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Registration Form, Guidelines, Info and Call for Awards

<https://forms.gle/HxnVGxMcetV64vGk6>

Abstract submission deadline: **extended to May 24th, 2024**

Abstract acceptance notification: May 27th, 2024

The official hashtag will be shared before the beginning of the conference



Intl Soc Biofab
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"The abstract deadline for the @ISBioFab Twitter Poster Conference on June 5/6th has been extended to Friday May 24th. If you are an early career researcher in biofabrication, register now to participate and share your latest research. Awards included for best contributions!"

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6:24 PM · May 20, 2024 · 1,079 Views



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Shab Hassa @shaha_ka · May 22 · ...
Extended to 24th May or 24th June?
Please clarify.

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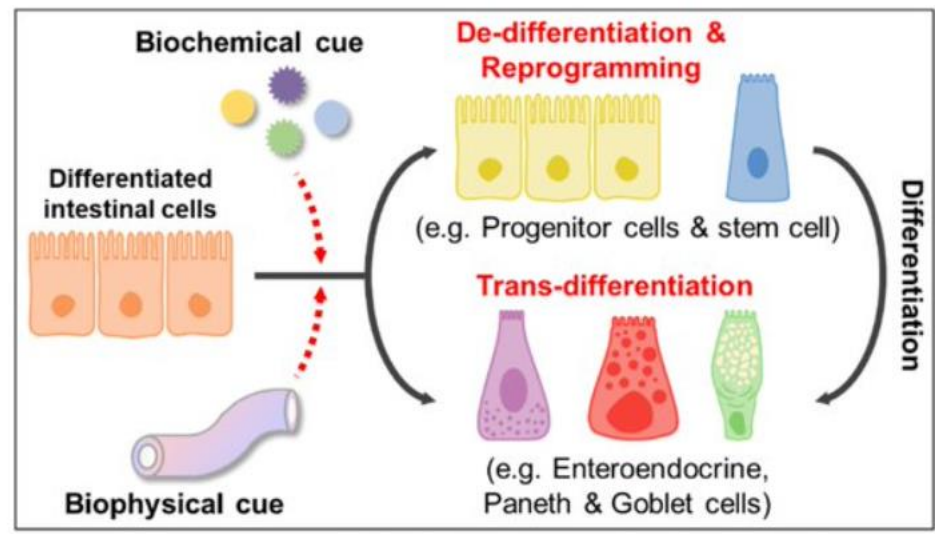
Biochemical and Biophysical Signals Specific to the Gut Enhance Enteroendocrine Activity in an In Vitro Gut Model



International Society for Biofabrication

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The concept of altering phenotypic plasticity of intestinal cells via gut-specific cues

Abstract

We hypothesized that providing **enteroendocrine (EEC) cells** with **gut-specific biochemical and biophysical cues** would trigger their **epigenetic reprogramming**, leading to enhanced representation of EEC function. We prepared a colon-derived decellularized extracellular matrix (**colon dECM**) and established a 3D bioprinting process to mimic the native gut's **tubular structure**. Our results showed significant changes in gene expression, neurotransmitter levels, cellular localization, and inflammation response, underscoring the synergistic effects of gut-specific biochemical and biophysical cues.

Acknowledgements

This research was supported by Basic Science Research Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Education(No.2020R1A6A1A03047902)



Wanna see full abstract? →



POSTECH



Hohyeon Han @HohyeonHan

Thrilled to share our work on developing a functional in vitro enteroendocrine model at the #Biofab2024 Twitter poster conference powered by @ISBioFab! 😊 Please check out our poster below 📌 and feel free to leave any comments or questions. 🙏

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Hohyeon Ha @HohyeonHa · 23m

Our findings have significant implications for how tissue-specific biochemical and biophysical cues enhance the function of in vitro tissues.

Big thanks to my coauthors 🙏
 @KHxtalzn @DG_HWNAG
 @YoonKang_ @minji_kkim
 @JinahJang4

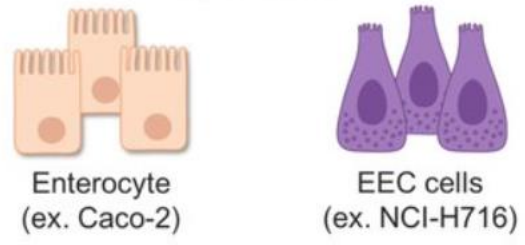
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Background

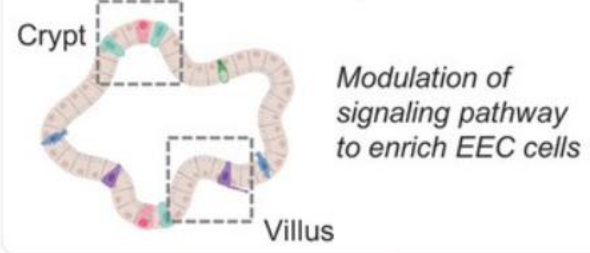
Current *in vitro* EEC models

1) Cell lines



- Simplified system
- Lack of heterogeneous cellular compositions and their interactions

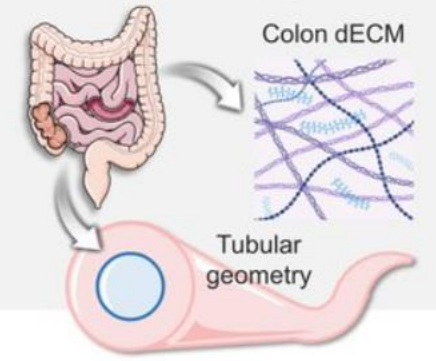
2) Intestinal Organoids



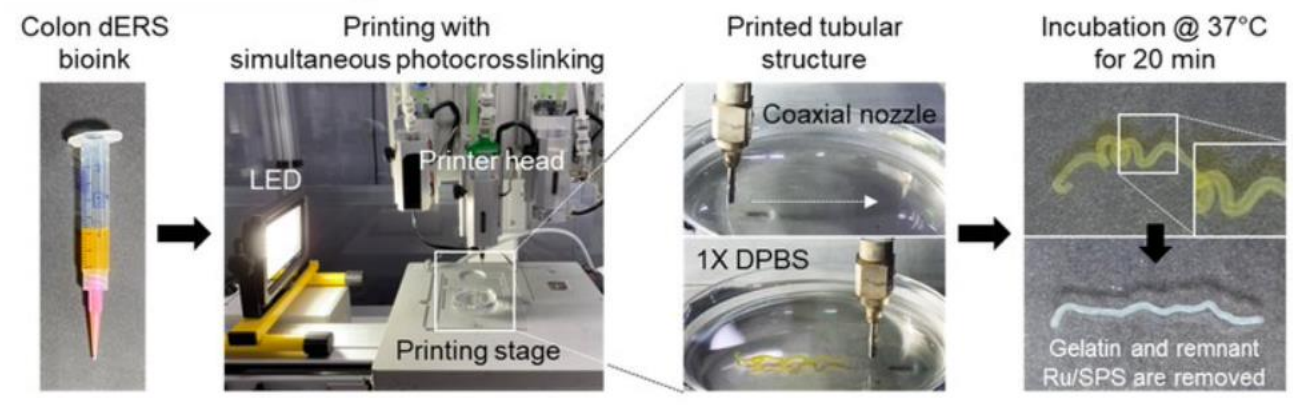
- Intrinsic organoid-to-organoid variability
- Limited hormone secretion level despite enriched population of EEC cells

Necessity of functional EEC models

Our strategy



Materials and methods



Bioink composition in this study



REFERENCES
[1] Byeongmin Kang et al., *Adv. Mater. Technol.* 2022, 7, 2100947
[2] Hohyeon Han. et al., *Adv. Healthcare Mater.* 2022, 11, 2101768

Hohyeon Han @HohyeonHan

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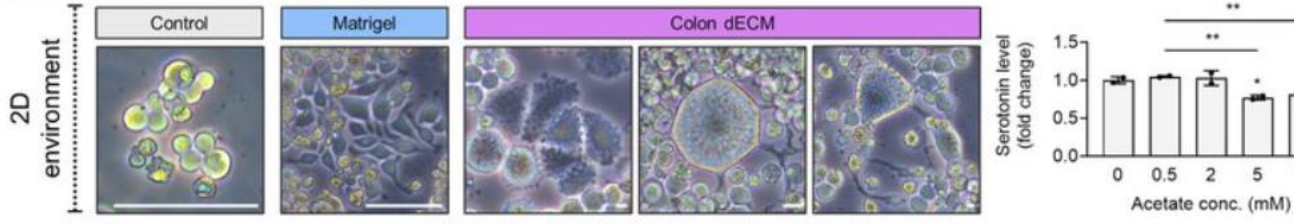
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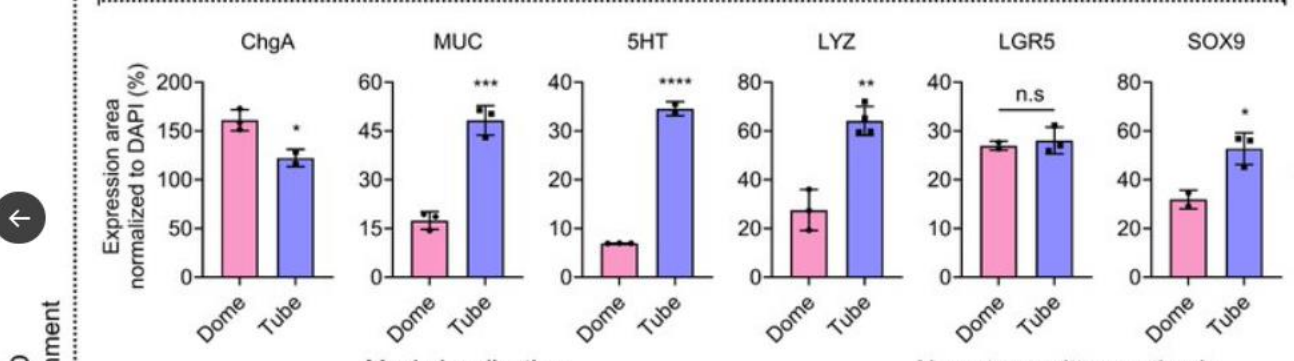
Hohyeon Ha @HohyeonHa · 23m
Our findings have significant implications for how tissue-specific biochemical and biophysical cues enhance the function of *in vitro* tissues. Big thanks to my coauthors @KHXTalzn @DG_HWNAG @YoonKang_ @minji_kkim @JinahJang4

2 likes, 29 views

Results and Discussion



Phenotype-related immunofluorescent imaging



(Top) Morphological change was not related to the neurotransmitter secretion in 2D environment.

(Middle) Biophysical cues combined with the biochemical cue induced difference in various intestinal markers, indicative of different reprogramming potency.

(Bottom) The 3D Tube group showed *in vivo*-like mucin localization toward the lumen of the tube and significantly higher expression of serotonin and histamine compared to 3D dome shape or 2D environment.

Conclusion

Gut-specific biochemical and biophysical cues synergistically promoted EEC function of cells *in vitro*.

Hohyeon Han @HohyeonHan

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