

## Congratulations!

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

In this report, you will find detailed results from **Tulip'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 **Tulip**.

Owner Name: **Jennifer Smith**

Test Report Code: **4000049604**

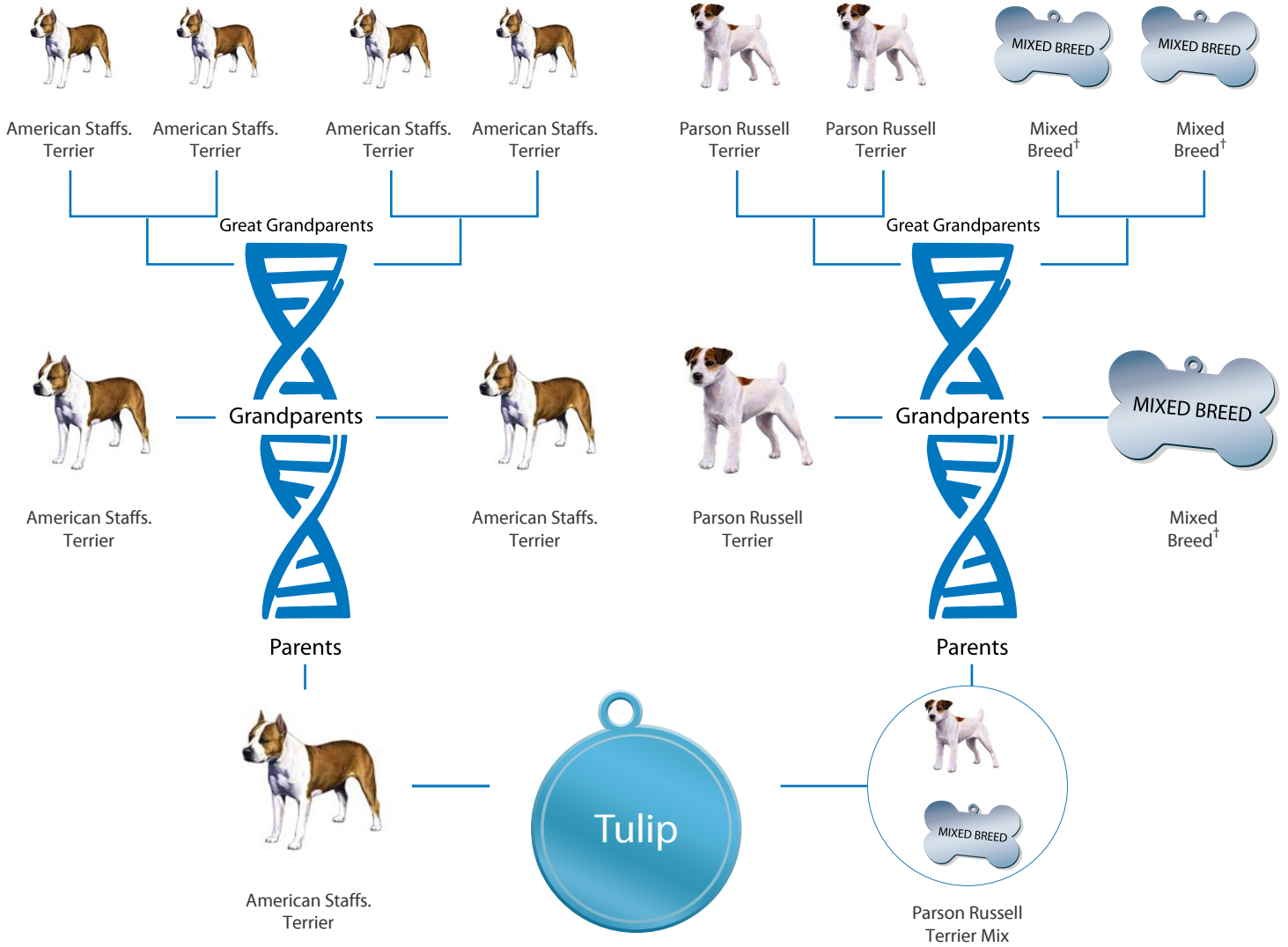
Date Printed: **June 23, 2014**

# What's Your Dog's Tale?



**You have a American Staffordshire Terrier, Parson Russell 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 Tulip. 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!

## American Staffordshire Terrier


**Height:**

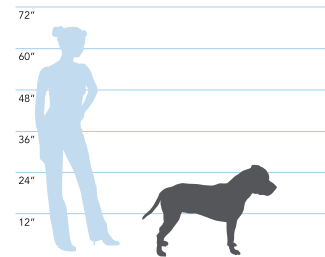
17 - 19 in

**Weight (Show):**

40 - 60 lb

**Weight (Pet):**

38 - 68 lb


**Ears:**

**Muzzle:**

**Tail:**


The American Staffordshire Terrier can trace its roots all the way back to the nineteenth century in England. The English Staffordshire Terrier was created when various terriers were crossed with the Bulldog. The crossbreeding resulted in the active and powerful breed that came to the attention of the United States public in 1870. American breeders then focused their attention and efforts to increasing the size and weight of the American Staffordshire Terrier. These breeding efforts resulted in a Staffordshire Terrier that was recognized as a separate breed by the American Kennel Club in 1936. In 1972, the current name of "American Staffordshire Terrier" was adopted. The American Staffordshire Terrier was once used primarily for fighting. That practice, however, was banned in the early 1900's and two separate variations of the breed were gradually developed.

The American Staffordshire Terrier can be any color, with solid, particolor, or patched black, brown, tan, brindle (black and brown striped), liver, red or fawn. Black or blue mask, brindle or tan points are commonly seen traits in this breed. Ears may also appear different due to cropping.



### Do you recognize any of these American Staffordshire Terrier traits in Tulip?

- Intelligent, hard-working, and stoic dogs.

- American Staffordshire Terriers seem to enjoy dog sports such as agility, flyball, rally and competitive obedience.

- Very loyal to family and usually good with children. May not get along well with other dogs.

- There have been reported incidents of American Staffordshire Terriers being aggressive with other pets or people.

## Parson Russell Terrier


**Height:**

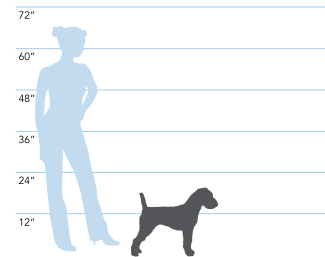
11 - 15 in

**Weight (Show):**

13 - 17 lb

**Weight (Pet):**

11 - 23 lb


**Ears:**

**Muzzle:**

**Tail:**


"Parson Russell Terrier" is the name of the show variant of the commonly known "Jack Russell" or "Russell Terrier" breed, although all types are relatively difficult to distinguish genetically. The Parson Russell is descended from early white-bodied working terriers. The breed was developed by Reverend John Russell during the 1800's as a fox hunter. Their small bodies allowed them to drive the fox from his lair, giving the hunters easy access. The name Parson Russell was chosen by the American Kennel Club because the name "Jack Russell Terrier" had been trademarked by a group opposed to allowing the working terrier breed into the Kennel Club. The theory was that Parson Russells are show dogs, whereas Jack Russells are working dogs. The breed was first introduced to the United States in the 1930's. Parson Russell Terriers were first recognized by the UK Kennel Club in 1990 and the American Kennel Club in 1997.

The Parson Russell Terrier may have a broken (wirehaired) or smooth coat, and is predominantly white with black, tan, cream, or black and tan markings. Grizzle (some black hairs among the coat) is also possible.



### Do you recognize any of these Parson Russell Terrier traits in Tulip?

- Very intelligent, obedient, active, agile, highly energetic, and watchful dogs.
- Eager to learn, especially with reward-based training.
- Parson Russell Terriers enjoy tennis ball retrieving, agility, flyball, and Frisbee, and have the keen sense of smell necessary to participate in earthdog trials.
- May be difficult to disengage from an activity or behavior, bark, or chase wildlife or other dogs.

## 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.

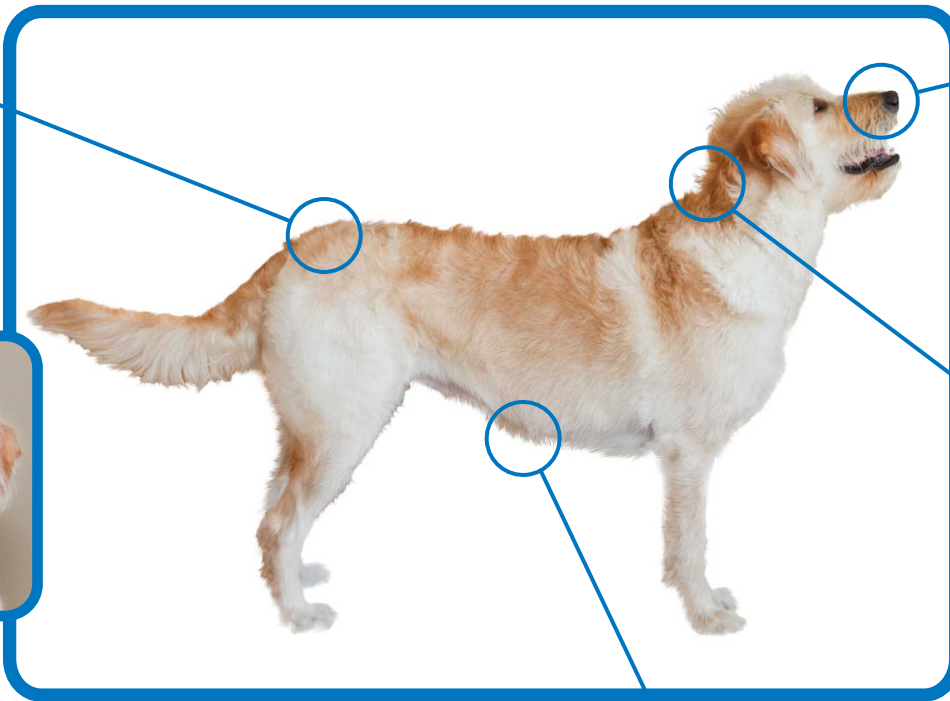


### FURNISHINGS

- 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.

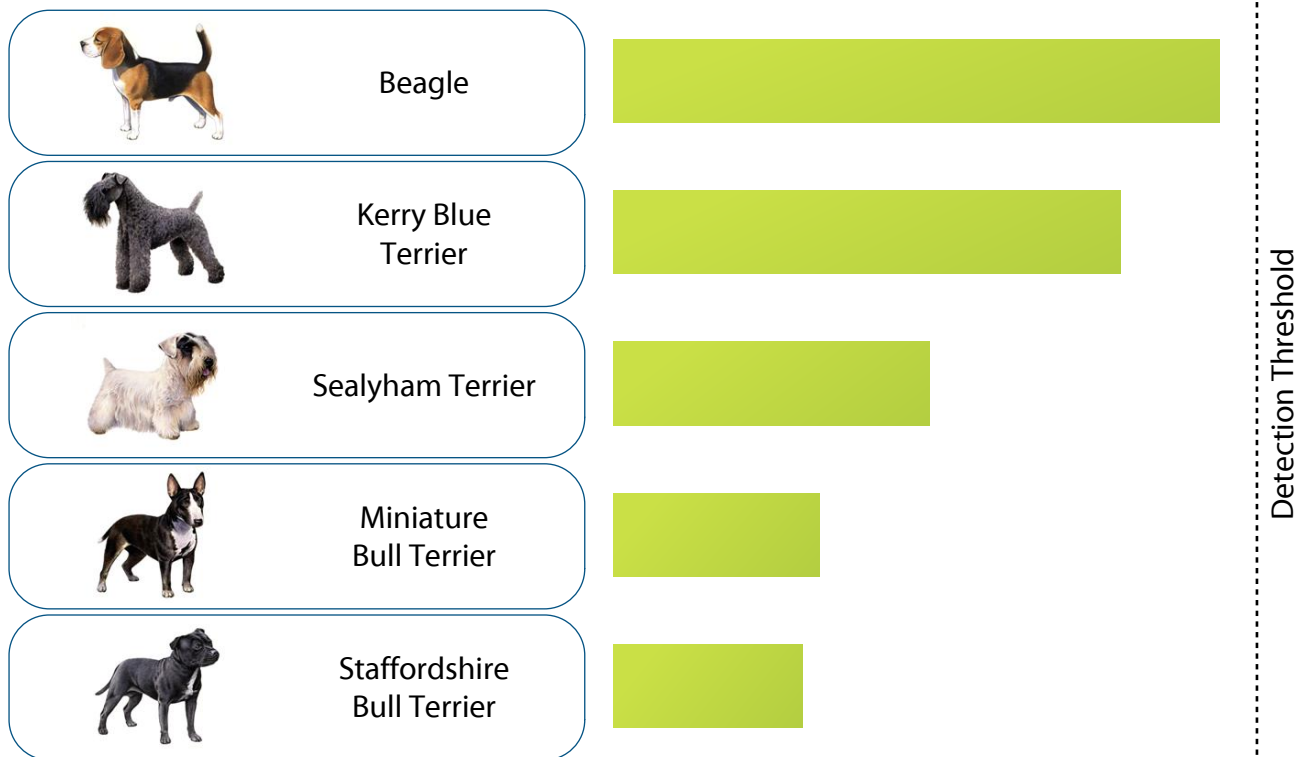


## What does the Mixed Breed Ancestry mean for Tulip?

A portion of Tulip'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 Tulip'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 Tulip:

Based upon the breeds detected in Tulip's ancestry and the genetic markers analyzed by *Wisdom Panel Professional*, as well as the information provided that Tulip is **Female** and **Intact**, we have calculated the likely weight that Tulip 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 23 - 39 lbs.
- If Spayed, the adult weight is predicted to be between 26 - 43 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.

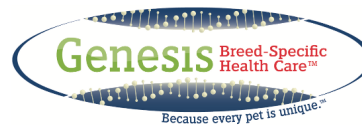
More information on this can be found at: <http://www.wisdompanelpro.com/sizeprediction/>

### 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: **4000049604**

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.

# Breed Ancestry Certification

Wisdom Panel® Professional certifies that:



is a genetic mixture of the following canine breeds:

American Staffordshire Terrier and Parson Russell Terrier.

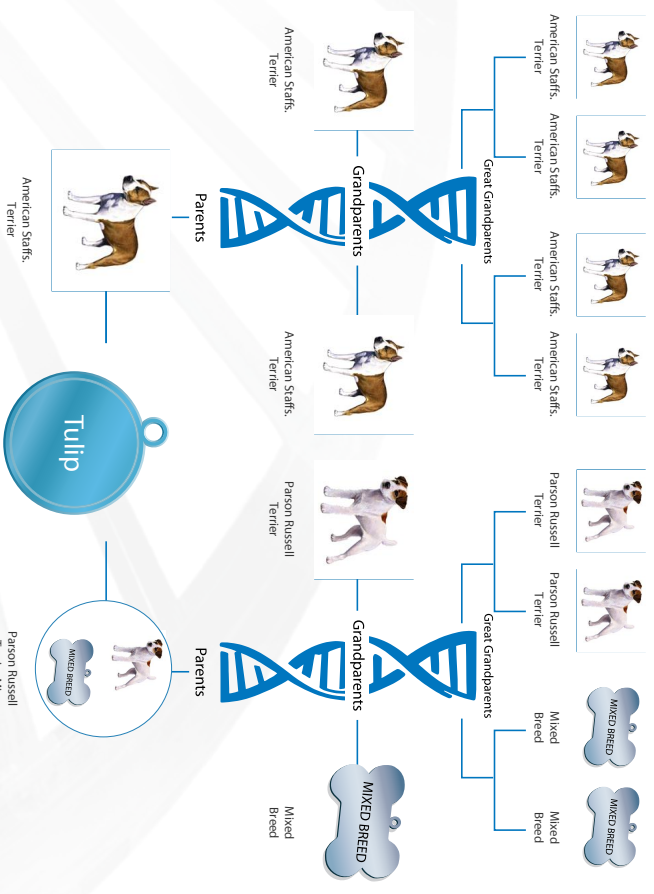
June 23, 2014

## Statement of Authenticity

This certifies the authenticity of Tulip'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 Tulip's ancestry using the proprietary breed detection algorithm at Mars Veterinary.

Dr. Neale Fretwell

Research & Development Director



Tulip is a American Staffordshire Terrier, Parson Russell Terrier Mix