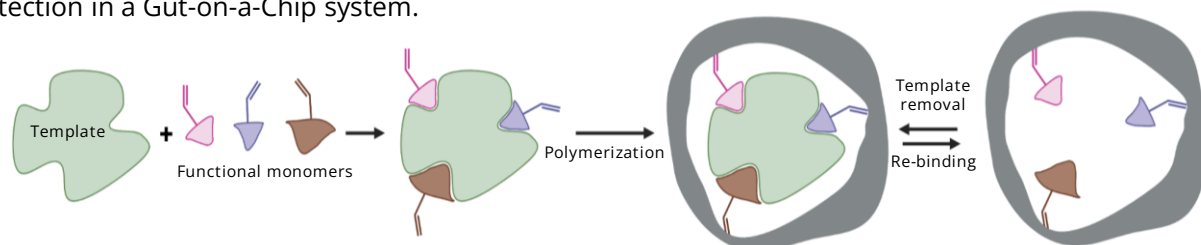


Welcome to the first issue of the OrChESTRA newsletter for 2025!

This edition of the newsletter highlights the progress made by the OrChESTRA in material and process development. We aim to showcase the development process of new materials and share the products we have been working on. Discover more about our progress on the Gut-on-a-Chip project, our latest article, how a design thinking approach has aided the team in developing new materials, and much more.

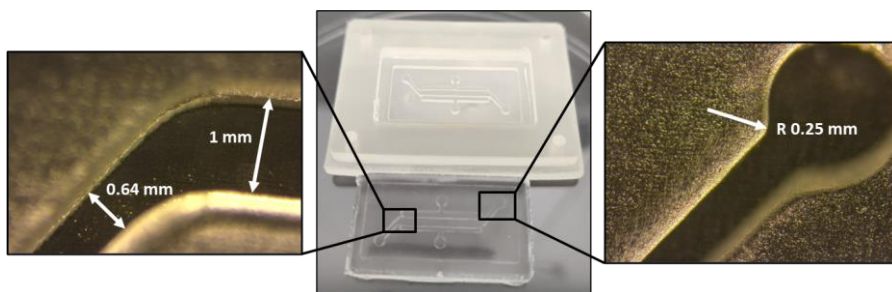
Molecularly Imprinted Polymers (MIPs)

MIPs are synthetic materials with recognition sites that mimic natural molecules like antibodies, allowing selective binding to target molecules. Our team at the METU MEMS Center synthesized MIPs for dopamine detection in a Gut-on-a-Chip system.



3D Printed Molds

Recently acquired Form3+ SLA 3D printer was used for molds to produce PDMS components required for microfluidic cell culture chips. Microchannels with a minimum feature size of 250 μm were successfully fabricated through this process.



communications biology

Article



New Article

ICU patient-on-a-chip emulating orchestration of mast cells and cerebral organoids in neuroinflammation

Pelin Saglam-Metiner^{1,2}, Sena Yanasik^{1,2}, Yusuf Caglar Odabasi¹, Jennifer Modamio³, Moritz Negwer⁴, Cigir Biray-Avci¹, Ayse Guler¹, Ali Erturk¹, Ender Yildirim^{1,2} & Ozlem Yesil-Celiktas^{1,2}✉

Check for updates

<https://doi.org/10.1038/s42003-024-07313-z>

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Our team at the METU MEMS Center, led by Assoc. Prof. Dr. Ender Yıldırım, in collaboration with Ege University's Biomimetic Microsystem Lab, led by Prof. Dr. Özlem Yeşil Çelikaş, has just published their latest work titled "ICU patient-on-a-chip emulating orchestration of mast cells and cerebral organoids in neuroinflammation" in Nature Communications Biology Journal. This study explores the innovative ICU patient-on-a-chip model, offering new insights into the orchestration of mast cells and cerebral organoids in neuroinflammation and advancing our understanding of sedative exposure on the human brain.



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