AMERICAN KENNEL CLUB®

March 27, 2013

KENNETH CHEREVKO
3140 OLEANDER DR
LAKE PLACID FL 33852

Letter of DNA Analysis

Breed: **Australian Shepherd**
Sex: **Male**
Date of Birth: **01-JAN-2010**
ID #:
Date of Analysis: **14-MAR-2013**
AKC #: **DN26719602**
AKC Name: **Buckingham's Jefferson Liberty**

DNA Profile #: **V689448**

The following genotype uniquely represents the Scidera genetic identity of the dog named herein:

Scidera #: **C0815618**

PEZ 1	PEZ 3	PEZ 5	PEZ 6	PEZ 8	PEZ 12	PEZ 20	UCB 2010	UCB 2054	UCB 2079	PEZ 16	PEZ 17	PEZ 21	GEN
C C	E F	A C	C E	E E	F F	C D	B B	D E	B C	E E	D F	C D	X Y

Glenn E. Lycan, Director of DNA Operations
American Kennel Club

Eric Johnston, General Manager
Scidera

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Understanding Your AKC® Profile

Thank you for participating in the AKC DNA Profile Program. Enclosed is an AKC Letter of DNA Analysis containing the AKC Profile for the dog listed. The information below is intended to help you understand, interpret, and apply the results you have received. Please note - the genotype for your dog does not verify his/her parentage. Parentage is only verified by comparing the DNA profiles for the sire, dam and pup.

The enclosed DNA Profile shows the SuperPlex-G panel of DNA markers. A gender marker has been included to provide a quality assurance check on the results (GEN). This gender marker will show as XY for a male and XX for a female.

AKC DNA Profiles (**genotypes**) are generated using the same technology used by law enforcement agencies throughout the world. How does this work? In humans and dogs alike, each **gene** is present as two copies called **alleles** (displayed as letters below). Offspring receive one copy of each gene from each parent in a random process. This genotyping technology does not use actual genes, but other DNA sequences referred to as **markers**, that are also inherited one copy from each parent. Because markers are not functional genes, the AKC DNA Profile does not provide any information about the conformation of the dog, the presence/absence of genetic diseases, or any information about the breed of a dog. AKC DNA Profiles are used solely for genetic identity and parentage verification purposes.

Using Genotypes for Genetic Identification and Parentage Verification – An Example

Marker:	PEZ 01	PEZ 03	PEZ 05	PEZ 06	PEZ 08	PEZ 12	PEZ 20	UCB 2010	UCB 2054	UCB 2079	PEZ 16	PEZ 17	PEZ 21	GEN
Sire Genotype =	BE	FG	BC	HH	EE	HH	GI	BB	CD	AA	AG	CD	BK	XY
Dam Genotype =	BF	DG	BC	DG	EE	GG	II	BB	CD	AB	DE	AB	EF	XX
Pup 1 Genotype =	EF	DG	CC	DH	EE	GH	GI	BB	CD	AB	AE	AD	BF	XY
Pup 2 Genotype =	BF	DG	BB	DH	EE	GH	GI	BB	CD	AA	AE	BC	BE	XX
Pup 3 Genotype =	**CD**	**BE**	BB	**DD**	EE	**CH**	GI	BB	CD	AA	**CD**	AC	**AB**	XX

Glossary
Genotype: genetic constitution or makeup; **Gene**: the basic unit of heredity made of DNA; **Allele:** different forms of a gene. Each parent contributes one allele for each gene pair; **Marker**: a stretch of DNA that is not a gene, but is inherited the same way as a gene; Markers are labeled as PEZ01, PEZ03, etc., above and on the DNA Profile.

Unique identification: If we look at the genotype of the sire at PEZ01 (BE) and the dam at PEZ01 (BF), we see that they share the B allele, and the second allele of this marker is different (E for the sire, F for the dam). We can continue this to PEZ03, where the sire has FG, and the dam, DG. Again, they share the G allele, but the sire has an F, and the dam, a D. At PEZ05, they have the same alleles. Considering the remaining eleven pairs of markers, we see three more are the same (PEZ08, UCB2010, and UCB2054), but, the dogs have different genotypes. The genotype is unique like a fingerprint, and the chance of genotypes matching is less than one in a million.

An empty marker: Occasionally, the information at one marker on the profile will be empty. This means that the genotype at that marker could not be determined. It does not imply anything negative about your dog. The remaining markers provide enough information to establish identity and determine parentage for the vast majority of cases.