

MV: Multiple linear regression																																																																													
Dependent variable		IgM anti-ACT																IgM anti-DNA																IgM anti-TNP																IgM anti-LPS																											
Regression type		Least squares																																																																											
Analysis of Variance		SS	DF		MS	F (DFn, DFd)	P value										SS	DF		MS	F (DFn, DFd)	P value										SS	DF		MS	F (DFn, DFd)	P value																																								
Regression		272185	12		22682	F (12, 28) = 136.9	P<0.0001										271972	12		22656	F (12, 28) = 128.1	P<0.0001										271962	12		22663	F (12, 28) = 130.5	P<0.0001										272361	12		22772	F (12, 28) = 178.9	P<0.0001																									
Residual		4640	28		165.7													4953	28		176.9													4864	28		173.7													3565	28		127.3																								
Total		276826	40																		276826	40																		276826	40																		276826	40																	
Parameter estimates		Estimate	Standard error		95% CI (asymptotic)	t	P value	P value summary	Estimate	Standard error		95% CI (asymptotic)	t	P value	P value summary	Estimate	Standard error		95% CI (asymptotic)	t	P value	P value summary	Estimate	Standard error		95% CI (asymptotic)	t	P value	P value summary	Estimate	Standard error		95% CI (asymptotic)	t	P value	P value summary																																									
j0		Intercept	301.9	13.36	274.6 to 329.3	22.61	<0.0001	****	314.9	23.03		267.7 to 362.0	13.67	<0.0001	****	296.7	18.11		259.6 to 333.8	16.38	<0.0001	****	280.7	10.54		259.1 to 302.3	26.64	<0.0001	****	280.7	10.54		259.1 to 302.3	26.64	<0.0001	****																																									
j1		IgM ACT	7.008	15.46	-24.67 to 38.68	0.4532	0.6539	ns	-6.97	20.21		-48.36 to 34.42	0.3449	0.7327	ns	10.58	16.89		-24.03 to 45.18	0.6261	0.5363	ns	29.07	9.745		8.103 to 49.03	2.982	0.0059	**	29.07	9.745		8.103 to 49.03	2.982	0.0059	**																																									
j2		Season[3]	16.05	13	-11.58 to 41.68	1.158	0.2568	ns	6.046	18.27		-31.39 to 50.15	0.3309	0.7432	ns	16.89	16.24		-16.39 to 50.15	1.04	0.3073	ns	22.99	10.57		1.339 to 44.64	2.175	0.0382	*	22.99	10.57		1.339 to 44.64	2.175	0.0382	*																																									
j3		Season[1]	15.16	30.8	-47.84 to 78.25	0.492	0.6265	ns	17.721	37.28		-76.57 to 112.69	0.2861	0.7844	ns	-12.44	31.31		-76.57 to 112.69	0.3973	0.6941	ns	10.45	20.91		-20.91 to 44.55	0.491	0.6276	ns	10.45	20.91		-20.91 to 44.55	0.491	0.6276	ns																																									
j4		Season[2]	12.28	19.97	-28.63 to 53.19	0.6149	0.5436	ns	8.325	22.54		-37.86 to 54.51	0.3693	0.7147	ns	21.98	18		-14.89 to 58.85	1.221	0.2321	ns	3.33	12.69		1.302 to 59.31	2.624	0.0139	*	3.33	12.69		1.302 to 59.31	2.624	0.0139	*																																									
j5		Breed[1]	-184.6	15.15	-215.6 to -153.6	12.18	<0.0001	****	-181.3	21.06		-224.4 to -138.1	8.607	<0.0001	****	-173.7	19.32		-213.3 to -134.2	8.993	<0.0001	****	-157.9	12.89		-184.6 to -131.3	12.15	<0.0001	****	-157.9	12.89		-184.6 to -131.3	12.15	<0.0001	****																																									
j6		IgM ACT - Season[3]	-9.313	11.81	-33.50 to 14.87	0.7888	0.4369	ns	-1.165	14.42		-28.38 to 30.71	0.08079	0.9362	ns	-9.193	13.18		-36.19 to 17.81	0.6975	0.4913	ns	-11.46	8.747		-29.38 to 6.455	1.31	0.2007	ns	-11.46	8.747		-29.38 to 6.455	1.31	0.2007	ns																																									
j7		IgM ACT - Season[1]	-8.011	18.72	-46.35 to 30.33	0.428	0.6719	ns	7.212	18.72		-31.51 to 45.95	0.3816	0.7057	ns	6.381	18.65		-31.51 to 45.95	0.3411	0.7365	ns	-27.03	11.37		-50.31 to -3.754	2.379	0.0244	*	-27.03	11.37		-50.31 to -3.754	2.379	0.0244	*																																									
j8		IgM ACT - Season[2]	-5.784	17.17	-40.95 to 29.38	0.3369	0.7387	ns	2.051	15.1		-28.87 to 32.97	0.1358	0.8929	ns	-13.22	14.53		-42.88 to 16.54	0.9097	0.3707	ns	-27.03	11.37		-50.31 to -3.754	2.379	0.0244	*	-27.03	11.37		-50.31 to -3.754	2.379	0.0244	*																																									
j9		IgM ACT - Breed[1]	9.091	12.87	-17.48 to 35.66	0.7009	0.4892	ns	12.49	17.24		-22.82 to 47.81	0.7247	0.4746	ns	0.394	14.78		-29.86 to 30.67	0.02666	0.9789	ns	-17.7	8.443		-37.46 to 2.051	1.836	0.077	ns	-17.7	8.443		-37.46 to 2.051	1.836	0.077	ns																																									
j10		Season[3] - Breed[1]	-1.035	14.05	-29.81 to 27.74	0.0737	0.9418	ns	-9.821	13.68		-37.94 to 18.10	0.7254	0.4743	ns	-1.821	14.68		-31.90 to 28.26	0.124	0.9022	ns	-4.381	13.37		-31.98 to 22.60	0.3427	0.7344	ns	-4.381	13.37		-31.98 to 22.60	0.3427	0.7344	ns																																									
j11		Season[1] - Breed[1]	4.84	18.67	-33.41 to 43.09	0.2592	0.7974	ns	-7.894	21		-50.90 to 35.12	0.3759	0.7098	ns	6.694	19.6		-33.45 to 46.84	0.3416	0.7352	ns	12.11	12.89		-14.30 to 38.51	0.9394	0.3555	ns	12.11	12.89		-14.30 to 38.51	0.9394	0.3555	ns																																									
j12		Season[2] - Breed[1]	-12.04	19.29	-51.56 to 27.48	0.6242	0.5375	ns	-20.05	15.91		-52.65 to 12.54	1.26	0.218	ns	-3.241	15.4		-34.79 to 28.31	0.2104	0.8349	ns	6.779	13.11		-20.08 to 33.64	0.5169	0.6093	ns	6.779	13.11		-20.08 to 33.64	0.5169	0.6093	ns																																									
Goodness of Fit																																																																													
Degrees of Freedom		28							28							28							28																																																						
R squared		0.9832							0.9821							0.9824							0.9821																																																						
Multicollinearity		Variable	VIF	R2 with other variables															VIF	R2 with other variables															VIF	R2 with other variables																																									
j0		Intercept																																																																											
j1		IgM ACT	18.11	0.9448					25.47	0.9607						18.28	0.9453																																																												
j2		Season[3]	8.654	0.8844					16.02	0.9376						12.89	0.9224																																																												
j3		Season[1]	29.33	0.9659					40.25	0.9752						28.9	0.9654																																																												
j4		Season[2]	19.37	0.9484					23.12	0.9568						19.12	0.9534																																																												
j5		Breed[1]	12.77	0.9217					23.11	0.9567						19.81	0.9495																																																												
j6		IgM ACT - Season[3]	14.9	0.9329					25.6	0.9609						21.98	0.9545																																																												
j7		IgM ACT - Season[1]	26.26	0.9619					37.84	0.9736						36.6	0.9727																																																												
j8		IgM ACT - Season[2]	49.12	0.9778					39.87	0.9749						26.27	0.9619																																																												
j9		IgM ACT - Breed[1]	31.12	0.9679					59.47	0.9832						42.51	0.9765																																																												
j10		Season[3] - Breed[1]	7.867	0.8696					8.808	0.8531						7.991	0.8749																																																												
j11		Season[1] - Breed[1]	7.596	0.8883					8.996	0.8888						7.981	0.8747																																																												
j12		Season[2] - Breed[1]	13.04	0.9233					8.308	0.8796						7.927	0.8739																																																												
Normality of Residuals		Statistics	P value	Passed normality test (alpha=0.05)?	P value summary													Statistics	P value	Passed normality test (alpha=0.05)?	P value summary													Statistics	P value	Passed normality test (alpha=0.05)?	P value summary																																								
Anderson-Darling (A2*)		0.1794	0.9111	Yes	ns	0.1749	0.8436	Yes	ns	0.1798	0.9106	Yes	ns	0.1798	0.9106	Yes	ns	0.1798	0.9106	Yes	ns	0.3269	0.5096	Yes	ns	0.3269	0.5096	Yes	ns	0.3269	0.5096	Yes	ns	0.3269	0.5096	Yes	ns																																								
D'Agostino-Pearson omnibus (K2)		0.0179	0.853	Yes	ns	0.0159	0.8539	Yes	ns	0.0599	0.9705	Yes	ns	0.0599	0.9705	Yes	ns	0.0599	0.9705	Yes	ns	3.213	0.2006	Yes	ns	3.213	0.2006	Yes	ns	3.213	0.2006	Yes	ns	3.213	0.2006	Yes	ns																																								
Shapiro-Wilk (W)		0.9829	0.7847	Yes	ns	0.9843	0.834	Yes	ns	0.9901	0.9739	Yes	ns	0.9901	0.9739	Yes	ns	0.9901	0.9739	Yes	ns	0.9786	0.621	Yes	ns	0.9786	0.621	Yes	ns	0.9786	0.621	Yes	ns	0.9786	0.621	Yes	ns																																								
Kolmogorov-Smirnov (distance)		0.05836	>0.1000	Yes	ns	0.08846	>0.1000	Yes	ns	0.07953	>0.1000	Yes	ns	0.07953	>0.1000	Yes	ns	0.07953	>0.1000	Yes	ns	0.08465	>0.1000	Yes	ns	0.08465	>0.1000	Yes	ns	0.08465	>0.1000	Yes	ns	0.08465	>0.1000	Yes	ns																																								
Rows in table		45				45			45			45		45		45		45		45		45		45		45		45		45		45		45																																											
Rows skipped (missing data)		4				4			4			4		4		4		4		4		4		4		4		4		4		4		4																																											
Rows analyzed (if cases)		41				41			41			41		41		41		41		41		41		41		41		41		41		41		41																																											
Number of parameter estimates		13				13			13			13		13		13		13		13		13		13		13		13		13		13		13																																											
#cases/#parameters		3.2				3.2			3.2			3.2		3.2		3.2		3.2		3.2		3.2		3.2		3.2		3.2		3.2		3.2		3.2																																											

MV: Multiple linear regression																								
Dependent variable		EPEF																						
Regression type		Least squares																						
Analysis of Variance		SS	DF	MS	F (DFn, DFd)	P value																		
Regression		272859	12	22738	F (12, 28) = 160.5	P<0.0001	272777	12	22731	F (12, 28) = 157.2	P<0.0001	273149	12	22762	F (12, 28) = 173.3	P<0.0001	273145	12	22762	F (12, 28) = 173.1	P<0.0001			
Residual		2867	28	102.4																				
Total		276826	40																					
Parameter estimates		Variable	Estimate	Standard error	95% CI (asymptotic)	t	P value	P value summary	Estimate	Standard error	95% CI (asymptotic)	t	P value	P value summary	Estimate	Standard error	95% CI (asymptotic)	t	P value	P value summary				
j0		Intercept	269	14.51	239.3 to 298.7	18.53	<0.0001	****	247.4	26.26	193.7 to 301.2	9.423	<0.0001	****	275.4	11.39	252.1 to 298.8	24.17	<0.0001	****				
j1		IgY ACT	26.21	9.069	7.633 to 44.79	2.89	0.0074	**	40.58	17.35	5.049 to 76.12	2.339	0.0297	*	36.23	11.22	13.25 to 59.21	3.23	0.0032	**				
j2		Season[3]	35.2	17.05	0.2767 to 70.12	2.065	0.0483	*	50.83	27.52	-5.543 to 107.2	1.847	0.0793	ns	33.38	13.65	5.423 to 61.34	2.446	0.021	*				
j3		Season[1]	47.84	20.31	6.235 to 89.45	2.365	0.0267	*	25.67	57.04	-142.4 to 91.27	0.4483	0.6574	ns	13.37	23.09	-33.92 to 60.66	0.5782	0.5671	ns				
j4		Season[2]	33.66	17.02	-1.211 to 68.53	1.977	0.0579	ns	32.04	29.91	-29.23 to 93.31	1.071	0.2933	ns	12.75	16.67	-21.40 to 48.90	0.7647	0.4509	ns				
j5		Breed[1]	-151.6	14.86	-182.0 to -121.2	10.2	<0.0001	****	-118.7	24.5	-168.9 to -68.54	4.846	<0.0001	****	-142.8	11.89	-167.2 to -118.5	12.01	<0.0001	****				
j6		IgY ACT - Season[3]	-16.78	11.69	-40.72 to 7.152	1.436	0.162	ns	-26.87	19.9	-67.63 to 13.90	1.35	0.1878	ns	-28.89	11.94	-54.36 to -3.434	2.503	0.0184	*				
j7		IgY ACT - Season[1]	-27.05	11.48	-50.56 to -3.545	2.367	0.0266	*	1.348	28.86	-54.13 to 60.82	0.1193	0.9059	ns	-17.43	16.55	-51.34 to 16.48	1.053	0.3015	ns				
j8		IgY ACT - Season[2]	-16.99	10.29	-38.06 to 4.081	1.652	0.1098	ns	-19.39	18.37	-57.01 to 18.24	1.056	0.3002	ns	-10.16	14.56	-39.99 to 19.68	0.6973	0.4914	ns				
j9		IgY ACT - Breed[1]	-10.52	8.665	-28.27 to 7.234	1.214	0.235	ns	-27.09	10.51	-48.62 to -5.554	1.411	0.1691	ns	-27.09	10.51	-48.62 to -5.554	2.577	0.0158	*				
j10		Season[3] - Breed[1]	-10.21	10.74	-32.20 to 11.79	0.9607	0.3409	ns	-14.26	10.21	-36.78 to 9.2612	1.406	0.1652	ns	-14.26	10.21	-36.78 to 9.2612	0.4259	0.6705	ns				
j11		Season[1] - Breed[1]	-1.615	12.98	-28.20 to 24.97	0.1245	0.9018	ns	-25.23	32.08	-40.49 to 90.95	0.7864	0.4382	ns	-10.58	14.33	-38.78 to 36.94	0.7381	0.4669	ns				
j12		Season[2] - Breed[1]	-11.25	10.55	-32.87 to 10.36	1.067	0.2953	ns	-20.71	15.13	-51.89 to 10.27	1.369	0.1818	ns	-6.589	10.21	-27.49 to 14.31	0.6457	0.5238	ns				
Goodness of Fit																								
Degrees of Freedom		28																						
R squared		0.9857																						
Multicollinearity		Variable	VIF	R2 with other variables																				
j0		Intercept																						
j1		IgY ACT	5.747	0.826																				
j2		Season[3]	17.41	0.9426																				
j3		Season[1]	14.91	0.933																				
j4		Season[2]	16.46	0.9392																				
j5		Breed[1]	14.37	0.9324																				
j6		IgY ACT - Season[3]	49.05	0.928																				
j7		IgY ACT - Season[1]	63.76	0.9073																				
j8		IgY ACT - Season[2]	16.16	0.9381																				
j9		IgY ACT - Breed[1]	13.5	0.9259																				
j10		Season[3] - Breed[1]	5.244	0.8953																				
j11		Season[1] - Breed[1]	4.292	0.767																				
j12		Season[2] - Breed[1]	4.561	0.7807																				
Normality of Residuals		Statistics	P value	Passed normality test (alpha=0.05)?																				
Anderson-Darling (A2*)		2.2539	0.7153	Yes	ns	Statistics															0.4252	0.2523	Yes	ns
D'Agostino-Pearson omnibus (K2)		0.9589	0.7726	Yes	ns	Statistics															0.8392	0.6573	Yes	ns
Shapiro-Wilk (W)		0.9164	0.8971	Yes	ns	Statistics															0.9822	0.7575	Yes	ns
Kolmogorov-Smirnov (distance)		0.1093	>0.1000	Yes	ns	Statistics															0.07879	>0.1000	Yes	ns
Rows in table		45																						
Rows skipped (missing data)		4																						
Rows analyzed (if cases)		41																						
Number of parameter estimates		13																						
#cases/parameters		3.2																						