

Equine oral samples collected and stabilized with Performagene™ are a reliable source of DNA for SNP genotyping on the Illumina® Equine SNP70 Beadchip

C. Acres¹, R. Iwaszow¹, M. Tayeb¹, W.A. van Haeringen² and M. de Groot²

¹ DNA Genotek Inc., Ottawa, Canada www.dnagenotek.com

² VHLGenetics, Netherlands www.vhlgenetics.com

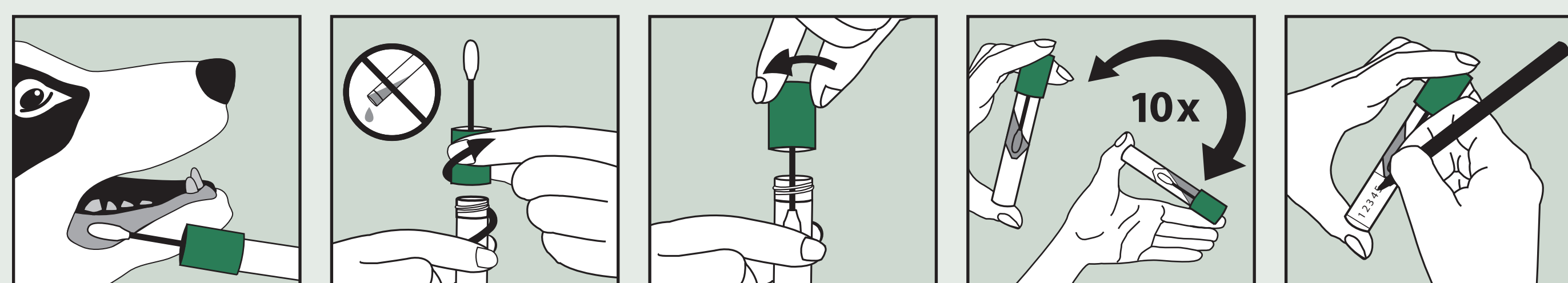
Introduction

Oral samples collected and stabilized with Performagene™ has proven to be an easy and cost-effective way to collect, transport and extract DNA for downstream analysis.

In this study we investigate the performance of DNA extracted from oral samples collected using Performagene on the Illumina® Equine SNP70 Beadchip.



Methods and results



Collection, stabilization and transport

Oral samples were collected and stabilized using Performagene from 48 horses of varying breeds across 4 different farms in Ontario, Canada. Horses of both genders aged 1.5 years to 28 years were sampled.

Extraction and analysis was performed by VHLGenetics®. Of the samples collected, 50% were not included in the subsequent analysis as they were dirty samples.

Extraction

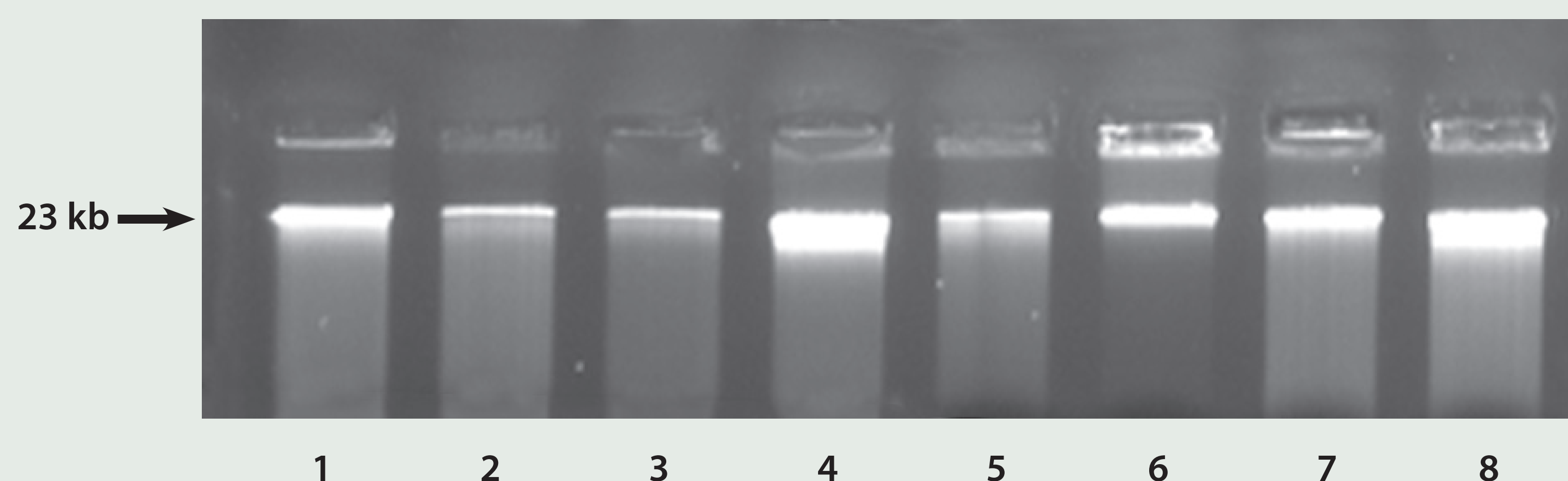
All samples were vortexed thoroughly to obtain an optimal suspension of the sample. The sbeadex™ kit from LGC was used to extract DNA from the samples: 100 µL of oral sample was transferred to a 96-wells plate. 100 µL of binding buffer, containing magnetic beads was subsequently added to the samples together with 200 µL lysis buffer with proteinase K. Samples were washed twice and the DNA was finally dispensed in the elution buffer provided by manufacturer.

Quality control

DNA concentration was measured by PicoGreen®. The range of concentration was 1.4 ng/µL to 125.4 ng/µL.

A₂₆₀/A₂₈₀ was performed. The range was between 1.3 and 1.9.

The purified DNA quality was assessed using an agarose gel. All samples were of good quality. This is a representation of the quality.



DNA Conc. (ng/µL)	A ₂₆₀ /A ₂₈₀	Call rate	Farm	Age	Gender
9.2	1.5	0.990	Farm A	16	M
40.9	1.7	0.892	Farm A	12	M
1.4	1.3	0.982	Farm A	15	F
4.1	1.8	0.982	Farm A	18	F
18.6	1.6	0.941	Farm A	6	M
43.5	1.8	0.987	Farm A	12	M
16.8	1.7	0.987	Farm A	9	M
15.9	1.7	0.964	Farm A	17	F
17.7	1.7	0.985	Farm A	20	F
24.2	1.7	0.969	Farm A	12	F
13.4	1.7	0.984	Farm A	22	F
18.5	1.6	0.929	Farm A	7	M
7.4	1.6	0.978	Farm A	1.5	M
37.6	1.4	0.967	Farm A	4	M
78.4	1.8	0.936	Farm B	28	M
6.7	1.3	0.987	Farm C	11	M
15.2	1.6	0.990	Farm C	18	M
22.5	1.6	0.989	Farm C	19	F
7.5	1.3	0.973	Farm C	14	M
18.4	1.4	0.907	Farm C	16	M
3.1	1.4	0.987	Farm C	10	F
125.4	1.9	0.989	Farm D	6	M
11.9	1.5	0.965	Farm D	5	M

Table 1: Summary of analyzed samples. (> 0.89)

Genotyping arrays

2 µL of DNA was used on each chip and standard protocols from Illumina were followed to yield the obtained results. Data for samples with a call rate > 0.89 is reported.

Highlights

Performagene is a non-invasive, all-in-one system to collect, stabilize and transport oral DNA samples from horses.

Using VHLGenetics extraction platform, high quantity and quality DNA was extracted from Performagene oral samples.

Genotyping results demonstrate that oral samples can be a good source of DNA for successful genotyping on the Illumina Equine SNP70 Beadchip.

Data suggests that a robust extraction may be required to remove inhibitors that were present in a subset of samples and which in most cases could be identified prior to processing as "dirty" samples. Other extraction methods are being evaluated to clean these samples.

Performagene samples processed by VHLGenetics provide cost-effective end-to-end solutions for DNA sample management from horses, including simplifying collection, transportation, extraction and analysis.



Superior samples
Proven performance

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