*Who is* ***Brett Lambert****, the proprietor of* ***Applied Analytical Laboratories****?*

Brett Lambert is determined to further understand the biochemical origin and role of excreted pyrroles in urine, and the molecular journey resulting in this biomarker of severity of oxidative stress. Fascinated by the relationship with mental health and how a reduction in pyrrole measure improves patient outcomes, Brett drives research to find the why! His journey to this point has not been boring.

He grew up in the sugar growing region of Mackay and during year 11 & 12 chemistry, Mackay students were given the opportunity to learn laboratory skills in a sugar chemistry laboratory. It was here that Brett first met a major early career influence – Dr Lionel Stock – who became Brett’s main mentor during the beginning of his chemistry undergraduate degree. Dr Stock’s PhD was supervised by Sir John Cornforth, the only Australian born Nobel Laureate in Chemistry (and Australian of the year, 1976).

After graduation Brett worked with Lionel at the Sugar School where he trained sugar chemists in analytical and organic chemistry. The Sugar School and Sugar Research Institute was populated with researchers with incredible skills.

Commencing his Post Graduate research in 1993 through the CSIRO Wendall Laboratory in Rockhampton, with access to organ baths, ELISA techniques & *In vitro* facilities, he set off making conjugates for vaccination of beef cattle against toxic *Pimelea sp.* plants. Free access to all manner of spectroscopic techniques made his post graduate research very rewarding. Supervised by Graham Pegg (retired) Deputy Vice Chancellor (Research), Central Queensland University and Michael D’Occhio, currently Professor of Food Security at UQ – Gatton, being a stickler for a vigorous scientific process was ingrained.

Upon achieving his MAppSc, (and following a year with Queensland Dept of Natural Resources), Brett commenced work with the Astra Zeneca funded pharmaceutical research facility which was set up by the Federal and State Governments at Griffith University (currently known as The GRIDD). The project used high throughput screening of rainforest plant and Great Barrier Reef coral extracts to screen for pharmaceutical leads. Brett’s role was isolation and structural elucidation of the leads through use of many different types of chromatography as well as Nuclear Magnetic Resonance (NMR) and Mass Spectrometry (GC-MS and LC-MS).

A part-time biochemistry consultancy led to Brett working at a Gold Coast based laboratory developing the urinary pyrrole test process in 2004. Bio Balance Health introduced this Urinary Pyrroles test into Australia in 2004. Testing of the USA method showed distinct flaws and adaptations were made to make the test reliable and repeatable. The Pyrrole/pyrrolene-one is a waste product that is easily destroyed by heat and light. The current protocols of Applied Analytical Laboratory pyrrole sample collection, in Australia, are based on his development work with the specific aim of protecting the analyte being measured.

Excited by the potential of this test in the understanding and management of mental health, in 2009 Brett left the consultancy to set up an independent laboratory with standards acceptable to work with University research projects. Since 2010, Applied Analytical Laboratories (AAL) have been involved in a number of University based projects exploring oxidative stress biomarkers, which has resulted in validation of the Urinary Pyrrole test with Dr Stephanie Fryar-Williams through strong correlations between control and patient cohorts.

*Note:* **No** previous published work in the “Pyrrole” field had controls included to reference the pathological group.

AAL engaged NATA to commence an accreditation process. AAL complied with all requirements above and beyond the expected standards. Changes to regulations during the NATA accreditation period mean TGA IVD classification, and the compliance with laboratory standards of NATA, means AAL is fully approved to conduct the pyrrole test. NATA accreditation is only required to allow direct research participation without extra ethical approval processes.

AAL is the only laboratory to distinguish between pyrroles and Urobilinogen in urine, and therefore provides measures for each. This opens a wide range of mental health applications. <https://www.apanlabs.com/pyrrole-test/#urobilinogen>

Since 2010, Brett has led projects to establish urinary pyrroles as an irrefutable measure of oxidative stress, and correlated with symptoms, a measure of severity of mental health and the response to treatment. This test now provides insights into other pathophysiology whose symptoms may mimic mental health conditions. These results may indicate referral to urologists, haematologists, hepatologists, endocrinologists, and more. The resulting science has opened up many exciting research opportunities.

Brett is also leading fundamental research into the understanding of the chemical mechanism of the expression of elevated urinary pyrroles by conducting spectroscopic studies on synthetic analogues of a model system. Dissemination of some findings to date are in the *“Science of Pyrroles”* lecture. Profit from this lecture will fund further detailed biochemical research. As this is the only detailed research in this test in the world, this funding is incredibly important for improving the care of mental health issues, worldwide. <https://www.apanlabs.com/the-science-of-pyrroles-in-urine/>

Bio Balance Health have actively supported all research to validate this biomarker measure, and produced the ***Science of Pyrroles in Urine*** lecture in conjunction with Brett Lambert. The lecture has been released to all health professionals and, to offset the disinformation on-line and in social media, to interested public. This lecture, and the accompanying ***B6 - the Controversies*** lecture are essential content of the BBH online medical doctor training education platform. <https://www.biobalance.org.au/subscription-lecture-series/>

In summary, Brett Lambert, MAppSc., Principal of Applied Analytical Laboratories, has done extensive work in novel drug discoveries, vaccination research and animal and plant chemistry. All his work has been commercial in confidence. Except for the papers listed on the AAL website, his work is not for public viewing. Brett worked with Astra Zeneca in the 1990’s on novel drug discoveries. His skill with the 800 MHz NMR machine, one of the largest in the Southern Hemisphere, located at the GRIDD, allowed him to produce results not previously possible with lower powered equipment.

Brett’s understanding of the possible value of this test through his daily interactions with doctors and patients over the last 17 years, and his over 80,000 tests place him in a unique position to drive this world leading research.

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**OUR BELIEF**

* *Mental health is a set of biochemical profiles which can be measured and managed.*
* *If we give the body the fundamental materials, or components, that it needs to repair itself, it will have the capacity for healing.*

*APPLIED ANALYTICAL LABORATORIES SHARE THESE CORE BELIEFS WITH BIO BALANCE HEALTH(BBH).*