



# Evaluation of taurine levels in plasma and aqueous humor from normal selected breed of dogs: a pilot study

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## Introduction & Methods

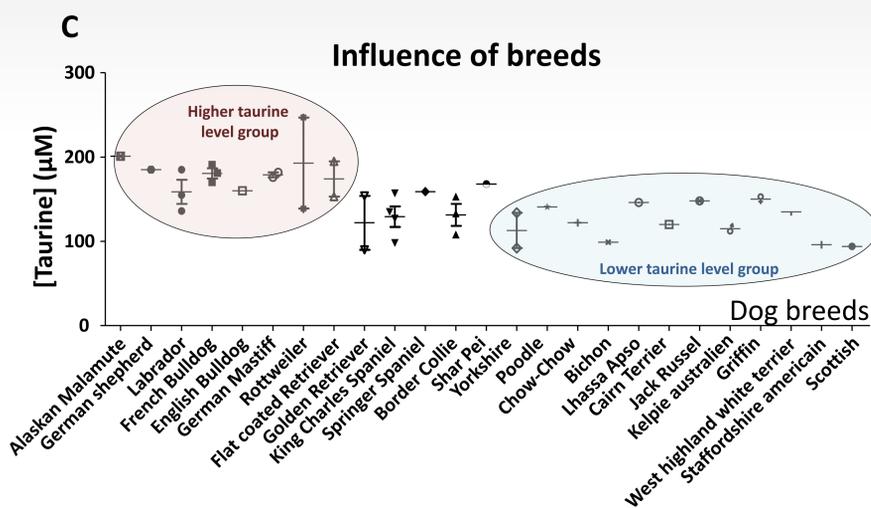
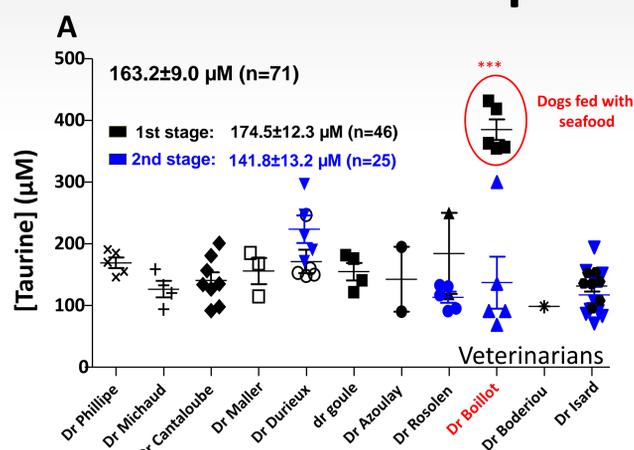
Taurine was found to play a critical role in retinal degeneration. Indeed, plasmatic taurine depletion was incriminated in the retinal toxicity induced by an anti-epileptic drug, vigabatrin, including retinal ganglion cell degeneration, which was prevented by taurine supplementation. More recently, we found that taurine supplementation also prevents the retinal ganglion cell degeneration in different cellular and animal models.

Accordingly, the evaluation of taurine amounts could be a crucial parameter which may detect a retinal vulnerability. Because a lot of breeds of dog develop retinal pathologies, including glaucoma, we assessed taurine levels in plasma and aqueous humor (AH). Precursor amino-acids for taurine synthesis (methionin and cystein) were also measured. Here, we expose a pilot study on 71 healthy domestic dogs.

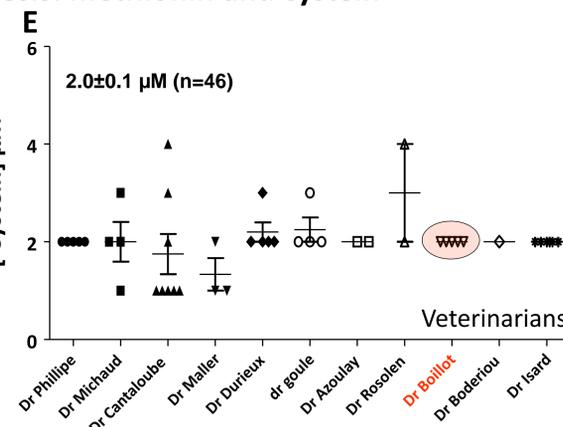
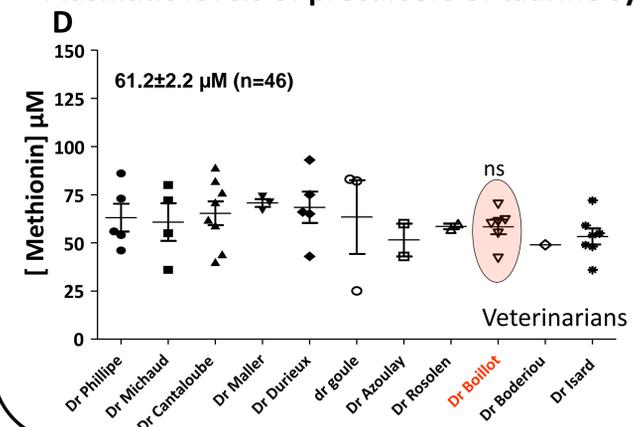
Samples of plasma and AH were collected by a network of veterinarians, the "Réseau Européen d'Ophtalmologie et de Vision Animale" (REOVVA). Plasma and AH was deproteinized with a 30% (w/v) sulfosalicylic acid solution and the supernatants were stored at -80°C until analysis. Amino-acids were measured by ion exchange chromatography.

## Results

### I Taurine levels in plasma



### Plasmatic levels of precursors of taurine synthesis: methionin and cystein

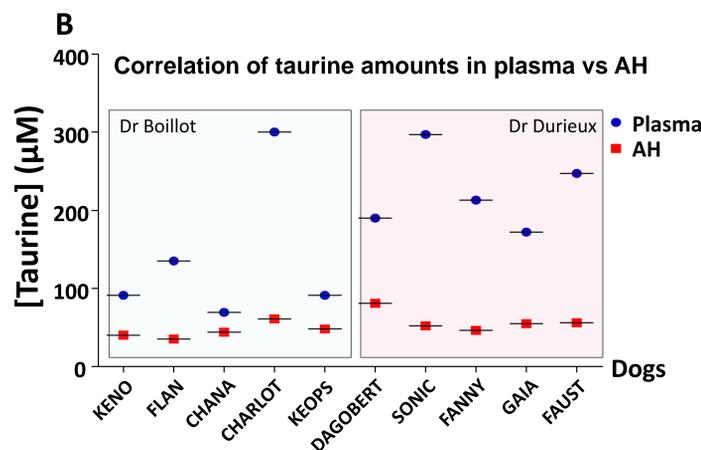
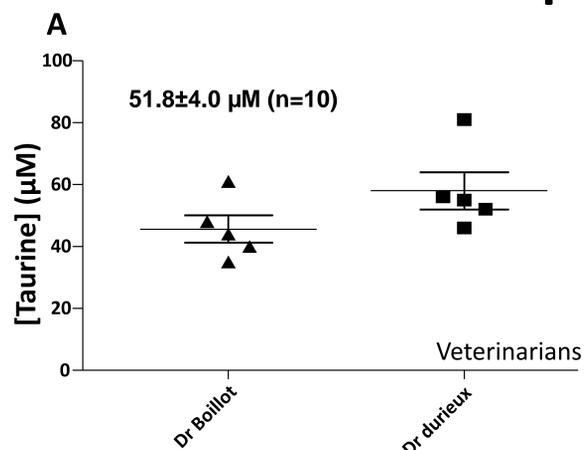


Taurine measurements have shown that plasmatic levels is around 160 µM in a cohort of 71 healthy dogs. The plasmatic levels of precursor amino-acids for taurine synthesis, methionin and cystein was found around 60 µM and 2 µM, respectively.

An higher taurine level was observed in one group. This effect was not due to an increase in metabolic synthesis of taurine since the levels of precursors is not different compared to other groups. Accordingly, the higher taurine levels may be attributed to nutrition.

There was no differences between sex, but significant differences were observed according breeds.

### II Taurine levels in aqueous humor



Taurine measurements on aqueous humor has shown that taurine levels is around 50 µM in a cohort of 10 healthy dogs.

Interestingly, no correlation was observed in taurine amounts between plasma and aqueous humor.

## Conclusions and perspectives

- This pilot study showed that the plasmatic levels in healthy dogs was around 160 µM. There is no difference in taurine plasmatic levels between sex, but significant differences was observed between different breeds.
- Taurine plasmatic level appears to be highly dependent to nutrition.
- In aqueous humor, taurine amounts are around 50µM in healthy dogs.
- Future taurine measurements will be perform in glaucomatous dogs to determine if taurine levels could be modified and taken as a new biologic marker for retinopathies.