



Organ-on-a-Chip
Technologies Network

ECR Newsletter February 2022

Upcoming events:



[Organoids and Organs-on-Chips Europe 2022](#) are still accepting abstracts for the conference in Rotterdam 21st-22nd June



[BioCHIP Berlin](#) are also still accepting applications to speak at their conference on the 10th-11th May

Researcher Spotlight: Every month get to know a new Network ECR

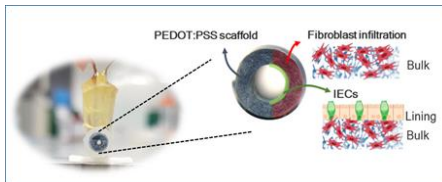


Who are you?

Hi, my name is [Chrysanthi-Maria Moysidou](#), but everyone calls me Anthie. I am a Postdoctoral Researcher in the BioElectronic Systems Technology group at the University of Cambridge.

What is your organ? My research focuses on the role of the microbiome in the gut-brain axis cross-talk, under both homeostatic and pathophysiological conditions. Currently, I am focused on building models of the gut-ENS-immune axis.

What is your chip? During my PhD, I developed a 3D bioelectronic model of the gut, the [L-Tubstor](#). In this platform, the intestinal tissue grows on a hollow, tubular electroactive scaffold, which concurrently serves as an electrode for real-time, non-invasive monitoring of the tissue health status and activity. My focus is now shifted on advancing my bioelectronic tools to build a more comprehensive 3D gut tissue model with integrated sensing units.



Why? The bidirectional communication between the gut, the microbiome and the brain is a well-established concept nowadays. However, the exact mechanisms of this cross-talk, and the role of microbiota, are not fully understood yet. Combining OOC technology and organic bioelectronics enables more physiologically relevant human tissue models as to understand host-microbiome interactions, as well as to develop and translate microbiome-based therapeutic treatments for a wide range of pathophysiological conditions of the gut-brain axis.

Check out Anthie's work [here](#)

Tips on chips: Share your microfluidic tips. Email [Paul](#) or post on the [ECR forum](#).



Casting PDMS from SU8 or 3D printed moulds? Broke your expensive master mould and want to replicate it from a device?

Why not use a liquid plastic to cast multiple moulds from your PDMS device! Take a silicone cookie mould and stick your PDMS device in feature side facing up (some uncured PDMS does the trick). De-gas your mould, mix up some [smoothcast liquid plastic](#). Pour in to your cookie mould, de-gas again and leave to set. Voila! You now have a new mould to replicate your devices from.

Question of the month:



Last month:

Serum: Replace, define or is FCS fine?

No huge opinions on this one, but check out <https://fcs-free.org/> if you are looking for alternatives. And if you have no idea why you should be looking for alternatives read: [This](#)

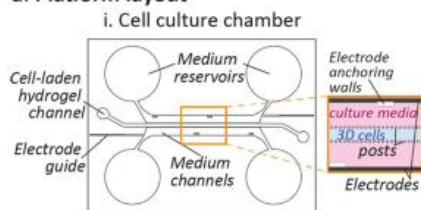
This month:

How do you deal with stresses of ECR uncertainty?

Let us know [ON THE ECR FORUM](#) or send in a question you'd like asked next month

Chip of the month:

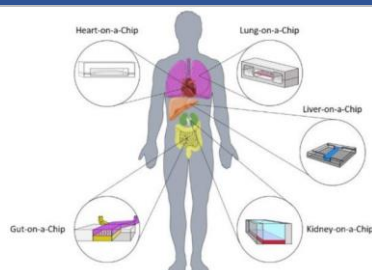
a. Platform layout



Every month we will highlight an interesting/ unusual / lesser known chip.

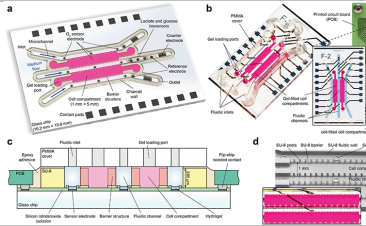
This month: What with it being valentine's day, why not a heart on chip. Visone *et al.* teach us how to perform [Electromechanical Stimulation of 3D Cardiac Microtissues in a Heart-on-Chip Model](#)

Updates in the field:



Check out this review from our very own OoaCT Network ECR [Luana Osorio](#)

[A Review of Biomaterials and Scaffold Fabrication for Organ-on-a-Chip \(OOAC\) Systems](#)



Making sense of it all.

[Dornhof et al.](#) integrate chemo- and biosensor arrays for the energy metabolites oxygen, lactate, and glucose with 3D OoC cultures.



What do end users think of OoCs?

It's worth a quick read of [this preprint](#) which evaluates current platforms from the end-user perspective,

Also: **Organ on Chips for Toxicology?** Where are we at? [Nische et al.](#) discuss.



Tell us what you have been up to!

Share your achievements, papers, awards or whatever you like with the community.

Post on the [NEW ECR FORUM](#) or email the [ECR group](#).

Opportunities:



Organ-on-a-Chip Image Competition

Get your best organ on chip images ready and be in with the chance to win! Whether you have a beautiful immune-fluorescent image of cells, or an abstract SEM of electrode arrays send us your sciencey images. As long as it is OoC themed, we are interested.

Overall prize - £200 & a year Lab on a Chip subscription;

But as an ECR you also have the extra chance to be picked out as the Early Career Researcher top pick - Prize £100; plus certificates.

Keep your eyes on your emails, entry details are coming very soon!

For your ears:

Learn during those long hours in the lab and beat the boredom of pipetting with our picks from this month.



Need some sound advice, or just want to relate to someone ranting about the uncertainties of ECR life?

Well don't worry we are all in the same boat. While this is not specific to OoC, my good friend Yvonne Couch and the Perpetual Post Docs have some wise words for ECRs. Check out their [podcast series](#) with topics on:

[20/20 Hindsight, Tips from Perpetual Post-Docs](#)

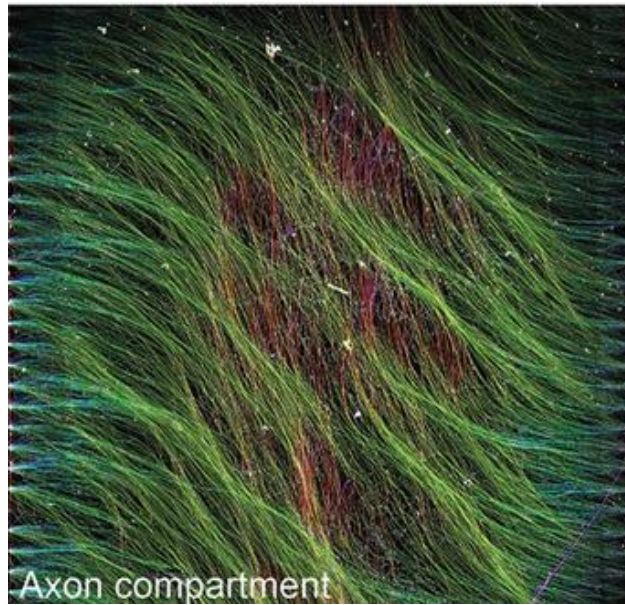
[Avoiding the Ostrich Approach, Some Tricky Conversations About Academia](#)

[It's Broke, So Let's Fix It, A discussion Important People Need to Hear](#)

[Breaking the Perpetual Postdoc Cycle](#)

For your eyes:

A field of long grass flowing in the wind?
No!
This is an image of neuronal axons connecting in a Microfluidic Device with Nanotopography on an Azobenzene-Based Material. From [Ristola et al. 2021](#)



And just for fun..



Be a good science citizen and fill out the [Tumor Lymph Node-on-Chip End Users Questionnaire!](#) This short questionnaire will help to inform requirements and needs for an Organ-on-Chip (OoC) platform for metastasis diagnosis and drug testing as part of the [Tumour-LN-oC](#) project



Bad Joke of the Month

Doctor: "Sir, I have some very worrying news, I'm afraid your DNA is backwards.

Me: "...and?"



Punny Papers

There's not mushroom left in the newsletter, but we thought we would just fit in this paper from the fungi's (and girls) at Northern Arizona University for their punny title:



Fantastic yeasts and where to find them: the hidden diversity of dimorphic fungal pathogens

Marley C Caballero Van Dyke¹, Marcus M Teixeira^{1,2}, Bridget M Barker¹✉

Have your say!

Got any news or info you'd like added to the newsletter? Or would you like to organise an event for the Organ on Chip ECR group? Ping the ECR group an email at : paul.holloway@rdm.ox.ac.uk Or get on the [NEW FORUM](#). And while you are at it, follow us on [Twitter](#)