



THE KENNEL CLUB

*Making a difference for dogs*

# Breeding from your DNA tested dog



[www.thekennelclub.org.uk](http://www.thekennelclub.org.uk)

## Breeding from your DNA tested dog

**DNA health testing is one of many tools that can help dog breeders make good breeding decisions.**

Knowing the health status of your dog allows you to make breeding plans to avoid producing puppies with a specific genetic condition.

Most DNA tested dogs can be used responsibly in a breeding programme, but the decisions you make when choosing which dogs to mate must be informed and carefully planned.

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### Autosomal-recessive conditions

An autosomal-recessive condition means that a dog must inherit two copies of an abnormal gene before its health is affected.

Each dog inherits one copy of a gene from its mother and one from its father. If the health status of both sire and dam are known, the likely health status of any puppies produced can be predicted.

**Dogs that have been tested for an autosomal-recessive condition can be described as either: clear, carrier or affected, but what do these terms mean?**

#### Autosomal-recessive conditions

##### Clear

The dog does not have any copies of the abnormal genes associated with the condition you have tested for.

The dog **will not** be clinically affected by the disorder.

##### Carrier

The dog has one copy of the abnormal gene associated with the condition you have tested for.

The dog **will not** be clinically affected by the disorder, but **may** pass one copy of the gene on to its offspring.

##### Affected

The dog has two copies of the abnormal gene associated with the condition you have tested for.

The dog **will** be clinically affected by the disorder and **will** pass one copy of the gene on to any potential offspring.

**If you know the health status of your dog and its potential mate, you can use the table overleaf to predict the likely health status of any puppies produced.**

To find out if a particular dog has had a DNA test, why not visit the Health Test Results Finder at

**[www.mateselect.org.uk](http://www.mateselect.org.uk)**



	Clear Male	Carrier Male	Affected Male
Clear female	All puppies will be clear See section 1 for breeding advice	50% chance of each puppy being clear 50% chance of each puppy being a carrier See section 2 for breeding advice	All puppies will be carriers See section 3 for breeding advice
Carrier female	50% chance of each puppy being clear 50% chance of each puppy being a carrier See section 2 for breeding advice	25% chance of each puppy being clear 50% chance of each puppy being a carrier See section 4 for breeding advice	25% chance of each puppy being affected 50% chance of each puppy being affected See section 4 for breeding advice
Affected female	All puppies will be carriers See section 3 for breeding advice	50% chance of each puppy being a carrier 50% chance of each puppy being affected See section 4 for breeding advice	All puppies will be affected See section 4 for breeding advice

### Producing all clear puppies

#### Breeding Advice Section 1

All puppies from this mating will be clear from the *specific* condition you have tested for and have none of the abnormal genes associated with the condition. If you wish to

use these puppies for future matings, then clear puppies can be mated to carrier and affected dogs without risk of producing affected puppies.

### Producing both clear and carrier puppies

#### Breeding Advice Section 2

This mating may produce both clear and carrier puppies. Once the puppies are born, it is important to test **all** of the puppies before they themselves are bred from or are passed on to new homes. Clear puppies will have none of the abnormal genes associated with the condition you have tested for. If you wish to use these puppies for future matings, then clear puppies can be mated to carrier and affected dogs without risk of producing affected puppies.

Carrier puppies will carry a single copy of the abnormal gene and could pass this on if they themselves are bred from. When used responsibly, carriers can be an important part of any breeding plan and should not be overlooked when making breeding plans. By using carriers, you can keep good, healthy dogs in the breeding population. Just be sure that if you breed a carrier dog, you know the health status of its mate.

### Producing carrier puppies

#### Breeding Advice Section 3

This mating will produce carrier puppies that will not be affected by the condition you have tested for. Carrier puppies will carry a single copy of the abnormal gene and could pass this on if they themselves are bred from. When used responsibly, carriers can be an important part of

any breeding plan and should not be overlooked when making breeding plans. By using carriers, you can keep good, healthy dogs in the breeding population. Just be sure that if you mate a carrier dog, you know the health status of the other dog.

### Producing affected puppies

#### Breeding Advice Section 4

Producing affected puppies that will develop the condition you tested for is taking a risk on canine health and welfare. A mating which may produce affected puppies should never knowingly be carried out. If this mating accidentally occurs, it is

important to test **all** of the puppies before they are bred from or are passed on to new homes. Veterinary advice should be sought as to the clinical management of any affected puppies.



## Autosomal-dominant conditions

An autosomal-dominant condition means that a dog need only inherit one copy of an abnormal gene before its health is affected.

Each dog inherits one copy of a gene from its mother and one from its father. If the health status of both sire and dam are known, the likely health status of any potential puppies produced can be predicted.

**Dogs that have been tested for an autosomal-dominant condition can be described as either: clear, heterozygous affected or homozygous affected, but what do these terms mean?**

Autosomal-dominant conditions		
<p><b>Clear</b></p> <p>The dog does not have any copies of the abnormal genes associated with the condition you have tested for.</p> <p>The dog <b>will not</b> be clinically affected by the disorder.</p>	<p><b>Heterozygous affected</b></p> <p>The dog has one copy of the abnormal gene associated with the condition you have tested for.</p> <p>The dog <b>will</b> be clinically affected by the disorder and <b>may</b> pass one copy of the gene and the associated condition on to its offspring.</p>	<p><b>Homozygous affected</b></p> <p>The dog has two copies of the abnormal gene associated with the condition you have tested for.</p> <p>The dog <b>will</b> be clinically affected by the disorder and <b>will</b> pass one copy of the gene and the associated condition on to its offspring.</p>

**If you know the health status of your dog and its potential mate, you can use the table overleaf to predict the likely health status of any puppies produced.**

To find out if a particular dog has had a DNA test, why not visit the Health Test Results Finder at [www.mateselect.org.uk](http://www.mateselect.org.uk)



	Clear Male	Heterozygous affected Male	Homozygous affected Male
Clear Female	All puppies will be clear	50% chance of each puppy being clear	50% chance of each puppy being heterozygous affected
Heterozygous affected Female	50% chance of each puppy being clear	25% chance of each puppy being clear	25% chance of each puppy being homozygous affected
Homozygous affected Female	All puppies will be heterozygous affected	50% chance of each puppy being heterozygous affected	50% chance of each puppy being homozygous affected

### Potentially producing all clear puppies

#### Breeding Advice Section 1

All puppies from these matings will be clear from the *specific* condition you have tested for and have none of the abnormal genes associated with the condition.

### Potentially producing affected puppies

#### Breeding Advice Section 2

Potentially producing affected puppies that may develop the condition you have tested for is taking a risk on canine health and welfare. Matings which could produce affected puppies should never knowingly be carried out. If this mating accidentally occurs, it is important to test **all** of the puppies before they are bred from or are passed on to new homes. Veterinary advice should be sought as to the clinical management of any affected puppies.





Mate Select is a useful online health-focused tool, which has been developed in conjunction with the Animal Health Trust. It provides invaluable information to help breeders ensure that their breeding programmes continue to have a positive impact on the health and genetic diversity of their breed.

**Mate Select currently includes:**

- Inbreeding Co-efficient Calculator  
*(which can be used for individual dogs or for hypothetical matings)*
- Health Test Results Finder
- Information about the health schemes available for each breed
- And more to come!

**For further details visit**

**[www.mateselect.org.uk](http://www.mateselect.org.uk)**



**Or why not visit**

**the Kennel Club's Breed Information Centre for details on:**

- Recommended Health Screening and DNA tests
- Assured Breeder requirements and recommendations
- Breed Club contacts
- Breed standards and breed characteristics
- Rescue organisations

**For further details visit**

**[www.thekennelclub.org.uk/dogbreedinformation](http://www.thekennelclub.org.uk/dogbreedinformation)**



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1-5 Clarges Street, Piccadilly, London W1J 8A  
Telephone 0844 4633 980 Facsimile 020 7518 1058  
Email [hbs@thekennelclub.org.uk](mailto:hbs@thekennelclub.org.uk) [www.thekennelclub.org.uk](http://www.thekennelclub.org.uk)

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