

Simultaneous measurement of neurite and neural body mass accumulation via quantitative phase imaging

Soorya Pradeep^a, Tasmia Tasnim^a, Huanan Zhang^a, and Thomas A. Zangle^{a,b*}

a. Department of Chemical Engineering, b. Huntsman Cancer Institute, University of Utah

*tzangle@chemeng.utah.edu

Electronic supplementary information

Datasets: Data and MATLAB files for recreating figures and analysis are publicly available at https://figshare.com/projects/Neuron_QPI/94091, doi:10.6084/m9.figshare.13372316

Movie M1: QPI data of neurons over time showing soma and neurites during 5 d differentiation

Movie M2: Neurite-filtered QPI data showing neurite dynamics and growth during 5 d differentiation

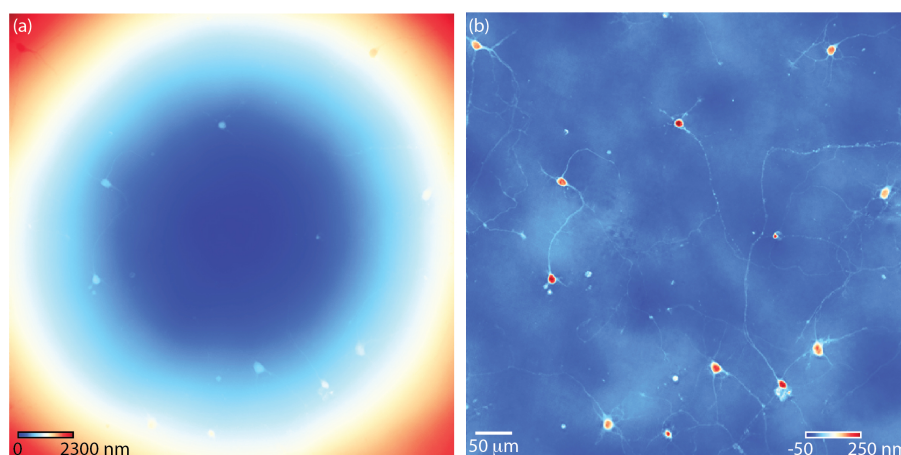


Figure S1. (a) Raw QWSLI phase shift data and (b) phase data (same as **Figure 3a**) after initial cell segmentation and fourth order polynomial surface background correction.

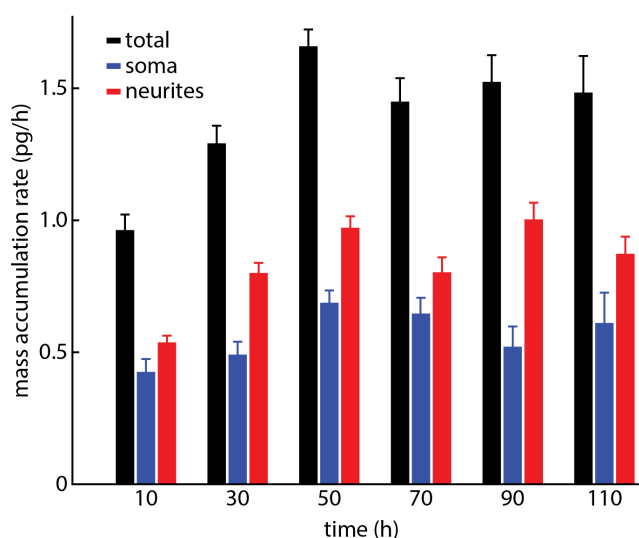


Figure S2. Absolute mass accumulation rates of total mass, soma mass, and neurite mass over 20 h periods. Error bars show standard error of the mean.

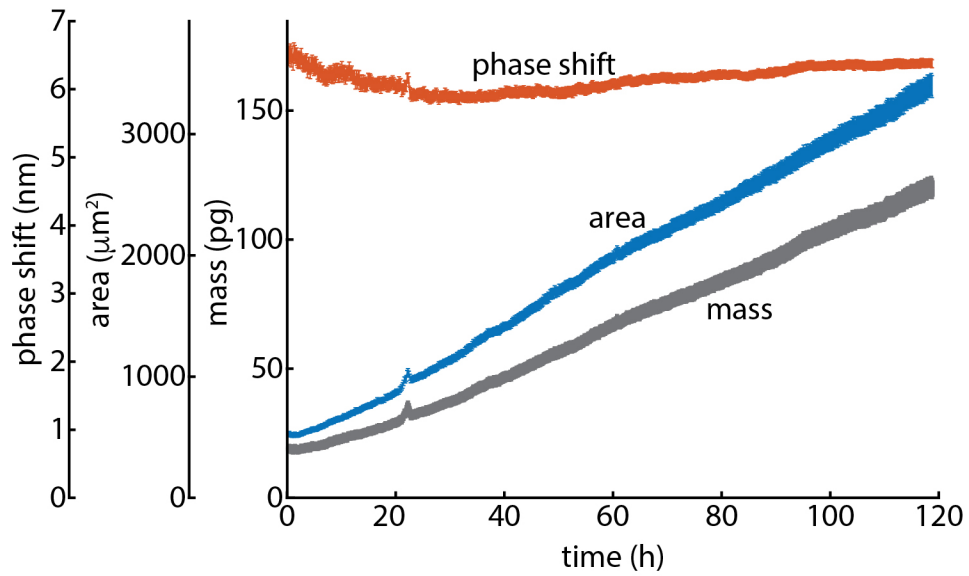


Figure S3. Neurite average phase shift (red), area (blue) and mass (gray) as a function of time. Average phase shift decreases over time for the first 30 h before the overall average increases due to neurite maturation. Area and mass are normalized per soma in each image. Error bars show standard error of the mean.