Hendrix's Legacy *Fighting for every Staffy*

Unexplained neurological signs in adult Staffordshire Bull Terriers

A note for veterinary professionals

Summary

- This campaign began after the death of a Staffordshire Bull Terrier with a suspected neurological condition that was never diagnosed and has not been identified. It may be inherited, and it may be a form of neuronal ceroid lipofuscinosis (NCL), but no sample was kept and the cause is unknown.
- NCL is a heterogeneous group: a 2017 review listed 12 causal variants in 8 genes across more than 20 breeds.[1] Genotyping for one form does not exclude another, or a condition not yet characterised.
- The DNA tests The Royal Kennel Club lists as best practice for the breed are HC-HSF4 and L-2-HGA.[2] NCL4A (ARSG c.296G>A) is confirmed in the American Staffordshire Terrier but has not been reported in the Staffordshire Bull Terrier.[3,4]
- **What we ask of vets:** consider a neurological cause behind severe, progressive behavioural change; exclude what can be excluded; record sedation response; keep a sample where possible, especially before euthanasia; and, with consent, report cases to the breed's Lead Breed Health Co-ordinator.

Why behaviour matters here

Behaviour problems can be secondary to medical problems.[5] In the campaign's index case, escalating fear and reactivity over several years were managed as a behaviour problem, with referral to a behaviourist and then a veterinary behaviourist, alongside repeated failure of sedation. Neurological disease can present first as behaviour: in a 2025 case series of American Staffordshire Terriers with NCL4A, owners reported anxiety, aggression towards dogs and people, increased noise sensitivity, decreased tolerance of grooming or bathing, compulsive circling and reduced interest in food.[6] That series is cited as an example of how a neurodegenerative disease in a related breed presented, not as a description of the suspected condition.

Diagnostic approach

1. **Consider a neurological cause** in any adult Staffordshire Bull Terrier or related bull breed with progressive cerebellar or vestibular signs, unexplained progressive behavioural change, or both.
2. **Rule out differentials.** For progressive cerebellar signs in an adult dog these include neoplasia (particularly at the cerebellopontine angle) and inflammatory or infectious disease such as distemper, toxoplasmosis and neosporosis.[7] Other hereditary ataxias should be considered.[8]
3. **Exclude known genetic causes where indicated.** L-2-HGA is the recognised inherited neurometabolic disease of the breed (autosomal recessive; typically juvenile onset; signs include ataxia, altered behaviour and seizures).[9,10] An ARSG (NCL4A) genotype can exclude that variant. A negative result for either does not exclude an uncharacterised condition.

4. **Imaging and CSF.** In NCL4A, MRI and CSF were unremarkable at clinical onset in two Brazilian cases, with cerebellar atrophy evident on repeat MRI three years later.[7] A normal early MRI should not, on its own, close the investigation.
5. **Electroretinography.** In the 2025 NCL4A series, affected dogs had normal routine ophthalmic examination and fundus imaging but markedly reduced ERG amplitudes.[6] A normal routine eye examination does not exclude retinal involvement in a neurodegenerative disease.
6. **Record sedation response.** Note unexplained, marked resistance to sedation in the clinical record, alongside any neurological or behavioural signs. We are not aware of any published work on sedation response in canine NCL; well-documented cases are how that question can be answered.
7. **Preserve material.** If a dog with unexplained progressive neurological signs is to be euthanased, discuss with the owner retaining EDTA blood, and post-mortem examination including neuropathology. In the index case no sample was retained, so the cause can never be investigated.

Reporting and research

A test for a new condition becomes possible only once affected dogs are recognised and studied. L-2-HGA in the Staffordshire Bull Terrier was characterised through a study of 21 affected dogs, published in 2007.[9] Under The Royal Kennel Club's Health Standard, the breed's Breed Health Co-ordinator is the route for a new test to be recognised.[2]

- With the owner's consent, report Staffordshire Bull Terriers with unexplained progressive neurological signs to the breed's Lead Breed Health Co-ordinator, through the contact form on The Royal Kennel Club's Staffordshire Bull Terrier breed page.
- The Canine Genetics Centre at the University of Cambridge, which moved there from the Animal Health Trust when the Trust closed in 2020, holds a collection of over 40,000 canine DNA samples for research and may be able to advise.[11,12]
- A well-documented case, with genotyping for known variants and neuropathology, is worth considering for a case report.

About this campaign

Hendrix's Legacy was set up after the death of Hendrix, a Staffordshire Bull Terrier, in September 2026. Hendrix was never diagnosed and was never DNA tested; no sample was retained. Over several years, documented in his veterinary notes, he developed escalating behavioural signs and repeated failure of sedation; in his final hours he was given 15ml of tasipimidine oral solution, six times the licensed dose for a 25kg dog[13], with only partial effect: he relaxed, but still got up at noises and walked through the house, steady on his feet. The product information notes that its effect may be reduced in extremely nervous, excited or agitated dogs[13], and Hendrix was hypervigilant. His dam is recorded by The Royal Kennel Club as hereditary clear for L-2-HGA, from a line of DNA-tested clear dogs. The professionals consulted considered a neurological condition likely, and at the time NCL4A was thought the most likely explanation; specialists have since pointed out that other conditions, including ones not yet identified, can present similarly. His case has been reported to the breed's Lead Breed Health Co-ordinator. We share it as the reason for the campaign, not as evidence about any disease.

Next steps

- Our owners' guide "Recognising neurological warning signs" can be shared with clients.
- Our guide "DNA testing for Staffies" sets out what the available tests can and cannot show.

This guide is for information only. Information correct as at October 2026; check the sources for updates.

Sources

1. Canine neuronal ceroid lipofuscinoses: promising models for preclinical testing of therapeutic interventions (review). *Neurobiology of Disease*. 2017;108:277-287. doi:10.1016/j.nbd.2017.08.017. https://pubmed.ncbi.nlm.nih.gov/28860089/
2. The Kennel Club. Health Standard. January 2025. https://kc-media-production.azureedge.net/media/qvffqvwg/kc_health_standard.pdf
3. Abitbol M, Thibaud JL, Olby NJ, et al. A canine Arylsulfatase G (ARSG) mutation leading to a sulfatase deficiency is associated with neuronal ceroid lipofuscinosis. *Proceedings of the National Academy of Sciences USA*. 2010;107(33):14775-80. PMID 20679209. https://pubmed.ncbi.nlm.nih.gov/20679209/
4. OMIA (Online Mendelian Inheritance in Animals), University of Sydney. OMIA:001503-9615, Lysosomal storage disease, ARSG related, in dog. Last updated 3 December 2025. https://omia.org/OMIA001503/9615/
5. Royal Veterinary College. Animal Behaviour Clinic. Undated. https://www.rvc.ac.uk/small-animal-vet/specialist-referrals/clinical-services/animal-behaviour
6. Kick GR, Marzano SL, Ota-Kuroki J, Bullock G, Katz ML. Retinal function deficits in American Staffordshire Terriers with a late-onset neurodegenerative disease associated with an ARSG variant. *Veterinary Sciences*. 2025;12(11):1078. https://doi.org/10.3390/vetsci12111078
7. Neuronal ceroid lipofuscinosis 4A in American Staffordshire Terriers: first report in Brazil. *Ciência Rural*. 2025. https://www.scielo.br/j/cr/a/nH6c3ykbtFbvKP3PBFDkDks/?lang=en
8. Stee K, Van Poucke M, Lowrie M, Van Ham L, Peelman L, Olby N, Bhatti SFM. Phenotypic and genetic aspects of hereditary ataxia in dogs. *Journal of Veterinary Internal Medicine*. 2023;37(4):1306-1322. https://doi.org/10.1111/jvim.16742
9. Penderis J, Calvin J, Abramson C, Jakobs C, Pettitt L, Binns M, Verhoeven N, O'Driscoll E, Platt S, Mellersh C. L-2-hydroxyglutaric aciduria: characterisation of the molecular defect in a spontaneous canine model. *Journal of Medical Genetics*. 2007;44:334-340. https://pmc.ncbi.nlm.nih.gov/articles/PMC2597990
10. Wisdom Panel. L-2-Hydroxyglutaric aciduria (Discovered in the Staffordshire Bull Terrier). Undated. https://www.wisdompanel.com/en-us/dog-health-conditions/l2hga
11. University of Cambridge. The Kennel Club Genetics Centre to re-open as part of the University of Cambridge. 23 March 2021. https://www.cam.ac.uk/research/news/the-kennel-club-genetics-centre-to-re-open-as-part-of-the-university-of-cambridge
12. Canine Genetics Centre, University of Cambridge. Home page. Undated. https://kcgc.vet.cam.ac.uk/
13. The Veterinary Medicines Directorate. Summary of Product Characteristics: Tessie 0.3 mg/ml oral solution for dogs (tasipimidine). Revised September 2025. https://www.vmd.defra.gov.uk/productinformationdatabase/files/SPC_Documents/SPC_2146308.PDF