

## Congratulations!

You're about to uncover the story of your dog's ancestry.

In this report, you will find detailed results from **Fiona's Wisdom Panel® Professional** DNA analysis.

In the following pages, you will learn about:

- BREED DETECTION
- APPEARANCE, BEHAVIOR & HISTORY
- BREED APPEARANCE
- SHARING YOUR DOG'S STORY

It is important to carefully review your entire report and discuss the results with your veterinarian to gain the most valuable insight into **Fiona**.

Owner Name: **Jennifer Smith**

Test Report Code: **4000050334**

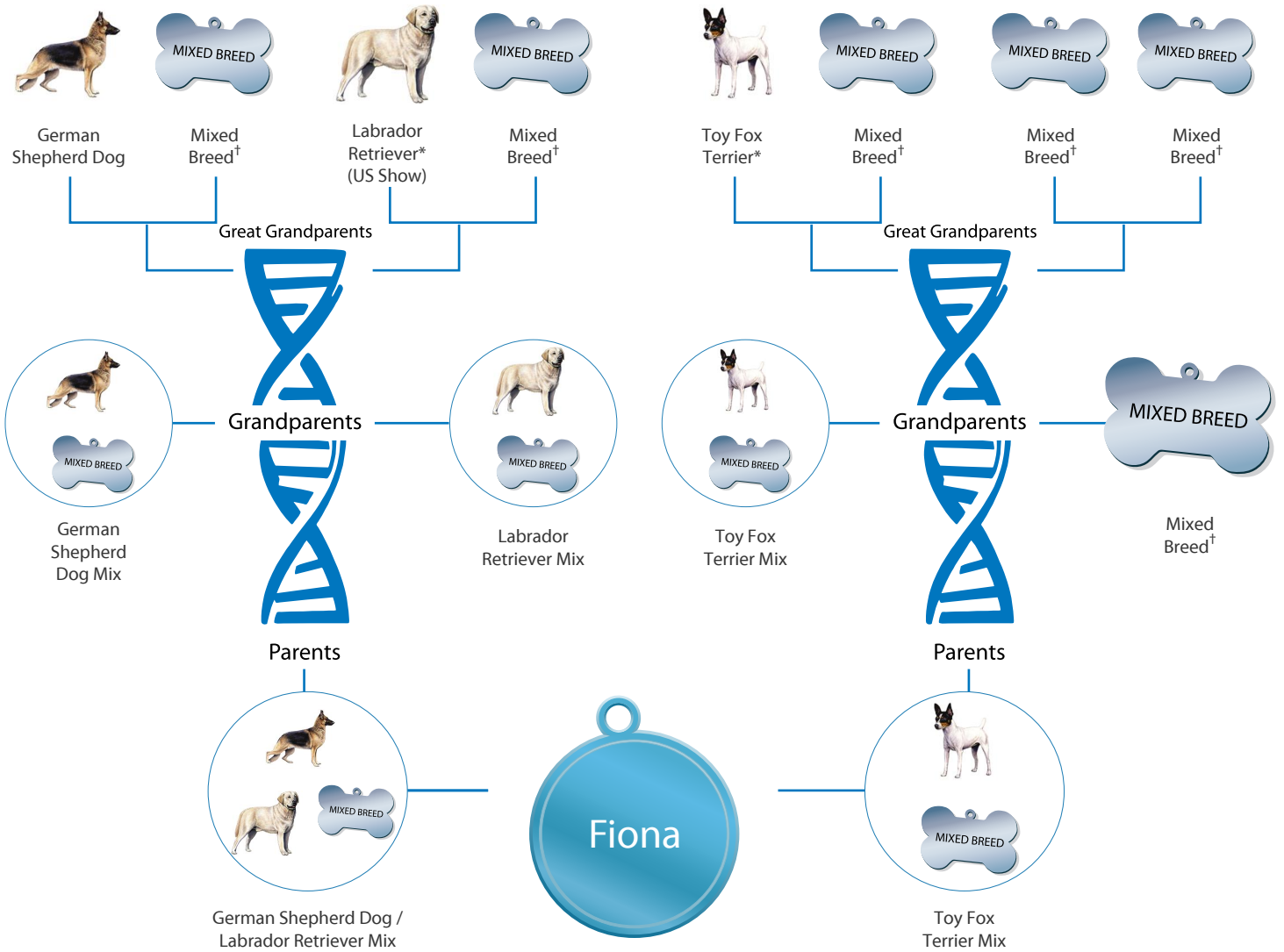
Date Printed: **September 2, 2014**

# What's Your Dog's Tale?

FIONA

**You have a German Shepherd Dog, Labrador Retriever, Toy Fox Terrier Mix!**

The *Wisdom Panel® Professional* computer algorithm performed over seven million calculations using 11 different models (from a single breed to complex combinations of breeds) to predict the most likely combination of pure and mixed breed dogs in the last 3 ancestral generations that best fit the DNA marker pattern observed in Fiona. The ancestry chart depicting the best statistical result of this analysis is shown in the picture below.



† Interested in the Mixed Breed ancestry? Look for the Mixed Breed Signatures page later in the report!

\*Breed detected, however at a lower confidence. Such results are not included in accuracy calculations.

## German Shepherd Dog


**Height:**

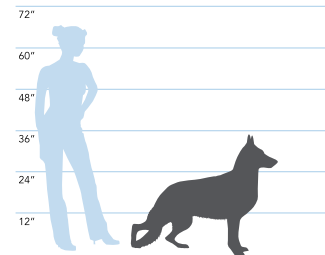
22 - 26 in

**Weight (Show):**

48 - 89 lb

**Weight (Pet):**

48 - 97 lb

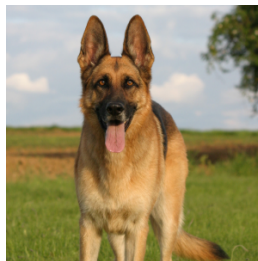
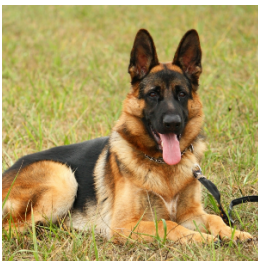

**Ears:**

**Muzzle:**

**Tail:**


The modern day German Shepherd breed is a cross between the long-haired, short-haired and wire-haired shepherd dogs of the German regions of Württemberg, Thuringia and Bavaria. Initially bred for herding, due to their strength, intelligence and excellent temperament, they became popular as guard dogs, guide dogs, search and rescue dogs, police dogs and military dogs. Max Emil Von Stephanitz sought to protect and refine the German Shepherd breed at the end of the nineteenth Century. German Shepherds were used as German police and military dogs during World Wars I and II. Allied soldiers during World War I took notice of the Shepherd's use as messenger dogs or search and rescue dogs as they were very good at locating wounded soldiers. Some soldiers introduced the breed to their home countries and the popularity of the German Shepherd took off, making it one of the most popular breeds in the world today. The German Shepherd Dog was recognized by the American Kennel Club in 1908.

German Shepherd Dogs are generally a combination of black and tan, though more or less black may be seen. There is also a "gray" variant where the tip of the hair is black and the rest is tan. A black mask and a black "saddle" are both common traits in this breed. Although not an AKC variant, all-white German Shepherds exist as a separate FCI breed. The coat comes in long and short varieties.



### Do you recognize any of these German Shepherd Dog traits in Fiona?

- Personalities can vary from calm and watchful/observant to energetic.
- Eager to learn and respond well to reward-based training.
- Enjoy participating in dog sports such as agility, tracking, flyball, and competitive obedience.
- There have been reported incidents of German Shepherd Dogs being aggressive with other pets or people.

## Labrador Retriever


**Height:**

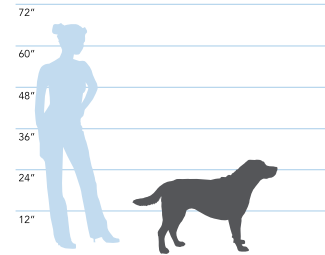
21 - 24 in

**Weight (Show):**

55 - 66 lb

**Weight (Pet):**

49 - 77 lb


**Ears:**

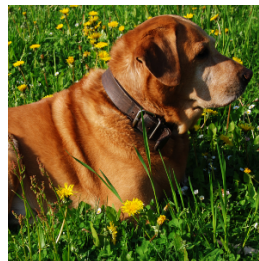
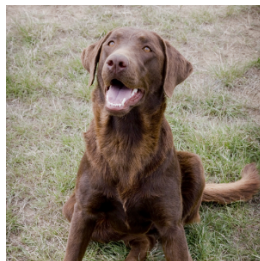
**Muzzle:**

**Tail:**


The Labrador Retriever can trace its roots to the coast of Newfoundland, Canada. The breed dates back to at least the seventeenth century when they were known as the "Lesser Newfoundland." The breed is believed to have descended from the extinct "St. John's Water Dog" which was a cross between native water dogs and the Newfoundland. Labrador Retrievers were initially trained to retrieve fishing nets from the cold waters of the North Atlantic. Fisherman brought them to England in the nineteenth century where they were lauded for their swimming, retrieving and hunting skills. The Earl of Malmesbury is believed to have coined the name Labrador in order to differentiate them from their Newfoundland ancestors. During the 1800's, a heavy dog tax in Canada and quarantine laws in Britain drastically cut the number of Labradors in the U.K., but a good breeding program replenished the stock. Labrador Retrievers were recognized by the American Kennel Club in 1917.

[The DNA detected from this breed is most similar to DNA sampled from American Kennel Club registered dogs.](#)

The Labrador Retriever comes in solid black, chocolate, and yellow. The yellow varies from a pale cream to a rich red fox color. Some Labradors also have white chest blazes. The Dudley variant is where the nose is pink, though this is quite rare. Non-AKC registries sometimes recognize a Silver Variant though this may be classed as chocolate by the AKC.



### Do you recognize any of these Labrador Retriever traits in Fiona?

- Usually happy-go-lucky, calm, or easygoing dogs, though some may be energetic.
- Usually friendly and are generally good family dogs.
- Labrador Retrievers enjoy dog sports such as agility, hunting, tracking, rally and competitive obedience; retrieving and swimming.
- Quite food motivated, which may make it easier to teach the Labrador Retriever to drop retrieved items not intended for play.

## Toy Fox Terrier


**Height:**

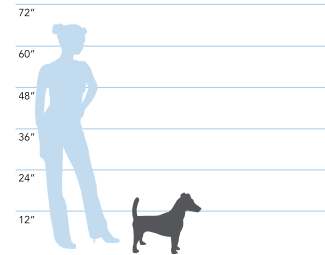
9 - 11 in

**Weight (Show):**

4.5 - 6.5 lb

**Weight (Pet):**

3 - 10 lb

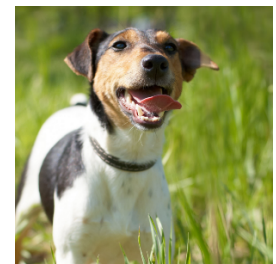
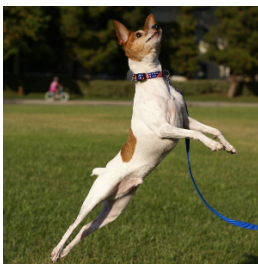

**Ears:**

**Muzzle:**

**Tail:**


The Toy Fox Terrier is a descendant of the Smooth Fox Terrier. It was developed in the United States during the 1930's when breeders sought a smaller version of the Fox Terrier. They bred the Fox Terrier with English Toy Terriers, Chihuahuas, Italian Greyhounds and Manchester Terriers. Alternative names are the American Toy Terrier and the Amertoy. Toy Fox Terriers were first recognized by the United Kennel Club in 1936 and placed in the Terrier group at that time. They were recognized by the American Kennel Club in the year 2000 and the organization placed them in the Toy group.

The Toy Fox Terrier has a close smooth coat and is particolored with white and either black, tan, black and tan, chocolate, or chocolate and tan patches.



### Do you recognize any of these Toy Fox Terrier traits in Fiona?

- Agile, energetic, intelligent and playful dogs.
- Toy Fox Terriers seem to enjoy dog sports such as agility, flyball, and tracking.
- Toy Fox Terriers learn well with reward-based training using treats or favorite toys.
- Is an excellent watch dog due to its tendency to bark to defend itself.

## The Influence of Breeds on Appearance

This report reveals the breeds detected in your dog's DNA. It also includes checklists of physical traits associated with these breeds. Breeds can combine their influences in countless, fascinating ways. It's a unique combination that makes your dog one-of-a-kind.

Your dog may behave like - or strongly resemble - just one of the breeds in its makeup, but - much more commonly - your dog's looks and personality will blend aspects of these breeds. Consider the example below...

In this example, you can see how many of Tula's physical traits are due to a blending of breed influences.

### YELLOW COAT COLOR

requires two copies of a gene variant and is available from the Labrador Retriever, Poodle, and Golden Retriever.

### BLACK NOSE

eye rims, lips, and pads on her feet are all due to one copy of the black gene variant that is available from all three ancestral breeds.

### SOFT CURL

is coming from one copy of the curly gene variant from the Poodle and one copy of the straight variant from the Golden Retriever parent.

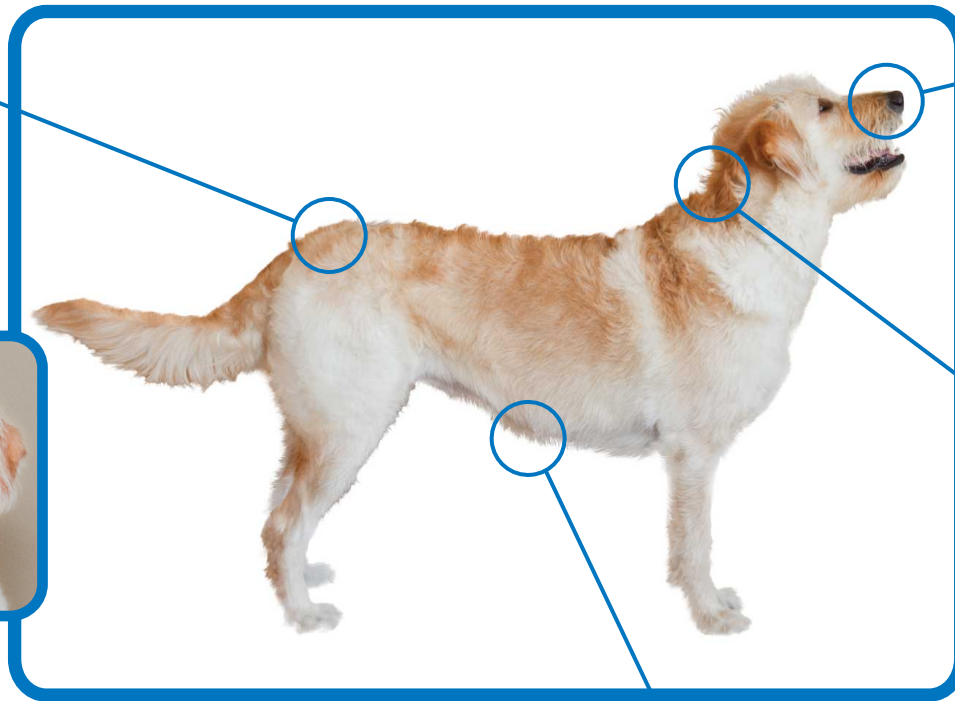


### FURNISHINGS

- the "beard" and "eyebrows" - is due to one copy of the furnishing gene variant from the Poodle.

### SHORT HAIR

is due to one copy of the gene variant from the Labrador Retriever that is dominant to the long coat of the Golden Retriever and Poodle.



Wisdom Panel® Professional found these breeds in our example dog Tula:



Golden Retriever



Labrador Retriever



Standard Poodle



For additional information, watch an illustrative video at <http://youtu.be/UAcPOch4-C8> - it provides educational content around canine DNA, the basic blueprint for life, and a closer look at inherited genes.

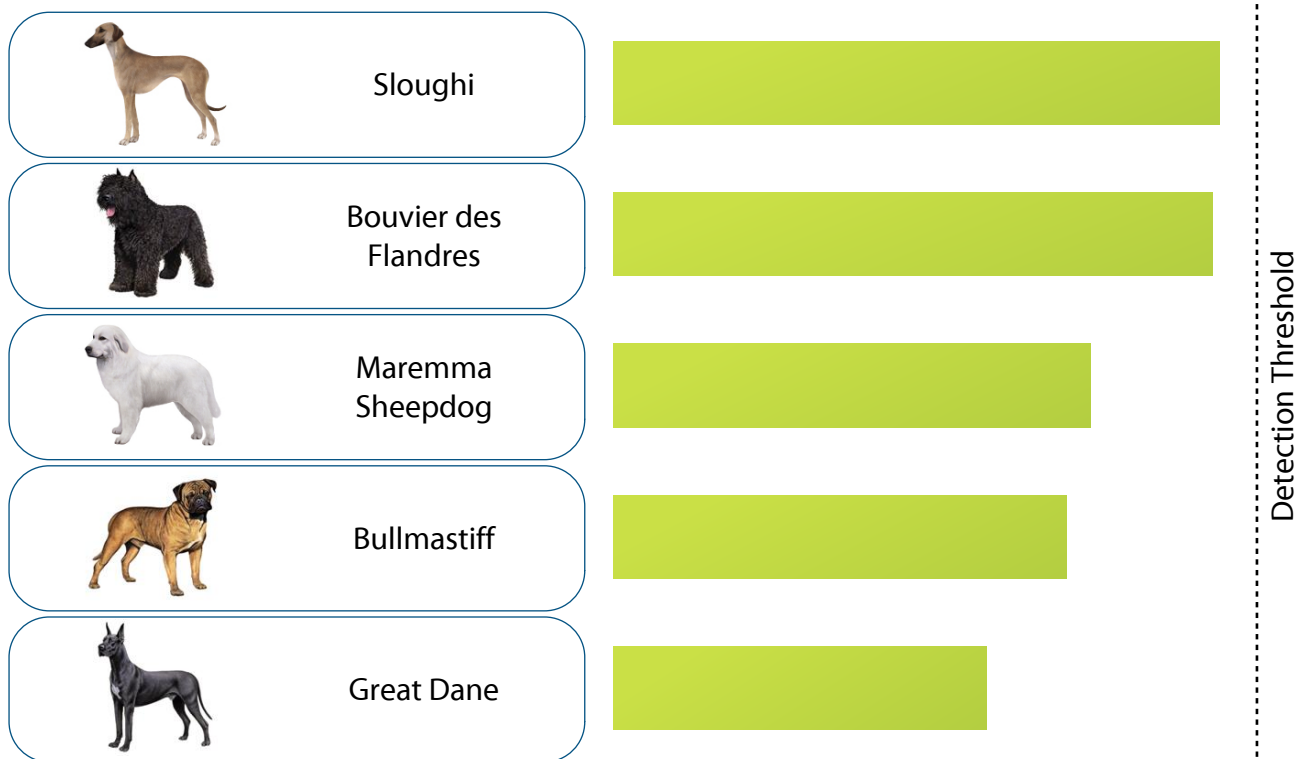


## What does the Mixed Breed Ancestry mean for Fiona?

A portion of Fiona's ancestry was predicted to be mixed beyond 3 generations. While it is difficult to identify strong breed signals in this mixed portion, the 5 breeds with the strongest statistical likelihood identified in the analysis of your dog's DNA are listed below.

The breeds are listed by the relative strength of each result in the analysis with the most likely at the top of the list. One or more of these breeds **could have** contributed to the genetic makeup of the ancestors indicated by the mixed breed icon. Note that it is highly unlikely that all these breeds are present in Fiona's ancestry.

There could also be a breed or breeds present in the mixed breed component that cannot be detected with the current database of over 250 breeds, types and varieties.



### How Wisdom Panel Professional works

The process started when you sent a sample to our laboratory, where the DNA was extracted from the cells and examined for the 321 markers that are used in the test. The results for these markers were sent to a computer, that evaluated them using a program designed to consider all of the pedigree trees that are possible in the last three generations. The trees considered include a simple pedigree with a single breed (a likely pure-bred dog), two different breeds at the parental level (a first-generation cross), all the way up to a complex tree with eight different great-grandparent breeds allowed.

Our computer used information for over 250 breeds, varieties, and types from our breed database to fill these potential pedigrees. For each of the millions of combinations of ancestry trees built and considered, the computer gave each a score representing how well that selected combination of breeds matched to your dog's data. The pedigree with the overall best score is the one which is shown on the ancestry chart. Only breeds that reached our set confidence threshold for reporting are reported in the ancestry chart.

## Thank you for choosing **Wisdom Panel® Professional** to uncover the story of your dog's ancestry!

Congratulations on taking the steps to learn about your dog's ancestry and to understand what breeds are in your mixed breed dog using **Wisdom Panel Professional**! Knowing your dog's breeds is more than a novelty - it is a medical necessity. Each breed in your pooch's genetic paw print has unique health concerns you should know about so that you can provide a lifetime of excellent care.

Visit [www.Genesis4Pets.com](http://www.Genesis4Pets.com) to find out more about your dog's health-care needs: you'll feel better knowing that you're doing everything you can to keep your pal happy and healthy. In addition to loads of free, easy-to-understand information based on the latest medical research, you will receive a 50% discount on all downloadable health-care booklets that explain the common health concerns for individual breeds. Simply enter promotional code **WISDOM** when you check out to receive your discount (expires 30 days after you receive your Wisdom Panel report).

### Predicted Adult Weight Profile for Fiona:

Based upon the breeds detected in Fiona's ancestry and the genetic markers analyzed by **Wisdom Panel Professional**, as well as the information provided that Fiona is **Female** and **Intact**, we have calculated the likely weight that Fiona should reach when an adult. The **Wisdom Panel Professional** target weight profile is presented as a range based on the unique mix and proportion of breeds detected.

- If Intact, the adult weight is predicted to be between 33 - 54 lbs.
- If Spayed, the adult weight is predicted to be between 37 - 59 lbs.

Many factors can influence an adult dog's weight, including sex and neuter status. Both of these factors have been used to calculate the predicted weight profile. Another major influence on canine weight is body condition score, which is a factor of your dog's lifetime nutrition and exercise regimen. If your dog's body condition is different from the ideal body condition score, we anticipate that your dog might be under (if underweight) or over (if overweight) the weight predicted by **Wisdom Panel Professional**.

To learn more about assessing body condition score please use the Royal Canin™ Body Condition Score Chart.

More information on this can be found at: <http://www.wisdompanelpro.com/sizeprediction/>

### Tell Your Dog's Tale

Join our online community of mixed-breed dog owners and share your dog's **Wisdom Panel Professional** story with the world. At [WisdomPanel.com](http://WisdomPanel.com) you can:

- Register your dog and upload photos into our Wisdom Panel photo gallery
- Get help to show off your dog's breed profile on your blog, Dogster page, Facebook and Myspace profiles
- Access your report online with our Test Status Checker.

This will also allow you to access Mixed-Breed Genesis health reports provided by VetThink™ which are designed to assist you to take the best possible care of your dog throughout its life.



Visit [www.wisdompanel.com/photos](http://www.wisdompanel.com/photos) and use these details to create your dog's profile:

Owner: **Jennifer Smith**  
Report Code: **400050334**

Each dog is unique and their physical and behavioral traits will be the result of multiple factors, including genetics, training, handling and environment. **Wisdom Panel® Professional**'s proprietary genetic analysis is intended to provide owners insight to potential predispositions to physical and behavioral traits in breeds which have been identified in your dog and is not intended to predict disease or behavior in any particular dog.

As part of the **Wisdom Panel Professional** service, Mars Veterinary performs thirteen disease screening tests for known genetic mutations using a high throughput genotyping panel. Each test is run twice on the genotyping panel in opposite orientation to ensure that results are consistent and as accurate as possible. Occasionally due to variations in DNA sample quality it may not be possible to provide a result for a specific mutation test if the marker fails to give a DNA genotype call in testing. Mars Veterinary and Mars, Incorporated are not associated with and do not endorse or sponsor the commercial tests being conducted by VetGen, Washington State University, University of Minnesota, The Animal Health Trust or Optigen.

**Wisdom Panel Professional** is used to help determine the breed makeup of a dog. Validation testing has resulted in an average accuracy\* of 90% in first-generation crossbred dogs of known parentage. The breeds in this validation study represent 45% of AKC registrations.

In the unlikely event that it is not possible to determine breed history or that an error in the breed analysis, disease mutation screening, size prediction, or health indicator analysis occurs, liability by Mars Veterinary or related companies and individuals is disclaimed and damages in any event are limited to the payment actually received by Mars Veterinary for the individual specified analysis at issue.

The **Wisdom Panel Professional** product is designed and intended to be used solely to identify the genetic makeup and predict the adult size and breed-related health risks of a mixed breed dog and no other purpose is authorized or permitted. Consult your veterinarian for information regarding your particular dog's physical and behavioral condition.

Many countries and provinces have breed-specific ordinances and laws that may require special handling or prohibit the ownership of some dogs with a particular breed in their genetic background. **Wisdom Panel Professional** is not intended to be used by regulatory or animal control officials to determine whether a particular breed is legislated or banned in a particular country or province. Nor is **Wisdom Panel Professional** intended to be used in any judicial proceedings. Rather, it is intended to be used as a tool or resource in determining a dog's genetic history. Neither Mars Veterinary nor any related company is responsible for compliance or notification regarding these matters.

\*Accuracy was determined by average Positive Predictive Value across breeds studied. Breeds detected at low levels of certainty were not included in accuracy calculation.



# Breeds Ancestry Certification

Wisdom Panel® Professional certifies that:

*Fiona*

is a genetic mixture of the following canine breeds:

German Shepherd Dog, Labrador Retriever and Toy Fox Terrier.

September 2, 2014

## Statement of Authenticity

This certifies the authenticity of Fiona's canine genetic background as determined following careful analysis of more than 300 genetic markers using *Wisdom Panel Professional*. The purebred dog breed signature matches included in this analysis are those that were detected in the last three generations of Fiona's ancestry using the proprietary breed detection algorithm at Mars Veterinary.



Dr. Neale Fretwell

Research & Development Director

