Machine Learning Mediated Prediction of Cellular Behavior via Combinatorial Biophysical Cue (CBC) Array

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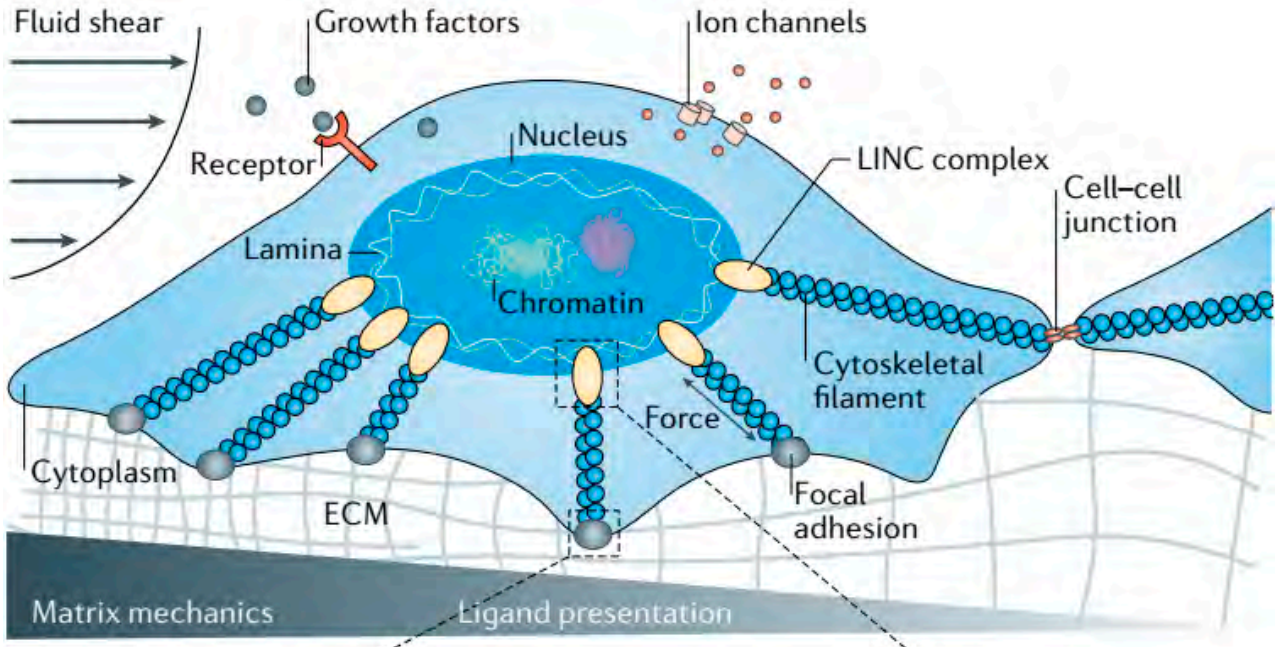
Biophysical Cues, Epigenetics and Cell Fate Regulation



Outside-in signaling:

Cytoskeletal remodeling
Nuclear pore modulation

Epigenetic modification

Cell fate alteration

ECM-mediated biophysical cues:

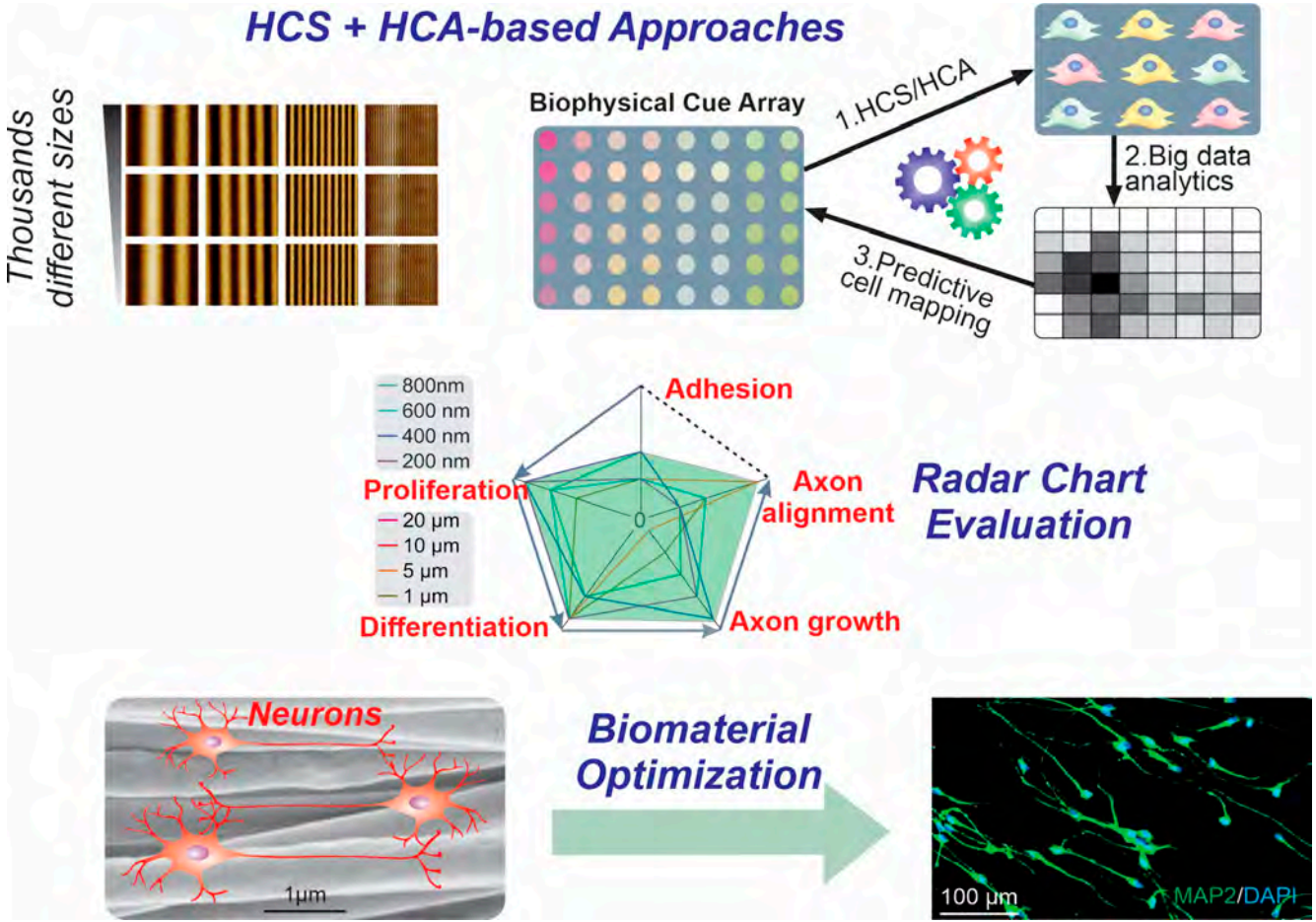
Stiffness

Viscoelasticity

Nanotopography

Nemec et al. Nature Reviews Materials. 2021

CBC Array for Designing Biomaterials for Stem Cell Differentiation



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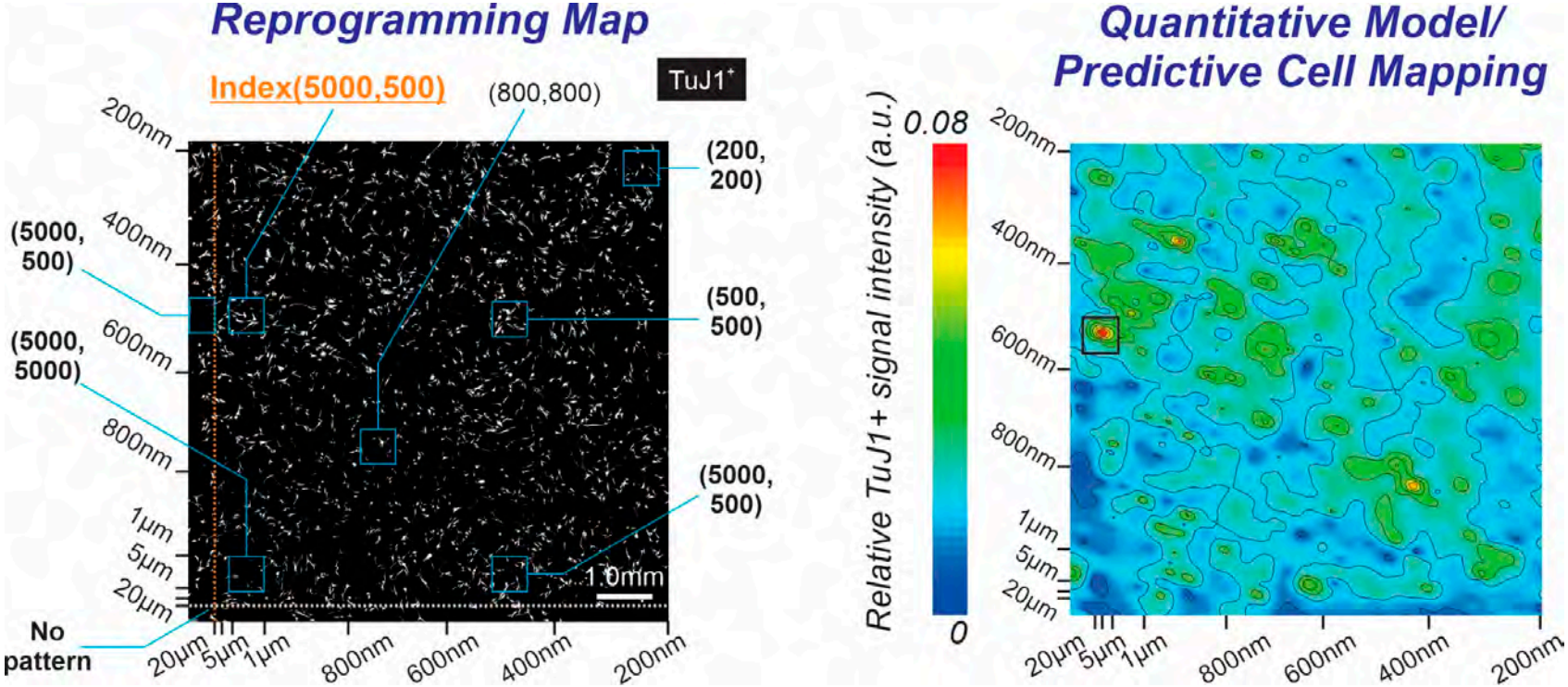
CBC Array for Designing Biomaterials for Neuronal Reprogramming



Can we trust the results of predictive cell mapping?

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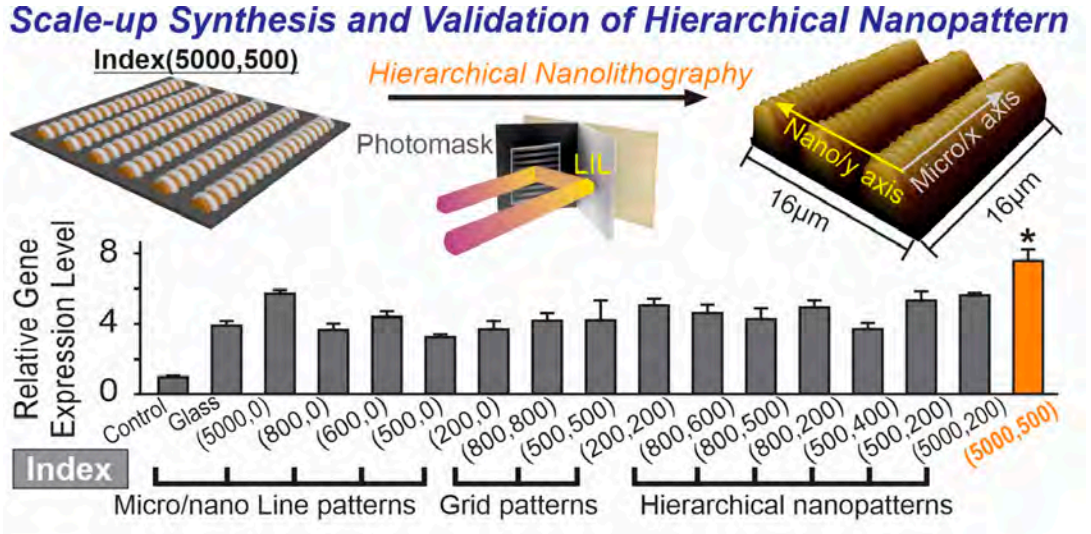
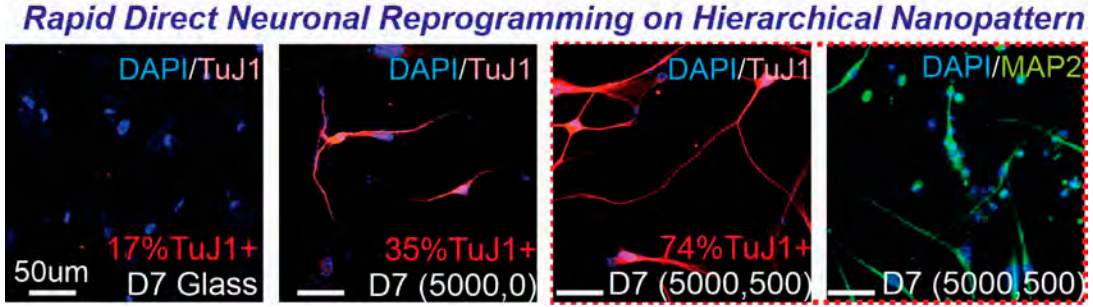
Validating CBC Array-based HTS Cell Mapping





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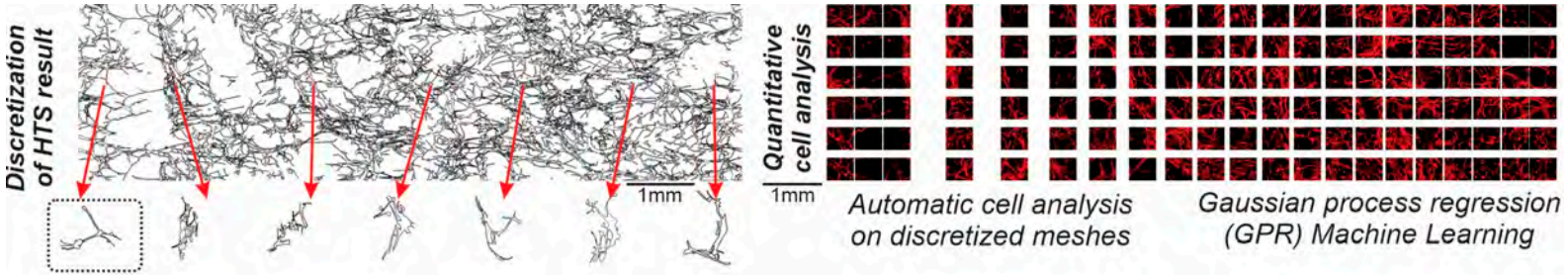
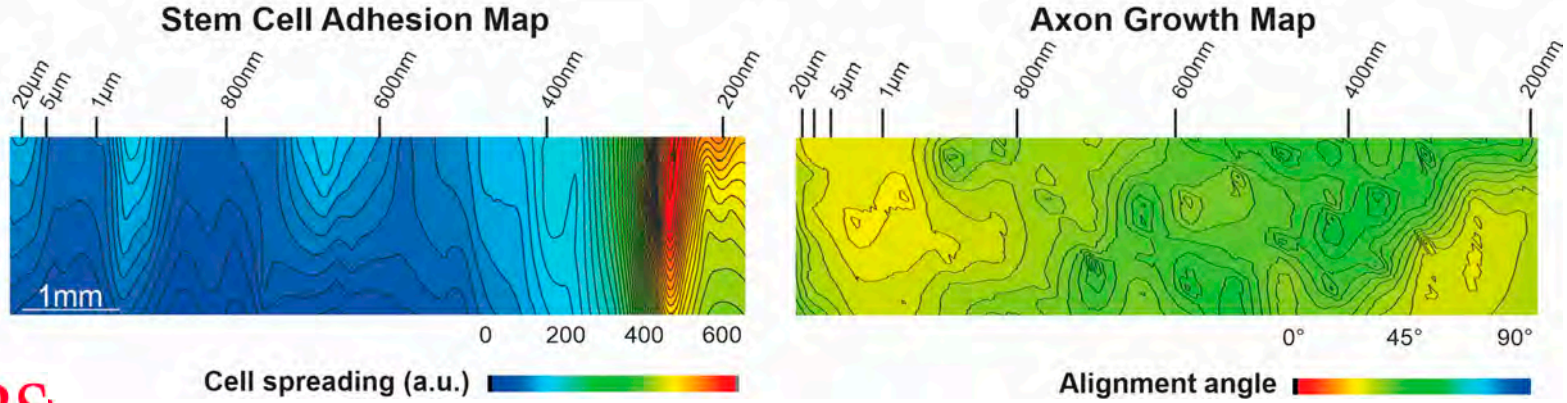
Machine Learning for Big Data Analysis of HTS Cell Mapping



Gaussian Process Regression (GPR) Machine Learning



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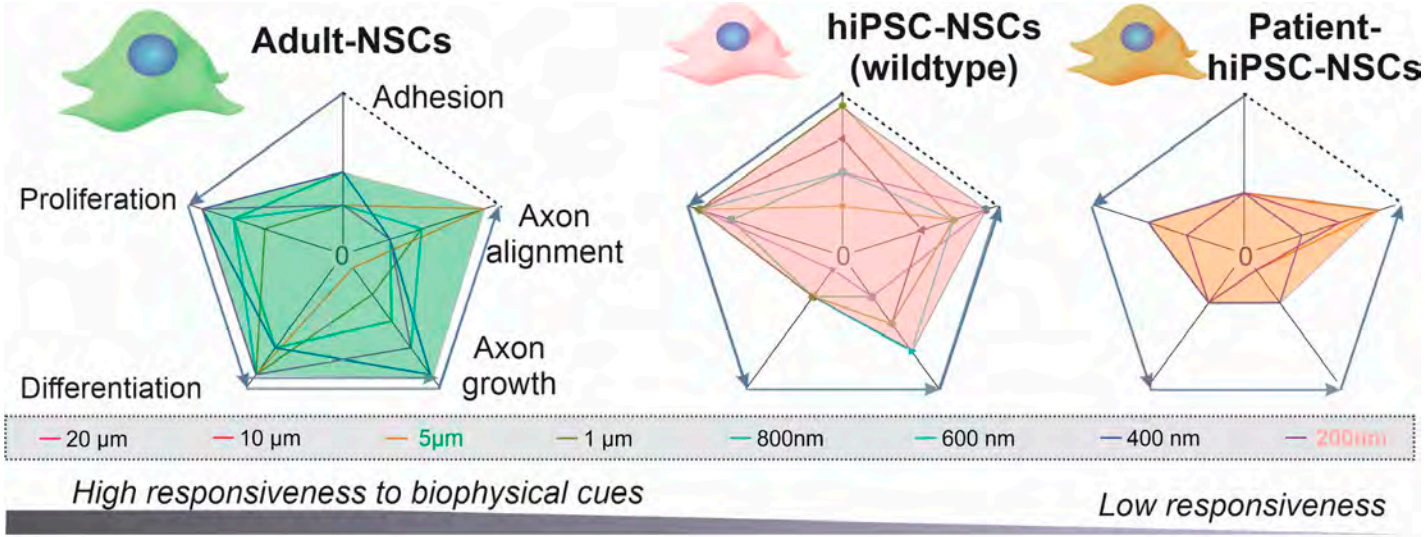
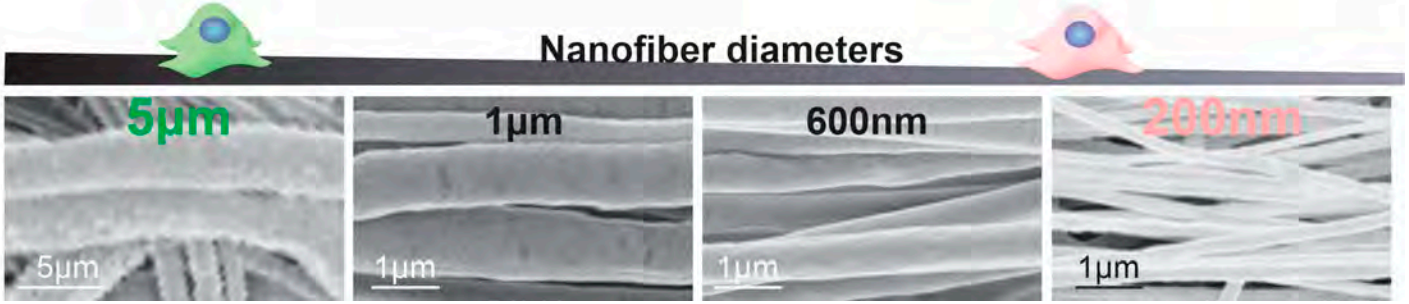
Cell-Type-Specific Biomaterial Design by CBC Array





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Thank you

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