



A New Season with New Challenges

# MAR/2018 ISSUE

FROM THE CEO

# THE JOURNEY TO EXCELLENCE

The Journey to Excellence requires that we persevere with our efforts to improve the quality of our service to the industry.

We must keep going until it becomes a way of life. Even then, we must keep going until our standards are much higher than before. We have to keep going despite constant criticism, insults, badgering, allegations, etc.

Sometimes the criticisms are warranted for various reasons; at times we are slow to react, we don't communicate clearly and timeously, we don't necessarily do things in the most efficient manner; but we must be compelled and committed to make the necessary changes. We cannot allow ourselves to stagnate or regress.

At times the criticisms are unwarranted by those who do not necessarily understand the processes and challenges we face.

We have lots of naysayers, people who would like us to fail, or they have personal agendas, chip on their shoulders from the past etc., but yet again we must investigate and consider each criticism, because it should make us stronger, more diligent and lift our standards.

It's easy to, at times, become despondent and then feel that we've not accomplished much.

We must take what seems "unwarranted" seriously and look at it objectively to further assist us on our journey of excellence. Rome wasn't built in one day, but we mustn't stagnate.

At the moment it seems as if we are not making enough progress fast enough and in the areas that matter most. Therefore it's time for introspection and to evaluate how far we've come.

We are taking stock of a number of issues raised on various forums and by various people including areas that we ourselves feel we are not up to standard, like starting stalls, equine welfare procedures at sales and auctions, etc.

"EXCELLENCE IS PERSEVERANCE IN THE PRESENCE

ANONYMOUS.



The Journey to excellence is tough, it requires team effort, we have to pull in the same direction so that the effort is maximised.

We must demand excellence in every department of the organisation, nothing less!

At times we even get sidetracked. We are slowed down by irrelevant but necessary tasks, but we must journey on. It's very difficult to cast aside the many trivial things and focus on the vital few. We will have to make some tough decisions to propel us forward again on the journey to excellence.... Even though its uncomfortable.

"EXCELLENCE IS NOT A DESTINATION; IT'S A CONTINUOUS JOURNEY THAT NEVER ENDS."

**ANONYMOUS** 

Excellence/Perfection is not a destination; it is a continuous journey that never ends.



#### **NHA LABORATORY**

# COMPLIANCE OF THE LABORATORY TO INTERNATIONAL GUIDELINES AND DECISIONS

The International Federation of Horseracing Authorities (IFHA) incorporates a membership of more than 40 racing jurisdictions from all over the world. This wide membership ensures that decisions made within this federation are both truly international and representative of worldwide policy and opinion. Similarly the European Horseracing Scientific Liaison Committee (EHSLC) provides scientific and veterinary opinion on specific issues within European countries. The Asian Racing Federation (ARF) then in turn represents many racing jurisdictions in the Australasian region.

The Asian Racing Federation has a scientific and veterinary committee that considers scientific decisions that are discussed with the European group to obtain consensus for international (IFHA) approval. The Laboratory Director of the NHA is one of three racing chemists who constitute this ARF Drug Control Committee.

This committee investigates horse administration trial data and other scientific data relating to prohibited substances which includes the excretion and metabolism of such substances. The decisions made by this committee, when studying such data, provides new screening limits, thresholds and detection period guidance (especially for the veterinarians that treat horses) within Australasia.

This involvement of the NHA Laboratory in the international knowledge base of prohibited substances and their detection is important for the NHA on many levels.

This allows for a deeper understanding of the potency and excretion of specific prohibited and forbidden substances, which result in sensible policies and practises to be applied to the racing industry in relation to screening and prosecution sensitivities

**Article and photo provided by:** Dr Schalk de Kock NHA Laboratory Director



Substances	ISL in urine*	Codes of Signatory Countries#				
Betamethasone	0.2	AU, BH, HK, IN, JP, KR, MO, MY, MU, MN, PK, QA, SA, ZA, TH, TR, AE, VN				
Dembrexine	100	BH, HK, IN, KR, MO, MY, MU, MN, PK, QA, SA, ZA, TH, TR, AE, VN				
Diclofenac	50	AU, BH, HK, IN, JP, KR, MO, MY, MU, MN, NZ, PK, QA, SA, ZA, TH, TR, AE, VN				

## **NHA STUD BOOK**

#### STUD BOOK STAFF VISIT A STUD FARM

The Stud Book Department yearly processes thousands of email requests, transactions and payments relating to the status and the activities of horses (from foal birth to final retirement) in breeding, sales and in the racing industry.

Lipdated 21 September 2017

Extensive time and attention is focused on the approximate 3000 thoroughbred foals that are born every year which require documentation of parentage, visual identification, microchip checks and subsequent payment. Such controls are critical before foals can be formally introduced into the industry as registered foals with passports that reflect the identity and compliance of such thoroughbreds destined for a career in racing

It was therefore fitting that Stud Book staff members visited one of the stud farms this year, especially since for most it was for the first time ever. The farm was the large Summerhill Stud thoroughbred breeding and boarding facility which is just outside the scenic town of Mooi River in the Natal Midlands. Following an overnight stay in the accommodation provided, we

embarked on a full day's activity as special guests of Summerhill Stud. A full program provided the relevant staff with explanations and demonstrations of all the activities and functions of the farm.

The infrastructure, teamwork and support systems required in running such a large operation with about 400 horses (of which 98 are foals) within 1000 hectares (as far as the eye could see) re-emphasized the important role Stud Book plays to assist the stud farm breeding

We sincerely thank Summerhill Stud for their hospitality. They need to be commended for running a very effective and impressive breeding business.

The timing of this visit coincided with the process of foal microchip implantation; blood collection for DNA based parentage verification and visual image capturing of the 98 foals which were born on this farm during the latter part of 2017. This process and the significance of Stud Book in witnessing this process during this year will be explained in a future newsletter.





**Article and photos provided by:** Dr Schalk de Kock

# **VACANT POSITIONS AT NHA**

# ARE YOU INTERESTED IN HORSES AND THE SPORT OF HORSERACING?

This job might be for you! The NHA is looking for energetic, focused and integrity driven cadets.

POSITIONS AVAILABLE - CADET STIPENDIARY
STEWARDS

The National Horseracing Authority of Southern Africa (NHA) is a professional regulatory body for both the Sport of Thoroughbred Horseracing and the breeding of Thoroughbred horses in Southern Africa.

The main function of the NHA is to maintain and enhance the Sport of Horseracing with the highest standards of professionalism and integrity.

Applicants are invited to apply for the abovementioned key positions. To be considered, candidates must be matriculated with excellent communication and interpersonal skills and be an assertive team player. Experience in the Thoroughbred horseracing industry will be advantageous.

The duties of a Stipendiary Steward includes:

- Officiating at all race meetings;
- Ensuring the safe conduct and integrity of racing;

- Attending and supervising track work;
- Conducting stable inspections;
- Administering drug-testing operations, including out of competition testing;
- Investigating the use of prohibited substances;
- Processing license and permit applications;
- Assisting the Starters with the issuing of starting stall certificates for horses and the grading of these horses in the starting stalls;
- Conducting Inquiries into breaches of the Rules.

An initial cadet/intern salary will be paid for a period of approximately 6 months. On successful completion of the cadetship, a competitive remuneration package will be negotiated.

Applications must be addressed to the Racing Control Executive, Mr Arnold Hyde. The closing date for all applications is 2 May 2018.

FAX: 011 434 1636 EMAIL: Shammy@nhra.co.za

ALL APPLICATIONS NOT REPLIED TO, SHOULD BE DEEMED TO BE UNSUCCESSFUL.

— Join the team — We're hiring!

## **BIRTHDAYS**

The National
Horseracing Authority
would like to wish all our
Stakeholders born in April a
very Happy Birthday.

May life lead you to great happiness, success and hope that all your wishes come true....



# **NEW NHA STAFF MEMBER**

who commenced working on 3 April 2018 as the new Racing Administration Executive. Reporting to the Chief Executive, Ms Kayiya will manage the Racing Administration portfolio which includes the management of the Stud Book Department.

Prior to joining the NHA, Ms Kayiya was employed by The Hong Kong Jockey Club (HKJC), as Manager, Racing Authority (External). She is a University of Kwazulu-Natal graduate, holding a Bachelor of Commerce Accounting & Finance and a Bachelor of Commerce Honours Accounting. Ms Kayiya was also employed by Gold Circle and has held several positions including Corporate Services Executive and Risk and Assurance Audit Manager.

Her years of experience and knowledge of the industry will be a definite asset to the NHA's business operations. We are delighted to welcome Ms Kayiya to the NHA and wish her well in her new role.



# THE NATIONAL HORSERACING AUTHORITY EVALUATION OF GC-ORBITRAP FOR THE DETERMINATION OF TARGETED AND NON-TARGETED ANABOLIC STEROIDS IN EQUINE URINE G.M. Rösemann, S.S. de Kock and 5 Smit\* Laboratory of The National Horseracing Authority of Southern Africa



#### INTRODUCTION

Traditional screening for targeted drugs has come under severe pressure from the rate of new drug development and the ease of manipulating the chemical composition of existing compounds. This is especially true for anti-doping laboratories that have to rely handle on pass detection.

(HBMS) proved to be the best strategy to screen for these new drugs and many laboratories are currently using liquid chromatography-HBMS Orbitrap systems. Anabolic steroids ionibe poorly in electrospray ionization sources and are routinely analysed using gas chromatography (GC). We evaluated the Thermo GC-EI-Q-bactive for HBMS screening of largested and non-targeted anabolic steroids in equine urine.

#### SAMPLE PREPARATION

See reference 1 for the full method, in short, enzyme hydrolysed urine was extracted with C38 SPE. The elustes were dried and further hydrolysed with methanolic-HCI, it was then made basic and extracted with LLE using di-lopropyl ether. The supernatant was dried, reconstituted in chloroform and extracted with silica SPE. The elustes were dried and derivatived with enoi-TMS before letterfine on CC.

#### INSTRUMENTATION

Samples were analysed on a GC-EI-Q-Exactive, controlled by Tracefinder 4.1 software. A 30m x 0.25mm x 0.25 µm, TG-SaliMS column was used. The oven temperature program was 80 °C for 0.1 min; increased at 35 °C/min to 215 °C; increased at 1.7 °C/min to 265 °C; increased at 30 °C/min to 265 °C and held for 10 min. The transfer line was set at 280 °C. The injector was at 250 °C and split less injection mode was used.

The tune file settings were resolution at 70 000, electron energy at 70 eV and emission current at 50  $\mu$ A. The source temperature was 230 °C with source offset voltage at 5.5 V. Pull MS experiments were conducted in positive mode.

The data was processed with Tracefinder 3.3 software for "unknowns" and the targeted compounds listed in Table 1. Processing was done using a mass tolerance of 5 ppm and retartion time shift of 20 sec.

#### RESULTS AND DISCUSSION

The next table is a summary of the compounds, accurate mass of the derivatised parent compound, most abundant MS fragments, signal to noise response obtained at the lowest calibrator (Sng/ mi) and the linearity over a 0-50 ng/mi calibration range for all the taraeted compounds.

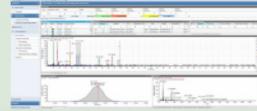
				grant as			
Composed Name	807	Extracted Man	Fragment 1	Fingment 2	Fragment 3	212/5	Linearity 6"
11b OH-Blockvievoluse	25.07	522,44753	449.35763	285.36603	256.23016	3490	0.9973
17a-fictrofiol	23.46	416,35513	336.365EF	285.36614	222.22700	1709	0.9976
17b-Estradol	34.00	434.2554	195,16600	336.30500	232.12704	960	0.0978
19-Norwfesholseelone	10.40	805.26294	436,38610	225.36500	325.23296	4365	0.0003
Sh-Androvan-17a-Ma-17b-of-3-one	10.10	648.31737	410.25904	949.24417	253-294S7	3415	4.9973
Sb-Offsydrotactocturase	12.27	434.30182	405.36205	244.25217	209,1799	3399	0.0962
66-0H-Methandianone	33.93	547.2978	279.12221	329.36962		106	0.5927
Androstanedial	21.34	621,39434	331,3442	355.20999	341.19612	2126	0.9957
Androtesedul	22.58	431.39965	144.35216	129.22964	229.17076	2305	0.9905
Androteine	19.57	434.30079	419,37966	229.22838	228.17973	3022	6.0006
Relaturate	20.04	845.39429	460.33766	155.34617	325.23200	1421	0.0004
Boldenone	24.28	206.1115	430.37036	325,1973	329.16162	790	0.9986
Dit-Testostarone	24.75	435.30542	420.2027	300.19751	209.13512	listed	letd
Danapol	44.90	466,35921	491,39946	341.22594	209.13504	505	0.9965
DHEA	21.9	402.39744	417.36906	327.21290	297.1691	4724	0.9973
Drovtanolone	25.00	449.31854	405.36291	256.13025	285.36611	3490	0.9961
Droutancione matabolite	22.53	433.39526	239.17871	254.20210	449.31747	3425	0.9976
Epiandrosteruna	19.37	434.30179	419,37966	129.22959	229.17973	13450	0.9999
Spitestosterune	23.12	432,39629	417.260	107.21293	209.13495	1461	0.9999
Extranedici	18.14	407.37894	195.13294	200.36007	342.20212	1920	0.9991
Extremedial	17.77	405.36285	434.30093	244.25201	239.1799	4965	0.9993
Ectrone	24.2	414.23995	399,31599	306.11145	309, 36599	1731	0.9959
Ethinyl Estradial	29.94	425,23363	440.35495	285.36609	232,12704	190	0.9994
Ethioterone	29.63	456,39636	441,36293	269.22556	301.1972	900	0.9994
Ethelestranol	17.62	330,33645	240.18655	255,1604	199,14752	4	0.999
Melengesterul	41.38	570.3374	465.36251	313.19739	341,10693	156	0.9953
Mestanalone	27.30	449.31799	359.36764	236.39654	297.1817	204	0.9903
Mestarelone	24.04	400.39079	449.3172	141.07239	369.21500	199	0.9984
Marterolone metabolite	22.45	433.39961	449.30747	343.34400	259,29493	1060	0.990
Methandriol	26.4	253.19432	343.34405	268-21777	211.1474	2220	0.9943
Methandrostensione	29.00	444.2961	206.11149	229.36159	339.21290	19096	0.9996
Methonologo	26.00	446.30361	195,11911	209.12704	167,05495	2650	0.9903
Mattertestastanone	29.7	446.30179	356,35204	300.39739	341,22949	2900	0.9975
Handrolone	22.44	419.2709	285.16617	232.12709	162,11159	1139	0.9963
Horethandrone	32.95	446,30391	356,35204	367.38195	300,19950	1136	0.9996
Normethandane	27.19	432.38622	287.18179	342.23633		1064	0.0004
Pregnamediol	29.62	117.0727	369.32565	441.26299	347,3753		0.9999
Testostarone	34.96	432,2967	301.19727	258.36605	209, 11497	909	0.9993
	III Ott-Bischulandina III-distantid II-distantid II-distan	125 CON-Historium   25.00     IPEntrusido   23.48     IPEntrusido   24.48     IPEntrusido   24.48     IPEntrusido   24.49     IPEntrusido   24.49     IPEntrusido   24.49     IP	The Ott-Receivelesses   21.07   502.18058     File-introdict   21.46   416.15518     File-introdict   21.46   416.25518     File-introdict   21.46   416.25518     File-introdict   21.46   416.25518     File-introdict   21.46   416.2157     File-introdict   21.46   416.2157     File-introdict   21.47   417.277     File-introdict   21.47   41	Title Cit - Historical annual annua	Tille One   Till	Title Cit - Cit	126 Obst Procedure



Left is an example of a processed QC at 5 ng/ml. Isotope pattern matching was calculated against the derivatived parent compounds. In this example, the isotope patterns that did not match (indicated by red squares) are due to lons, other than parent compounds, used for detection.

This was mainly done to enhance detection, or where peaks with the same formula but different fragments co-eluted. Sensitivity and linearity correlated well with our noutine GC-trole quadrupole instrument.

Investigation of non-targeted compounds is achieved by including "unknown" processing of data. Finding peaks which are unique to a specific sample is easy enough as shown on the right. This is an overlay of the unknown peaks in 6 different gelding samples showing a unique peak at 19.71 minutes in sample 15\_70. However, no matches were found when using the libraries supplied with the software and the compound was not identified.



#### CONCLUSION

HRMS in analysis of compounds like steroids, which often have the same molecular formule and fragments, is probably less important than good column separation. It does however provide reduced background interference and peaks are better defined when compared to traditional GC-tripplequad results, identification of unknown peaks based on full MS accurate mass spectral data will also be more definitive once HRMS libraries are developed for derivatived compounds.

#### REFERENCES

 Rösemann GM, et al. (2014). Investigation into possible merkers for Synacthe administration to receivorses. Proceedings of the 20° ICRAY. 285-289.



maintaining the integrity of the sport of horseracing