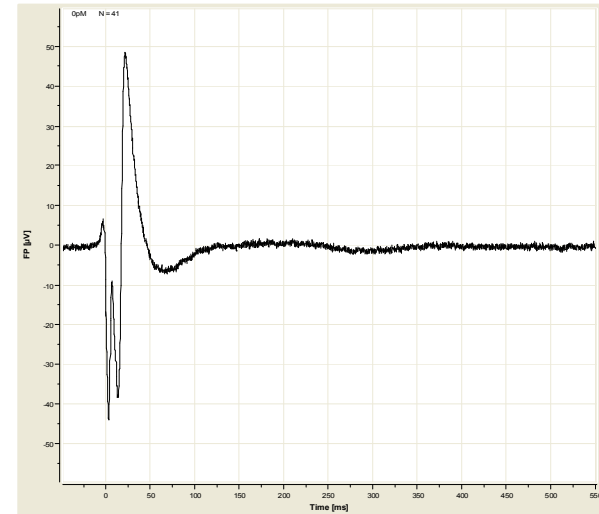


Figure 3: split peak

1-g. Untreated cell clumps that undergo repeated, small wave-like fibrillation are not used (fig. 4).

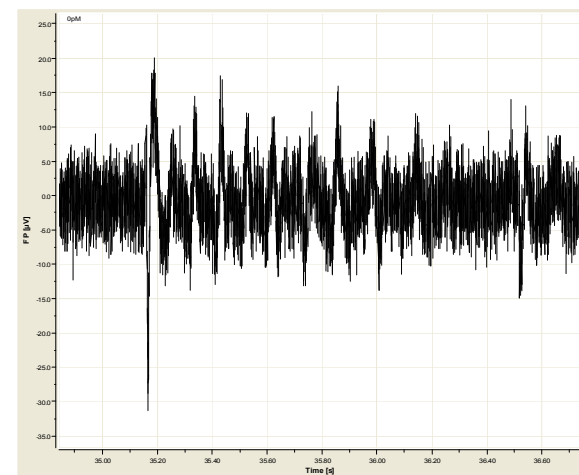


Figure 4. repeated small waves

## Quality control for QTempo (4/4)

1-h. Untreated cell clumps generating multiple peaks are not used (fig. 5).

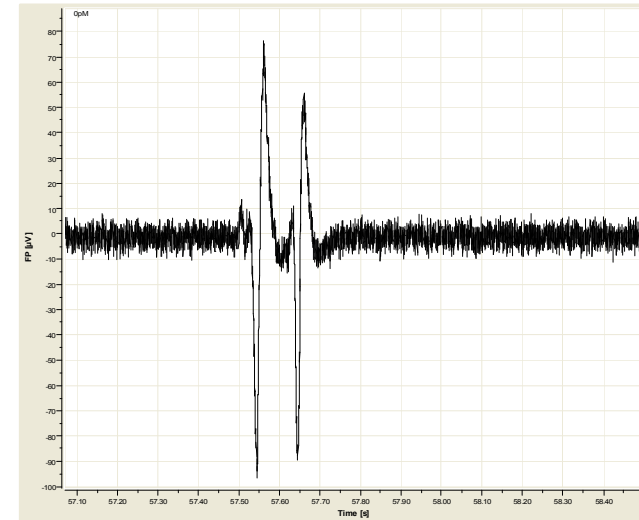


Figure 5: multiple (double) peaks