



**Proteomics International**  
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## **OxiDx test detects muscle damage in thoroughbred racehorses - Tracking muscle recovery after a horse race: a new diagnostic test emerges**

- **Groundbreaking results demonstrate the first-in-class OxiDx test can identify and assess recovery from exercise-induced muscle damage in Australian thoroughbred racehorses**
- **New results show OxiDx's novel technology offers a simple solution for managing recovery and return to training or competition in thoroughbred horses following damaging exercise (a race)**
- **Results published in the peer-reviewed journal *Veterinary Medicine and Science***
- **Oxidative stress has been implicated in many disease and injury states with levels often reflective of a person or animal's health condition**
- **Muscle injuries are a major issue in the racing industry, with up to 85% of thoroughbreds sustaining at least one injury during their two- and three-year-old racing seasons, potentially as a result of undetected muscle injuries**

Proteomics International Laboratories Ltd (Proteomics International; ASX: PIQ), a pioneer in precision diagnostics, is pleased to announce that its subsidiary OxiDx Pty Ltd in collaboration with The University of Western Australia (UWA) has published groundbreaking results demonstrating the unique OxiDx test for oxidative stress can identify muscle damage and assess recovery in Australian thoroughbred racehorses.

Muscle injuries are a major issue in the racing industry, with it being difficult to objectively identify them, resulting in many going undetected. Approximately 85% of thoroughbreds sustain at least one injury during their two- and three-year-old racing seasons<sup>1</sup>, potentially as a result of undetected muscle injuries.

For racehorses to compete at their peak performance, they must achieve optimal fitness, which necessitates intense training regimes. However persisting with training and/or competition with muscle damage may result in: (1) decreased performance, (2) an increased risk of major muscle injury - including strains or tears, or (3) the inability to compete.

This study addresses a significant gap in the field of equine veterinary medicine, focusing on the lack of sensitive biomarkers for exercise-induced muscle damage. Published over the weekend in the peer-reviewed journal *Veterinary Science and Medicine*, the study highlighted the ability of the OxiDx oxidative stress test as a novel diagnostic for monitoring muscle recovery.

Results across the 34 horses studied indicated, for most, levels of oxidative stress peaked 48 hours post-race and remained elevated for up to five days. However, individual variability was significant, with some horses showing prolonged recovery times of over seven days. This variability emphasises the importance of monitoring the recovery of each horse to prevent premature training or competition resumption.

OxiDx's diagnostic sensitivity to muscle recovery offers horse trainers a tool to objectively tailor training and racing schedules for individual horses to optimise post-race recovery and enhance performance.

<sup>1</sup>Animals (2023); doi: 10.3390/ani13030490

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Proteomics International Managing Director Dr Richard Lipscombe said, “these exciting results mark a significant milestone in applying the OxiDx test to equine veterinary medicine. OxiDx has the potential to empower trainers to monitor muscle recovery with precision, helping their racehorses achieve peak performance while prioritising equine health and well-being.”

Current standard-of-care to identify and proactively manage a horse’s muscle damage involves magnetic resonance imaging (MRI), CT scan, or ultrasound, which are expensive and time consuming, muscle enzyme tests, which are imprecise, or observation of the gait/lameness assessment, which is subjective and often post the actual injury occurring.

The world-first, patented OxiDx technology measures levels of muscle damage using a dried blood spot to detect protein biomarkers. There is no equivalent test on the market. This successful study is a significant milestone in the commercialisation of the OxiDx test which is targeted for an Australian launch in H2 CY25.

### OxiDx commercialisation next steps:

- Clinical utility study underway to further validate the ability of the OxiDx test to predict muscle damage in racehorses
- Proteomics International aims to launch the novel test in Australia through its OxiDx subsidiary in H2 2025, and then expand into the USA via the Company's US Reference Laboratory [ASX: 28 February]

### Summary of Study

Published in the journal *Veterinary Medicine and Science* (article available online)<sup>2</sup>.

Titled: “The level of thiol-oxidised plasma albumin is elevated following a race in Australian thoroughbred horses”

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**Aim:** To assess whether the OxiDx test (measuring oxidative stress levels via thiol-oxidised albumin) can detect muscle damage in the days following a thoroughbred horse race.

**Method:** Dried blood samples were collected from 34 horses by each trainer before and each day for 7 days post-race. Liquid blood samples were collected for analysis of the muscle enzymes Creatine Kinase (CK) and Aspartate Amino Transferase (AST) before and on day 2 and 5 post-race and were analysed by an external pathology centre.

**Results:** On average, the level of thiol-oxidised albumin peaked at 2 days and remained elevated until 5 days after the race. The level of thiol-oxidised albumin peaked at 2 days post-race, increasing by  $3.9\% \pm 0.7\%$  ( $p < 0.0001$ ) and returned to pre-race levels by day 5. Thiol-oxidised albumin also correlated with the activity of AST. Notably, the time of recovery for thiol-oxidised albumin varied between horses, with some not sustaining muscle damage, others recovering by day 3 post-race and 5 horses elevated beyond day 7 post-race (Figure 1).

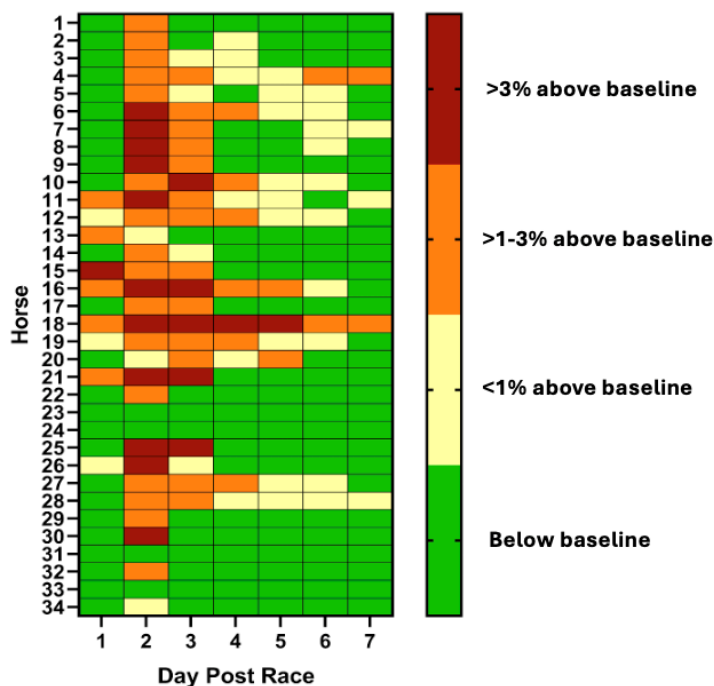


Figure 1. Heatmap depicting oxidative stress levels (thiol-oxidised albumin) that are below or above the baseline value for 34 horses each day after completing the race.

**Conclusions:** Tracking temporal changes in the level of oxidative stress (via thiol-oxidised albumin) is a novel tool for managing recovery and return to training or competition in horses following a bout of damaging exercise (a race), particularly given the ease of collecting serial small blood samples using the OxiDx methodology.

<sup>2</sup> Veterinary Science and Medicine (2025); doi.org/10.1002/vms3.70487

Authorised by the Board of Proteomics International Laboratories Ltd (ASX: PIQ).

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**About OxiDx**

OxiDx Pty Ltd (Perth, Western Australia) is a 66 per cent owned subsidiary of Proteomics International. OxiDx is commercialising technology for measuring oxidative stress developed in collaboration with The University of Western Australia. Oxidative stress is implicated in over 70 health conditions, with levels often reflective of a person or animal's health condition. The patented OxiDx test detects systemic oxidative stress using a precise ratio-metric method to detect protein biomarkers via a simple fingerpick blood sample that can be collected in the home or on the field. Target applications include high-performance athletes and the horse racing industry, where the OxiDx test can be used to assess muscle damage and to monitor recovery from heavy exercise.

**About Proteomics International Laboratories (PILL) ([www.proteomicsinternational.com](http://www.proteomicsinternational.com))**

Proteomics International (Perth, Western Australia) is a wholly owned subsidiary and trading name of PILL (ASX: PIQ), a medical technology company at the forefront of precision diagnostics and bio-analytical services. The Company specialises in the area of proteomics – the industrial scale study of the structure and function of proteins. Proteomics International's mission is to improve the quality of lives by the creation and application of innovative tools that enable the improved treatment of disease.

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