### Brief project description

*Max 250 words*

Canine and human cancers have many similarities and the spontaneous development of these cancers in immune competent canine individuals living in a shared environment with us suggest a common aetiology. The shorter lifespan of dogs and the shorter time to relapse after cancer treatment allows data regarding efficacy, short and long term toxicity and side effects of novel cancer drugs to be generated in years rather than decades as in human clinical trials.

However, different classification system for common cancers limit the use of dogs as a model for human cancer.

This project aim to improve the dog as a model for mammary tumors, lymphoma, and osteosarcoma in order to enable more usefull and efficient future clinical trials. Specifically, matching of canine mammary tour subtypes to human breast cancer subtypes in order to improve the dog as a model for breast cancer

### Project description

*Minimum 3 pages*

*A detailed project description including objective(s), materials and methodology, which clearly defines the project. This is particularly important if the PhD project is part of a larger project.*

**Short-term outcomes**

* Subtypes matching to human breast cancer
* Correlation with germline risk-factors
* Evolution of tumors

**Long-term outcomes**

* Improved biological understanding
* Clinical trials in dogs
* Better treatment options for both dogs and humans.

### References

### Research question

*An introduction setting out the research question with reference to current knowledge in the field.*

* Can we detect cell free DNA in plasma from mammary tumors?
* Are the amounts of cfDNA stable over time?
* Is cfDNA also present in benign samples?
* What is the progressive evolution of tumor mutations in these malignant samples?
* Is there a correlation with outcome?

### Applicant’s work

*A precise description of the work to be carried out by the applicant*

### Ethical considerations

### Risk assessment and alternative approaches/plans

*Analysis of risk in the overall project. Identification of weaknesses and threats to the project. Description of alternative approaches and plans.*

There are several potential risk with the practical part of the project.

### Project document

If you would like to upload a supporting project document please do so here. This should be no more than 6 pages.

### Time and activity schedule

Each interval in the schedule should be six months or shorter. The time and activity schedule schould be as detailed as possible.