

IVP Update

September 2024
Issue 27

The bianually e-newsletter for the Graduate Programme for In Vivo Pharmacology and Experimental Animals

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Learn more about different offers from the Graduate School

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P. 9 - 7th IVP Animal Models Workshop

A successful event organized by your felleow students



Picture from the 7th Animal Models Workshop

18th Annual meeting coming up

We are looking forward to seeing all of you!

On the 3rd and 4th of October, at Comwell in Holte.

Make sure to sign up asap -if you have not yet done so- [by this link](#). - And please remind your supervisor(s) to join as well.

The programme is to yet be announced, but it is safe to say that we are looking forward to great speakers and having a great time.

See you there!

Since last...

Dear IVP members!

I hope you all had a good summer. Since we are a little over halfway through 2024, it is time for an update. A highlight of the spring was the seventh Animal Models workshop in May. This event is possible thanks to our collaboration with the larger programs Drug Research Academy (DRA) and Molecular Mechanisms of Disease (MoMeD). I want to thank our student representatives Morten and Pan as well as Juan from MoMeD for arranging this day. Everything went really well even though we would have liked participation from more PhD students. If you already know that you would like to help plan next year's Animal Models Workshop, please let us know.



Jens Lykkesfeldt
Head of the IVP Graduate Programme

Unfortunately, this year we had to cancel the In Vivo Pharmacology course due to a lack of registrations. Hopefully the course will be up and running again in 2025, and we are already looking into options to increase the interest for the course. Speaking of courses, I would like to direct your attention to DRA and MoMeD – our partners in what we have named the 'DIM' cluster. They offer a wide range of courses, talks and activities and although I try to forward all invitations that I get to you immediately, you may want to explore for yourself what options there are in the horizon.

The Graduate School has engaged two new 'PhD counsellors' that PhD students from all programs can turn to for advice e.g. if their interaction with their supervisor is not optimal or other matters that affect the wellbeing of the PhD students. These are clinical professor Ann Møller and assoc. professor Andrea Heinz – look them up if relevant. So far, Pernille and I have engaged in giving advice and mediating in such matters and if you are more comfortable coming to either of us, you are still more than welcome.

Coming up, we are looking forward to the Annual Meeting on 3rd and 4th of October. This is usually a highlight of the year as we all get together for a couple of inspirational days. It is also always great to hear your presentations and get an update on projects from our students. Make sure you and your supervisor participate in this compulsory activity – we are relatively few students in the program at the moment, so it is important that you show up. Also, let your friends know about us if they are seeking a PhD program and are working with animal studies and if you are a supervisor – remember us for your future students!

Finally, I would advocate for putting together a Christmas gathering this year. It is a great opportunity to get to know your colleagues a bit better. For this to happen we need a couple of volunteers to help carry it out. If you have any inputs for other future events please contact your student representatives.

Looking forward to seeing you all at the annual meeting!

Bets wishes,
Jens

Greetings from student representatives

Dear fellow IVP students,

First of all, we want to extend a warm welcome to our new members and sincere greetings to our current members. As your student representatives, we are excited to share updates from our journey in the IVP program and explore future opportunities together.

This spring, we hosted the Seventh Animal Models Workshop, where we had the privilege of connecting with researchers from diverse backgrounds and experts from the pharmaceutical industry. Their insights sparked illuminating discussions and broadened our perspectives on ethical dilemmas of in vivo research. Looking ahead to autumn, we're eagerly anticipating the next event by IVP, the 18th Annual Meeting. This event will bring us together for two days of scientific knowledge sharing, academic discussions, and community building – offering a unique opportunity to enhance your skills in a safe setting. Additionally, it is a place to initiate and deepen our connections with fellows for creating collaborations, friendships, and memorable experiences.

In addition to these two annual events, we are open to organizing more activities. You are encouraged to share your ideas or suggestions, and we will do our best to make things happen. With our relatively small student body, it is easy to discuss and explore any possibility – whether it is a workshop to enhance your scientific writing skills or a casual gathering after work to relax with some drinks, for example. We want to create events that are beneficial and enjoyable for everyone. But we cannot do it without you!

So please chip in with any ideas that you have – we are serious: Brainstorm ideas, pick a good one, open Outlook, and actually send an email to us. Or you can save your list of ideas and bring it to the Annual Meeting, where we will do this exercise together. But now for the most important part: When an event is about to happen, prioritise showing up to it! It sounds too simple, but if no one shows up, our efforts are wasted and could have been put to better use on something else.

Lastly, we want to remind you of the numerous resources available to us graduate students, some of which are highlighted in this newsletter. For instance, you can receive coaching on topics like planning and time management, efficiency, and motivation. We also have access to psychological coaching, therapists and career counselling services. Additionally, we have a LinkedIn group that connects current students with alumni, offering a platform to network, celebrate achievements and seek support when needed.

We are looking forward to seeing you all at the Annual Meeting!

Cheers,

Morten and Pan

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Our recent publications



Photo by [Scott Graham](#) on [Unsplash](#)

With 15 new publications already in 2024 our IVP members have once again been productive. We congratulate all of you with your achievements!

A lot of work and great thoughts have been put in to all these publications. The limited space of a newsletter does, however, not do justice to the great pieces of work. Therefore, we encourage you to follow the link imbedded into the title of each article.

Upcomming PhD courses

To find upcomming PhD courses, please visit the following websites

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[SUND Graduate School course catalogue](#)

-

[Danish national PhD course database](#)

-

[NorDoc PhD course database](#)

Publication list

Sorted by descending publication date

[CRISPR-Cas9 immune-evasive hESCs are rejected following transplantation into immunocompetent mice](#)

Frederiksen, Henriette Reventlow S, Glantz, A., Vøls, K. K., Skov, Søren, Tveden-Nyborg, Pernille, Freude, Kristine & Doehn, U., 2024, In: Frontiers in Genome Editing. 6

[Novel traceable CRISPR-Cas9 engineered human embryonic stem cell line \(E1C3 + hSEAP + 2xKO + pCD47\), has potential to evade immune detection in pigs](#)

Frederiksen, Henriette Reventlow S, Skov, Søren, Tveden-Nyborg, Pernille, Freude, Kristine & Doehn, U., 2024, In: Stem Cell Research.

[A Gently Processed Skim Milk-Derived Whey Protein Concentrate for Infant Formula: Effects on Gut Development and Immunity in Preterm Pigs](#)

Aasmul-Olsen, Karoline, Akıllıoğlu, H. G., Christiansen, Line Iadsatian, Engholm-Keller, Kasper, Brunse, Anders, Stefanova, Denitsa Vladimirova, Bjørnshave, A., Bechshøft, M. R., Skovgaard, K., Thymann, Thomas, Sangild, Per Torp, Lund, Marianne N. & Bering, S. B., 2024, In: Molecular Nutrition and Food Research. 68, 6, 2300458.

[Citrulline supplementation exacerbates sepsis severity in infected preterm piglets via early induced immunosuppression](#)

Zhong, Jingren, Johansen, S. H., Bæk, Ole & Nguyen, Duc Ninh, 2024, In: Journal of Nutritional Biochemistry. 131, 10 p., 109674.

[Decreased Heart Rate After Dapagliflozin Treatment In Gottingen Minipigs With Chronic Myocardial Infarction](#)

Debes, Karina Poulsdóttir, Lyhne, Mille Kronborg, Hinz, K., Sand, K. P., Rose, V. H., Flethøj, M., Ludvigsen, Trine Pagh, Kirchhoff, J., Jespersen, Thomas, Pedersen, H. D., Møller, J. E. & Olsen, Lisbeth Høier, 2024, In: Journal of Cardiac Failure. 30, 1, p. 267-268

The list is continued on next page...

Continuation of the Publication list...

Diet composition drives tissue-specific intensity of murine enteric infections

Israelson, H., Vedsted-Jakobsen, Amalie, Zhu, L., Gagnaire, A., von Münchow, Alexandra, Polakovicova, N., Valente, Angela Hørdum, Raza, Ali, Andersen-Civil, A. I. S., Olsen, John Elmerdahl, Myhill, Laura Jessica, Geldhof, P. & Williams, Andrew Richard, 2024, In: mBio. 15, 2, 22 p., e0260323

Effects of inhibition of Nav1.3, Nav1.7, and Nav1.8 channels on pain-related behavior in Speke's hinge-back tortoise (Kinixys spekii)

Musembi Makau, christopher, Towett, P. K., Kanui, T. I. & Abelson, Klas, 2024, In: Journal of Neuroscience Research. 102, 1, e25274.

Finding new analgesics: Computational pharmacology faces drug discovery challenges

Barakat, Ahmed, Munro, G. & Heegaard, Anne-Marie, 2024, In: Biochemical Pharmacology. 222, 21 p., 116091.

Glucose-regulatory hormones and growth in very preterm infants fed fortified human milk

Holgersen, Kristine, Rasmussen, Martin Bo, Zamir, I., Aunsholt, Lise, Zachariassen, G. & Sangild, Per Torp, 2024, (E-pub ahead of print) In: Pediatric Research.

Gut development following insulin-like growth factor-1 supplementation to preterm pigs

Rasmussen, Martin Bo, Holgersen, Kristine, Pankratova, Stanislava, Bæk, Ole, Burrin, D. G., Thymann, Thomas & Sangild, Per Torp, 2024, In: Pediatric Research. 95, p. 1528-1535

Insulin-like growth factor 1 associated with altered immune responses in preterm infants and pigs

Bæk, Ole, Rasmussen, Martin Bo, Gerts, T., Aunsholt, Lise, Zachariassen, G., Sangild, Per Torp & Nguyen, Duc Ninh, 2024, In: Pediatric Research. 95, p. 120-128 9 p.

Refinement of the motorised laminectomy-assisted rat spinal cord injury model by analgesic treatment

Sreelatha, Harikrishnan Vijayakumar, Palekkodan, H., Fasaludeen, A., Krishnan, L. K. & Abelson, Klas, 2024, In: PLoS ONE. 19, 1, 23 p., e0294720.

Reliability of sucrose preference testing following short or no food and water deprivation—a Systematic Review and Meta-Analysis of rat models of chronic unpredictable stress

Berrio Sanchez, Jenny Paola, Hestehave, Sara & Kalliokoski, Otto, 2024, In: Translational Psychiatry. 14, 1, 10 p., 39.

Systematic immune markers and infection risk in preterm infants fed human milk fortified with bovine colostrum or conventional fortifier, a secondary analysis of the FortiColos trial

Bæk, Ole, Muk (Mudi), Tik, Aunsholt, Lise, Zachariassen, G., Sangild, Per Torp & Nguyen, Duc Ninh, 2024, (Accepted/In press) In: Infection.

Transfer of modified gut viromes improves symptoms associated with metabolic syndrome in obese male mice

Mao, Xiaotian, Larsen, S. B., Zachariassen, L. S. F., Brunse, Anders, Adamberg, S., Mejia, J. L. C., Larsen, Frej Andreas Nøhr, Adamberg, K., Nielsen, Dennis Sandris, Hansen, Axel Kornerup, Hansen, Camilla Hartmann Friis & Rasmussen, Torben Sølbeck, 2024, In: Nature Communications. 15, 19 p., 4704.

Validation of computed tomography as a diagnostic tool in guinea pigs with non-alcoholic fatty liver disease

Lintrup, K., Ipsen, David Højland, Skat-Rørdam, Josephine, Lykkesfeldt, Jens, Tveden-Nyborg, Pernille & Buelund, Lene Elisabeth, 2024, In: Laboratory Animals. 58, 2, p. 127-137

To find previous articles [see the full publication list at the IVP website.](#)

Graduates of spring & summer 2024

Henriette Reventlow S Frederiksen

defended her thesis on 18 June 2024
The title: Generation and evaluation of non-immunogenic stem cell lines for in vivo implantation

Martin Bo Rasmussen

defended his thesis on 14 June 2024
The title: The effects of insulin-like growth factor 1 and diet on early gut development and growth after preterm birth

Christopher Musembi Makau

defended his thesis on 13 June 2024
The title: Modulation of nociception by voltage gated sodium ion channels and tricyclic antidepressants in the tortoise (*Kinixys spekii*)

Karina Poulsdóttir Debes

defended her thesis on 12 June 2024
The title: Post-infarction myocardial function and the impact of SGLT2 inhibitors and obesity in porcine models

Lin Yang

defended her thesis on 10 June 2024
The title: Bovine Colostrum Effects on the Gut Microbiota in Preterm Neonates

Jenny Paola Berrio Sanchez

defended her thesis on 3 April 2024
The title: Fighting irreproducibility in preclinical neuroscience using a meta-analytical approach—The case of the chronic unpredictable stress model of depression

- Congratulations to all of you!



Support from SUND Graduate School

Did you know that the SUND graduate school provides various offers for PhD students helping you with different challenges you may face? Read about some of them below or [visit the website of the Graduate School](#).



Picture by [Freepik.com](#)

Coaching for PhD students

When facing different challenges, it has been proven that attending coaching sessions can be beneficial. The conversations can help you deal with the various challenges you can meet as a PhD student and help you navigate within your present and future goals. Topics for the sessions can be work/life balance, motivation, your ambitions, writing process etc. The Graduate School offers up to five coaching sessions. [Read more and/or sign up at the website](#).

Workshops on dealing with stress

Are you experiencing stress? Future perspective, personal life, work, personality, and mental health could all be contributing factors on feeling stressed. The Graduate school offers two workshops helping PhD students taking care of their mental health by learning to deal with stress. [Sign up here](#).

Individual 1:1 career counselling

What are you going to do after you graduate? Sign up for one hour of individual career counselling with UCPH Career Consultant Mette Fog Skriver and get guidance within topics of your own choice. You can get feedback on your CV and LinkedIn profile, or you could talk about what to expect at a job interview. [Read more here](#).

Meet the members of the IVP advisory board

The board consists of professors, industry professionals and PhD students representing alle the IVP PhD students.



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PhD stud. representative
KU-SUND



Gen Pan

PhD stud. representative
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Welcome to our new members!

Saying goodbye to our graduates also means welcoming our new members. We have asked one of our new additions, Mathilde Sundberg, to give us an introduction to herself and her project.

Mathilde Sundberg



Project title: Mechanisms of action of particle-mediated liver toxicity

Expected submission date: 31st of October 2026

Introduction to the project

In certain work environments, employees may inhale airborne particles. The deposition of particles in the pulmonary system is size-dependent, with nanoparticles typically depositing in the alveolar regions. Inhalation of these particles can cause liver toxicity and cancer. Nanoparticles can impact the liver directly by traveling from the lungs through the bloodstream to the liver, or indirectly by causing lung damage that releases acute-phase proteins into the blood, which then affect the liver.

Animal studies have shown that nanomaterials can cause DNA damage, changes in the gene expression profile, histological changes, and the production of acute phase proteins in the liver. However, the specific mechanisms behind these effects remain unclear. This project aims to study the mechanism of action of particle-induced liver toxicity following lung exposure to nanoparticles.

Background: My name is Mathilde Sundberg. I started my PhD in November, in collaboration with the National Research Centre for the Working Environment, where I am physically based most of the time. I hold a Master's degree in Human Physiology from the University of Copenhagen. I have a deep fascination with the liver, which is my favorite organ. Outside of my academic interests, I am a sports enthusiast who enjoys playing football, boxing, running, and swimming.

Exchange in Canada

In August, I will be traveling to Canada as part of my Change in Research Environment. While in Canada, I will be collaborating with Health Canada to perform gene sequencing on liver tissue from particle-exposed mice, including both knockout mice and wild-type. I am very much looking forward to my stay in Canada. Upon my return, I hope to find a statistics course focused on genomics. I am excited about the opportunity to participate in engaging courses and events that will help me develop professionally.

The 7th IVP Animal Models Workshop

The 7th IVP Animal Models Workshop, held on May 17th, 2024, in the beautiful venue “Festauditoriet” at Frederiksberg Campus, was a great success. This student-organized event offered a scientifically enriching experience, focusing on laboratory animal ethics, translational medicine, and the microbiome. Even though fewer PhD students attended than expected, the workshop still provided a platform for knowledge sharing and networking among students, teachers and industry professionals.

The day began with plenty of coffee and snacks, followed by presentations from speakers. Jesper F. Bastlund, Global Translational Research Lead at Lundbeck kicked off the sessions with a talk on developing biomarkers for brain diseases and advanced cross-species translational tools. This was followed by assistant professor Ostaizka Aizpurua Arrieta's presentation on utilizing gut-on-chip systems to understand host and gut microbiome interactions.

Professor Axel Kornerup Hansen discussed the impact of microbiota on animal models, and Corporate Vice President for Global Translation at Novo Nordisk, Rasmus Rabøl highlighted the importance of bridging the gap between animal models and clinical applications in translational research.

Everyone was treated with sandwiches for lunch, and snacks throughout the day.

The afternoon sessions included a practical approach to humane endpoints by veterinarian Karsten Pharao Hammelev and a discussion on ethics in in vivo pain research by Professor Anne-Marie Heegaard.



Picture from Anne-Marie Heegaard's lecture

They concluded the event with a shared Q&A-session with great interest from the audience before ending the presentations of the program and commencing the networking session with snacks and cold drinks.

We extend our gratitude to all speakers and participants for their contributions, making this workshop a valuable experience for everyone involved. We look forward to future events and continued collaboration within our research community. Since the IVP Animal Models Workshop is a yearly tradition, you can already start looking forward to the next edition! If you have any suggestions for speakers or topics you would like to hear more about, let your IVP student representatives know as soon as possible by sending them an email.

Best regards,
Geng Pan, Juan Camacho Roda, and Morten E. Malmberg PhD students from the DIM collaboration

IVP Update

Publisher

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Remarks and questions

Did you like this issue or was there something important missing? Please reach out to us if you want to bring something to our attention.
[Send us an email.](#)

Follow and join IVP

Please join us and spread the word to your fellow members. We have a closed group on LinkedIn.

Click the logo or link below to go to [The In Vivo Pharmacology Alumni Network!](#)



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IVP contact information

- If you have issues to be discussed, things to be clarified, or suggestions for the board of the PhD programme, please contact your student representatives in advance of the next meeting.

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