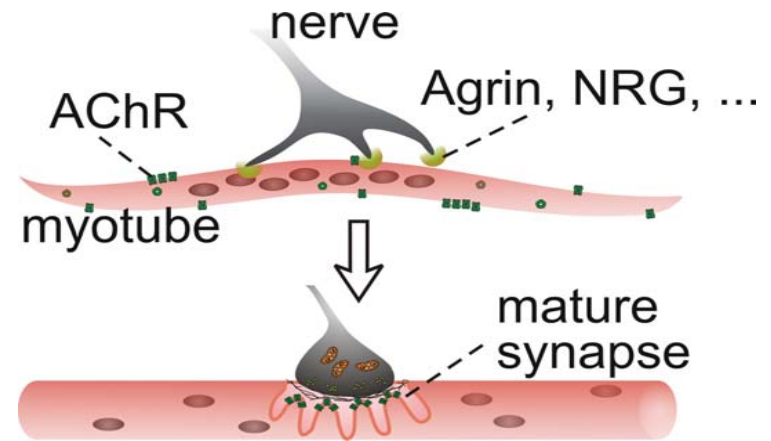


Examining the Molecular Mechanisms behind Synaptogenesis Using Nanofluidics

Aileen Wu
IGERT Graduate Fellowship
Bioengineering
November 28, 2006



What roles do agrin and neuregulin (NRG) play in synapse formation?

Fluidic tools will be used to focally apply stimulatory molecules to post-synaptic cell

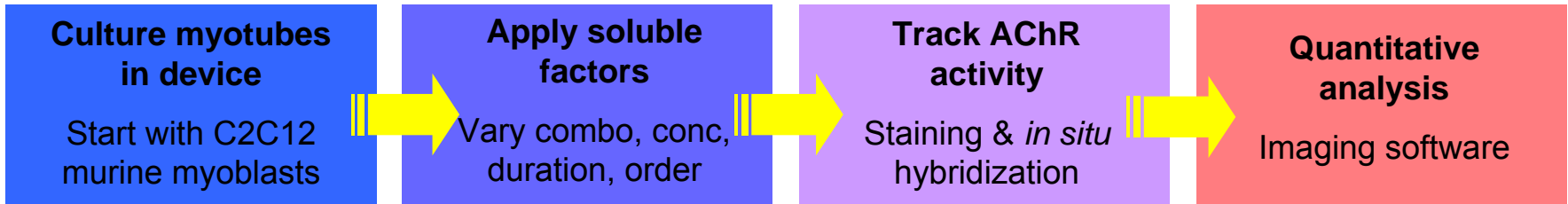


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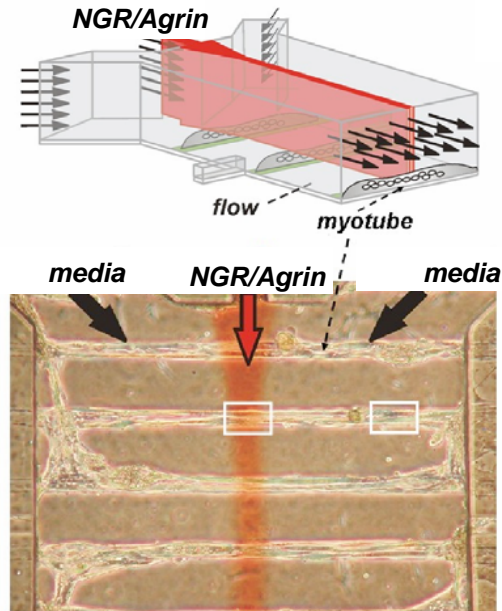


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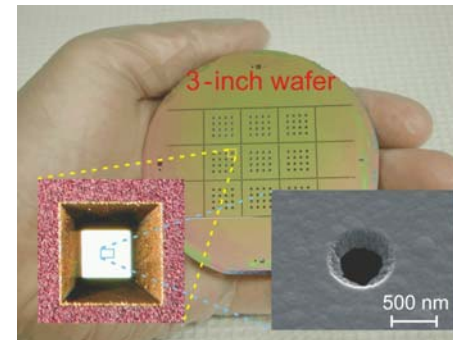
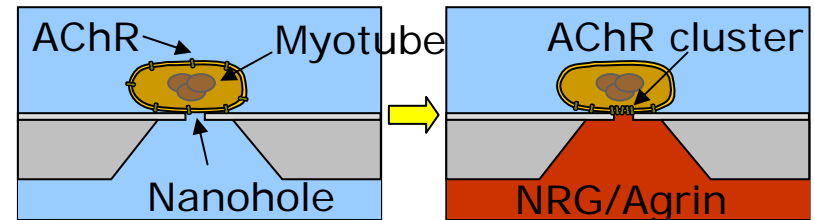
Research Strategy



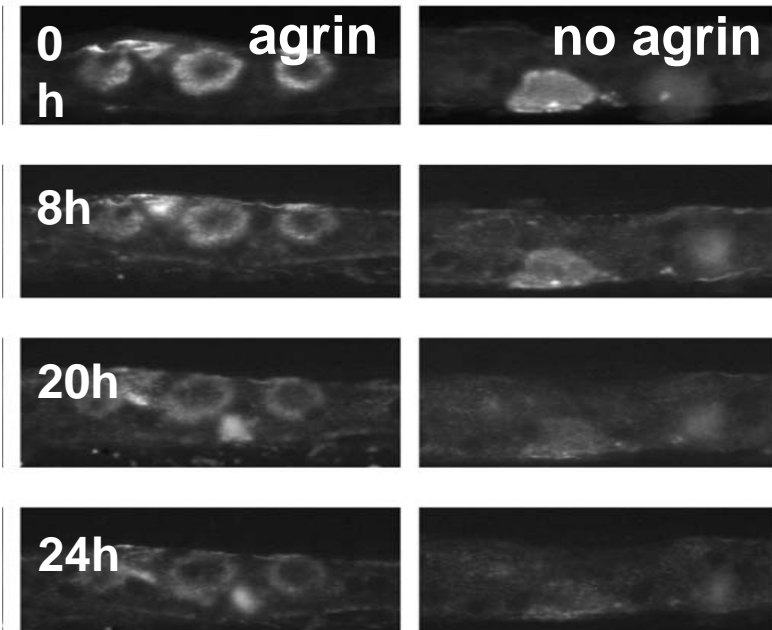
Laminar Flow Device



Nanoholes Device



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Fluorescence images of complex clusters stained with Alexa Fluor 488- conjugated α -BTX

Conclusions

- Designed and fabricated systems for focal delivery
- Reproduced pretzels
- Demonstrated that agrin has both clustering & stabilization abilities

Future Work

- Use fluidics system to study NRG
- Study combinatory effects of agrin & NRG
- Use mathematical modeling to justify hypotheses



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