Boehringer Ingelheim Veterinary Scholars Program – France

Vet school: Vetagro Sup (Lyon)

Pharmacokinetics and Bioavailability of Methotrexate IV, PO and SQ in the Horse

**Laboratory:** Toxicology Laboratory

Principal investigator: Caroline Prouillac

**Scientific background**

Methotrexate is a folic acid inhibitor used as an anti-inflammatory, immunosuppressive and, at very high doses, anticancer therapy in human medicine. Its major uses include chronic inflammatory and auto-immune disorders such as rheumatoid arthritis, inflammatory bowel or atopy. It is a valuable alternative to other immunomodulators, both because of its excellent tolerance and because of its very low price. In the dog, our team demonstrated the good tolerance of low doses of methotrexate administered over 6 months and developed a specific technique for the determination of plasma concentrations of methotrexate and its OH-metabolite. This study was applied to 6 dogs after PO, IV or SQ administration (Rostang et al., submitted). This study showed that IV and SQ routes are equivalent and provide an excellent bioavailability, while the oral route is associated with strong variations in bioavailability. Dermatologists in the college of veterinary medicine of Lyon currently use methotrexate in similar diseases in the horse. The project will lead to the determination of the main pharmacokinetic parameters of low-dose methotrexate in the horse, administered either IV, PO or SQ in a cross-over design in 6 healthy horses. The project is currently being evaluated by the ethics committee.

**Examples of references from the laboratory**

