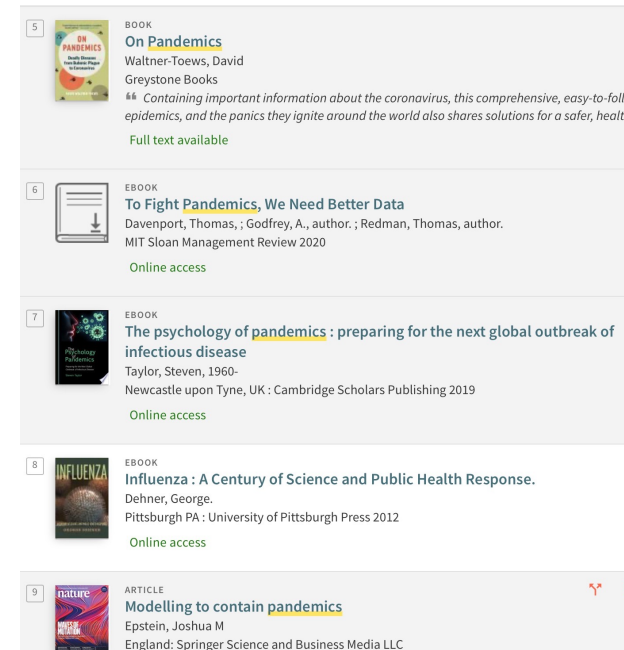





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
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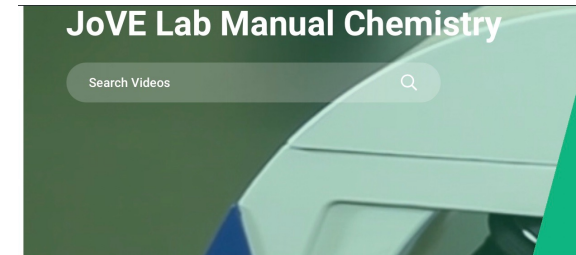
5  **BOOK**
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6  **EBOOK**
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Davenport, Thomas.; Godfrey, A., author.; Redman, Thomas, author.
MIT Sloan Management Review 2020
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7  **EBOOK**
The psychology of pandemics : preparing for the next global outbreak of infectious disease
Taylor, Steven, 1960-
Newcastle upon Tyne, UK : Cambridge Scholars Publishing 2019
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8  **EBOOK**
Influenza : A Century of Science and Public Health Response.
Dehner, George.
Pittsburgh PA : University of Pittsburgh Press 2012
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9  **ARTICLE**
Modelling to contain pandemics
Epstein, Joshua M
England: Springer Science and Business Media LLC



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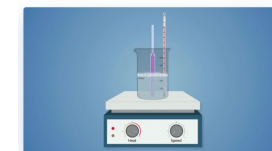
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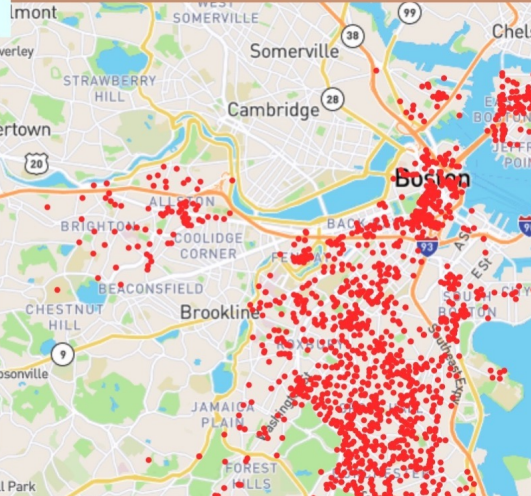
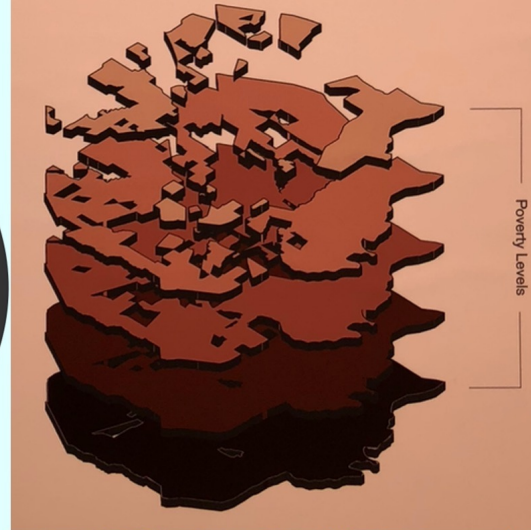
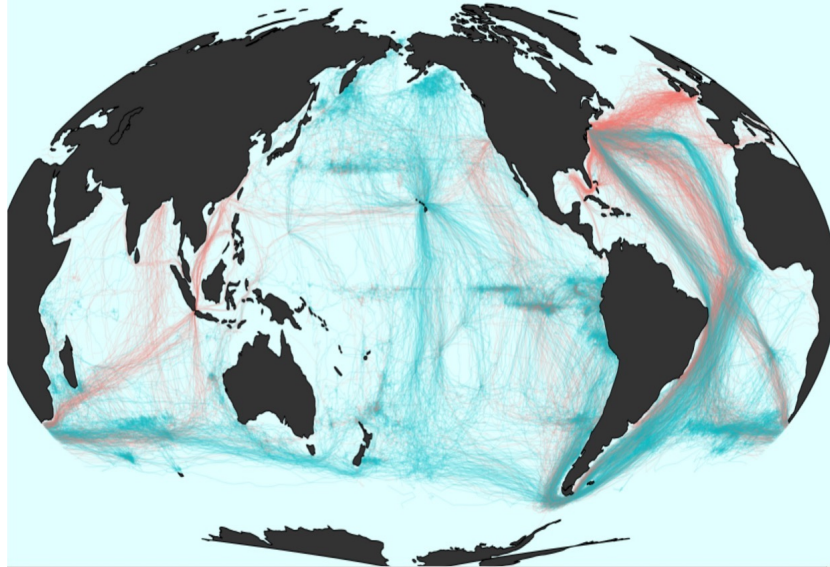


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- Early Caribbean Digital Archive
- Early Black Boston Digital Archive
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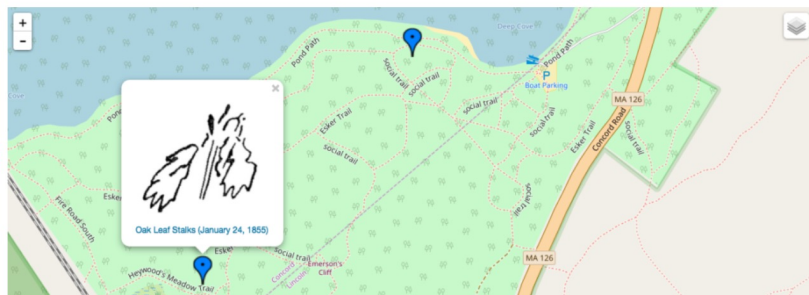
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how do I create an iN cell?

iN cells, or induced neuronal cells, can be created by converting fibroblasts into functional neurons. This is achieved by expressing a combination of three transcription factors: *Ascl1*, *Brn2*, and *Myl1l* [4]. The process begins with the infection of mouse embryonic fibroblasts (MEFs) with retroviruses carrying these three factors. *Tuj1*-positive cells with immature neuron-like morphology can be detected as early as three days after infection. After five days, neuronal cells with long, branching processes are readily detected, suggesting an active process of maturation in newly formed iN cells [5]. The iN cells are then cultured with primary cortical neurons, where they are capable of forming functional synapses [3]. The conversion process is fast, efficient, and devoid of tumorigenic pluripotent stem cells, making it a promising approach for regenerative medicine and disease modeling [1].

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synaptically integrating into preexisting neurons. TauEGFP-positive iN cells seven days after in neonatal cortical neurons that had been cultured plating, we performed patch-clamp recordings observed spontaneous and rhythmic network activity (Fig. 4a-b). Both excitatory and inhibitory postsynaptic currents were evoked following electrical stimulation delivered 150 μ m away from the patched iN cells, (Fig. 4c-d, upper panels). NMDA receptor channel blockers CNQX and picrotoxin (Fig. 4c, middle panel). Similarly, the presence of picrotoxin, fast-decaying EPSCs were evoked (Fig. 4d, middle panel). Conversely, at a holding voltage-dependent blockade of Mg^{2+} to NMDA-mediated EPSCs could be recorded (Fig. 4d, middle panel).

Moreover, synaptic responses recorded from iN cells, such as depression of IPSCs and facilitation of IPSCs (Fig. 4c-d, lower panels). The paired recordings of synaptically positive MAP2-positive cells (Fig. 4e-f). We were also able to demonstrate that iN cells derived from cortical neurons could form functional synapses with primary cortical neurons.

Next we asked whether iN cells were capable of forming functional synapses with primary cortical neurons. To address this question we plated FACS-sorted iN cells onto primary cortical neurons. iN cultures were free of preexisting *Tuj1* or MAP2-positive cells (5/11 cells) (Fig. 4g). Upon clamping recordings at 12-17 days after sorting iN cells into primary cortical neurons, we were able to elicit synaptic currents in (5/11 cells) (Fig. 4g). AMPA receptor-mediated EPSCs (8/11 cells) and AMPA receptor-mediated EPSCs (8/11 cells) were able to detect obvious IPSCs in a total of five cells. iN cells are capable of forming functional synapses with primary cortical neurons.

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Research Collaborations

