

TERMIS-SYIS Newsletter

Volume 2, Issue 1

SYIS Member Highlight: 3D Printed Co-culture Chamber

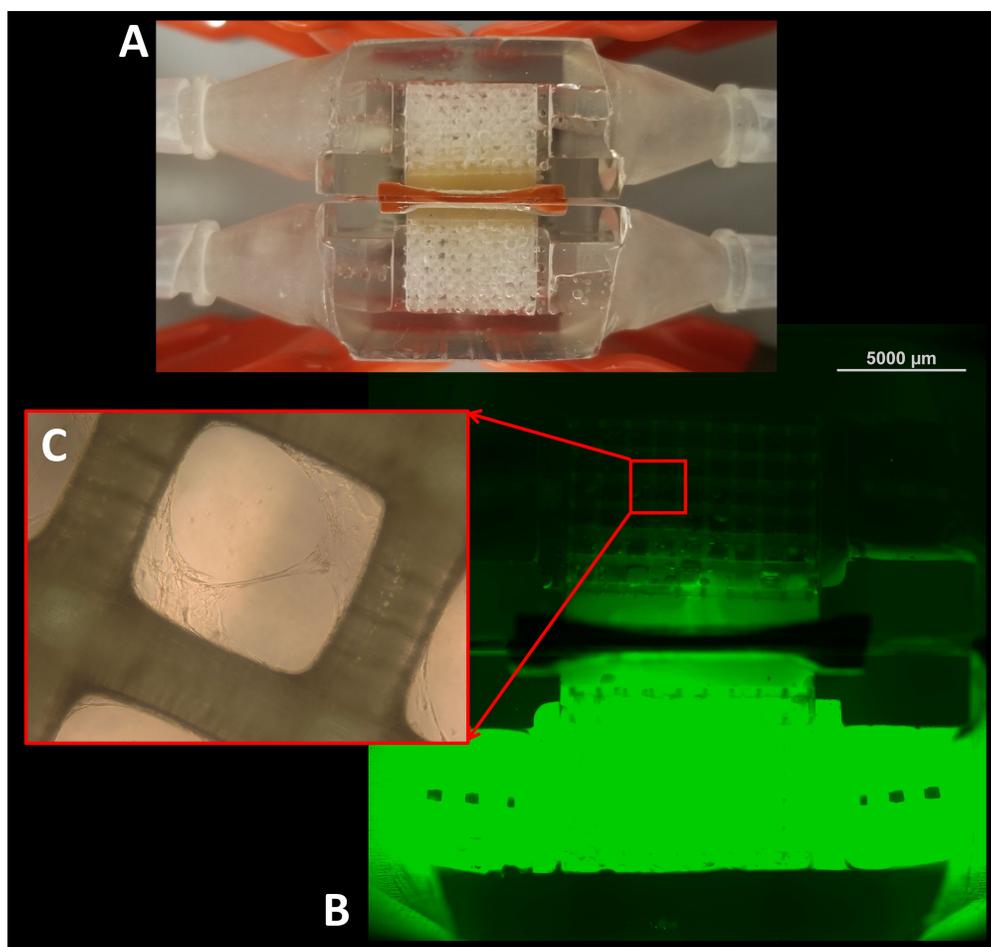


Photo from Javier Navarro, a PhD student at the NIH/NIBIB Center for Engineering Complex Tissues at the University of Maryland under the mentorship of Dr. John Fisher.

(A) Dual-chambered bioreactor (DCB) for dynamic co-culturing of two adjacent cell lines. B) Live imaging of the DCB to visualize the two parallel flows separated by a membrane, using FITC-dextran in the lower line only. C) L929 fibroblasts on 3D printed E-Shell scaffolds with 600x600 µm pores coated with fibrinogen, cultured dynamically in the DCB for 28 days.

Images were captured using: B) Nikon Eclipse Ti2 microscope (Nikon, Tokyo, Japan) at 2x. For C), Axiovert 40CFL microscope (Zeiss, Thornwood, NY) fitted with a digital camera (SPOT Insight 1120, Diagnostics Instruments, Sterling Heights, MI) at 20x

Want to share your work with us? Send us an email at termis.am.syis@gmail.com

2019 TERMIS-AM Meeting

Do you want to get involved with the 2019 TERMIS conference? SYIS is rethinking student “co-chairs”.

The 2019 TERMIS-AM conference sessions are in the process of being organized. At this phase, focus topics and symposia are being proposed and designed by TWIGs, or thematic working interest groups. These groups are lead by members of the TERMIS society, and have various levels of involvement from similarly interested TERMIS members. Once the symposia topics are set, the call for abstracts will open in April. Abstracts are then evaluated and selected for presentation in each of these sessions. Reaching out to the leader of a TWIG in your research area now is a great way to learn about this process and perhaps help with abstract review and evaluation.

A list of TWIGs in TERMIS-AM can be found here:

<https://www.termis.org/termis-am-thematic-interest-working-group-twigs>

Welcome to our new SYIS council members!

We are thrilled to announce the addition of two new team members to our TERMIS-AM Student and Young Investigator section. Tomas Gonzalez Fernandez, our new Communications Officer, and Suzan Alharbi, new treasurer for the TERMIS-AM SYIS chapter. See below our “meet the team interview” so you can get to know Tomas and Suzan.



Meet Tomas, Communications Officer

What is your current position?

Currently, I am a postdoctoral fellow under the supervision of Prof. Kent Leach at the Department of the University of California Davis. I started this position in February 2018 after finishing my Ph.D. at Trinity College Dublin (Ireland). When I started my postdoc my main project focused on tuning the properties of stem cell spheroids for enhanced musculoskeletal repair. Recently, I was also awarded the American Heart Association Postdoctoral Fellowship to develop novel 3D printable electroconductive materials for successful diabetic wound repair.

How did you hear about TERMIS?

The first time I heard about TERMIS was during my undergrad while working at a tissue engineering lab. I was amazed by how all the Ph.D. students and postdocs in the lab were really excited to join the TERMIS conferences to present their work and do some networking with their colleagues from other countries and research groups.



Meet Suzan, Treasurer

What is your current position?

I am a Ph.D. candidate at The University of Texas Medical Branch in Galveston in Cell Biology Program. This is my Fifth and last year working on my research. I am currently focusing on finding a treatment for third-degree burn wounds using keratinocyte sheets detached from temperature responsive dishes.

How did you hear about TERMIS?

The first time I heard about a TERMIS was on one my lab rotations on my first year of Ph.D. I was introduced to this society and their meetings as the goal for scientists in the tissue engineering field to present their work and interact with other scientists from all over the world.

When did you first attend a TERMIS conference?

The first TERMIS I attended was in 2014 and was world congress that was in Boston, MA.

What made you run for TERMIS SYIS office?

When did you first attend a TERMIS conference?

My first TERMIS conference was during the summer of my first year of Ph.D. in 2014. It was the TERMIS-EU chapter in Genoa (Italy) and I got an oral talk to present my work about gene-activated materials for cartilage repair. That conference was also my first-ever conference and it really opened my eyes to the importance of going to such events to showcase your work and learn what is being done in the field of tissue engineering.

What made you run for TERMIS SYIS office?

I have always considered the TERMIS conferences the best meetings in my field for networking and meeting other researchers for future collaborations. In order to get more involved in the society, I decided to apply for the communications officer position. Also, I have been assisting to the European chapter and the World Congresses since the start of my Ph.D. but the TERMIS American chapter is completely new to me and I wanted to get introduced to the American chapter and start meeting other researchers in my field in my current professional location.

What are the goals you most want to accomplish in this position?

My main goal is to improve the communication of the society with the young researches through a more active Twitter account, quarterly newsletters and providing better information about the TERMIS meetings.

I am deeply interested in the tissue engineering field and being in one of TERMIS SYIS councils members, I'll be in high interaction with young scientists and students in the field which will increase my networking opportunities for future positions or collaboration.

What are the goals you most want to accomplish in this position?

Learn teamwork and gain a great experience in being part of planning yearly activities and events that are focused on students and Young Investigators. Also, as my role as a treasurer, I would like to learn how to manage the budget for a yearly event, which will help me gain great knowledge for future positions and planning events.

Please join us in welcoming Tomas and Suzan officially to the TERMIS SYIS council!

TERMIS World Congress 2018 Recap

The TERMIS-WC meeting was held this past September in Kyoto, Japan. Despite a typhoon on the first day of the conference, it still proceeded as planned with 2400 speakers and participants from 53 countries. There were nearly 900 SYIS attendees, with 10 SYIS sessions, including a career panel featuring distinguished faculty members, a startup founder, and a Nature editorial board member, and a meet the mentor lunch with faculty from all three chapters, providing attendees a unique opportunity to gain an international perspective. Throughout the conference, poster presentations were accompanied by traditional Sake and the gala event showcased the beautiful Kiyomizu-dera Temple. During the closing ceremony, we presented the following SYIS awards:

Oral Presentation Award

1st: Richard Tan
2nd: Yusuke Tobe
3rd: Navein Arumugasaamy

Poster Presentation Award

1st: Quentin Muller
2nd: Allison Greaney
3rd: Daniela Duarte Campos

Rapid Fire Talks Presentation Award

1st: Leah Brew
2nd: Natalie Rubio
3rd: Dayoon Kang

In addition, the winners of the Mary Ann Liebert Sponsored Best Article Awards in Tissue Engineering were:

1st: Samand Pashneh-Tala
2nd: Frances Bach
3rd: Graciosa Teixeira

Congratulations to the awardees, and thank you to all the attendees for making TERMIS-WC 2018 a great conference!

So, your PI asked you to write a review article...

Article written by: Hannah Strobel, Ph.D.

So your PI asked you to write a review article. Now what? Where do you start? With the enormity of information available on the web, thoroughly reviewing a field can be a daunting task. Here, we go over a few strategies that may help you write review article that will be valuable to your field.

First, you will need to establish the scope of your paper. Do a brief literature search of your topic. Don't spend too much time on your initial search, just see what's out there. Next, choose a focus and a central theme. A topic such as "tissue engineering" or even "vascular tissue engineering" may be too large to review in one paper. Narrow your topic to something more manageable such as "drug delivery in vascular tissue engineering". An example theme could be the importance of material properties, that you emphasize and discuss throughout the paper. Try to find a topic/theme that has not been recently reviewed, to avoid repeating what others have done. If your topic has been well-reviewed, find a new perspective to write about. Keep in mind your target audience, is this something your audience would be interested in? Next, write an outline of

your ideas for sections and subsections. This will help guide your writing and literature search, but don't feel obligated to stick to it. Assume that your outline, and possibly the title or theme of your paper, will change as you get further along in your writing. Each section should have a message that aligns with the central theme of the paper, although you might not know exactly what that will be until you are well into your writing.

Now it's time to start the hard part- thoroughly reviewing the literature. When searching for articles, be sure to search for several variations of your keywords. For example, don't just search for "microparticle," also search for "microsphere" and "microcarrier". Look through other review papers and original articles for references to articles you may have missed. If an impactful paper was done several years ago, search for recent papers with the same senior authors, to see if their novel idea has moved into animal or clinical trials. Set Google alerts for keywords so you don't miss any new papers.

When do you start writing? Everyone has their own reading and writing style, but I would recommend starting sooner rather than later. The more papers you read, the more you will start to forget or mix up the key points of each paper. At the very least, you should be writing down a few notes for each paper. If you have an idea on how to connect what you have read so far, put it in paragraph form before you forget. Plus, taking some time to write about what you have found can be a nice break from endless hours of reading. Critically evaluate each paper you read before citing it. Are the authors really showing what they say they are showing? Remember that you are not just making a summary, but critically reviewing the field. Keep this mindset from the beginning, so you can start making connections early on. Try and reference as you write as much as possible. It is easy when you are reading tens or hundreds of papers to forget which one you were going to cite for what you just wrote. Always use a citation manager. Otherwise, you are almost guaranteed to have citation errors.

When do you stop literature searching? This can be a difficult question to answer, since sometimes it feels like you could search forever and not find all the relevant papers. You want to be thorough, but you also don't have to find every paper that exists on your topic. If you are no longer finding papers that add something different to your review, or are not impactful, it may be time to stop. When writing, you also don't have to cite every paper you have found. Focus on important studies, recent studies, and those that are relevant to the message of each section (whether they support your ideas or not). For most of your sections, you will want to introduce a topic with general information about the field (include references for any facts stated). Then, pick a few key studies to discuss. Keep these concise, but still provide enough methods and results that the reader can understand what was shown and how it relates to your theme. Mention any relevant limitations, which can be great transitions into the next study. It is helpful to go into detail on a few studies, but you don't have to discuss all of them in detail. It is ok to add in "This is consistent with other studies (ref)", or "others have tested XX growth factors with similar results (ref)", and so on.

Once you have a rough draft of your paper, it's time to be critical. For each section: Does the introduction introduce a new reader to the subject, and provide context for what will be discussed? Have you summarized key findings in the field? What do these studies mean? What is their significance? What gaps are remaining in the field? How might we fix these gaps? How have these problems been addressed in other fields? Are there any up and coming technologies that could be applied to this field? Are there any discrepancies in the field? What are your theories on the cause of those discrepancies? How could this change the world? As you are reading ask, what is the point of this section? Make sure you have transitions between each idea, paragraph, and section, to guide the reader through the content. Don't be afraid to experiment with the organization of the paper, to achieve a flow that is logical and easy to read.

References are the most important part of a review paper. Readers often use reviews to find original studies that they want to read. Thus, it needs to be clear which paper to look up to find additional information. Do not cite reviews for factual statements such as "VEGF increases vascular permeability." You must cite original research articles. Try to find one of the first articles that demonstrated the fact. You may also want to cite a recent paper to show it is still relevant, or another heavily cited paper. Reviews should only be cited to direct the reader to more information if you do not want to go into depth on that subject. For example, "How to cite papers is further reviewed in (1)". When you do this, try to find a recent review. Make sure you are citing papers that actually showed what you are referencing. All too many times, I've looked up a citation for a fact, such as "VEGF increases vascular permeability", only to find that the paper was not about VEGF at all, it was only briefly mentioned in the introduction. This is wrong. Cite the paper for what they found in the results. Finding the correct citations can be extremely time-consuming, but it is essential for creating a good review.

Writing style and grammar are subjects that are often overlooked. However, they are extremely important. Grammar errors can change the meaning of the sentence, and make the reader think you are saying something completely different. Poor writing can make a paper difficult to read or interpret, and can reduce the impact of your paper. If you are having a hard time with grammar, try reading your paper out loud, this will make your mistakes more obvious. Don't be afraid to ask colleagues (with your PI's permission) to read through your paper, or visit your school's writing center. People outside your field are often best able to tell you which parts are not clear. Grammar is discussed in detail in (2).

Writing a review article can be a daunting task. However, a well-written review can be tremendously valuable to scientists within and outside your field. Hopefully, you will find these tips helpful as you begin. Good luck!

(1) "Credit where credit is due" Nat Cell Biol **11**, 1, 2008. <https://www.nature.com/articles/ncbo109-1>

(2) Hamalainen, Wilhelmiina. "Grammar and style notes for scientific writing"
<http://www.cs.joensuu.fi/pages/whamalai/sciwri/grammar1.pdf>

Do you have suggestions for future articles? Interested in contributing an article for a future newsletter, providing helpful advice to the SYIS community? [Send us an email!](#)

SYIS Officers

SYIS Chair: Laurie Bracaglia

SYIS Chair-Elect: Navein Arumugasaamy

Chair of Scientific & Professional Development Committee: Hannah Strobel

Treasurer: Suzan Alharbi

Secretary: Aaron Morris

Communications Officer: Tomas Gonzalez Fernandez

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