

Diagnostic implications of the cross reactivity among scabies and hypersensitivity (IgE) to house dust and storage mites in the dog

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INTRODUCTION

Some of the proteins contained in *Sarcoptes scabiei* exhibit increased antibody binding to proteins with similar molecular weights in house dust mite extracts. Cross-reactivity between scabies and house dust and storage mites has been already reported in humans and dogs¹⁻³.

OBJECTIVE

The aim of this study was to further explore the cross reactivity of antibodies against *Sarcoptes* and of antibodies against house dust and storage mites in the dog, and the diagnostic implications of this cross reactivity.

MATERIALS AND METHODS

Sera of 20 dogs clinically diagnosed with scabies and with positive IgG serologic test (Afosa GmbH, Germany), were tested for the presence of specific IgEs (Greer Laboratories, USA) against *D. farinae*, *D. pteronyssinus* and *T. putrescentiae*.

Similarly, sera of 20 dogs with a sound clinical diagnosis of atopic dermatitis and serum positive results against the same mites (specific IgE, Greer), were tested for anti-*Sarcoptes scabiei* IgG antibodies.

Finally, sera of 20 healthy dogs without presence of IgEs specific against *D. farinae*, *D. pteronyssinus* and *T. putrescentiae* were tested for the presence of IgGs against *S. scabiei*.

RESULTS

Fifteen of the 20 dogs (75%) with positive scabies IgG serologic test were also positive to the tested allergy mites. However, in healthy dogs without scabies only nine of 20 dogs (45%) were positive against mites.

Dogs (n=20) with clinical diagnosis of atopic dermatitis and compatible serology and healthy dogs (n=20) without IgE against allergy mites, were negative for anti-*Sarcoptes scabiei* IgG antibodies.

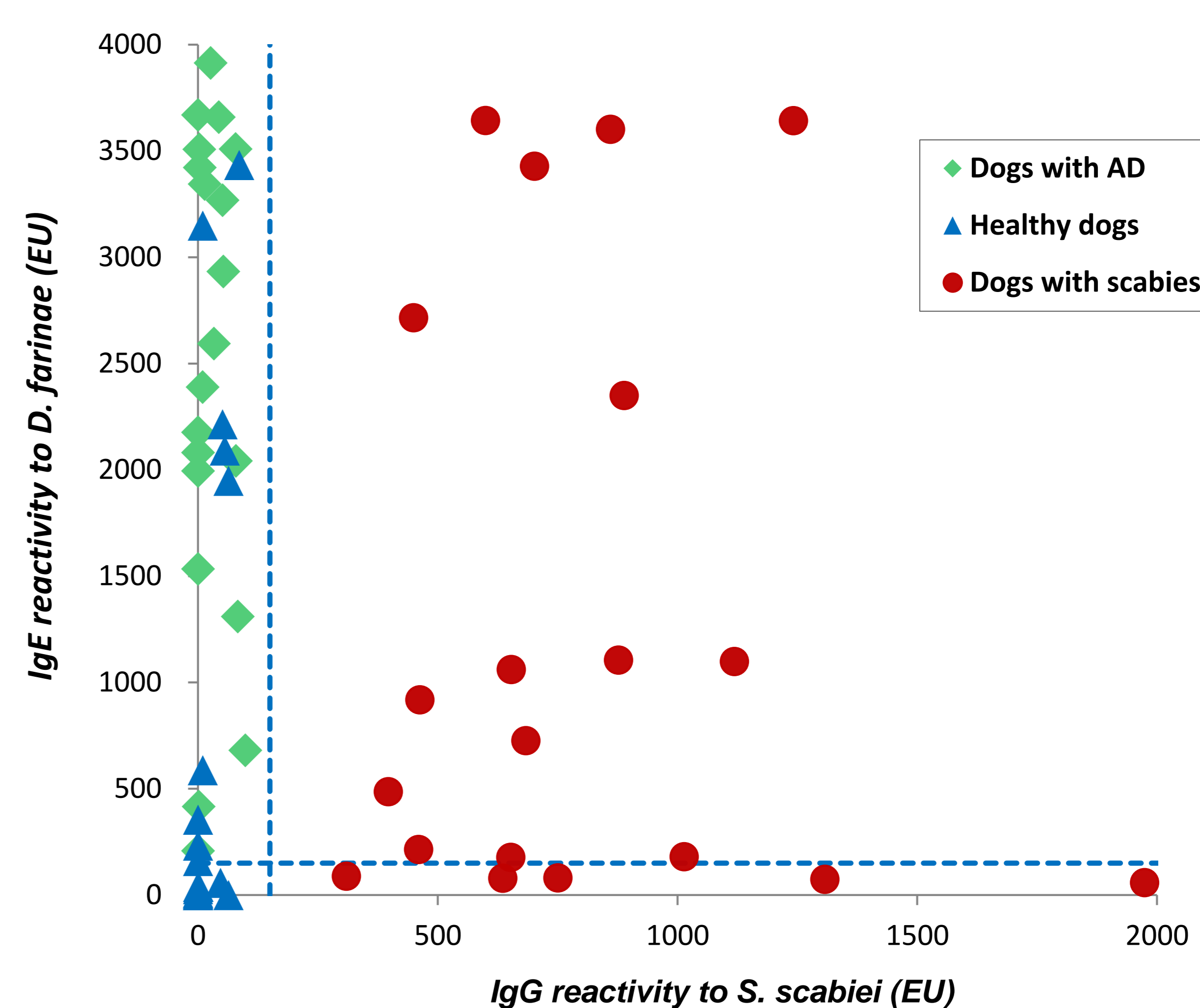


Figure 1. IgE and IgG reactivity to *D. farinae* and *S. scabiei* var. *canis*, respectively. Dotted lines show cut-off levels for both tests at 150 EU.

Table 1: IgG reactivity to *S. scabiei* and IgE reactivity to *D. farinae*, *D. pteronyssinus* and *T. putrescentiae* in dogs with diagnosis of scabies (A), atopic dermatitis (B) and control dogs (A' and B'). Values were expressed in Elisa Units (EU).

A	<i>S. scabiei</i>	<i>D. farinae</i>	<i>T. putrescentiae</i>	<i>D. pteronyssinus</i>	B	<i>D. farinae</i>	<i>T. putrescentiae</i>	<i>D. pteronyssinus</i>	<i>S. scabiei</i>									
	684	726	194	420		3914	3985	282	neg	681	196	331	neg					
1974	58	85	66	208	167	87	neg	3268	2622	328	neg							
1014	180	114	97	2389	2750	641	neg	2933	2406	131	neg							
889	2349	1060	183	2594	3548	96	neg	3508	3555	1194	neg							
861	3601	3602	2171	3199	3344	3437	neg	3199	3344	3437	neg							
1308	73	68	109	3813	3669	3485	neg	820	1534	1427	neg							
1242	3641	3682	2262	92	417	736	neg	3317	3224	2261	neg							
877	1104	998	1039	3024	3659	3685	neg	480	3509	594	neg							
654	1060	468	146	3907	3894	3905	neg	3249	3422	3396	neg							
636	78	68	98	1443	2042	1797	neg	1443	2042	1797	neg							
600	3642	2870	1013	1519	1995	1944	neg	185	2081	1214	neg							
450	2715	2015	165	43	81	85	neg	62	86	35	neg							
751	80	71	228	44	19	46	neg	0	11	0	neg							
1119	1098	703	548	74	117	0	neg	23	64	32	neg							
702	3427	1656	233	23	64	32	neg	125	118	52	neg							
463	917	451	200	10	28	10	neg	10	28	10	neg							
460	214	133	54	80	70	69	neg	36	18	49	neg							
310	89	34	103	139	127	92	neg	30	15	37	neg							
397	486	492	166	0	10	29	neg	50	11	54	neg							
653	177	76	40	15	0	49	neg	18	47	21	neg							
75% +					0% +					A'								
										neg	2214	855	574	0% +				
										neg	2091	820	302					
										neg	28	40	36					
										neg	3434	2954	456					
										neg	160	151	59					
										neg	58	82	83					
										neg	12	38	24					
										neg	10	36	55					
										neg	38	76	57					
neg	6	32	12															
45% +					0% +					B'								
										neg	587	534	48	0% +				
										neg	39	70	50					
										neg	3148	1121	1392					
										neg	4	23	12					
										neg	4	30	12					
										neg	233	162	111					
										neg	0	48	29					
										neg	355	301	165					
										neg	0	35	0					
neg	1948	837	147															

House dust/storage mite cut-off (positive ≥ 150)
Sarcoptes cut-off (positive >150 ; inconclusive 100-150; negative <100)

CONCLUSIONS

- (1) The detection of specific IgEs for house dust/storage mites should not be used as a diagnostic test for atopic dermatitis.
- (2) The IgE test should not be performed until scabies have been completely ruled out and the dog has been clinically diagnosed with atopic dermatitis.
- (3) The used test to detect IgGs antibodies against *Sarcoptes* is a useful and specific tool to diagnose scabies in, even in atopic dogs.

References

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