

## Notes from your Chair, Dr. Jane Hill

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### Your IABR Board

Current Chair:	Dr. Jane E. Hill
Incoming Chair:	Dr. Simona M. Cristescu
Outgoing Chair:	Dr. Cristina E. Davis
Secretary:	Dr. Heather D. Bean
Treasurer:	Dr. Jonathan D. Beauchamp
Exec. Director:	Marco Freek, LL.M.

### Current IABR Board Activities

We meet quarterly. Our current primary goal is to update our bylaws. The Board has completed this process and we are ready to share with you for a community vote at the Breath Summit. In addition, we have agreed to continue to fund bursaries to attendees of the Breath Summit. Our next ambition is to update our website.



[www.breathsummit.com](http://www.breathsummit.com)

Indiana University School of Medicine, Herman B Wells Center for Pediatric Research, International Association of Breath Research (IABR) and the organizing committees are pleased to welcome the next [Breath Summit](#), the International Congress for Breath Research, to Indianapolis, Indiana, from June 3 to June 6, 2024. This will be an excellent opportunity learn and exchange the latest breakthroughs and emerging topics on breath research from around the world.

Things to note:

Discounted early-bird registration is available March 31st and regular registration will be available from then until May 15th.

There is a limited block of rooms available, please visit the conference website [www.breathsummit.com](http://www.breathsummit.com).

Over 75 abstracts were accepted in the initial abstract submission window and the late-breaking abstract window will open in late March.

Currently, ten travel bursaries sponsored by the IABR and Indiana University are available for students, trainees, and early-stage researchers. As more awards are available, they will be posted on the conference website and sent to the conference mailing list.

*Written by Dr. Michael Davis, Conference Chair.*

## A Day in the Life of Doctoral Candidate Serena Reale

I would love to start this story with “in the labyrinth of science every day is an adventure waiting to unfold”, but real life is often less fancy, and countless days just vanish while reading papers on a PC screen.

The day just gone by was a good one, and I spent it analysing breath samples collected in the Zurich Children’s Hospital from young patients suffering from cystic fibrosis. Our aim is to investigate changes in endogenous breath volatiles induced from treatment with a new drug. We receive samples trapped on sorbent tubes and analyse them with one of our latest high-tech gadget for untargeted VOC analysis, a comprehensive 2D-GC-HRMS. This instrument processes approximately one sample per hour, which allows me some free time to sip a coffee with my lab-mates or to work on a parallel project while the chromatographic run is ongoing.

My primary PhD project focuses on characterizing odours emitted from the breasts of pregnant women to understand how they communicate with their babies by exchanging chemicals. So far, I just focused on literature search to properly design the study and plan the experiments.

Wow, 6 PM, time to go! I have a futsal (indoor short-court football) match with friends waiting for me. Once at home, I will only think about preparing some good food for tomorrow and continue with the book I am currently reading.



## What’s hot in the literature? A focus on the Journal of Breath Research The most highly cited articles from the past 12 months\*

1. **7,194 citations:** [Revisiting the rationale of mandatory masking.](#) Beauchamp, JD and CA Mayhew, 2023
2. **6,971 citations:** [Breath analysis by ultra-sensitive broadband laser spectroscopy detects SARS-CoV-2 infection.](#) Liang, Q, Y-C Chan, *et al.*, 2023
3. **3,169 citations:** [THC in breath aerosols collected with an impaction filter device before and after legal-market product inhalation—a pilot study.](#) Jeerage, KM, CN Beuning, *et al.*, 2023
4. **2,064 citations:** [A review on electronic nose for diagnosis and monitoring treatment response in lung cancer.](#) Vadala, R, B Pattnaik, *et al.*, 2023
5. **1,684 citations:** [Breath VOC analysis and machine learning approaches for disease screening: a review.](#) Haripriya, P, M Rangarajan, *et al.*, 2023
6. **1,419 citations:** [Effects of Bifidobacterium lactis HN019 and Lactobacillus acidophilus NCFM on volatile sulfur compounds produced by oral anaerobes.](#) Huang, P, S Yuan, *et al.*, 2023
7. **1,271 citations:** [A review on isoprene in human breath.](#) Mochalski, P, J King, *et al.*, 2023
8. **1,153 citations:** [The advantages of standardizing exhaled breath-alcohol concentration to a reference respiratory gas—water vapor.](#) Lindberg, L and AW Jones, 2023
9. **814 citations:** [Screening for volatile biomarkers of colorectal cancer by analyzing breath and fecal samples using thermal desorption combined with GC-MS \(TD-GC-MS\).](#) Śmiełowska, M, T Ligor, *et al.*, 2023
10. **799 citations:** [Breath analysis combined with cardiopulmonary exercise testing and echocardiography for monitoring heart failure patients: the AEOLUS protocol.](#) Biagini, D, NR Pugliese, *et al.*, 2023.

\*From the JBR website, February, 2024

## What's happening with the Human Breath Atlas™? by Dr. J.E. Hill

The key ambition of the [Human Breath Atlas™](#) is a **community effort to map every molecule in our breath to our health status**. We have been slow in getting ourselves started, but please expect to hear more at the upcoming Breath Summit, including how you can be involved.

**Coming soon** ... our position paper outlining where we are now and where we hope to go with the Human Breath Atlas. And, a special issue dedicated to the topic in the Journal of Breath Research will be formally announced soon. **In the meantime** ... many breath community researchers have been involved in a field landscaping effort conducted by Drs. Davis, Bean, and Hill, to identify active areas of research to submit for funding opportunities. A few of us have been working on initiatives within our own labs to advance this effort. For example: the Bean Lab is studying how storage time and shipping methods affect breath VOCs collected on TenaxGR thermal desorption times. The Smolinska Lab is working on the development of advanced machine learning strategies for preprocessing and analyzing complex metabolomics data. The Thomas and Salmon Lab are integrating SPME and thermal desorption tubes into a single, standardized breath sampling format as well as developing a new breath sampler which will be showcased at the upcoming Breath Summit in Indianapolis.

## Notes from the Outgoing IABR Chair Prof. Cristina Davis

As the global pandemic recedes from our collective memories, we are all grateful to be returning to pre-pandemic life. Still, it is challenging to remember back to some of those days where social distancing and pandemic quarantines were the norm. Our work and personal lives were turned upside down. Our IABR breath community has always been spread over large distances, with our ad hoc in-person scientific meetings previously organized every 18-24 months (when someone volunteered and the venue available). One of the few side-benefits of the pandemic was the normalization and new-found ease of global communications via Zoom and other e-platforms which allowed us to connect.

I was IABR Chair Elect between 01 October 2019 and 30 September 2021, and then IABR Chair between 01 October 2021 and 30 September 2023. Throughout this time, I spent countless pandemic hours reaching out to breath community members around the world to hear how their research work was going, and I organized Zoom check-in socials on many weekends to maintain and strengthen our global community esprit de corps as many of us struggled with social isolation and disruption of our research. I'm still grateful to you all for connecting during those uncertain days. In the earliest pandemic days, the exact mechanisms of transmission were not clear, and most exhaled breath studies in many countries were suspended due to unknown infection risks as well as impacted overburdened health care systems. We shared observations, protocols, ideas and plans. At the same time, our breath field had a resurgence of interest as some of our IABR groups shared tantalizing pilot results of breath biomarkers suggested to result from the host-response to SARS-CoV-2 infection. Our friends in the adjacent canine scent-detection community invited equal interest, and our field of breath research has since welcomed many breath newcomers to join our ranks.

I also made it a priority to organize a mid-pandemic online IABR breath meeting virtually 14-15 June 2021. Together with Paul Thomas, we assembled two 2-hour events (spread to accommodate global time zones). It was a resounding success, and stimulated discussions as all IABR members worked to understand how to safely continue breath research – in an era of working with a (potentially) infectious breath matrix. In addition, I brought together a community of junior trainees around the world to host an online monthly invited speaker series throughout 2021. All of these efforts helped to keep our community engaged when in-person connections were not possible.

Among other accomplishments as Chair, I planned a concerted effort to normalize our IABR breath meeting schedule into future years. Under my former leadership, IABR is now moving to an annual format. This is largely due to the influx of new researchers in our field – across the chemistry, medicine, informatics and engineering domains. I worked with prospective meeting hosts to flesh out their plans, including: 2024 Dr. Mike Davis (Indianapolis, Indiana USA); 2025 Prof. Christopher Mayhew, Dr. Veronika Ruzsanyi and Mr. Marco Freek (Innsbruck, Austria); 2026 Prof. Makoto Sawano and Dr. Woosuck Shin (Japan).

Finally, I worked with the IABR Board to provide an updated set of bylaws for the general membership to consider in their next meeting in June 2024. As our professional society develops, this update allows us to further codify our best practices of how we plan to operate into the future. Now as Past Chair, I'm continuing to serve on the IABR Board until 30 September 2026. I'm looking forward to seeing everyone at the upcoming meeting in June 2024!

## **Editor-in-Chief Vacancy for Journal of Breath Research**

IABR's official journal, the [Journal of Breath Research](#), is currently seeking an enthusiastic and experienced Editor-in-Chief.

The Editor-in-Chief is the journal's scientific advisor, providing community insight and acting as a strong advocate for the journal in the community, with a view to increasing the status and visibility of the journal. The Editor-in-Chief works with the Institute of Physics Publishing journal team to set the vision for the journal and develop the journal to achieve agreed aims. The Editor-in-Chief triages new submissions, working with a panel of Associate Editors to maintain high-quality standards for JBR. They will provide leadership of the Editorial Board, collaborating to provide ideas for editorial initiatives and commissioning suggestions.

The deadline for applications is 15th April 2024. For more details and to apply please visit - [Journal of Breath Research](#) - IOPscience. For any queries, please email [jbr@iopublishing.org](mailto:jbr@iopublishing.org).