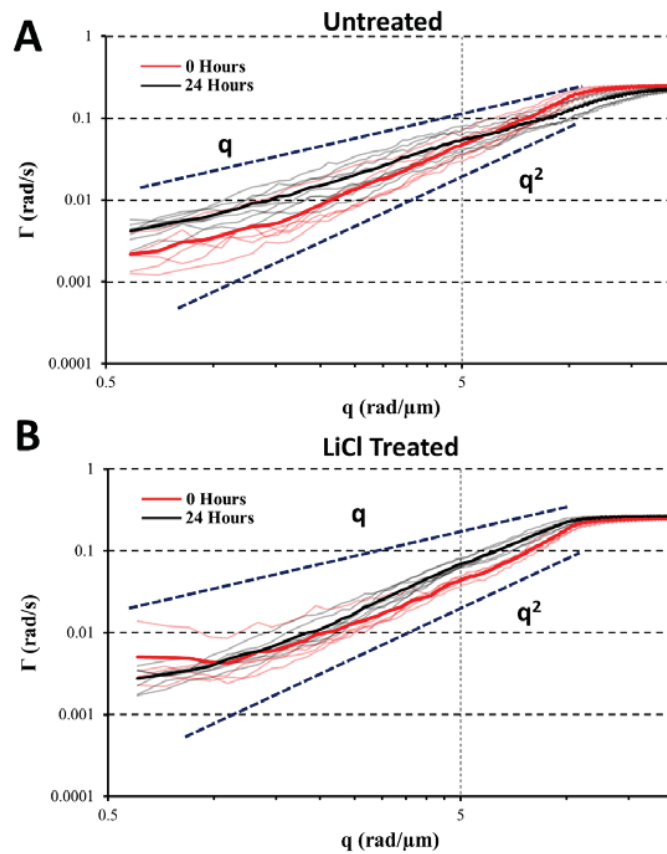


SUPPLEMENTARY INFORMATION

Label-Free Characterization of Self-Organizing Human Neuronal Networks

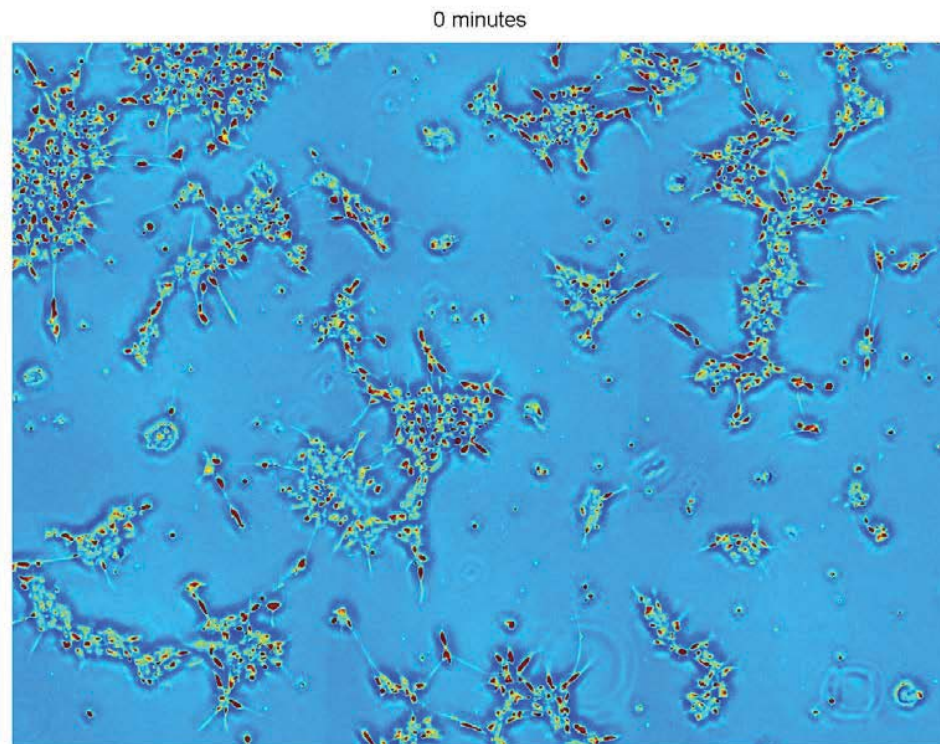
Mustafa Mir, Taewoo Kim, Anirban Majumder, Mike Xiang, Ru Wang, S Chris Liu, Martha U.

Gillette, Steven Stice and Gabriel Popescu

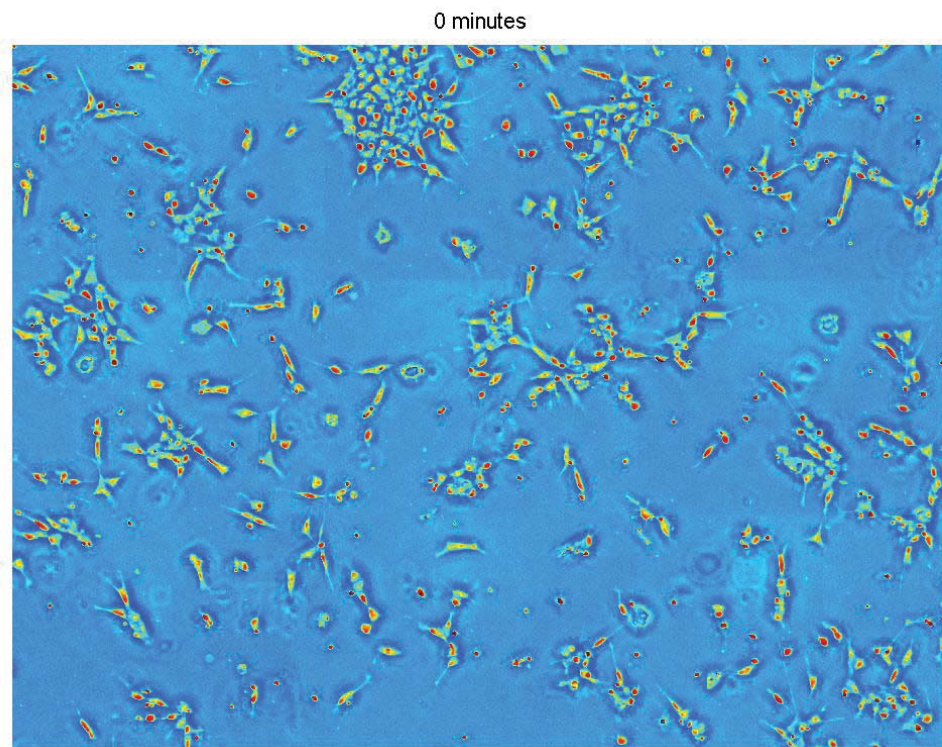


Supplementary Figure 1. Mass Transport Analysis (A-B) Radial profiles of the dispersion maps calculated from high resolution movies acquired at a rate of 0.5 Hz at 0 (red) and 24 (black) hours are shown. Faint lines are the profiles from individual movies and the darker lines are the averages calculated from these movies. (A) Data for untreated culture. A clear shift from a quadratic to a linear behavior can be seen as indicated by the dashed blue lines. (B) LiCl treated culture. In sharp contrast to the untreated culture, there is no shift to a linear behavior after 24 hours.

Supplementary Videos

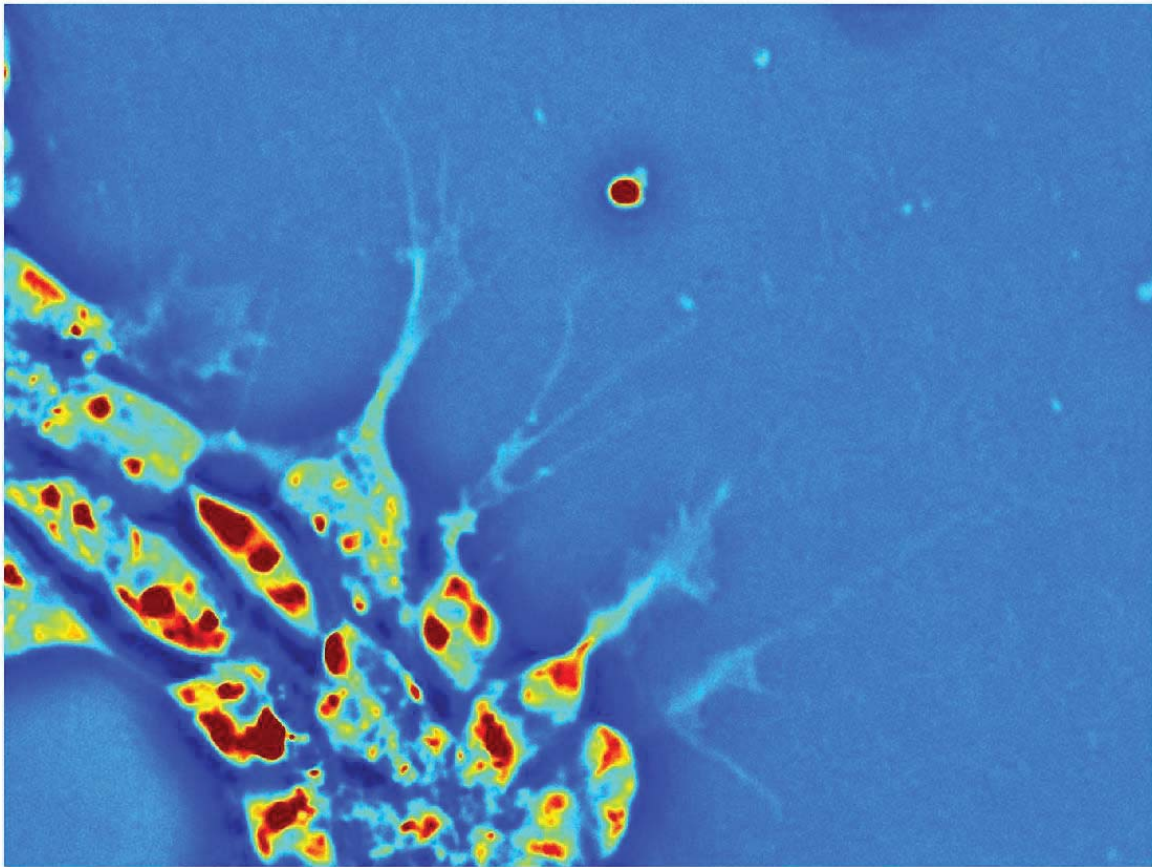


Supplementary Video 1. Neuronal network formation over 24 hours measured using SLIM. Images were acquired every 10 minutes as described in the *Materials and Methods* using a 10X objective.

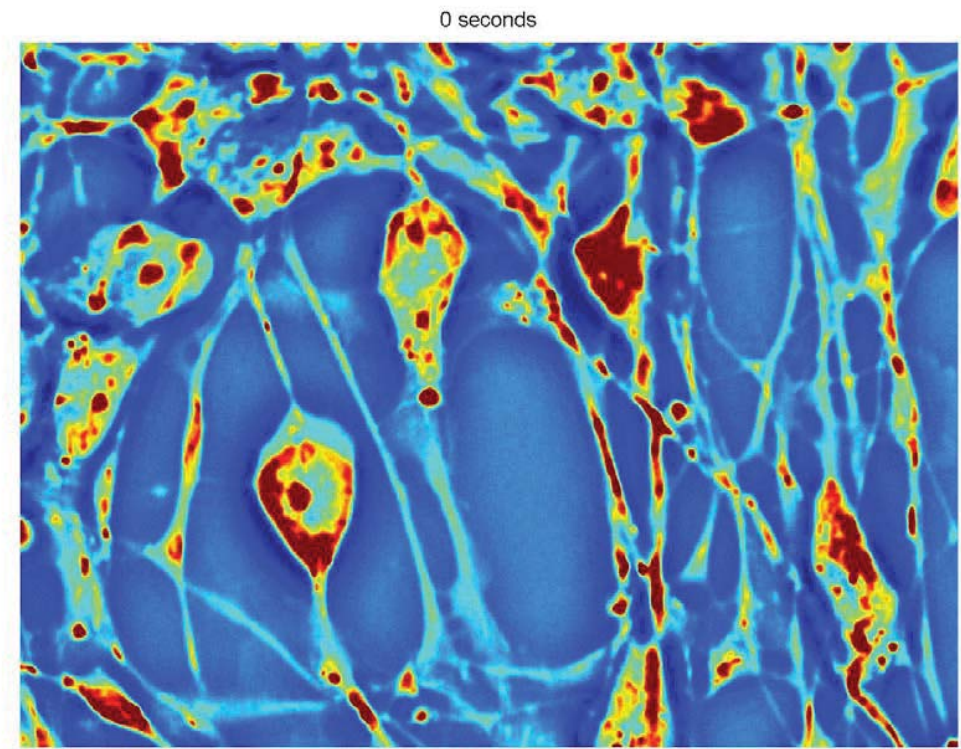


Supplementary Video 2. Neuronal network behavior in a culture treated with LiCl over 24 hours measured using SLIM. Images were acquired every 10 minutes as described in the *Materials and Methods* using a 10X objective.

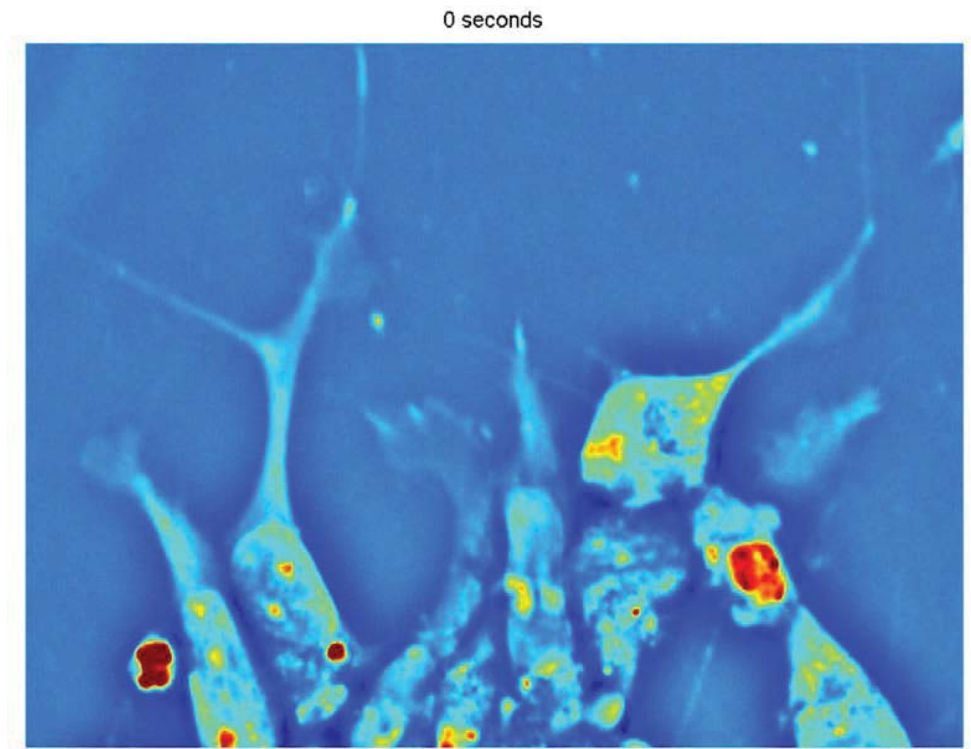
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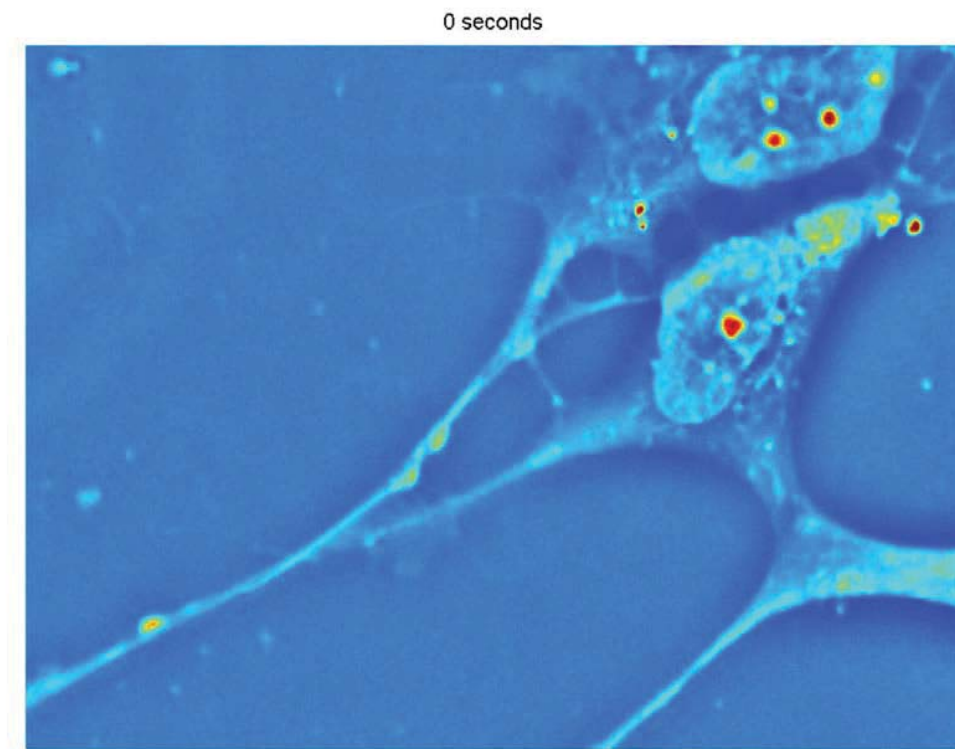
Supplementary Video 3. High spatial and temporal resolution movie of a representative field of view at 0 hours from the untreated culture. Images were acquired as described in the *Materials and Methods* using a 40X objective at a rate of 0.5 Hz.



Supplementary Video 4. High spatial and temporal resolution movie of a representative field of view at 24 hours from the untreated culture. Images were acquired as described in the *Materials and Methods* using a 40X objective at a rate of 0.5 Hz.



Supplementary Video 5. High spatial and temporal resolution movie of a representative field of view at 0 hours from the LiCl treated culture. Images were acquired as described in the *Materials and Methods* using a 40X objective at a rate of 0.5 Hz.



Supplementary Video 6. High spatial and temporal resolution movie of a representative field of view at 24 hours from the LiCl treated culture. Images were acquired as described in the *Materials and Methods* using a 40X objective at a rate of 0.5 Hz.