



# Newsletter

Berlin-Brandenburg research platform BB3R – Issue 13

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## **BB3R introduces: Working Group of Prof. Plendl**

For many years, the Institute of Veterinary Anatomy, Department of Veterinary Medicine, Freie Universität Berlin, has been involved in the field of the 3Rs. In our Institute, we undertake numerous 3R oriented research projects utilizing our working group members' individual areas of expertise in anatomy, histology and embryology.

We have used our histological expertise especially of light and electron microscopical techniques to establish two- and three-dimensional in vitro models of angiogenesis. For this purpose, we have successfully isolated endothelial cells from several domestic species, notably bovine and equine. In addition, our working group has established a three-dimensional in vitro model of capillarized connective tissue to investigate the effects of X-ray contrast media on the microcirculation. Currently we are developing vascularized three-dimensional skin models.

We have used our anatomical knowledge - also as part of BB3R - to provide detailed and precise information on the anatomy of animal models, such as the Minipig, which is urgently needed by medical experimenters for the purpose of refinement.

The anatomical and histological know-how of the group was important in the investigation of the fitness of a new dual chicken breed (Lohman Dual). Since males of laying breeds are slow growing, they are not profitable for meat production and are killed immediately after hatching. In order to avoid this, new chicken breeds are required.

More recently, we have commenced the project "SimuRATor", funded by the BfR. This refinement project, which is carried out in cooperation with the Institute of Animal Welfare, Animal Behavior and Laboratory Animal Science of the Department of Veterinary Medicine, aims at developing a realistic and anatomically correct 3D-printed simulator of the rat for laboratory animal training courses.

## **Upcoming Event:**

**Spring School „Ethical and legal aspects of animal experimentation and 3R approaches“ at FU Berlin, March 18-20. [Link to program](#)**

## **New publications:**

Khiao In M, Richardson K, Loewa A, Hedtrich S, Kaessmeyer S, Plendl J (2019) **Histological and functional comparisons of four anatomical regions of the porcine skin which human abdominal skin.** Anat Histol Embryol, 48(3):207-217. [Link](#)

Corte GM, Hünigen H, Richardson K, Niehues SM and Plendl J (2019) **Cephalometric studies of the mandible, its masticatory muscles and vasculature of growing Göttingen Minipigs – A comparative anatomical study to refine experimental mandibular surgery.** PLoS One, 14(4):e0215875. [Link](#)

Harash G, Richardson K, Alshamy Z, Hünigen H, Hafez HM, Plendl J, Al Masri S (2019) **Heart ventricular histology and microvasculature together with aortic histology and elastic lamellar structure: a comparison of a novel dual-purpose to a broiler chicken line.** PLoS One 14(3):e0214158. [Link](#)

Alshamy Z, Richardson K, Harash G, Hünigen H, Röhe I, Hafez MH, Plendl, Al Masri S (2019) **Structure and age-dependent growth of the chicken liver together with liver fat quantification: a comparison between a dual-purpose and a broiler chicken line.** PLoS One 14(12):e0226903. [Link](#)

Harash G, Richardson KC, Alshamy Z, Hünigen H, Hafez HM, Plendl J, Al Masri S (2020) **Basic morphometry, microcomputed tomography and mechanical evaluation of the tibio-tarsal bone of a dual-purpose and a broiler chicken line,** PlosOne accepted.

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