

# 2019 ACADEMY PROGRAMME



# SCANBUR User Training & Process Optimisation

SCANBUR is Scandinavia's most experienced total solution supplier to animal research facilities. We perform site surveys and assist your layout and project management team to help you optimise your facility.

We offer assistance during the planning and design phase, whether it concerns a single room or an entire wash area in your new or existing facility. Furthermore, we offer hands-on training sessions for your personnel and are of course available should you need any following support:

- **On-site technical training:** Let our service technicians provide tailor-made training for your personnel. Our Academy department will be of assistance to arrange training.
- **On-site user training:** Whether you need training for newly appointed employees at the facility or brush-up courses for current personnel, our Academy department can arrange it for you.

We also offer to look at the workflow in the animal facility with fresh eyes and to give suggestions to how you may optimise your internal processes and improve your workflow SOPs, e.g.

- **Establish intervals for service & maintenance of equipment** to avoid long down periods
- **Optimise use of available rooms**
- **Optimise use of equipment**

Contact [academy@scanbur.com](mailto:academy@scanbur.com) for more information about site surveys and on-site training.



# Welcome to SCANBUR!

## **ACADEMY PROGRAMME 2019**

We facilitate courses, seminars and workshops targeted for employees working within laboratory animal science: Animal technicians, researchers, veterinarians, facility managers, etc.

In addition to our courses, we offer on-demand courses at a location of your choice (at SCANBUR or at your facility), training in the use of SCANBUR products and help to prepare workflow SOPs.

Contact us with your requests and ideas: [academy@scanbur.com](mailto:academy@scanbur.com)

We look forward to welcoming you!

## **STAY UPDATED**

Stay updated on upcoming courses & seminars.

Follow us on LinkedIn [www.linkedin.com/company/scanbur-as/](https://www.linkedin.com/company/scanbur-as/) and [www.scanbur.com/academy](http://www.scanbur.com/academy)

## **REGISTER ONLINE**

[www.scanbur.com/academy#61](http://www.scanbur.com/academy#61)

Registration is binding. In case we do not receive enough registrations to compile a fully booked course, the course will be cancelled. This will be announced at least 3 work weeks prior to the course taking place.

## **PRICES**

Prices are stated in EURO and Academy points, excl. VAT. You earn Academy points if your facility has a SCANBUR service agreement. Academy points can be used as payment for Academy courses or technical on-site training.

## **LANGUAGE**

Courses are conducted in English, however, if most course participants are from Scandinavian countries the possibility of conducting the courses in Danish is available, if all participants agree to it.

# The effect of relative humidity on water intake of C57BL/6J mice housed under conditions of controlled relative humidity at cage level

Petersen KE<sup>1</sup>, Towns R<sup>2</sup>, Andersen CH<sup>1</sup>, Sunesen M<sup>1</sup>

<sup>1</sup>SCANBUR A/S, Silovej 16-18, 2690 Karlslunde, Denmark, <sup>2</sup>Central Biological Services Unit, Malet Place, University College London, WC1E 6BT, United Kingdom

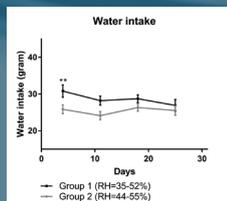
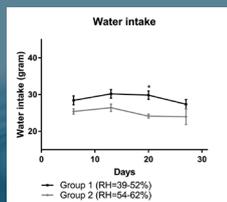
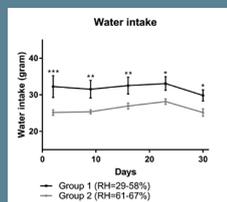
## Conclusions:

Our results suggest that RH can affect the water intake of C57BL/6J mice. When tightly controlling RH within the regulatory requirements the mice drink significantly less than when the animals are housed under room controlled RH. To ensure accurate data results and reproducibility of studies, it can be of great value to steadily control the RH.

## Aim of the study:

In the current study we aimed to investigate the effect of relative humidity on water intake of mice housed at relative humidity (RH) controlled steadily at cage level, compared to mice housed in cages with RH controlled less steadily at room level. Controlled RH at three different levels was compared with RH controlled at room level. The rationale for the study was to evaluate potential effects of RH on water intake, which can potentially affect reproducibility in experimental results.

## Results:



## Group 1

- C57BL/6J (♀+♂)
- n = 16
- Humidity controlled at room level



## Group 2

- C57BL/6J (♀+♂)
- n = 19
- Humidity controlled by air handling unit at 45%, 55% and 65% respectively



## Materials and Methods:

For group 1 a setup with an air handling unit not controlling RH was used, and the animals in this system were subject to RH controlled at room level. For group 2 an air handling unit capable of controlling RH (ScanClimate®) was used to control RH at 45%, 55% and 65% for one month respectively (three months in total). Both groups were housed in the same room with 2-4 animals in each IVC cage. Water intake was measured on a weekly basis as an average pr. mouse pr. cage. The statistical analyses used were repeated measurements ANOVA (SAS Enterprise Guide 7.1). Welfare assessments were performed daily and a thorough check once weekly. The Home Office UK issued the license to carry out the study (No. X7069FDD2).

# The effect of relative humidity on water intake of C57BL/6J mice housed under conditions of controlled relative humidity at cage level

Petersen KE<sup>1</sup>, Towns R<sup>2</sup>, Andersen CH<sup>1</sup>, Sunesen M<sup>1</sup>

<sup>1</sup>SCANBUR A/S, Silovej 16-18, 2690 Karlslunde, Denmark,

<sup>2</sup>Central Biological Services Unit, Malet Place, University College London, WC1E 6BT

**Aim of study:** Food and water intake of laboratory animals are parameters measured in various research fields such as diabetes, obesity and behaviour. The housing environment can affect these parameters and e.g. it has been shown that rats housed under low relative humidity (RH) had a higher food intake than rats housed at high RH<sup>1</sup>. Furthermore, housing conditions can affect the water balance of mice<sup>2</sup>. In the current study we aimed to investigate the effect of relative humidity on water intake of mice housed at RH controlled steadily at cage level when compared to mice housed in cages with RH controlled less steadily at room level. To evaluate the effect of RH on water intake of mice, controlled RH at three different levels was compared with RH controlled at room level. The rationale for the study was to evaluate potential effects of RH on water intake, which can potentially affect reproducibility in experimental results.

**Material and Methods:** To investigate the effect of controlled RH on murine water intake an air handling unit capable of controlling RH (ScanClime®) was used. This air handling unit accurately controlled RH in IVC systems from Tecniplast, at three different levels within regulatory requirements (45%, 55% and 65%). A setup using the same IVC cages connected to an air handling unit not controlling humidity was used for comparison. The latter system was subject to RH controlled less stable at room level. The study performed over three months. For the first month RH was set to 65%, the second 55% and the last 45%. Two groups with a mix of female and male C57BL/6J mice were compared (N=35). 2-4 animals were housed in each cage. Water intake was measured on a weekly basis as an average pr. mouse pr. cage. The statistical analyses used were repeated measurements ANOVA (SAS Enterprise Guide 7.1). Daily welfare assessments were performed together with a thorough check at the weekly cage changes. The study was carried out under license No. X7069FDD2 issued by the Home Office UK.

**Results:** The results of comparing a RH of 65% with room controlled RH of 30-70% showed that mice housed in the controlled environment drank significantly less during the one month test period. The same was shown for the months of testing RH at 55% and 45% compared to room controlled RH. Here one of the weekly water intake measures were significantly lower than the measures of mice housed under room controlled humidity, respectively.

**Conclusion:** Our results suggest that RH can affect the water intake of C57BL/6J mice. When tightly controlling RH within regulatory requirements the mice drink significantly less than when the animals are housed under room controlled RH. To ensure accurate data results and reproducibility of studies, it can be of great value to steadily control the RH.

#### References:

1. Clough G. Environmental effects on animals used in biomedical research. *Biological reviews of the Cambridge Philosophical Society*. 1982;57 (Pt 3):487-523.
2. Nicolaus ML, Bergdall VK, Davis IC, Hickman-Davis JM. Effect of Ventilated Caging on Water Intake and Loss in 4 Strains of Laboratory Mice. *J Amer Assoc Lab Anim Sci*. 2016;55(5):525-33.

# Charles River Animal Model Evaluation Program



Selecting the appropriate animal model for your study is critical to the reproducibility of your research, and to ensure that no animal model's life is wasted unnecessarily.

This program allows researchers to assess research models in their research protocols, refine or validate their studies or simply to take their research in a different direction at no cost.

## Program benefits

- Reduction: Determine whether an animal model fits your research protocols and avoid using the wrong animal model in large scale projects
- Assess quality: Assess the quality of Charles River animal models on your own terms
- No cost: Select the animal model you would like to evaluate, we provide at no cost

Follow this link [wwwapps.criver.com/ModelEvalForm\\_eu/](http://wwwapps.criver.com/ModelEvalForm_eu/) to send your request online.



# Earn Academy Points with Your SCANBUR Service Agreement

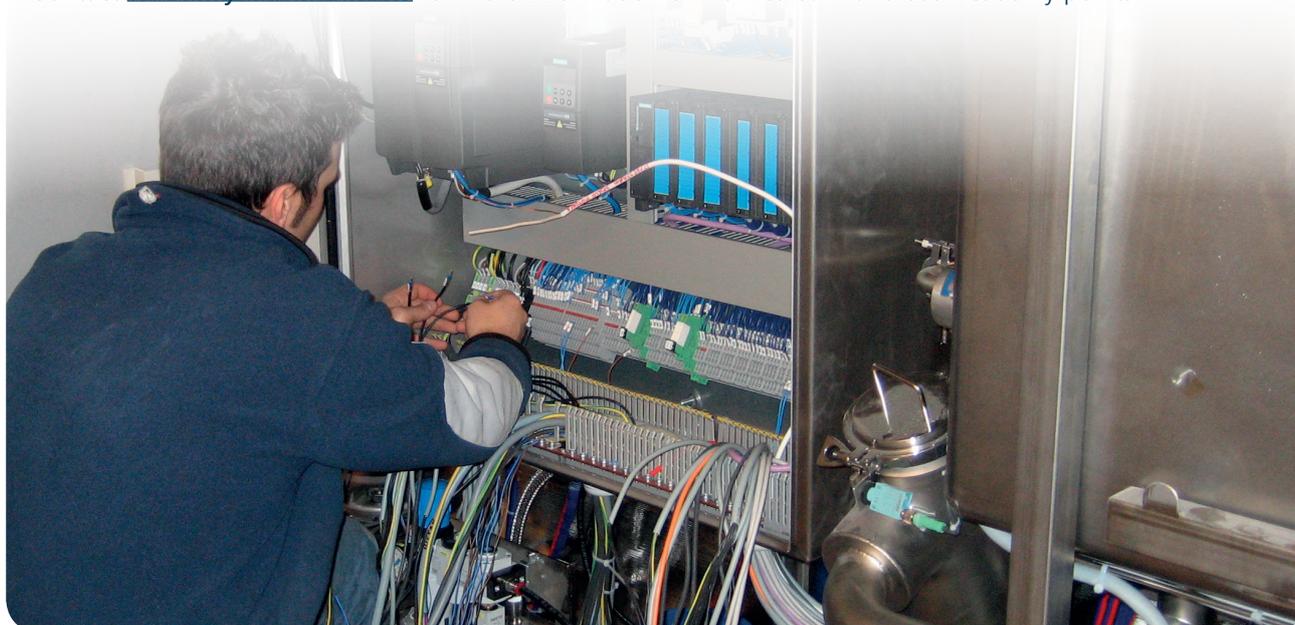
SCANBUR offer service agreements at different levels to suit your requirements\*. With a SCANBUR service agreement you earn Academy points which can be used as payment for Academy courses or for on-site technical training of your colleagues and yourself.

- **On-site technical training:** Let our service technicians provide tailor-made training for your personnel. Our Academy department will be of assistance to arrange training
- **On-site user training:** Whether you need training for newly appointed employees at the facility or brush-up courses for current personnel, our Academy department can arrange it for you
- **Process optimization:** The animal facility workflow will be looked at with fresh eyes, and you will receive suggestions to how you could improve your workflow and optimise your internal processes
- **Academy classroom training:** Let our Academy department design a classroom course tailor-made for your business or choose among a wide range of courses with internal and external speakers

*Service level I	*Service level II
Includes working hours and travel costs for scheduled preventive maintenance visits. As an option, it can also include standard wear and tear parts.	Service level I plus free-call-service ensuring total control of costs, if a service technician is suddenly required at the facility. Should you experience equipment breakdown, then the repair costs are already covered. Spare parts can be included in service level II as an option. Standard wear and tear parts only or all parts that might be necessary.

We of course tailor-make your service agreement to suit your specific requirements.

Contact [academy@scanbur.com](mailto:academy@scanbur.com) for more information on how to earn and use Academy points.



## Scheduled Courses

	<u>Date</u>	<u>Page</u>
Anaesthesia & Analgesia of the Laboratory Pig - Theory & Practice	5-6 February 2019	9
Laboratory Rodent Welfare in Housing & Handling	1 March 2019	10
Are you PREPARED? How to Design Animal Experiments	19 March 2019	12
Blood Sampling Techniques in Mice and Rats & Handling of Blood Samples	11 April 2019	15
Laboratory Animal Analgesia & Anaesthesia - Theory & Practice	21-22 May or 27-28 August	16

## On Demand Courses

We also offer our courses on demand to be held at your facility or any other location when it suits you. In addition to the courses already described in this catalogue we offer ready-to-go on demand options as described on the following pages. If you have a wish for a course topic that we did not yet cover, please contact [academy@scanbur.com](mailto:academy@scanbur.com) and we will do our outmost to create a course that complies with your requirements:

	<u>Page</u>
Ergonomics & Wellbeing in the Animal Facility	17
How to Avoid Allergy & Infections When Working with Laboratory Animals	18
Fifty Shades of Laboratory Animal Science? Ethical Aspects of Working with Laboratory Animals	19

## **Scheduled Course: Anaesthesia & Analgesia of the Laboratory Pig - Theory & Practice**

### **DESCRIPTION**

A 2-day course on anaesthesia and analgesia of the laboratory pig. This course gives a thorough understanding of respiration physiology and pathophysiology, which is the basis of understanding anaesthetic mechanisms, drugs of choice and practical approaches. Furthermore, you learn about pain physiology, assessment and alleviation. You learn the different mechanisms behind acute and chronic pain, why you need to treat pain and which options you have in doing so.

The practical exercises include anaesthesia induction, intubation, anaesthesia monitoring, arterial and venous access (percutaneous and cut-down), epidural catheter/injection and urinary catheterization. Equipment for anaesthesia, design, function and leakage test will be demonstrated.

There will be good opportunities to discuss specific challenges the participants may be facing regarding anaesthesia and analgesia of pigs.

The course is a 2-day course which includes lectures and practice both days. A maximum of 12 participants ensures that everyone gets hands-on training. Social programme: On the evening of day 1 we will enjoy dinner together.

### **EDUCATORS**

**Carsten Grøndahl**, Associate Professor in Anaesthesia & Surgery at University of Copenhagen and Chief Veterinarian at Copenhagen ZOO. Carsten has conducted numerous research projects and seminars on pain modulation and anaesthesiology.

**Mette Værum Olesen** holds approximately 30 years of work experience as an animal technician, specialising in experimental surgery and anaesthesia. Mette runs MVO Consult Denmark, a consultancy firm with expertise in surgery of the laboratory pig and dog.

### **LANGUAGE**

English or Danish (optional)

### **WHEN**

5-6 February 2019

### **WHERE**

University of Southern Denmark, Odense

### **PRICE**

EUR 1800 excl. VAT  
or Academy points 16875  
Includes meals & accommodation

## Scheduled Course: Laboratory Rodent Welfare in Housing & Handling

### DESCRIPTION

What is animal welfare and how do we assess it in our laboratory rodents?

At this course the sensory and cognitive abilities of mice and rats will be presented as well as the concepts of habituation, socialization and training.

We will present and discuss options for housing laboratory rodents. Based on this, we will discuss if we can optimise the way we house and handle the animals to better meet their physical and psychological needs?

The course includes lectures on the following topics:

- What is animal welfare?
- Visual, auditory and olfactory perception in mice and rats
- Laboratory rodent cognition and empathy
- Habituation, socialization and training
- Types of caging and enrichment
- Influence on behaviour and physiology
- Examples from the EU directive and national legislation on requirements for housing

A workshop will round up the learning outcomes of the day and bring the experience of the participants into play when we explore new options of refining the way we house and use laboratory rodents.

This 1-day course is also made on demand at SCANBUR or at your facility. Please contact [academy@scanbur.com](mailto:academy@scanbur.com) for further information on available dates and estimated costs.

### EDUCATOR

**Dorte Bratbo Sørensen** is a veterinarian and an associate professor at the University of Copenhagen. Her research concerns laboratory animal behaviour and training as well as refinement of a number of behavioural assays used on animals to investigate human and animal behaviour and disease.

### LANGUAGE

English or Danish (optional)

### WHEN

1 March 2019

### WHERE

Karlsunde (Copenhagen), Denmark

### PRICE

EUR 269 excl. VAT  
or Academy points 2500  
Includes meals



# Does relative humidity affect reproducibility of animal research?

Andersen KB (kba@scanbur.com), Petersen KE, Whitfield S, Salado DP, Andersen CH, SCANBUR A/S

## Research Collaborators:

Beate Obermüller, Medical University of Graz  
Stephen Woodley & Stuart Newman, Kings College London  
Rebecca Towns, University College London  
BVS, University of Edinburgh  
CNL

Collaborators on these studies have no affiliation or financial links to SCANBUR A/S

Ongoing studies show interesting preliminary data on rodent welfare and physiology when relative humidity is locally, accurately controlled at 55% compared to when relative humidity is controlled centrally, and thus fluctuating with the variable weather conditions

Improved control of environmental conditions within a UK **mouse facility** has shown a **reduction in pre-weaning mortality**. The current study is looking at controlled relative humidity of 55% compared to building controlled. Publication due to be released Q2 2019

In a test study in Austria, **aggression in male mice dropped** when relative humidity was controlled at 55%. Further studies are currently running. Publication due to be released Q2 2019.

Due to customer anecdotes suggesting improved results a study will commence in the UK to investigate the **effect** of relative humidity controlled at 55% on **Embryo Transfer in mice**. This study will commence in November 2018



In a facility in the UK, **rat breeding pairs** housed under controlled relative humidity of 55% **produced much larger litters** compared to when they were housed under conditions where humidity levels were controlled centrally and fluctuated

A mouse facility in Canada that experiences low humidity levels during the cold winter months had challenges with **scaly skin on the mouse tails**. These health issues **quickly improved**, when the relative humidity was controlled at 55%

In a UK facility when tightly controlling relative humidity at different levels within the regulatory requirements the **amount of water mice drank changed significantly** in response to changes in relative humidity and was less variable compared to mice housed under room controlled relative humidity



A patented technology inside ScanClime air handling units ensures a relative air humidity with an accuracy of  $\pm 3\%$ . In a number of research collaborations we are documenting the impact of the ScanClime air handling unit on reproducibility, breeding and animal welfare.

# Scheduled Course: Are you PREPARED? How to Design Animal Experiments

## DESCRIPTION

The PREPARE guidelines ([www.norecopa.no/PREPARE](http://www.norecopa.no/PREPARE)) offer a checklist for planning and conducting animal studies. Based on PREPARE, this course gives an overview of all topics you need to consider when planning your study. We will introduce you to a number of resources which will ease your way to the optimal study design. The course contains lectures, tips and resources on the following topics:

**Literature searches:** Form a clear hypothesis, consider the use of systematic reviews, decide upon databases and assess the reproducibility and translatability of the project.

**Harm benefit analysis & severity classification:** Justify any likely animal harm and define objective, easily measurable and unequivocal humane endpoints. Allocate a severity classification to the project.

**Communication between scientists and the animal facility:** Good and clear communication is likely to be essential for the outcome of your study - but who should you talk to and what needs to be agreed upon?

**Experimental design:** How to decide on methods for evaluating data - before you conduct the study. Health monitoring and the impact of the microbiota and nutrition on animal studies: Consider whether these factors are likely to influence your study.

**How to write a non-technical summary:** Short and understandable for laymen.

**Refinement of procedures:** Resources on refinement of the care and use of laboratory animals.

## EDUCATORS

**Adrian Smith** is the secretary of Norecopa and for many years worked as a professor at the Norwegian School of Veterinary Science. Adrian is one of the authors of the PREPARE guidelines.

**Axel Kornerup Hansen** is Professor & Head of the Section of Experimental Animal Models, University of Copenhagen. Axel's research focus is on reduction and refinement, in particular the impact of nutrition and microbiota on health and disease.

**Birgitte Kousholt** is PhD, Chief Consultant & Veterinarian at Aarhus University. Birgitte is strongly involved in the implementation of systematic reviews and meta-analysis in the planning of animal experiments together with the international research groups CAMARADES and SYRCLE.

Adrian, Axel & Birgitte have arranged and lectured at numerous courses in Laboratory Animal Science.

## LANGUAGE

English

## WHEN

19 March 2019

## WHERE

Clarion Hotel Copenhagen Airport  
Denmark

## PRICE

EUR 345 excl. VAT  
or Academy points 3200  
Includes meals



## The PREPARE Guidelines Checklist

### Planning Research and Experimental Procedures on Animals: Recommendations for Excellence

Adrian J. Smith<sup>a</sup>, R. Eddie Clutton<sup>b</sup>, Elliot Lilley<sup>c</sup>, Kristine E. Aa. Hansen<sup>d</sup> & Trond Brattelid<sup>e</sup>

<sup>a</sup>Norecopa, c/o Norwegian Veterinary Institute, P.O. Box 750 Sentrum, 0106 Oslo, Norway; <sup>b</sup>Royal (Dick) School of Veterinary Studies, Easter Bush, Midlothian, EH25 9RG, U.K.; <sup>c</sup>Research Animals Department, Science Group, RSPCA, Wilberforce Way, Southwater, Horsham, West Sussex, RH13 9RS, U.K.;

<sup>d</sup>Section of Experimental Biomedicine, Department of Production Animal Clinical Sciences, Faculty of Veterinary Medicine, Norwegian University of Life Sciences, P.O. Box 8146 Dep., 0033 Oslo, Norway; <sup>e</sup>Division for Research Management and External Funding, Western Norway University of Applied Sciences, 5020 Bergen, Norway.

PREPARE<sup>1</sup> consists of planning guidelines which are complementary to reporting guidelines such as ARRIVE<sup>2</sup>. PREPARE covers the three broad areas which determine the quality of the preparation for animal studies:

1. Formulation of the study
2. Dialogue between scientists and the animal facility
3. Quality control of the components in the study

The topics will not always be addressed in the order in which they are presented here, and some topics overlap. The PREPARE checklist can be adapted to meet special needs, such as field studies. PREPARE includes guidance on the management of animal facilities, since in-house experiments are dependent upon their quality. The full version of the guidelines is available on the Norecopa website, with links to global resources, at <https://norecopa.no/PREPARE>.

The PREPARE guidelines are a dynamic set which will evolve as more species- and situation-specific guidelines are produced, and as best practice within Laboratory Animal Science progresses.

Topic	Recommendation
<b>(A) Formulation of the study</b>	
1. Literature searches	<input type="checkbox"/> Form a clear hypothesis, with primary and secondary outcomes. <input type="checkbox"/> Consider the use of systematic reviews. <input type="checkbox"/> Decide upon databases and information specialists to be consulted, and construct search terms. <input type="checkbox"/> Assess the relevance of the species to be used, its biology and suitability to answer the experimental questions with the least suffering, and its welfare needs. <input type="checkbox"/> Assess the reproducibility and translatability of the project.
2. Legal issues	<input type="checkbox"/> Consider how the research is affected by relevant legislation for animal research and other areas, e.g. animal transport, occupational health and safety. <input type="checkbox"/> Locate relevant guidance documents (e.g. EU guidance on project evaluation).
3. Ethical issues, harm-benefit assessment and humane endpoints	<input type="checkbox"/> Construct a lay summary. <input type="checkbox"/> In dialogue with ethics committees, consider whether statements about this type of research have already been produced. <input type="checkbox"/> Address the 3Rs (replacement, reduction, refinement) and the 3Ss (good science, good sense, good sensibilities). <input type="checkbox"/> Consider pre-registration and the publication of negative results. <input type="checkbox"/> Perform a harm-benefit assessment and justify any likely animal harm. <input type="checkbox"/> Discuss the learning objectives, if the animal use is for educational or training purposes. <input type="checkbox"/> Allocate a severity classification to the project. <input type="checkbox"/> Define objective, easily measurable and unequivocal humane endpoints. <input type="checkbox"/> Discuss the justification, if any, for death as an end-point.
4. Experimental design and statistical analysis	<input type="checkbox"/> Consider pilot studies, statistical power and significance levels. <input type="checkbox"/> Define the experimental unit and decide upon animal numbers. <input type="checkbox"/> Choose methods of randomisation, prevent observer bias, and decide upon inclusion and exclusion criteria.

Topic	Recommendation
<b>(B) Dialogue between scientists and the animal facility</b>	
5. Objectives and timescale, funding and division of labour	<input type="checkbox"/> Arrange meetings with all relevant staff when early plans for the project exist. <input type="checkbox"/> Construct an approximate timescale for the project, indicating the need for assistance with preparation, animal care, procedures and waste disposal/decontamination. <input type="checkbox"/> Discuss and disclose all expected and potential costs. <input type="checkbox"/> Construct a detailed plan for division of labour and expenses at all stages of the study.
6. Facility evaluation	<input type="checkbox"/> Conduct a physical inspection of the facilities, to evaluate building and equipment standards and needs. <input type="checkbox"/> Discuss staffing levels at times of extra risk.
7. Education and training	<input type="checkbox"/> Assess the current competence of staff members and the need for further education or training prior to the study.
8. Health risks, waste disposal and decontamination	<input type="checkbox"/> Perform a risk assessment, in collaboration with the animal facility, for all persons and animals affected directly or indirectly by the study. <input type="checkbox"/> Assess, and if necessary produce, specific guidance for all stages of the project. <input type="checkbox"/> Discuss means for containment, decontamination, and disposal of all items in the study.
<b>(C) Quality control of the components in the study</b>	
9. Test substances and procedures	<input type="checkbox"/> Provide as much information as possible about test substances. <input type="checkbox"/> Consider the feasibility and validity of test procedures and the skills needed to perform them.
10. Experimental animals	<input type="checkbox"/> Decide upon the characteristics of the animals that are essential for the study and for reporting. <input type="checkbox"/> Avoid generation of surplus animals.
11. Quarantine and health monitoring	<input type="checkbox"/> Discuss the animals' likely health status, any needs for transport, quarantine and isolation, health monitoring and consequences for the personnel.
12. Housing and husbandry	<input type="checkbox"/> Attend to the animals' specific instincts and needs, in collaboration with expert staff. <input type="checkbox"/> Discuss acclimatization, optimal housing conditions and procedures, environmental factors and any experimental limitations on these (e.g. food deprivation, solitary housing).
13. Experimental procedures	<input type="checkbox"/> Develop refined procedures for capture, immobilisation, marking, and release or rehoming. <input type="checkbox"/> Develop refined procedures for substance administration, sampling, sedation and anaesthesia, surgery and other techniques.
14. Humane killing, release, reuse or rehoming	<input type="checkbox"/> Consult relevant legislation and guidelines well in advance of the study. <input type="checkbox"/> Define primary and emergency methods for humane killing. <input type="checkbox"/> Assess the competence of those who may have to perform these tasks.
15. Necropsy	<input type="checkbox"/> Construct a systematic plan for all stages of necropsy, including location, and identification of all animals and samples.

#### References

- Smith AJ, Clutton RE, Lilley E, Hansen KEA & Brattelid T. PREPARE: Guidelines for Planning Animal Research and Testing. *Laboratory Animals*, 2017; DOI: 10.1177/0023677217724823.
- Kilkenny C, Browne WJ, Cuthill IC *et al.* Improving Bioscience Research Reporting: The ARRIVE Guidelines for Reporting Animal Research. *PLoS Biology*, 2010; DOI: 10.1371/journal.pbio.1000412.

#### Further information

<https://norecopa.no/PREPARE> | [post@norecopa.no](mailto:post@norecopa.no) |  [@norecopa](https://twitter.com/norecopa)

## Scheduled Course: Blood Sampling Techniques in Mice and Rats & Handling of Blood Samples

### DESCRIPTION

Blood samples are an essential part of most animal experiments, but how do we obtain the best possible blood samples while ensuring a high level of animal welfare?

This course includes a theoretical and a practical review of the most frequently used blood sampling techniques, existing guidelines for maximal blood sampling volumes and restitution times.

Furthermore, we will discuss the potential pathological consequences and stress responses due to blood sampling, and how we make sure to minimize these.

Correct handling of blood samples is essential for accurate research results, and thus good practice for stabilisation, centrifuging, cooling and storage will be presented.

We will discuss specific challenges the participants may face regarding blood sampling.

The course includes both lectures and practical exercises on blood sampling techniques in mice and rats.

A maximum of 12 participants ensures that everyone gets hands-on training.

### EDUCATORS

**Klas Abelson** is Associate Professor the Department of Experimental Medicine, University of Copenhagen. Klas' research centers on the development of objective measurement of pain and stress in rats and mice as well as development and refinement of methods for surgery and blood sampling. He is responsible for a wide range of teaching and training activities in lab animal science and animal experimentation.

**Lise Nikolic Nielsen** is Associate Professor at the Department of Veterinary Clinical Medicine, University of Copenhagen. Lise is the academic manager of the Veterinary Diagnostic Laboratory (VetLab) and Veterinary Clinical Pathology. VetLab analyzes samples from many different species and Lise is therefore well aware of the struggles to get adequate samples, how to analyse samples with small volumes and the lack of reference intervals for exotic species.

### LANGUAGE

English or Danish (optional)

### WHEN

11 April 2019

### WHERE

University of Copenhagen  
Panum, Blegdamsvej 3B  
2200 Copenhagen NDenmark

### PRICE

EUR 670 excl. VAT  
or 6250 Academy points  
Includes meals

## **Scheduled Course: Laboratory Animal Analgesia & Anaesthesia - Theory & Practice**

### **DESCRIPTION**

For how long can you hold your breath? That is the amount of time you have to Google, if your anaesthesia protocol fails! Thus, you are highly dependent on ready knowledge when doing anaesthesia of laboratory animals. This course gives you a thorough understanding of respiration physiology and pathophysiology, which is the basis of understanding Anaesthetic mechanisms, drugs of choice and practical approaches.

How much pain does a laboratory animal feel after being exposed to e.g. surgery? We cannot ask and thus often it is up to caretakers, veterinarians and researchers to decide which pain relief should be given. On this course you learn about pain physiology, assessment and alleviation. You learn the different mechanisms behind acute and chronic pain, why you need to treat them and which options you have in doing so.

On **Day 1** of this course, interactive lectures take the participants through the theory of respiratory and pain physiology and with that onset, moves on to the principles of anaesthesia and analgesia. The participants get an overview of drugs of choice for different anaesthesia levels and purposes. Likewise, the options for pain relief dependent on type of procedure and physiological impact will be taught. Social program: After a day of lectures, Day 1 includes a guided tour in Copenhagen ZOO. We get to meet some of the animals up close and enjoy a delicious barbecue while the sun sets in Copenhagen ZOO.

On Day 2 we do practical exercises on rat and rabbit anaesthesia using the theoretical knowledge obtained. Various techniques will be used to illustrate the benefits and challenges of different anaesthesia protocols. Besides anaesthetic protocols, the participants will be taught intubation on both the rabbit and rat and get an introduction to the use of the larynx mask in the rabbit as a much better option. The importance of oxygenation will be thoroughly demonstrated.

A maximum of 12 participants ensure that everyone gets hands-on training.

### **EDUCATORS**

**Klas Abelson** is Associate Professor the Department of Experimental Medicine, University of Copenhagen. Klas' research centres on the development of objective measurement of pain and stress in rats and mice and novel methods for alleviating pain and stress in these species.

**Carsten Grøndahl** is Associate Professor in Anaesthesia and Surgery at University of Copenhagen and Chief Veterinarian at Copenhagen ZOO. Carsten has conducted numerous research projects and seminars on pain modulation and anaesthesiology.

### **LANGUAGE**

English or Danish (optional)

### **WHEN**

21-22 May or 27-28 August

### **WHERE**

**Day 1:**

Copenhagen ZOO

**Day 2:**

University of Copenhagen, Panum  
Blegdamsvej 3B  
2200 Copenhagen N

### **PRICE**

EUR 1250 excl. VAT  
or 13300 Academy points  
Includes meals

## On Demand Course: Ergonomics & Wellbeing in the Animal Facility

### DESCRIPTION

Working in the animal facilities subject laboratory animal caretakers and technicians to a challenging physical work environment. Repetitive movements, overhead lifts or awkward work positions may result in pain and work disability.

This course will teach you how to perform your work while avoiding work-related musculoskeletal disorders. The educator will help you understand the importance of physical wellbeing, how much potential you have to increase your wellbeing and the impacts you may earn from this.

You will get tips and tricks on how to practice for healthier work positions and learn how to construct your work day and working environment for optimal implementation of the course content.

This course contains interactive lectures and practical exercises. The course will build on the specific challenges in the physical work environment of the course participants.

### EDUCATOR

Søren Hald is a physiotherapist and partner at REDMINKROP ("SAVEMYBODY"). Søren has for more than 10 years worked to help people obtain a better physical work environment and thus a better wellbeing. Søren is an experienced consultant on ergonomics in laboratories and has worked with several Danish animal facilities to improve their physical work environment.

### LANGUAGE

English or Danish (optional)

This 1-day course is also made on demand at SCANBUR or at your facility. Please contact [academy@scanbur.com](mailto:academy@scanbur.com) for further information on available dates and estimated costs.



## On Demand Course: How to Avoid Allergy & Infections When Working with Laboratory Animals

### DESCRIPTION

Working with laboratory animals pose a risk of employees being exposed to allergens and potential infectious agents.

On this course you learn how allergens and infectious agents spread and where bacteria, virus and parasites can be found in the surroundings and on the laboratory animals. You will learn how to optimise your workflow and use of personal protective equipment.

The course contains lectures and practicals on the following topics:

- Bacteria, virus, fungi and parasites - where are they found in the environment?
- How do microorganisms spread between animals, personnel and the environment
- Spot the microorganisms in your surroundings
- Infectious hygiene guidelines on hand hygiene and personal protection equipment
- Decontamination of equipment and surroundings
- Keeping your work area clean
- Evaluate your own work procedures

### EDUCATORS

Mette Bar Ilan is a nurse specialized in infection control. Mette is employed at the Central Unit for Infection Control and the Livestock Associated MRSA advisory service at Statens Serum Institut. Mette is an experienced teacher as her daily work comprises guidance and education on infection control as well as preparation of national guidelines and information within this area.

### LANGUAGE

English or Danish (optional)

This 1-day course is also made on demand at SCANBUR or at your facility. Please contact [academy@scanbur.com](mailto:academy@scanbur.com) for further information on available dates and estimated costs.

## On Demand Course: Fifty Shades of Laboratory Animal Science? Ethical Aspects of Working with Laboratory Animals

### DESCRIPTION

Using animals in research and within the world of medicine has been a controversial subject for many years. Is it justifiable to sacrifice other living creatures to gain a better understanding of the world and alleviate and cure human diseases? Existing and emerging techniques like cloning, GMO and CRISPR-Cas9 adds new aspects to the debate both which purposes that can justify animal research and what methods are acceptable.

The course begins with a talk that situates the debate on laboratory animals in the broader context of animal ethics and illuminates the ethical conflicts and dilemmas integral to the use of animals in research with a special emphasis on the challenges related to the use of modern biotechnologies. Afterwards the participants will be challenged to reflect on some examples of how animals are used for scientific purposes. Finally, a very important part of this course is the opportunity for the participants to consider ethical dilemmas in their own work with laboratory animals and to discuss these with colleagues.

### EDUCATOR

Mickey Gjerris: M.Th., PhD, Associate Professor, Department of Food and Resource Economics, The Faculty of Science, University of Copenhagen. Mickey is a bioethicist and works primarily with ethical aspects of human use of nature in relation to climate change, agriculture, food, research animals and biotechnology. He has published several articles on animal research ethics and is a co-author of *Animal Ethics in Animal Research*, a textbook published in 2017 at Cambridge University Press.

### LANGUAGE

English or Danish (optional)

This 1-day course is also made on demand at SCANBUR or at your facility. Please contact [academy@scanbur.com](mailto:academy@scanbur.com) for further information on available dates and estimated costs.



SCANBUR | Silovej 16-18 | DK2690 Karlslunde | Denmark

Tel. +45 5686 5600 | [academy@scanbur.com](mailto:academy@scanbur.com) | [www.scanbur.com/academy](http://www.scanbur.com/academy)