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# Laboratory of Preclinical Studies

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## Offer

- Model of healing of cutaneous wounds in non-diabetic and diabetic rats (both DMI and DMII)
- Porcine model of healing of normal cutaneous wounds
- Porcine model of healing of full-thickness cutaneous wounds experimentally infected with bacterial biofilm
- Porcine model of osteochondral defect in knee joint
- Porcine models of fractures of femur
- *In vivo* testing of materials for stomatology and maxillofacial surgery
- *In vivo* testing of materials for soft tissue augmentations
- *In vivo* testing of wide spectrum of implants and prostheses
- Murine models of experimental infection of *Cryptosporidium* (both for basic research and evaluation of antiprotozoal drugs)

## Expertise

The Animal Research Facility is designed to provide all experiments on following animals:

- mice
- rats
- hamsters
- gerbils
- guinea-pigs
- rabbits
- pigs
- sheeps
- goats.

In addition, there are established animal models allowing to do contract research and scientific cooperation, especially in regenerative medicine and experimental surgery.

## Research Area & Excellence

The section for small animals allows housing in conventional conditions and in the barrier. This experimental facilities includes fully equipped laboratory allowing to perform all the *in vivo* experiments, including surgical procedures.

The section for the large animals includes clean rooms, in which there are two fully equipped operating theatres and experimental ICU.

## Members

- Pavel Klein, Ph.D., M.Sc. – Research Group Leader
- Ilona Lacinová
- Markéta Navrátilová
- Ivana Ocskaiová
- Kristýna Šmídová

## Selected Publications

- Bobula T., Běťák J., Buffa R., Moravcová M., Klein P., Žídek O., Chadimová V., Pospišil R., Velebný V.: *Solidstate photocrosslinking of hyaluronan microfibres*, Carbohydrate Polymers 2015, 125: 153–60
- Kučera L., Wiunfurterová R., Dvořáková J., Kučera J., Pravda M., Foglarová M., Švík K., Klein P., Velebný V.: *Chondrocyte Cultivation in Hyaluronan-Tyramine Cross-Linked Hydrogel*. International Journal of Polymeric Materials 2015, 64 (13): 661–74
- Kučera J., Sojka, M., Pavlík, V., Szuszkievicz, K., Velebný, V., Klein, P.: *Multispecies biofilm in an artificial wound bed – a novel model for in vitro assessment of solid antimicrobial dressings*. Journal of Microbiological Methods 2014, 103: 18–24

- Klein, P., Kleinová, T., Volek, Z., Šimůnek, J.: *Effect of Cryptosporidium parvum infection on the absorptive capacity and paracellular permeability of the small intestine in neonatal calves*. Veterinary Parasitology 2008, 152 (1–2): 53–9
- Klein, P.: *Preventive and therapeutic efficacy of halofuginone-lactate against Cryptosporidium parvum in spontaneously infected calves: A centralised, randomised, double-blind, placebo-controlled study*. The Veterinary Journal 2008, 177 (3): 429–31
- Klein, P., Cirioni, O., Giacometti, A., Scalise, G.: *In vitro and in vivo activity of aurintricarboxylic acid preparations against Cryptosporidium parvum*. Journal of Antimicrobial Chemotherapy 2008, 62 (5): 1101–4
- Widmer, G., Klein, P., Bonilla, R.: *Adaptation of Cryptosporidium oocysts to different excystation conditions*. Parasitology 2007, 134: 1583–8
- Klein, P., Moravcová, J., Kleinová, T., Volek, Z., Skřivanová, V.: *Assessment of intestinal permeability in preruminant calves by lactulose/mannitol test*. Journal of Animal and Feed Sciences 2007; 16 (1): 43–52
- Klein, P.: *Preparation of the formaurindicarboxylic acid base and its derivations and use*. US 8030353 B2
- Bobula, T., Pospíšil, R., Buffa, R., Růžičková, J., Moravcová, M., Klein, P., Velebný, V.: *Photoreactive derivative of hyaluronic acid, method of preparation thereof, 3d-crosslinked derivative of hyaluronic acid, method of preparation and use thereof*. WO 2014082608 A1
- Šmejkalová, D., Huerta-Angeles, G., Bobek, M., Hermannová, M., Vištejnová, L., Novotný, J., Příkopová, E., Nešporová, K., Němcová, M., Šlezingrová, K., Kulhánek, J., Čožíková, D., Šogorková, J., Kučera, J., Klein, P., Velebný, V.: *C6-c18-acylated derivative of hyaluronic acid, method of preparation thereof, nanomicellar composition on its basis, method of preparation thereof and method of preparation stabilized nanomicellar composition, and use thereof*. WO 2014082609 A1
- Ščudlová, J., Běťák, J., Wolfová, L., Buffa, R., Šlezingrová, K., Klein, P., Matějková, I., Bobek, M., Pitucha, T., Velebný, V., Šuláková, R.: *Fibres based on hydrophobized derivatives of hyaluronan, method of their preparation and use, textiles on base thereof and use thereof*. WO2014082611 A8
- Běťák, J., Buffa, R., Němcová, M., Pitucha, T., Kulhánek, J., Matějková, I., Nováková, J., Vištejnová, L., Klein, P., Kubíčková, G., Broulíková, M., Felgrová, M., Velebný, V.: *Fibres sans fin ? base d'hyaluronane sélectivement oxydé en position 6 du groupe n-acétyl-d-glucosamine, leur préparation et utilisation, filés, fibres courtes, fils et tissus constitués de celles-ci et procédé pour la modification de celles-ci*. WO 2014082610 A1

## Are you interested in this expertise?

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## Experts and their Department

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