

IDEXX Reference Laboratories Announces Updates to Canine and Feline Fructosamine Reference Intervals

As of **17th June 2019** IDEXX Reference Laboratories will provide updated reference intervals for canine and feline fructosamine results. Comparing an individual patient's serum fructosamine result to a validated reference interval is an important component in determining the health of a patient. Very few laboratories perform their own reference interval studies because of the time commitment and resources required. IDEXX is committed to providing our clients with the most accurate and reliable results possible, in compliance with the requirements for UKAS accreditation. Therefore, we have taken the time and committed the resources to generate our own method specific reference intervals based on current scientific recommendations.¹

Fructosamine is formed by the irreversible binding of glucose to serum proteins, mainly albumin. It reflects the average blood glucose (BG) level over the last 1-3 weeks and therefore the higher the mean BG is over time, the higher the fructosamine will be. Fructosamine results should only be compared with measurements run on the same analyser as there is variation in concentrations when run on different analysers. The trend for an individual pet is more important than the absolute values and all results should be considered in conjunction with clinical signs, laboratory results and any response to current treatment. There is significant variation between an individual's fructosamine levels e.g. a well-controlled pet can have a higher level than a poorly controlled pet.

How have the Fructosamine reference intervals changed?

The new reference interval for cats is now **137-286 $\mu\text{mol/L}$** (previously 0 to 340 $\mu\text{mol/L}$).

The new reference interval for dogs is now **177-314 $\mu\text{mol/L}$** (previously, 187 to 386 $\mu\text{mol/L}$).

Why has the method for measuring Fructosamine and the associated reference intervals changed?

There has been a global change in the reagents used to measure fructosamine in reference laboratories. As a result, there has been a need to validate the new reagents and critically assess current reference intervals in light of the new methodology. Over the past 6 months IDEXX has validated the new reagents and generated appropriate reference intervals.

How was the new reference interval established?

Healthy blood donor samples were used to establish the reference interval for dogs in the UK. This reference interval is comparable to that established in the USA with the same methodology. Ongoing assessment is taking place looking at the possible impact of dog breeds/size on the reference interval, although a recent study² showed that whilst there were inter-breed differences in fructosamine results, all breeds remained within previously established reference intervals. The feline reference interval was established following analysis of surplus serum samples from clinically healthy cats (pre-anaesthetic/wellbeing screens with full haematology/extended biochemistry including thyroxine where results were all within normal limits).

IMPORTANT SERVICE UPDATE

IDEXX Reference Laboratories • June 2019

How can I compare results generated using the old method with results generated using the new method?

Our new reference intervals offer the most appropriate context for interpretation of an individual's fructosamine result. Serial measurement from the same patient to produce a trend in fructosamine results is more important than a single measurement. We have evaluated samples from dogs and cats using the current and the new methodology. The new method produces lower results. Therefore, when comparing a result from before **June 17th, 2019** with a current result the following calculation may be used:

- Dog – subtract 70 $\mu\text{mol/L}$ from the old result
- Cat – subtract 40 $\mu\text{mol/L}$ from the old result

Can I compare Catalyst fructosamine results with reference lab fructosamine results?

It is important when making comparisons between results, and assessing trends, that the result is generated not only by the same methodology but most importantly by the same type of analyser/machine. Therefore, we would advise that trends in fructosamine, which is the best way to use the test, are looked at on results generated from the same source i.e. either in-house or reference lab and not a combination of both.

How will the interpretation of fructosamine results be affected by the change in the reference range of fructosamine?

The interpretative guidelines for fructosamine are under review and will be adjusted in line with the change in the reference interval. As previously mentioned, monitoring the trend of fructosamine in a diabetic patient is more useful than looking at the individual values. Our team of boarded internal medicine consultants will be on hand to help guide our clients through this important transition and we would encourage people to avail of this excellent free service.

Contacting IDEXX

If you have any questions regarding test codes, turnaround times, or pricing, please contact our Laboratory Customer Support Team at **0044 (0) 2037887508**.

Expert feedback when you need it

Our team of clinical pathologists and internal medicine specialists are always available for consultation. If you have any questions on our updated reference intervals, please call **0044 (0) 2037887508** and press option 5.

References

1. Friedrichs et al 2012; ASVCP reference interval guidelines: determination of denovo reference intervals in veterinary species and other related topics Vet Clin Path 41(4);441-453
2. Gomez-Fernando-Blanco et al 2018; Interbreed variation of biomarkers of lipid and glucose metabolism in dogs. Vet Clin Path 47(4); 582-588