



Ellegaard
GÖTTINGEN MINIPIGS A/S

Newsletter 28
AUTUMN 2007

DEAR READER,

We are pleased to announce that full re-accreditation was granted after our fourth site visit from AAALAC which took place in June. During the three-day visit, the two site visitors reviewed Minipig housing as well as the procedures in both of our Minipig barriers. During the quarantine period required between visits from one barrier to the other, the site visitors thoroughly reviewed our office procedures including software programs specifically designed for our production, an occupational health and safety programme, quality documentation, staff training, transportation procedures, veterinary management, health monitoring and genetic management. Finally the conventional unit was visited and, at the end of the visit - and after more showers and changes of clothing than the site visitors had ever tried in three days - the site visitors gave an exit briefing to everybody at Ellegaard Göttingen Minipigs. The site visitors were pleased with the staff's dedication, the open communications and the friendly atmosphere. They found that the IACUC was well organized. They mentioned that the transportation of the Minipigs was well managed and that the transport vehicles were well maintained. A few suggestions for improvement were given. In September we received a letter from AAALAC confirming that we had received full re-accreditation. All of us felt that this was an excellent site visit with lots of constructive discussions on animal welfare and the challenges of running a laboratory-animal breeding business. We are pleased with the positive and professional approach of the site visitors and feel that once more we have learned a lot from an AAALAC visit that helps us to improve our business.

HEALTH MONITORING REPORT

In August samples for our biannual health monitoring reports (HMR) were taken and sent to relevant laboratories. We have now received all the test results and are pleased to announce that no changes have occurred since the last HMR.

In the past, we have usually included the latest HMR with the newsletter, so you received both at the same time. This time, however, we have decided not to send the paper-based HMR, but instead only make it available on our website, www.minipigs.dk: click "Quality" and then "HMR".

Historical HMRs can also be found there.

**NEW VETERINARIAN
AT ELLEGAARD GÖTTINGEN MINIPIGS**

Nanna Grand, who has been with our company for a little more than five years, has decided to seek new horizons within the laboratory-animal industry. As of October she has taken a position with the contract laboratory LAB Scantox where she will be trained to be a study supervisor and also take part in the veterinary work at LAB Scantox. We have been pleased with the time Nanna has been with our company. She has acquired a vast knowledge of the Minipig and has established a broad network of Minipig researchers. We are convinced Nanna will be a great ambassador for Minipigs, and we wish her all the best in her new job. We are looking forward to continuing our fine working relationship with Nanna.

To fill Nanna's shoes, Peter Gade has been employed as Head of Veterinary Services here at Ellegaard Göttingen Minipigs. For a couple of weeks, he and Nanna were both at Ellegaard Göttingen Minipigs, which was a good way to introduce Peter to



his new job. Peter acquired his DVM degree from the Royal Veterinary and Agricultural University in Copenhagen in 2004. His main veterinary interest has always been laboratory-animals. While he was studying, he spent his weekends and holidays working for Novo Nordisk in the laboratory-animal facility, and his master's thesis was an evaluation of vascular access ports in Göttingen Minipigs. After graduating he took a full-time position with the laboratory-animal facility at Novo Nordisk. Here he worked with several laboratory-animal species including the Göttingen Minipig. After two and a half years at Novo Nordisk, Peter took a job as a Laboratory-Animal Veterinarian at the University of Copenhagen where he supported researchers and taught courses in laboratory-animal science. This means that Peter is both experienced within the laboratory-animal industry as well as with our Minipigs. We warmly welcome Peter to Ellegaard Göttingen Minipigs and hope you will do the same when you meet him at laboratory-animal meetings or contact him with questions regarding Göttingen Minipigs.

Clean pigs for clear results



Minipigs

Biological products

Auxiliary equipment

Training & Courses

SURGERY COURSES AT ELLEGAARD

We have now held four surgery courses at Ellegaard, each of which was attended by highly motivated participants.

Tony Webb (BVSc DVR MRCVS) was the instructor for the surgery courses which lasted two days and comprised a theoretical review and practical hands-on exercises. It is also possible to attend a small-scale Handling and Dosing Course in connection with the surgery course where basic procedures are demonstrated and practised.

The course is intended to be a full-package course and it is our aim that participants return home well versed in all the steps of Minipig surgery.

Thus, during the course, the participants will be taught how to anaesthetize and intubate the Minipig. Also percutaneous catheterization using an Arrow catheter (photo 1) and catheterization by means of surgical cut-down are demonstrated and practised (photos 2–4). Telemetry is also discussed, and the implantation of the DSI D70-PCT transmitter is practised.

If any participants have special requests, Ellegaard will do its best to adapt the course to participant wishes.

The courses have been well received by the participants who especially appreciate that the course is for small groups only (a maximum of 4 participants) and that the course combines theory and practice.

Participant comments after attending a course:
“Valuable with few participants making it possible to practise and observe.” “Now I’m confident about starting to perform surgery on Minipigs.”

One participant stated:
“The ‘Anaesthesia and Surgery of the Göttingen Minipig’ course is excellent and led by superb teachers. The lectures not only provide an excellent overview, but also the profound knowledge that is mandatory for conducting animal experiments. Both the handling and dosing part as well as the training in anaesthesia, catheterization and surgery are really hands-on because of the small size of the group. An experienced veterinary surgeon taught us the essential tips and tricks. We performed orotracheal intubation and cut-down arterial and venous access procedures ourselves under his supervision. The entire faculty is committed to providing a unique training experience.”

If you require a surgery course, please go to www.minipigs.dk to get further details and to register.

We look forward to welcoming you to Ellegaard!





HANDLING AND DOSING COURSES

Correct handling of Minipigs is essential for getting a cooperative animal for daily handling and basic procedures.

Minipig handling differs from the handling of dogs or other species used for biomedical research, and this may cause some difficulty if caretakers and scientific staff are not used to working with pigs or Minipigs. At worst, this may prevent people from using Minipigs because of practical difficulties, even if it is the most appropriate species for a specific protocol. In Ellegaard's view, it is important to stress that the Minipig is not more difficult to work with per se, it is merely different. Accordingly, Ellegaard offers Handling and Dosing Courses to teach users about these differences and to teach them how to become familiar with Minipigs in working situations. These courses cover basic handling and the performance of basic procedures, such as blood sampling, dosing by gavage and placement in a sling.

Handling and Dosing Courses can be taught at Ellegaard's facilities or the customer's.

Jette Jensen is the course instructor and daily manager of Barrier 1. Thus, she has wide ranging experience in Minipig behaviour and has taught the Handling and Dosing Courses for more than two years.



The courses are popular and aimed at novice users who need to familiarise themselves with Minipig handling and dosing procedures and experienced users who need to discuss and update the methods they already use.

To enquire about a Handling and Dosing Course, please visit www.minipigs.dk.

MINIPIG RESEARCH FORUM (MRF)

Bringing researchers and research model together

The use of Minipigs has steadily increased over the years. Our company thinks that the time is right to establish a forum where people who work with Minipigs can meet to share ideas and knowledge, so we all can become better at what we do.

User-driven Forum: Get Involved!

We want this to be your forum, so we need your commitment to make it happen.

It is our hope that this forum will become a user-driven entity and thus be independent of Ellegaard Göttingen Minipigs. We strongly believe that this is the best way to ensure scientific integrity. We also hope that you share this view and will engage in and support this forum wholeheartedly. To hand over the forum to you, the users, we need to identify a group of people who will make up the MRF's Steering Group OR Committee and take part in the planning and preparations for the next meeting.

Steering Group

A group of key people who must take the MRF forward

The main responsibilities of the Steering Group are to establish the MRF as an independent entity and to make people aware of its existence. The Steering Group will also be responsible for summoning members to the MRF and organizing the annual meeting. We will assist in this for the first meeting(s), but after two or three meetings the forum should be independent of Ellegaard Göttingen Minipigs. If you are interested, please contact Niels-Christian Ganderup – ncg@minipigs.dk

Registration for the 2007 meeting has closed, but keep an eye out for the 2008-meeting of the MRF.

For more information, please visit: www.minipigresearchforum.org.

ELLEGAARD GÖTTINGEN MINIPIGS DVDS AVAILABLE

The Göttingen Minipig – Handling and Dosing

This DVD is now available in a German language version as well as in French and English. It is a unique tool for those who work with the Göttingen Minipig. Price each € 90 excl. shipping and handling.

The Göttingen Minipig – Histology

This DVD allows users to familiarize themselves with the normal histology of the Göttingen Minipig. Price each € 65 excl. shipping and handling.

Please do not hesitate to contact us for further information at ellegaard@minipigs.dk or phone +45 5818 5818.



MEETING CALENDAR	NAME	DATE	PLACE
	EUROTOX	7-10 October 2007	Amsterdam, The Netherlands
AALAS	14-18 October 2007	Charlotte, NC, USA	
American College of Toxicology	11-14 November 2007	Charlotte, NC, USA	
AFSTAL	28-30 November 2007	Reims, France	
LASA Winter Meeting	21-23 November 2007	UK	
Juvenile Toxicity Symposium	29-30 November 2007	Beerse, Belgium	
IAT	4-6 March 2008	UK	
SOT ToxExpo	17-19 March 2008	Seattle, WA, USA	
Swine in Biomedical Research Conference	2-3 April 2008	San Diego, CA, USA	
British Toxicology Society	6-9 April 2008	Guildford, Surrey, UK	
Scand-LAS	8-11 May 2008	Tartu, Estonia	
AFSTAL	4-6 June 2008	Strasbourg, France	
GV-Solas	14-17 September 2008	Dresden, Germany	
Safety Pharmacology Society	21-23 September 2008	Madison, WI, USA	
European Teratology Society	21-24 September 2008	Edinburgh, Scotland	
ESTP – European Congress of Toxicologic Pathology	24-26 September 2008	Edinburgh, Scotland	
EUROTOX	5-8 October 2008	Rhodes, Greece	
American College of Toxicology	9-12 November 2008	Tucson, AZ, USA	

NEW ARTICLES ABOUT GÖTTINGEN MINIPIGS

Conditions of wound healing and cutaneous growth affect metabolic performance of skin following plastic surgery

Lutz NW, Confort-Gouny S, Casanova D, Andrac-Meyer L, Magalon D, Cozzone PJ

Wound Repair and Regeneration Volume 15 Issue 4 Page 491-496

Compensatory digestion of fat, protein and starch (rates and amounts) in the large intestine of minipigs in case of reduced precaecal digestion due to pancreatic duct ligation - A short review

Mossler A, Tabeling R, Gregory PC, Kamphues J

Livestock Science 109 (1-3): 50-52 Sp. Iss. SI MAY 15 2007

Characterization of Diuron N-demethylation by mammalian hepatic Microsomes and cDNA-Expressed human cytochrome p450 enzymes

Abass K, Reponen P, Turpeinen M, Jalonen J, Pelkonen O.

Drug Metabolism and Disposition 35 (9): 1634-1641 SEP 2007

The effect of the inter-phase delay interval in the spontaneous object recognition test for pigs

Kornum BR, Thygesen KS, Nielsen TR, Rune T, Knudsen GM, Lind NM

Behavioural Brain Research 181 (2): 210-217 AUG 6 2007

Characterisation of spontaneous behaviour in Gottingen Minipigs in the home pen

Scandinavian Journal of Laboratory Animal Science 34 (2): 91-103 2007

Cytochrome P450 destruction by benzene metabolites 1,4-benzoquinone and 1,4-hydroquinone and the formation of hydroxyl radicals in minipig liver microsomes

Kondrova E, Stopka P, Sousek P

Toxicology In Vitro 21 (4): 566-575 JUN 2007

A rapid method for detection of the copy number of porcine endogenous retrovirus in swine

Yu P, Zhang L, Li SF, Cheng JQ, Lu YR, Zeng YZ, Li YP, Bu H

Journal of Rapid Methods and Automation in Microbiology 15 (2): 199-205 JUN 2007

A PET study of effects of chronic 3,4-methylenedioxymethamphetamine (MDMA, "ecstasy") on serotonin markers in Gottingen minipig brain

Cumming P, Moller M, Benda K, Minuzzi L, Jakobsen S, Jensen SB, Pakkenberg B, Stark AK, Gramsbergen JB, Andreasen MF, Olsen AK

Synapse 61 (7): 478-487 JUL 2007

Cellular localization of inhibin alpha-subunit, PKB/Akt and FoxO3a proteins in the ovaries of minipigs

Meng CH, Shi FX, Zhou ZQ, Huang RH, Liu GT, Watanabe G, Taya K

Journal of Reproduction and Development 53 (2): 229-236 APR 2007

Comparison of various methods and materials for treatment of skin laceration by a 3-dimensional measuring technique in a pig experiment

Zeplin PH, Schmidt K, Laske M, Ziegler UE

Annals of Plastic Surgery 58 (5): 566-572 MAY 2007

Spinal grafting of human spinal neural precursors: A preclinical safety and dosing study in immunodeficient rat and immunosuppressed minipig

Marsala M

Cell Transplantation 16 (3): 335-336 2007

Modeling the growth of the Gottingen minipig

Kohn F, Sharifi AR, Simianer H

Journal of Animal Science 85 (1): 84-92 JAN 2007

Mapping the amphetamine-evoked changes in [C-11]raclopride binding in living rat

using small animal PET: Modulation by MAO-inhibition

Pedersen K, Simonsen M, Ostergaard SD, Munk OL, Rosa-Neto P, Olsen AK, Jensen SB, Moller A, Cumming P

Neuroimage 35 (1): 38-46 MAR 2007

Dental and skeletal characterization of the BR-1 minipig

Oltramari PVP, Navarro RL, Henriques JFC, Capelloza ALA, Granjeiro JM

Veterinary Journal 173 (2): 399-407 MAR 2007

Haplotype kinship for three populations of the Gottingen minipig

Flury C, Weigend S, Ding XD, Taubert H, Simianer H

Genetics Selection Evolution 39 (2): 159-179 MAR-APR 2007

Ibandronate treatment reverses glucocorticoid-induced loss of bone mineral density and strength in minipigs

Gluer CC, Scholz-Ahrens KE, Helfenstein A, Delling G, Timm W, Acil Y, Barkmann R, Hassenpflug J, Stampa B, Bauss F, Schrezenmeier J

Bone 40 (3): 645-655 MAR 2007

Full-length cDNA cloning and protein three-dimensional structure modeling of porcine prothrombin

Chen YN, Tan WD, Lu XF, Lu YR, Qin SF, Li SF, Zeng YZ, Bu H, Li YP, Cheng JQ

Blood Cells Molecules and Diseases 38 (2): 93-99 MAR-APR 2007

Hirulog-like peptide reduces balloon catheter injury induced neointima formation in minipig femoral artery without increase in bleeding tendency

Tang XF, Liu JJ, Wu YJ, Gao PJ, Zhu DL, Shen GX

Journal of Hypertension 24: 40-40 Suppl. 6 DEC 2006

The prefrontal cortex in the Gottingen minipig brain defined by neural projection criteria and cytoarchitecture (vol 70, pg 322, 2006)

Jelsing J, Hay-Schmidt A, Dyrby T, Hemmingsen R, Uylings HBM, Pakkenberg B

Brain Research Bulletin 71 (5): 539-539 MAR 15 2007

In vitro metabolism of medroxyprogesterone acetate with human liver microsomes and comparison with rat, minipig liver microsomes, and recombinant human CYP3A4

Zhang JW, Liu Y, Li W, Yang L, Zhang JW, Li W

Drug Metabolism Reviews 38: 102-102 Suppl. 3, 2006

Statistical mapping of effects of middle cerebral artery occlusion (MCAO) on blood flow and oxygen consumption in porcine brain

Watanabe H, Sakoh M, Andersen F, Rodell A, Sorensen JC, Ostergaard L, Mouridsen K, Cumming P

Journal of Neuroscience Methods 160 (1): 109-115 FEB 15 2007

Local application of a collagen type I/hyaluronate matrix and growth and differentiation factor 5 influences the closure of osteochondral defects in a minipig model by endochondral ossification

Jung M, Tuischer JS, Sergi C, Gotterbarm T, Pohl J, Richter W, Simank HG

Growth Factors 24 (4): 225-232 DEC 2006

Somatic cell nuclear transfer in pigs: recent achievements and future possibilities

Vajta G, Zhang YH, Machaty Z

Reproduction Fertility and Development 19 (2): 403-423 2007

Severe insulin resistance and moderate glomerulosclerosis in a minipig model induced by high-fat/high-sucrose/high-cholesterol diet

Liu Y, Wang ZB, Yin WD, Yin WD, Li QK, Cai MB, Zhang C, Xiao JX, Hou HJ, Li HG, Zu XH

Experimental Animals 56 (1): 11-20 JAN 2007