

Supplementary Material

- Figure S1: Sketch and picture of the microfluidic set up.
- Figure S2: Fluorescence decay curves measured with the FLIM technique in samples without and with Cu(II) after 72 h
- Figure S3: Single cell normalized fluorescence intensity distributions for all the 3 batches at selected Cu(II) doses and at time 0, 24, 48, and 72 hours.

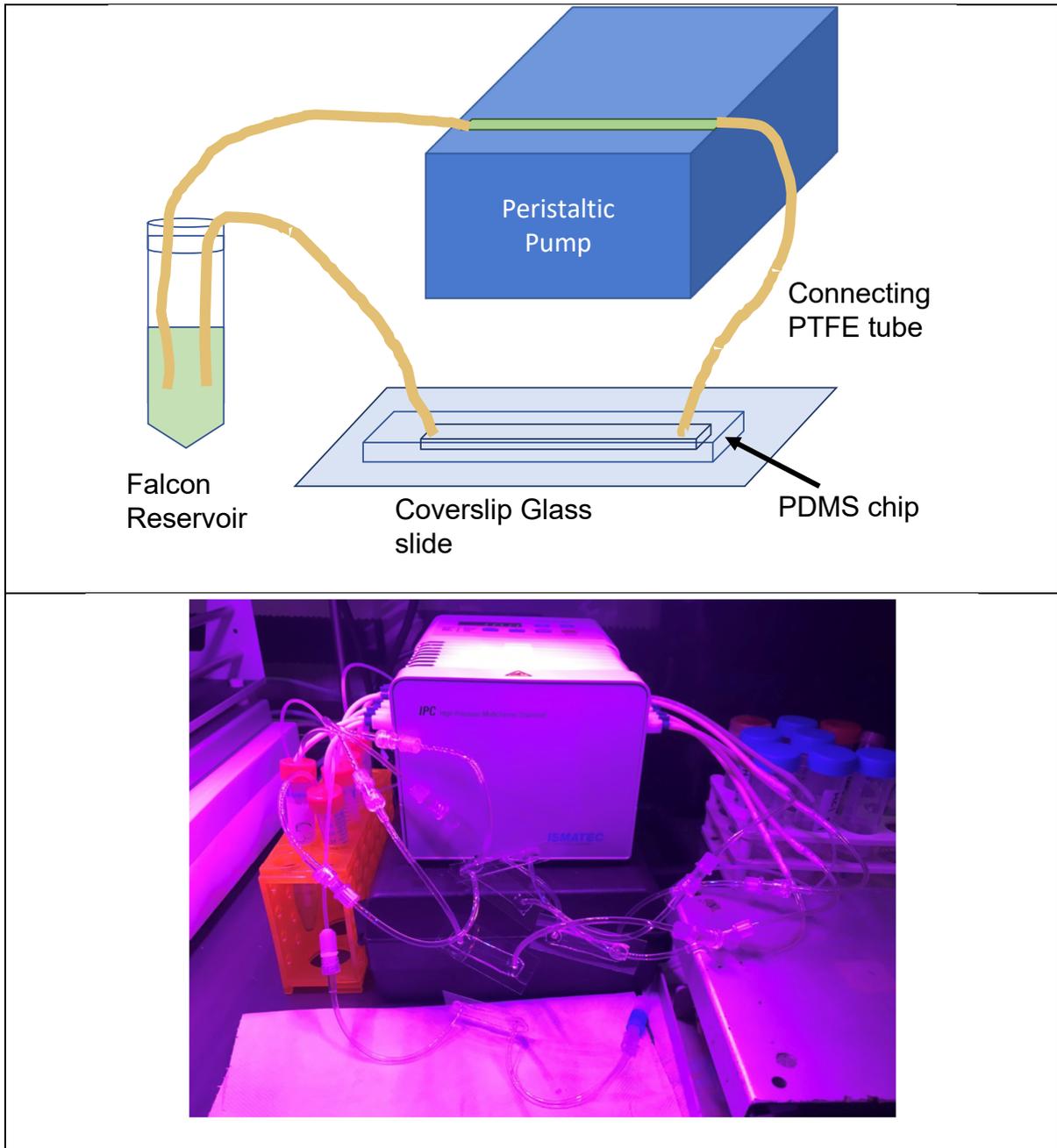


Figure S1: Upper panel: scheme of the microfluidic system set up for microalgae cultivated in batch 2. Lower panel a photograph of the set up, showing 5 microfluidic chips connected to the peristaltic pump.

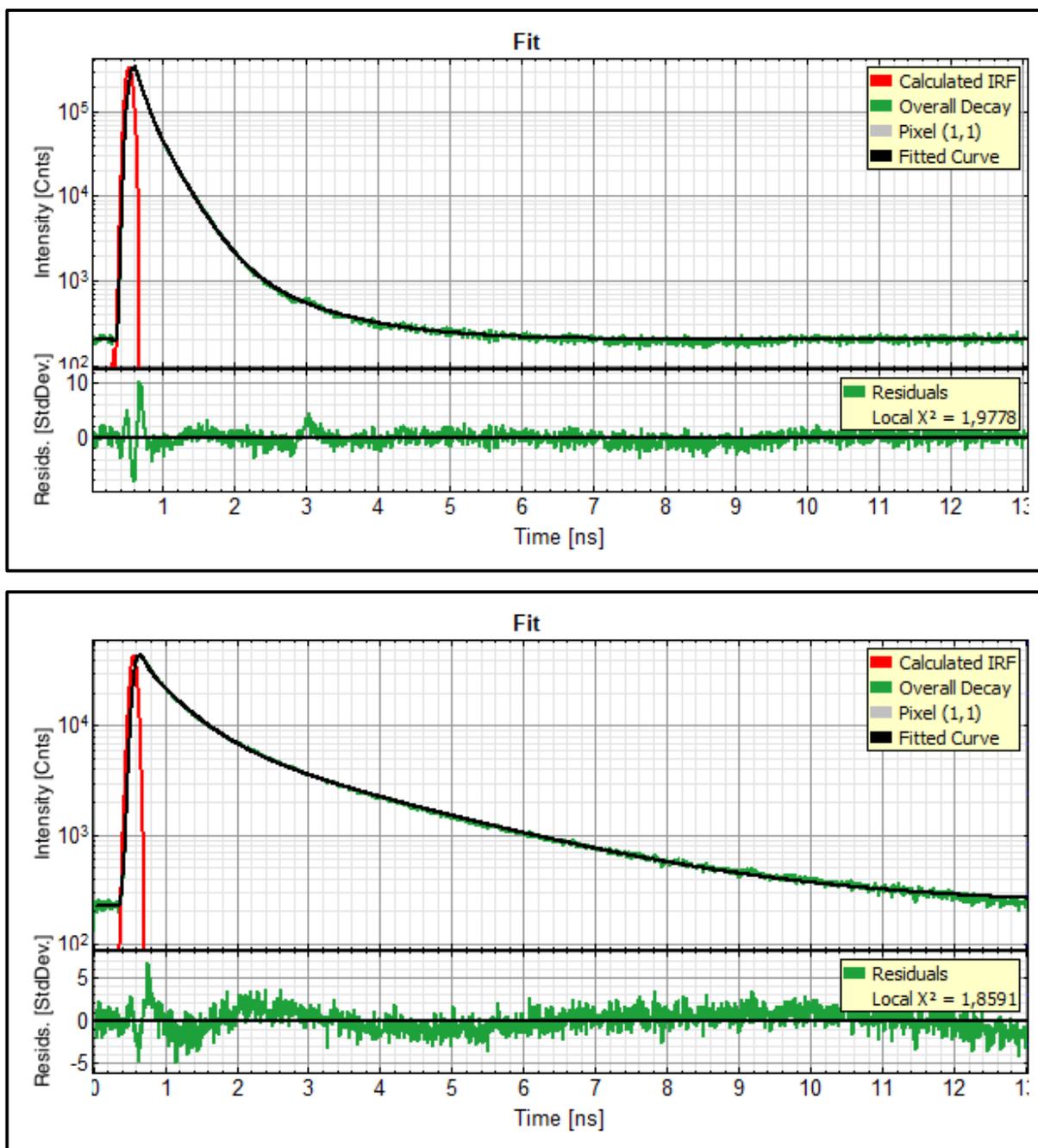
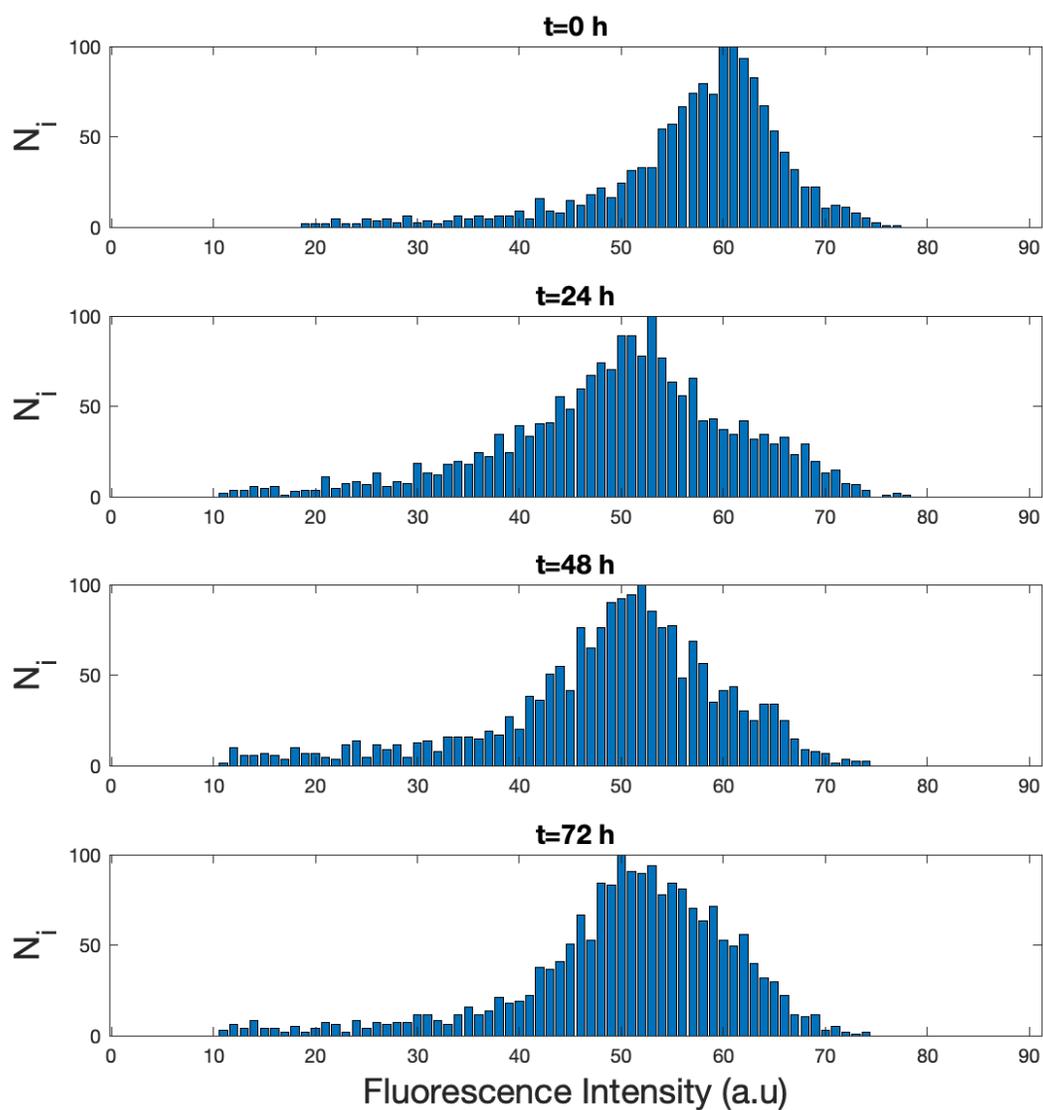


Figure S2: Fluorescence decay (green), IRF (red) and fitting curve (black) measured for *C.cimbrica* cells of batch 3 with 0 µg/ml (upper panel) and 700 µg/ml (lower panel) of Cu(II) after 72 h.

Figure S3: Single cell normalized fluorescence intensity distributions for all the 3 batches at selected Cu(II) dosed and at time 0, 24, 48, and 72 hours.

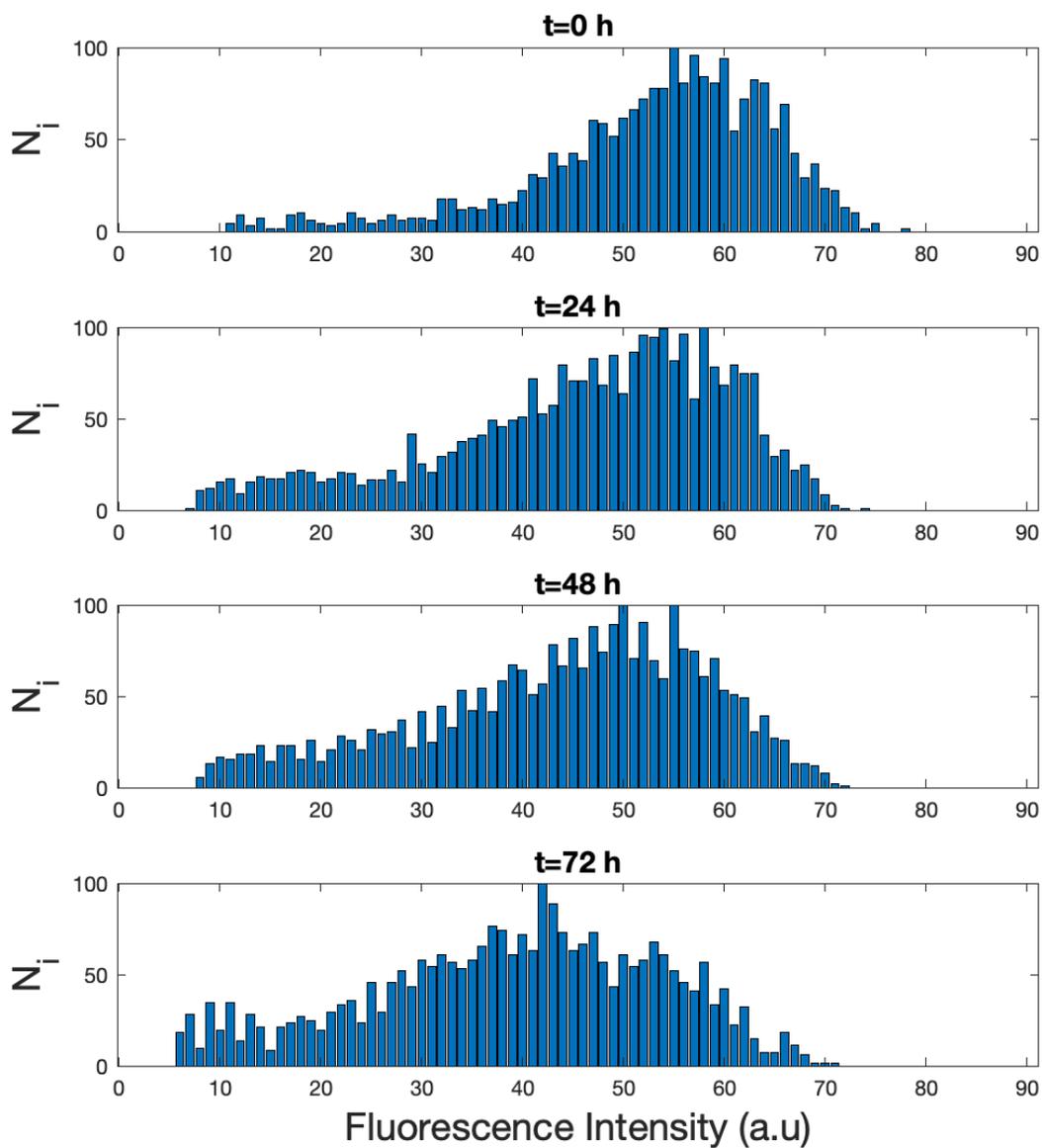
Single cell fluorescence intensity distribution for Batch 1

Cu(II) = 0 $\mu\text{g/ml}$



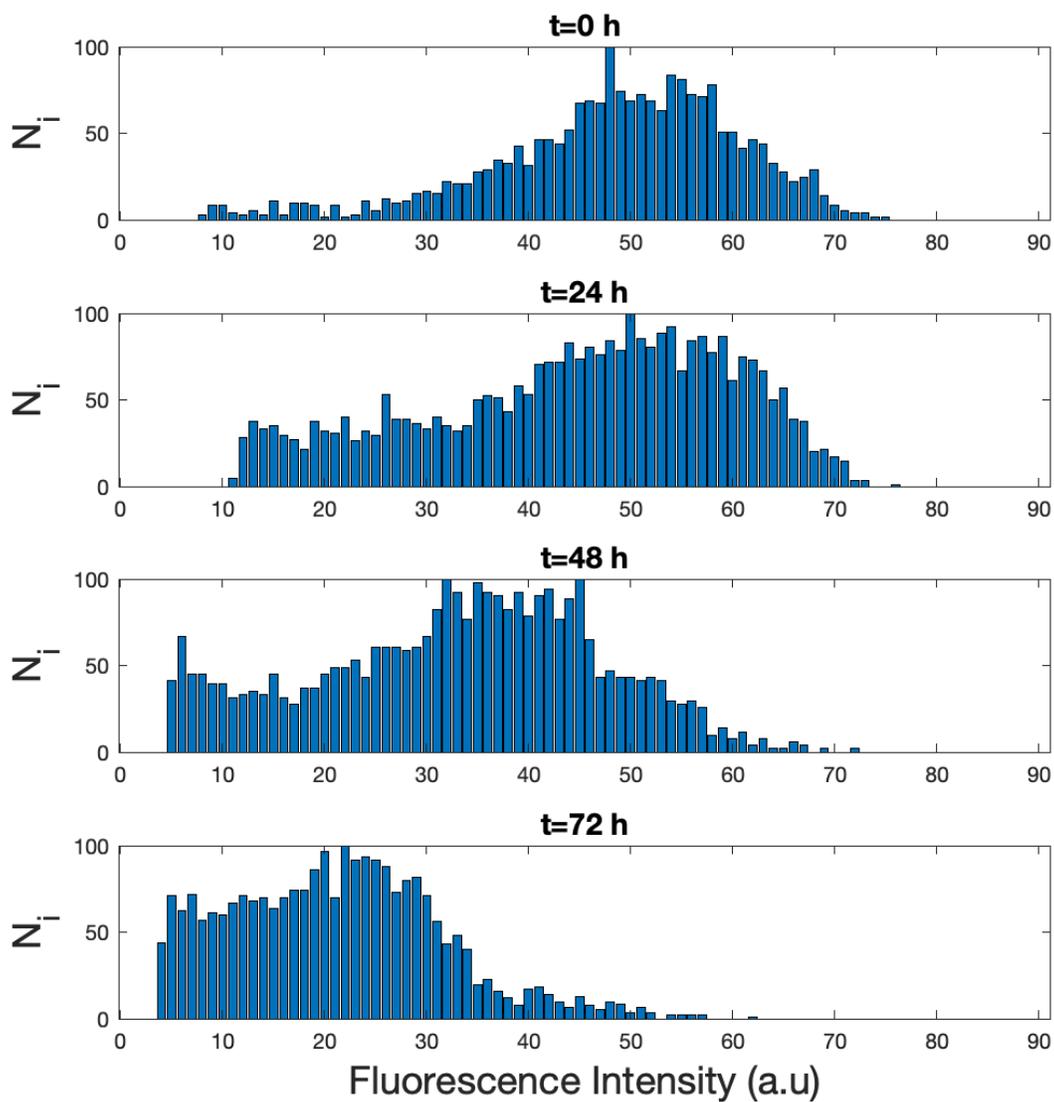
Single cell fluorescence intensity distribution for Batch 1

Cu(II) = 10 $\mu\text{g/ml}$



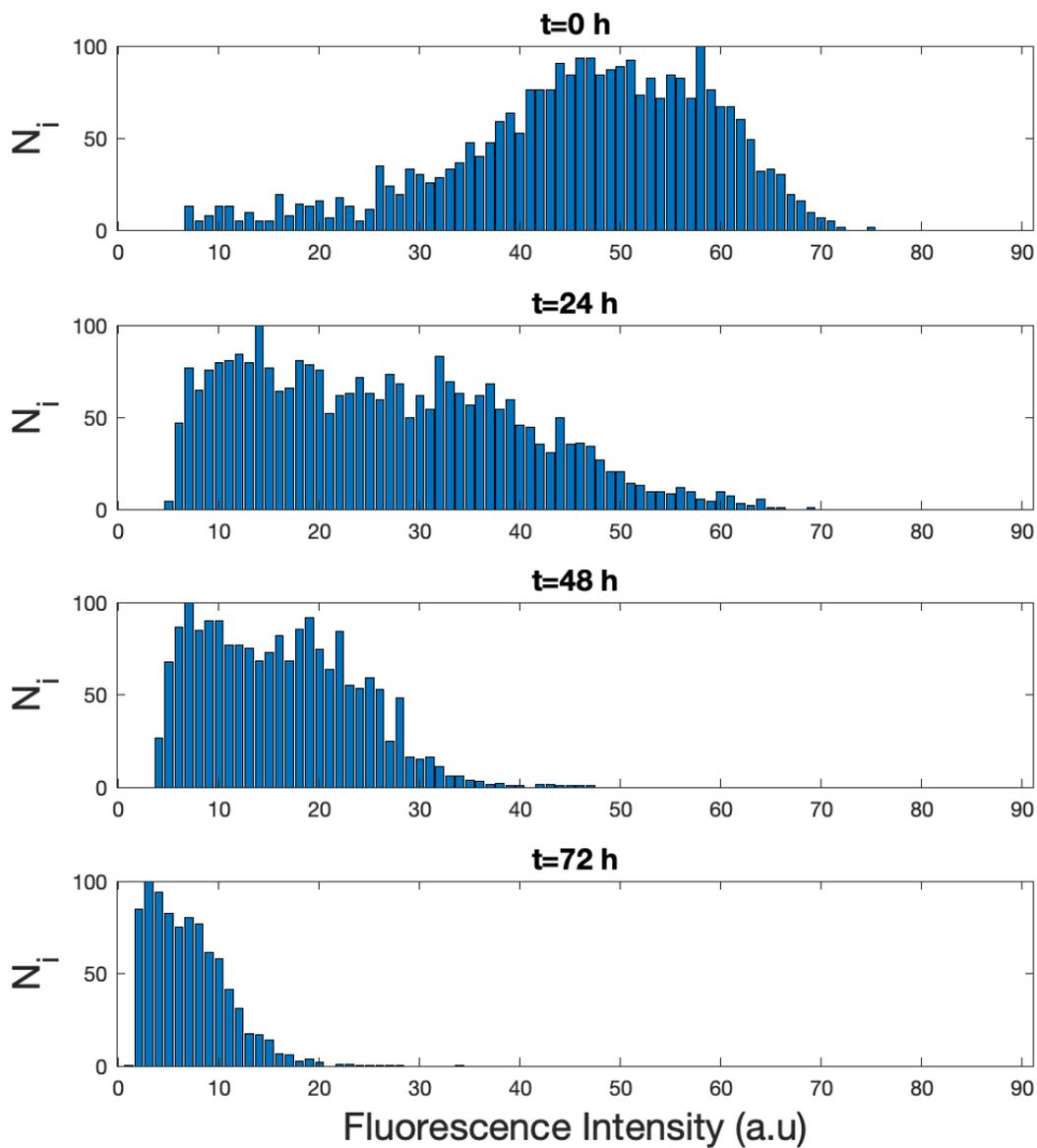
Single cell fluorescence intensity distribution for Batch 1

Cu(II) = 30 $\mu\text{g/ml}$



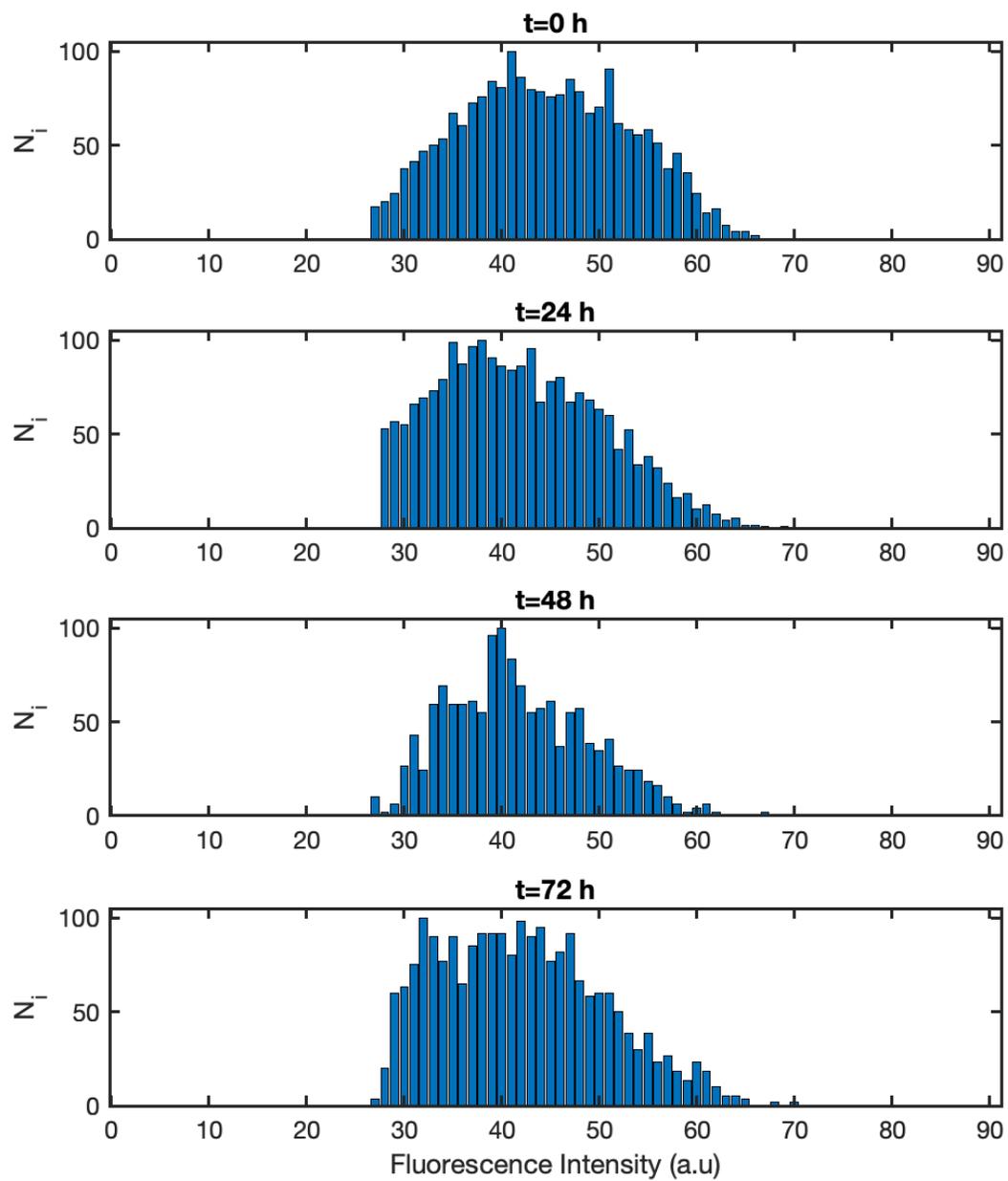
Single cell fluorescence intensity distribution for Batch 1

Cu(II) = 100 $\mu\text{g/ml}$



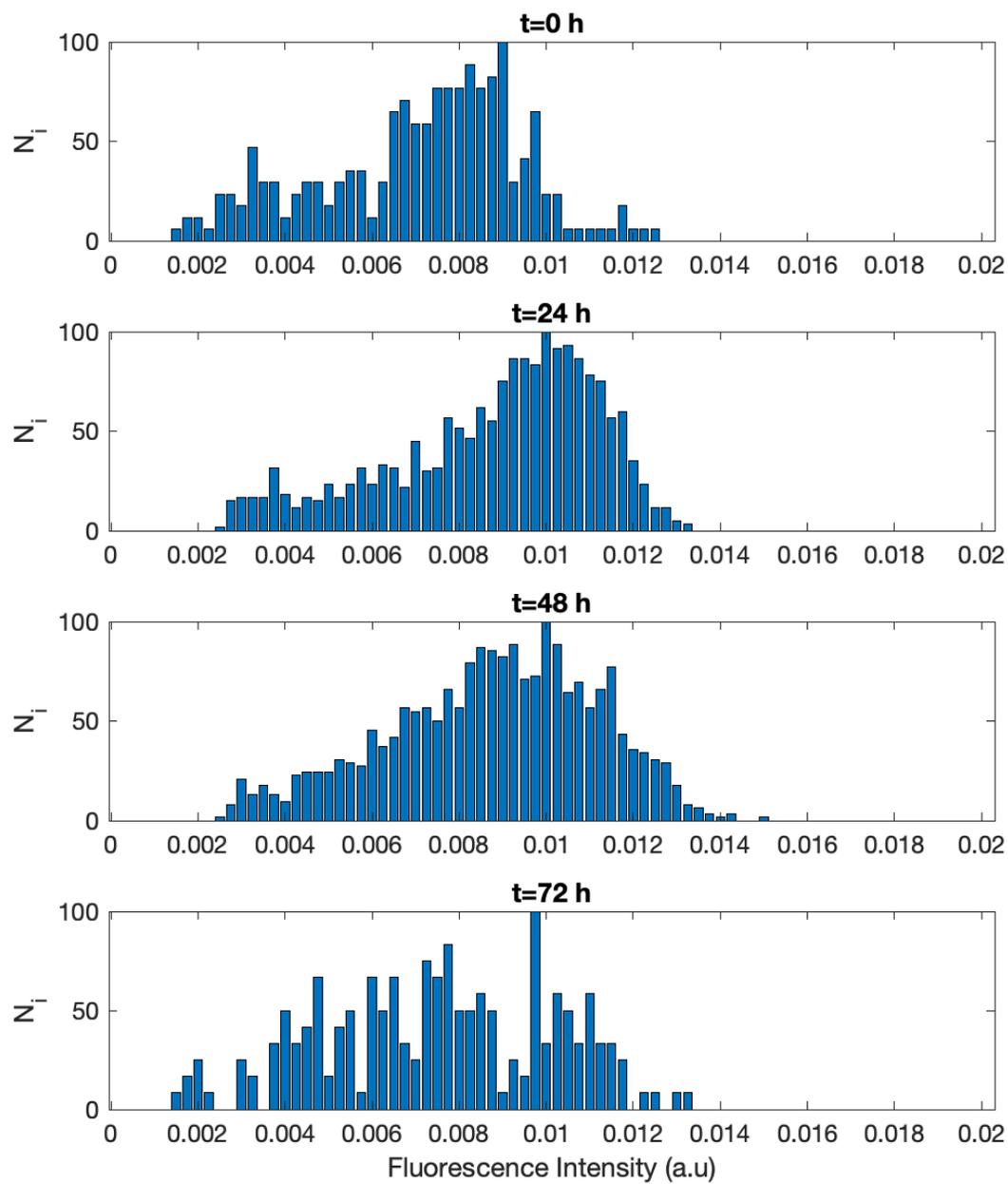
Single cell fluorescence intensity distribution for Batch 2

Cu(II) = 0 $\mu\text{g/ml}$



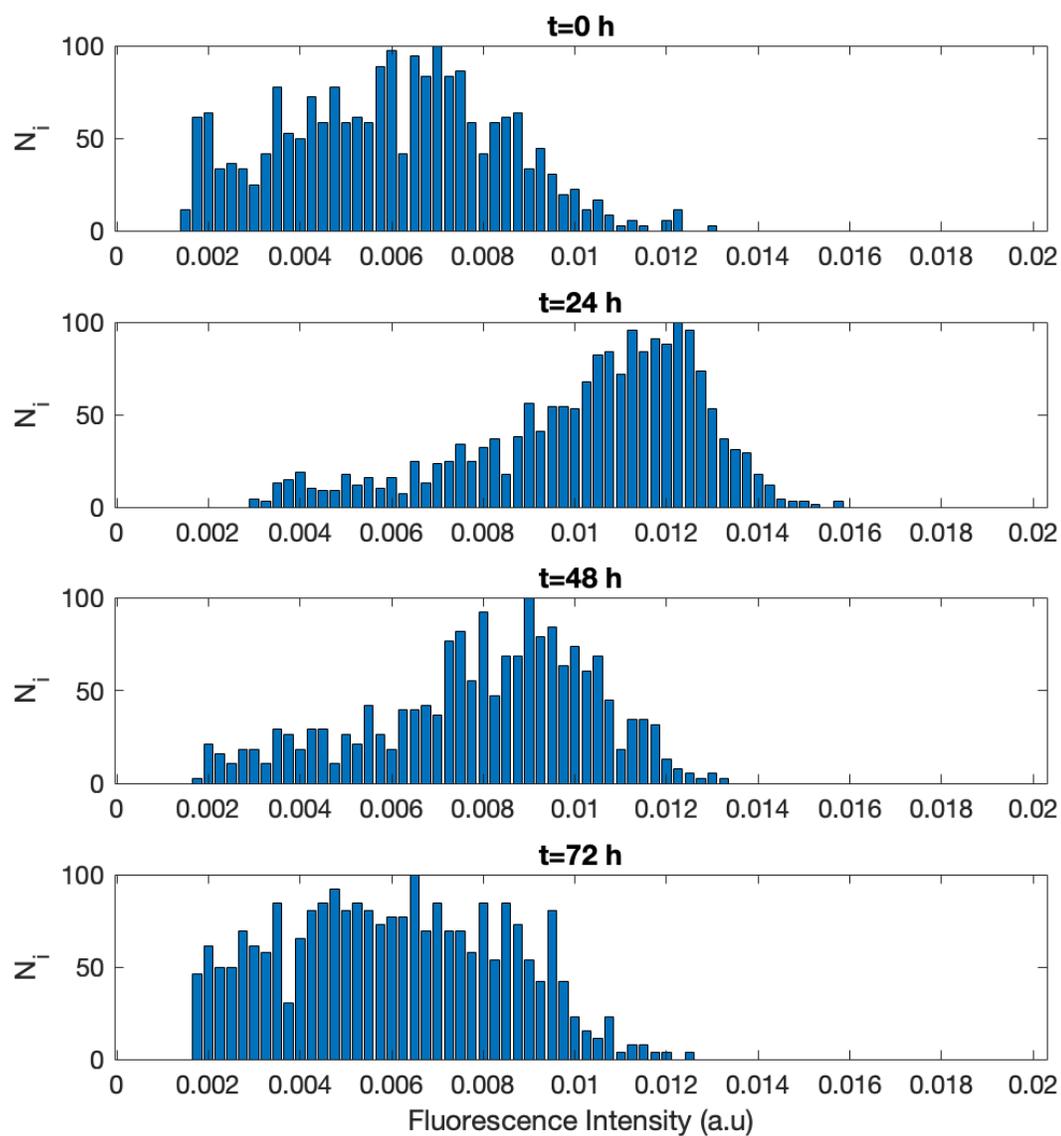
Single cell fluorescence intensity distribution for Batch 2

Cu(II) = 30 $\mu\text{g/ml}$



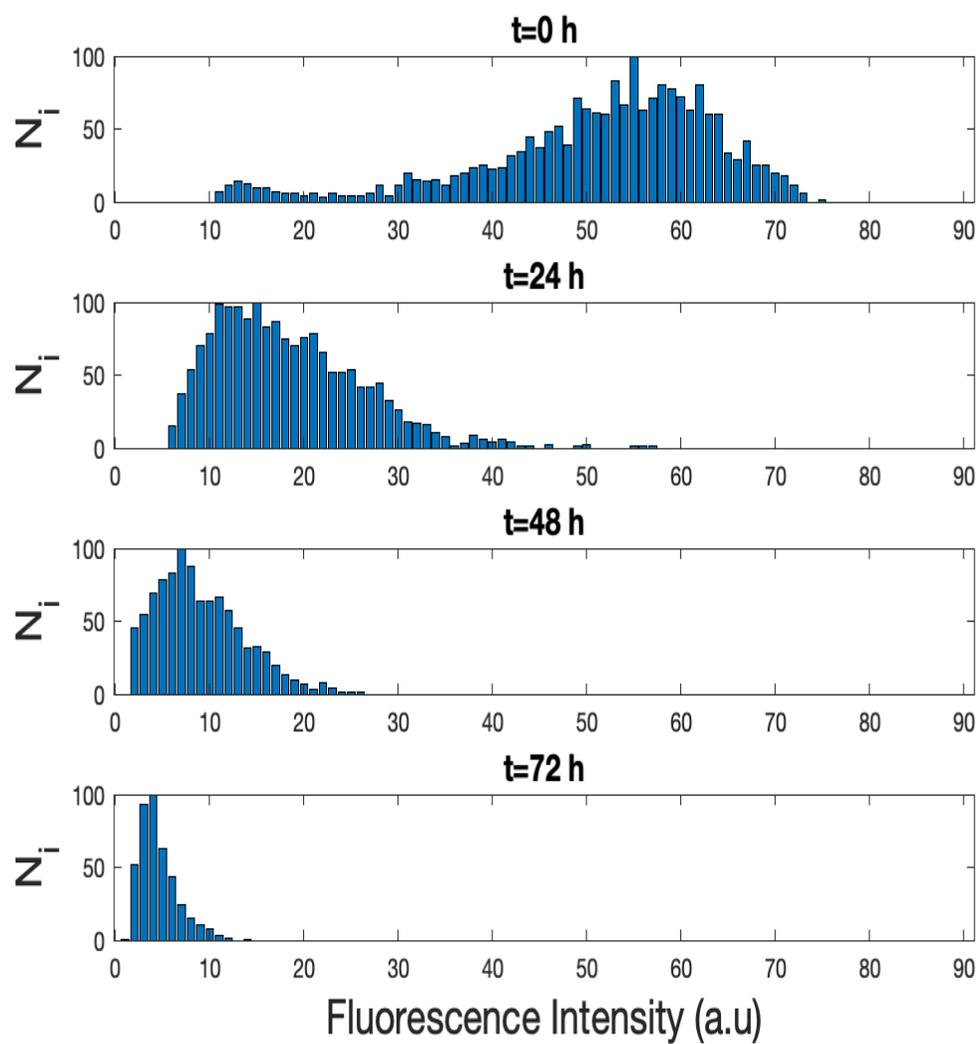
Single cell fluorescence intensity distribution for Batch 2

Cu(II) = 100 $\mu\text{g/ml}$



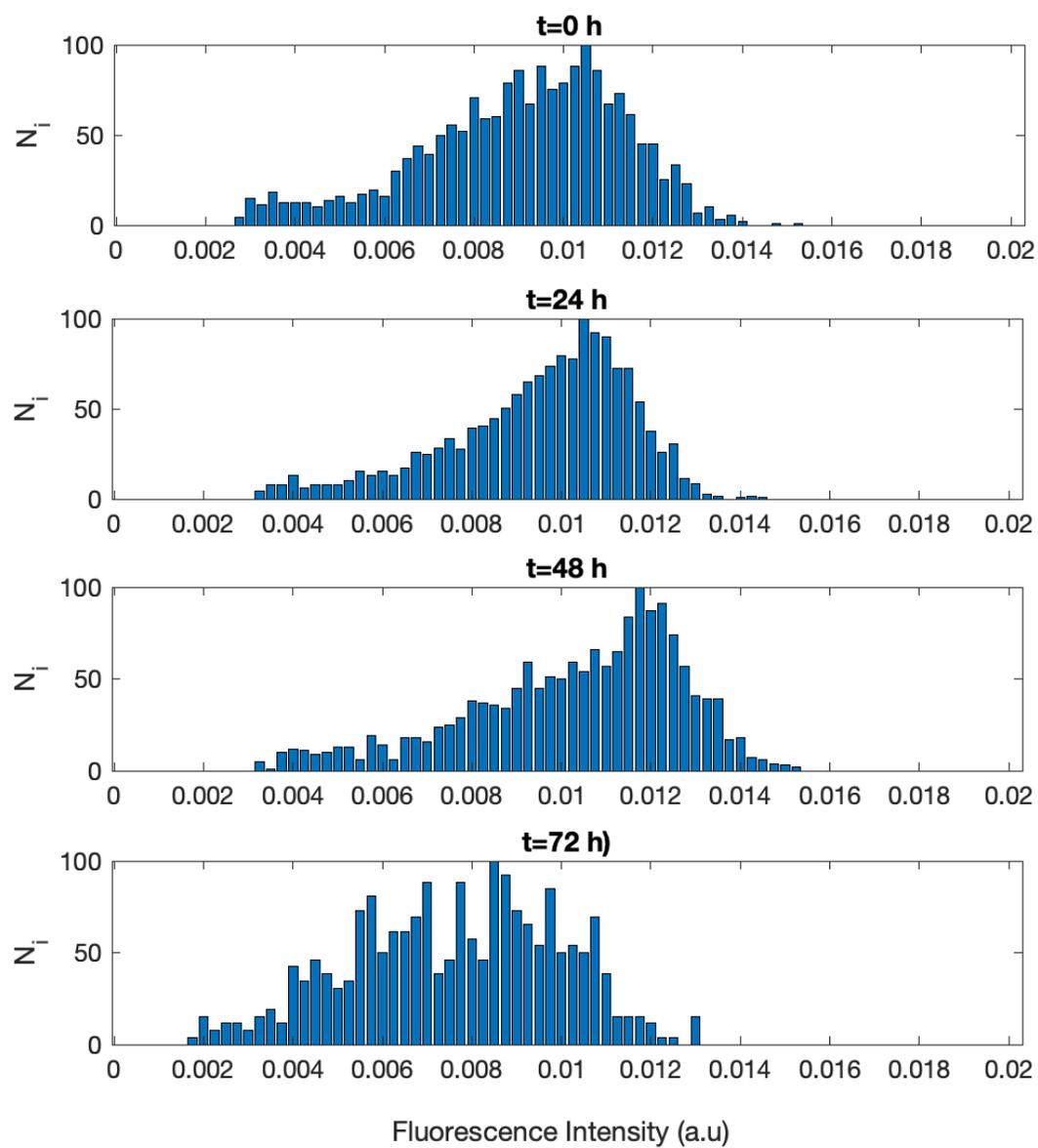
Single cell fluorescence intensity distribution for Batch 2

Cu(II) = 500 $\mu\text{g/ml}$



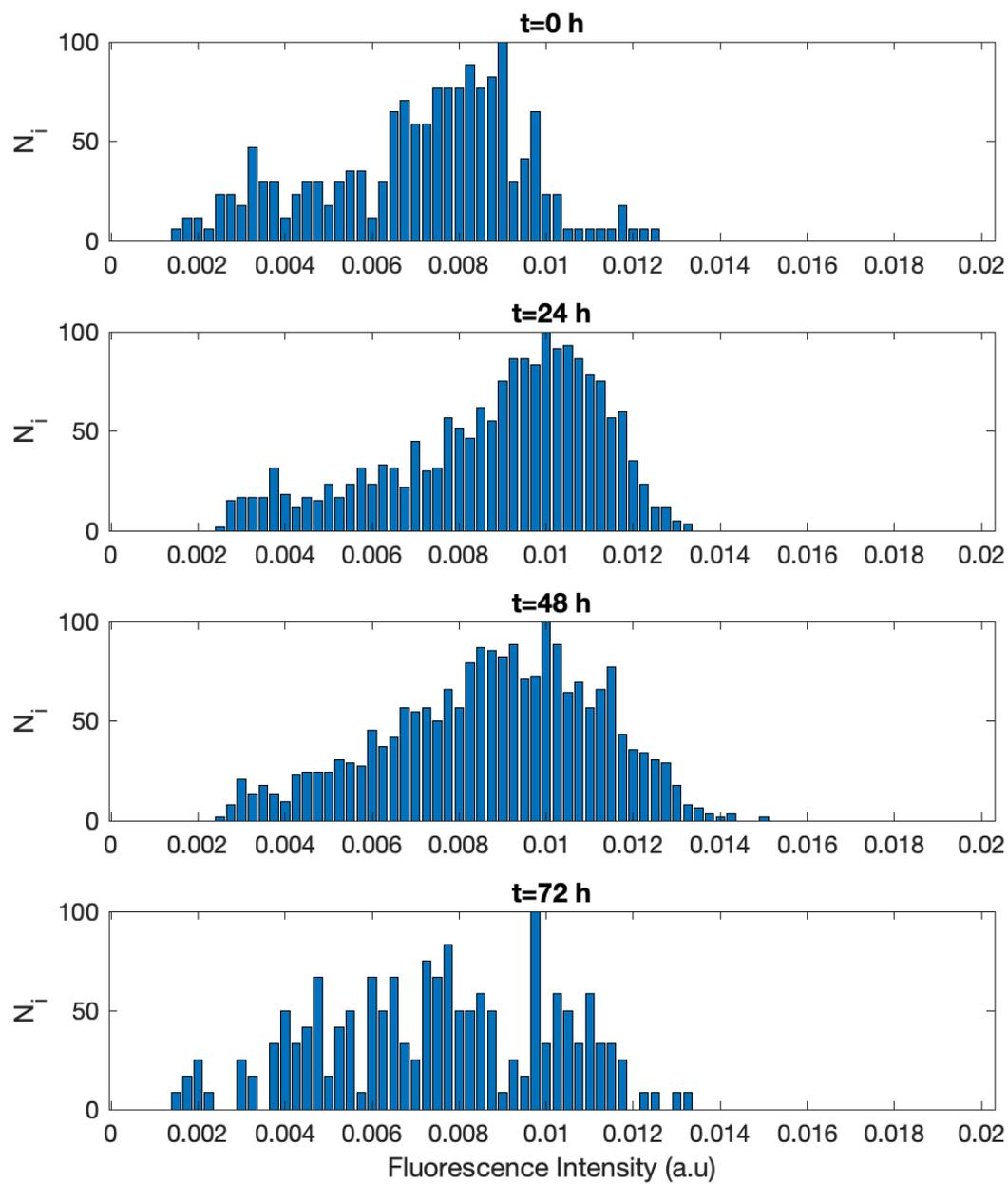
Single cell fluorescence intensity distribution for Batch 3

Cu(II) = 0 $\mu\text{g/ml}$



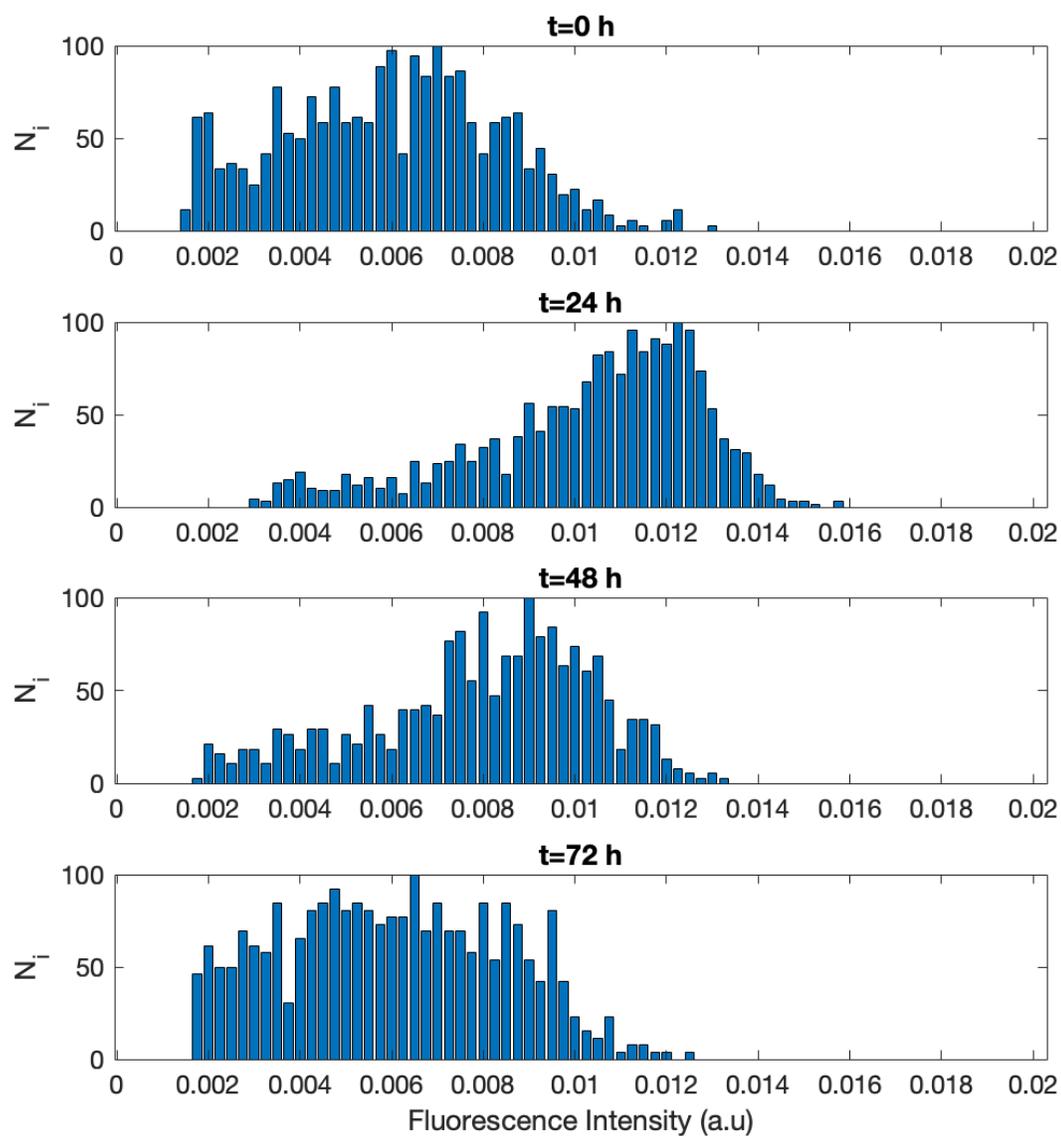
Single cell fluorescence intensity distribution for Batch 3

Cu(II) = 30 $\mu\text{g/ml}$



Single cell fluorescence intensity distribution for Batch 3

Cu(II) = 100 $\mu\text{g/ml}$



Single cell fluorescence intensity distribution for Batch 3

Cu(II) = 700 $\mu\text{g/ml}$

