

## Tritrichomonas foetus in cats, what does it mean for bovines?

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### Key words

Tritrichomonas foetus, cat, bovines, PCR, genotyping

### Aim of the study

To compare bovine and feline isolates of *T. foetus* both genetically and in an in vitro system in order to see if they are identical or not.

### Material and methods

Feline isolates of *T. foetus* from Switzerland and Germany (n=4); bovine isolates of *T. foetus* from Argentina and ATCC (n=9); other trichomonads from ATCC and Vienna (n=6).

PCR for trichomonad ITS-2 and EF1 $\alpha$ , followed by product sequencing. PCR with primers designed for the feline and the bovine sequence of EF1 $\alpha$ , respectively.

Co-culture of trichomonads with bovine vaginal epithelial cells (BVEC). LDH-cytotoxicity assay.

### Results and significance

By means of PCR and product sequencing we could demonstrate that feline and bovine isolates of *T. foetus* differ in both assess loci (ITS-2 and EF-1 $\alpha$ ), although only to minor extents (>99% identity). An additional PCR targeted to the bovine sequence of EF-1 $\alpha$  only amplified bovine isolates. The respective feline PCR however amplified feline and bovine isolates. These results demonstrate that both isolates are very closely related, but can be distinguished by molecular means. Whether they are to be considered as one species or rather as two separate species remains to be answered by further research.

*In vitro* we observed cytotoxicity of both feline and bovine isolates against BVEC. We could not establish a standardized measuring system because the trichomonads were interfering with the enzymatic systems.

### Publications, posters and presentations

Reinmann, K. (2011) *Tritrichomonas foetus* in cats, what does it mean for bovines? Dissertation, Vetsuisse Fakultät Bern, Universität Bern

Reinmann, K.; Müller, N.; Kuhnert, P.; Campero, C.M.; Leitsch, D.; Hess, M.; Henning, K.; Fort, M.; Müller, J.; Gottstein, B.; Frey, C.F. (2011) *Tritrichomonas foetus* isolates from cats and cattle show minor genetic differences in unrelated loci ITS-2 and EF-1 $\alpha$ . *Veterinary Parasitology*, doi:10.1016/j.vetpar.2011.09.032.

Frey, C.F.; Müller, N.; Kuhnert, P.; Campero, C.M.; Müller, J.; Gottstein, B.; Reinmann, K. (2011) *Tritrichomonas foetus* isolates from cats and cattle show genetic differences two unrelated, highly discriminating loci. In Proceedings of the 23rd WAAVP conference, Buenos Aires, Argentina, 21st-25th August 2011

Reinmann, K.; Müller, N.; Kuhnert, P.; Campero, C.M.; Müller, J.; Gottstein, B.; Frey, C.F. (2011) *Tritrichomonas foetus* bei der Katze und beim Rind – neue Erkenntnisse. In Proceedings of the Tagung der DVG-Fachgruppe Parasitologie und parasitäre Krankheiten, Berlin, Germany, 4.-6. July 2011

Reinmann, K. (2011) Biomolecular and in vitro characterisation of *Tritrichomonas foetus* of cats and cattle. Technical Corner BVET, 14th June 2011

Reinmann, K.; Leitsch, D.; Müller, N.; Müller, J.; Gottstein, B.; Frey, C.F. (2010) Genotypische und proteomische Charakterisierung von *Tritrichomonas foetus* Isolatens aus Katzen. In Proceedings of the Tagung der DVG-Fachgruppe Parasitologie und parasitäre Krankheiten, Munich, Germany, 7.-9. July 2010

Frey, C.F.; Müller, J.; Hemphill, A.; Müller, N.; Gottstein, B.; Reinmann, K. (2010) In-vitro Charakterisierung zytotoxischer Eigenschaften von *Tritrichomonas foetus* Isolatens aus Katzen. In Proceedings of the Tagung der DVG-Fachgruppe Parasitologie und parasitäre Krankheiten, Munich, Germany, 7.-9. July 2010

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