**Risk factors and diagnostic methods of bovine endometritis: Application of Fluorescence In Situ Hybridization (FISH) for detection of bacteria in endometrial biopsies from postpartum cows**

Cecilia Christensen Karstrup¹, Lif Rødtness Vesterby Knudsen², Tim Kåre Jensen³, Kirstine Klintgaard Schou², Øystein Angen³, Jørgen Steen Agerholm¹, Hanne Gervi PederSEN¹.

¹Department of Large Animal Sciences, Faculty of Health and Medical Sciences, University of Copenhagen, Dyrlægevej 68, building 1-73, DK – 1870 Frederiksberg, Denmark
²National Veterinary Institute, Technical University of Denmark, Bülowsvej 27, DK – 1870 Frederiksberg, Denmark
³Norwegian Veterinary Institute, Ullevålsveien 68, Pb 750 Sentrum, N-0106 Oslo, Norway

The objective of this part of the study was to identify bacteria using Fluorescent In Situ Hybridization (FISH) in endometrial biopsies from cows sampled at three different time points postpartum (visit 1(v1)= 4-12 days in milk (DIM); visit 2(v2)= 23-32 DIM; visit 3(v3)= 46-53 DIM). Endometrial biopsies from 41 Danish Holstein-Friesian dairy cows were obtained at v1, v2 and v3. The biopsies were fixed in formalin, embedded in paraffin, sectioned at 3micron for fluorescence in situ hybridization using species specific probes targeting 16S ribosomal RNA of *Trueperella pyogenes* and *Escherichia coli* as well as for bacteria in general. Bacteria were present in 85%, 78% and 85% of the endometrial biopsies from v1, v2 and v3 respectively, showing that there was no significant difference in numbers of cows with endometrial bacteria at the 3 different time points postpartum (P= 1,0). Regarding the specific bacteria; 7%, 2% and 0% of the cows were positive for *T. pyogenes* and 15%, 2% and 2% of cows were positive for *E. coli* at v1, v2 and v3 respectively. There was a significant decrease in *T. pyogenes* positive cows over time (P= <0,0001) For *E. coli* P= 0,09. In conclusion, 1) FISH can be used to visualize bacteria in the endometrium of postpartum cows, 2) there was a decrease in number of cows with *T. pyogenes* in the endometrium as the postpartum period progressed, and 3) bacteria other than *T. pyogenes* and *E. coli* were demonstrated in the endometrium of 78-85% of cows at all time points sampled.

Dyrlægevej 68, 1-73, 1870 Frederiksberg C. Mobile no. +4526149911