

Identification, stability and feasibility of fecal microRNAs in cats as novel biomarkers for gastro-intestinal cancer

Applicants: Associate professor Susanna Cirera and Professor Merete Fredholm

In December 2017 AGRIA funded this project with 150.000 SEK (43.000 SEK for year 1). The aim of the project is to establish miRNA expression profiles in fecal samples as noninvasive diagnostic biomarkers with high sensitivity and specificity for early detection of feline GI cancer. The project should extend from January 2018 to December 2019. **We are asking for extension to December 2020.**

Report of results

YEAR 1: We have established a standard method for feces collection in the clinics. We have established the best method for RNA isolation from cat feces and moreover, we have investigated the stability of microRNAs in cat feces. Milestone for year 1: We have published the results in an international journal.

“Evaluation of fecal microRNA stability in healthy cats”. Lyngby JG, Kristensen AT, Fredholm M, Nielsen LN, Cirera S. *Vet Clin Pathol.* 2019 Jun 26. *(article attached to the report)*

YEAR 2: The plan of this year was to recruit healthy cats, cats with IBD and cats with gastrointestinal cancer (GI). Feces should be used for RNA isolation and subsequently sequencing of microRNAs. We expect to find non-invasive fecal microRNA which would allow us to detect cats with IBD and cats with GI.

Unfortunately, we haven't accomplished this phase yet because one of our international partners, Edinburgh University, responsible for the recruitment of the IBD and GI cats did not have enough patients in their clinics during 2019, and they are still recruiting GI and IBD cats. Moreover, the PhD student at our university who was the clinician responsible for recruiting the healthy cats and some of the sick cats, went on maternity leave (J. Lyngby).

She is coming back in October and we expect that the recruitment will continue. Therefore, we hope that AGRIA fund can allow us to use the money for the year 2 (2019) budget in year 2020.