

## DERMATOMYOSITIS

Results of Various Breeding Combinations for a Dog with **AaBb** Genotype

**Red** are risk alleles, **blue** are "wild type," normal alleles.

(Punnett squares provided courtesy of the Clark Canine Genetics Research Laboratory, Clemson University.

<http://www.clemsoncaninegenetics.com/>

		<u>AaBb</u>			
		<b>AB</b>	<b>Ab</b>	<b>aB</b>	<b>ab</b>
<u>aabb</u>	<u>ab</u>	AaBb	Aabb	aaBb	aabb
	<u>ab</u>	AaBb	Aabb	aaBb	aabb
	<b>ab</b>	AaBb	<u>Aabb</u>	aaBb	aabb
	<b>ab</b>	<u>AaBb</u>	<u>Aabb</u>	aaBb	aabb
		4 <u>AaBb</u> : 4 <u>Aabb</u> : 4 <u>aaBb</u> : 4 <u>aabb</u>			

All low risk with homozygous or heterozygous *DLA-DRB1\*002:01*

		<b>AaBb</b>			
		<b>AB</b>	<b>Ab</b>	<b><u>aB</u></b>	<b>ab</b>
<b><u>aaBb</u></b>	<b><u>aB</u></b>	<u>AaBB</u>	<u>AaBb</u>	<u>aaBB</u>	<u>aaBb</u>
	<b>ab</b>	<u>AaBb</u>	<u>Aabb</u>	<u>aaBb</u>	<u>aabb</u>
	<b><u>aB</u></b>	<u>AaBB</u>	<u>AaBb</u>	<u>aaBB</u>	<u>aaBb</u>
	<b>ab</b>	<u>AaBb</u>	<u>Aabb</u>	<u>aaBb</u>	<u>aabb</u>

2 AaBB: 4 AaBb: 2 Aabb: 2 aaBB: 4 aaBb: 2 aabb

12-14 low risk: 4 AaBb, 2 Aabb, 4 aaBb, 2 aabb with homozygous or heterozygous *DLA-DRB1\*002:01*

0-2 aaBB with heterozygous *DLA-DRB1\*002:01*

0-4 moderate risk: 0-2 aaBB with homozygous *DLA-DRB1\*002:01*

0-2 AaBB with heterozygous *DLA-DRB1\*002:01*

0-2 high risk: AaBB with homozygous *DLA-DRB1\*002:01*

<b>AaBb</b>					
<span style="margin-right: 20px;"><b>AB</b></span> <span style="margin-right: 20px;"><b>Ab</b></span> <span style="margin-right: 20px;"><b>aB</b></span> <span><b>ab</b></span>					
<b><u>Aabb</u></b>	<b>Ab</b>	<u>AABb</u>	<u>AAbb</u>	<u>AaBb</u>	<u>Aabb</u>
	<b>ab</b>	<u>AaBb</u>	<u>Aabb</u>	<u>aaBb</u>	<u>aabb</u>
	<b>Ab</b>	<u>AABb</u>	<u>AAbb</u>	<u>AaBb</u>	<u>Aabb</u>
	<b>ab</b>	<u>AaBb</u>	<u>Aabb</u>	<u>aaBb</u>	<u>aabb</u>

2 AABb: 4 AaBb: 2 AAbb: 4 Aabb: 2 aaBb: 2 aabb

12 low risk:            4 AaBb, 4 Aabb, 2 aaBb, 2 aabb with homozygous or heterozygous *DLA-DRB1\*002:01*

2-4 moderate risk:    2 AAbb with homozygous or heterozygous *DLA-DRB1\*002:01*  
 0-2 AABb with heterozygous *DLA-DRB1\*002:01*

0-2 high risk:            AABb with homozygous *DLA-DRB1\*002:01*

<b>AaBb</b>	
<span style="margin-right: 20px;"><b>AB</b></span> <span style="margin-right: 20px;"><b>Ab</b></span> <span style="margin-right: 20px;"><b><u>aB</u></b></span> <span><b>ab</b></span>	
<b><u>aaBB</u></b>	<b><u>aB</u></b> <span style="margin-left: 10px;"><u>AaBB</u></span> <span style="margin-left: 20px;"><u>AaBb</u></span> <span style="margin-left: 20px;"><u>aaBB</u></span> <span style="margin-left: 20px;"><u>aaBb</u></span>
	<b><u>aB</u></b> <span style="margin-left: 10px;"><u>AaBB</u></span> <span style="margin-left: 20px;"><u>AaBb</u></span> <span style="margin-left: 20px;"><u>aaBB</u></span> <span style="margin-left: 20px;"><u>aaBb</u></span>
	<b><u>aB</u></b> <span style="margin-left: 10px;"><u>AaBB</u></span> <span style="margin-left: 20px;"><u>AaBb</u></span> <span style="margin-left: 20px;"><u>aaBB</u></span> <span style="margin-left: 20px;"><u>aaBb</u></span>
	<b><u>aB</u></b> <span style="margin-left: 10px;"><u>AaBB</u></span> <span style="margin-left: 20px;"><u>AaBb</u></span> <span style="margin-left: 20px;"><u>aaBB</u></span> <span style="margin-left: 20px;"><u>aaBb</u></span>

4 AaBB: 4 AaBb: 4 aaBB: 4 aaBb

- 8 low risk:**      4 AaBb, 4 aaBb with homozygous or heterozygous *DLA-DRB1\*002:01*
- 0-4 aaBB with heterozygous *DLA-DRB1\*002:01*
- 0-8 moderate risk:**      0-4 aaBB with homozygous *DLA-DRB1\*002:01*
- 0-4 AaBB with heterozygous *DLA-DRB1\*002:01*
- 0-4 high risk:**      AaBB with homozygous *DLA-DRB1\*002:01*

		AaBb			
		AB	Ab	aB	ab
AAbb	Ab	<u>AABb</u>	<u>AAbb</u>	<u>AaBb</u>	<u>Aabb</u>
	Ab	<u>AABb</u>	<u>AAbb</u>	<u>AaBb</u>	<u>Aabb</u>
	Ab	<u>AABb</u>	<u>AAbb</u>	<u>AaBb</u>	<u>Aabb</u>
	Ab	<u>AABb</u>	<u>AAbb</u>	<u>AaBb</u>	<u>Aabb</u>

4 AABb: 4 AAbb: 4 AaBb: 4 Aabb

8 low risk:            4 AaBb, 4 Aabb with homozygous or heterozygous *DLA-DRB1\*002:01*

4-8 moderate risk:    4 AAbb with homozygous or heterozygous *DLA-DRB1\*002:01*  
 0-4 AABb with heterozygous *DLA-DRB1\*002:01*

0-4 high risk:        AABb with homozygous *DLA-DRB1\*002:01*

		<u>AaBb</u>			
		<b>AB</b>	<b>Ab</b>	<b>aB</b>	<b>ab</b>
<u>AaBb</u>	<b>AB</b>	AABB	<u>AABb</u>	<u>AaBB</u>	<u>AaBb</u>
	<b>Ab</b>	<u>AABb</u>	<u>AAbb</u>	<u>AaBb</u>	<u>Aabb</u>
	<b>aB</b>	<u>AaBB</u>	<u>AaBb</u>	<u>aaBB</u>	<u>aaBb</u>
	<b>ab</b>	<u>AaBb</u>	<u>Aabb</u>	<u>aaBb</u>	<u>aabb</u>

1 AABB: 2 AABb: 1 AAbb: 2 AaBB: 4 AaBb:  
2 Aabb: 1 aaBB: 2 aaBb: 1 aabb

9-10 low risk: 4 AaBb, 2 Aabb, 2 aaBb, 1 aabb with homozygous or heterozygous *DLA-DRB1\*002:01*

0-1 aaBB with heterozygous *DLA-DRB1\*002:01*

1-4 moderate risk: 1 AAbb with homozygous or heterozygous *DLA-DRB1\*002:01*

0-1 aaBB with homozygous *DLA-DRB1\*002:0*

0-2 AABb, 0-2 AaBB with heterozygous *DLA-DRB1\*002:01*

1-5 high risk: 1 AABB with homozygous or heterozygous *DLA-DRB1\*002:01*

0-2 AABb, 0-2 AaBB with homozygous *DLA-DRB1\*002:01*

## AaBb

		<b>AB</b>	<b>Ab</b>	<b><u>aB</u></b>	<b>ab</b>
<b><u>AaBB</u></b>	<b>AB</b>	AABB	<u>AABb</u>	<u>AaBB</u>	<u>AaBb</u>
	<b><u>aB</u></b>	<u>AaBB</u>	<u>AaBb</u>	<u>aaBB</u>	<u>aaBb</u>
	<b>AB</b>	AABB	<u>AABb</u>	<u>AaBB</u>	<u>AaBb</u>
	<b><u>aB</u></b>	<u>AaBB</u>	<u>AaBb</u>	<u>aaBB</u>	<u>aaBb</u>

2 AABB: 4 AaBB: 2 AABb: 4 AaBb: 2 aaBB: 2 aaBb

6-8 low risk: 4 AaBb, 2 aaBb with homozygous or heterozygous *DLA-DRB1\*002:01*

0-2 aaBB with heterozygous *DLA-DRB1\*002:01*

0-4 moderate risk: 0-2 aaBB with homozygous *DLA-DRB1\*002:01*

0-2 AABb, 0-4 AaBB with heterozygous *DLA-DRB1\*002:01*

2-8 high risk: 2 AABB with homozygous or heterozygous *DLA-DRB1\*002:01*

0-4 AaBB, 0-2 AABb with homozygous *DLA-DRB1\*002:01*

<b>AaBb</b>																	
<span style="color: red; font-weight: bold; margin-right: 20px;"><i>AB</i></span> <span style="color: blue; font-weight: bold; margin-right: 20px;"><i>Ab</i></span> <span style="color: red; font-weight: bold; margin-right: 20px;"><i>aB</i></span> <span style="color: blue; font-weight: bold;"><i>ab</i></span>																	
<b><u>AABb</u></b>	<span style="color: red; font-weight: bold;"><i>AB</i></span> <table border="1" style="border-collapse: collapse; text-align: center; width: 100%; height: 100%;"> <tr> <td style="padding: 5px;"><span style="color: red; font-weight: bold;">AABB</span></td> <td style="padding: 5px;"><span style="color: red; font-weight: bold;"><u>AABb</u></span></td> <td style="padding: 5px;"><span style="color: red; font-weight: bold;"><u>AaBB</u></span></td> <td style="padding: 5px;"><span style="color: red; font-weight: bold;"><u>AaBb</u></span></td> </tr> <tr> <td style="padding: 5px;"><span style="color: red; font-weight: bold;"><u>AABb</u></span></td> <td style="padding: 5px;"><span style="color: red; font-weight: bold;"><u>AAbb</u></span></td> <td style="padding: 5px;"><span style="color: red; font-weight: bold;"><u>AaBb</u></span></td> <td style="padding: 5px;"><span style="color: red; font-weight: bold;"><u>Aabb</u></span></td> </tr> <tr> <td style="padding: 5px;"><span style="color: red; font-weight: bold;"><i>AB</i></span></td> <td style="padding: 5px;"><span style="color: red; font-weight: bold;"><u>AABB</u></span></td> <td style="padding: 5px;"><span style="color: red; font-weight: bold;"><u>AABb</u></span></td> <td style="padding: 5px;"><span style="color: red; font-weight: bold;"><u>AaBB</u></span></td> </tr> <tr> <td style="padding: 5px;"><span style="color: red; font-weight: bold;"><i>Ab</i></span></td> <td style="padding: 5px;"><span style="color: red; font-weight: bold;"><u>AABb</u></span></td> <td style="padding: 5px;"><span style="color: red; font-weight: bold;"><u>AAbb</u></span></td> <td style="padding: 5px;"><span style="color: red; font-weight: bold;"><u>AaBb</u></span></td> </tr> </table>	<span style="color: red; font-weight: bold;">AABB</span>	<span style="color: red; font-weight: bold;"><u>AABb</u></span>	<span style="color: red; font-weight: bold;"><u>AaBB</u></span>	<span style="color: red; font-weight: bold;"><u>AaBb</u></span>	<span style="color: red; font-weight: bold;"><u>AABb</u></span>	<span style="color: red; font-weight: bold;"><u>AAbb</u></span>	<span style="color: red; font-weight: bold;"><u>AaBb</u></span>	<span style="color: red; font-weight: bold;"><u>Aabb</u></span>	<span style="color: red; font-weight: bold;"><i>AB</i></span>	<span style="color: red; font-weight: bold;"><u>AABB</u></span>	<span style="color: red; font-weight: bold;"><u>AABb</u></span>	<span style="color: red; font-weight: bold;"><u>AaBB</u></span>	<span style="color: red; font-weight: bold;"><i>Ab</i></span>	<span style="color: red; font-weight: bold;"><u>AABb</u></span>	<span style="color: red; font-weight: bold;"><u>AAbb</u></span>	<span style="color: red; font-weight: bold;"><u>AaBb</u></span>
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<span style="color: red; font-weight: bold;"><i>Ab</i></span>	<span style="color: red; font-weight: bold;"><u>AABb</u></span>	<span style="color: red; font-weight: bold;"><u>AAbb</u></span>	<span style="color: red; font-weight: bold;"><u>AaBb</u></span>														

2 AABB: 4 AABb: 2 AAbb: 2 AaBB: 4 AaBb: 2 Aabb

6 low risk:

4 AaBb, 2 Aabb with homozygous or heterozygous  
*DLA-DRB1\*002:01*

2-8 moderate risk: 2 AAbb with homozygous or heterozygous *DLA-DRB1\*002:01*

0-4 AABb, 0-2 AaBB with heterozygous *DLA-DRB1\*002:01*

2-8 high risk:

2 AABB with homozygous or heterozygous *DLA-DRB1\*002:01*

0-4 AABb, 0-2 AaBB with homozygous *DLA-DRB1\*002:01*



		AaBb			
		AB	Ab	aB	ab
AABB	AB	AABB	<u>AABb</u>	<u>AaBB</u>	<u>AaBb</u>
	AB	AABB	<u>AABb</u>	<u>AaBB</u>	<u>AaBb</u>
	AB	AABB	<u>AABb</u>	<u>AaBB</u>	<u>AaBb</u>
	AB	AABB	<u>AABb</u>	<u>AaBB</u>	<u>AaBb</u>

4 AABB: 4 AABb: 4 AaBB: 4 AaBb

4 low risk:                    AaBb with homozygous or heterozygous *DLA-DRB1\*002:01*

0-8 moderate risk:        0-4 AABb, 0-4 AaBB with heterozygous *DLA-DRB1\*002:01*

4-12 high risk:             4 AABB homozygous or heterozygous *DLA-DRB1\*002:01*

0-4 AABb, 0-4 AaBB with homozygous *DLA-DRB1\*002:01*