



V A R

Veterinary and Agrochemical Research Centre

Groeselenberg 99 – B 1180 Brussels (Ukkel)

Tel: +32 (0)2 379 04 11

Fax : + 32 (0)2 379 06 70

[http:// www.var.fgov.be](http://www.var.fgov.be)



172-TEST

(ISO 43-1)

PROFICIENCY-TESTING 2007

*Infectious Bovine Rhinotracheitis (IBR)
Detection of gE-specific antibodies in serum*

COORDINATION CENTRE FOR VETERINARY DIAGNOSTICS

DATE ILT: 23-24 APRIL 2007

DATE REPORT: 21 MAY 2007

I. Introduction

Details relevant to the proficiency-test are available in the Procedure PRO/6.5/01 'Beheer van de interlaboratoriumproeven / Gestion des essais interlaboratoires'.

II. Aim

This proficiency-test, which is focusing on the detection of specific gE antibodies against Infectious Bovine Rhinotracheitis in serum, aims to assess the analytical accuracy of tests conducted by participants.

III. Material and methods

III.1. Conduct of diagnostic tests

In the framework of this proficiency-test, reference serum samples containing or free from gE-specific antibodies against Infectious Bovine Rhinotracheitis must be tested by means of a gE-specific blocking ELISA test. The procedure for this gE-ELISA test must be fully described in the SOPs of the participating laboratories.

III.2. Reference samples

Replicates of eleven reference serums either free from detectable gE-specific antibodies against Infectious Bovine Rhinotracheitis (n = 4; coded 'ILT07-IBRNS2', 'ILT07-IBRNS3', 'ILT07-IBRNS4', and 'ILT07-IBRNS5') or containing detectable gE-specific antibodies against Infectious Bovine Rhinotracheitis (n = 7; coded 'ILT07-IBRPS1', 'ILT07-IBRPS2', 'ILT07-IBRPS3', 'ILT07-IBRPS4', 'ILT07-IBRPS5', 'ILT07-IBRPS6', and 'ILT07-IBRPS7') were used. In total 150 aliquots were sent to the participating laboratories. Before the start of the proficiency-test these eleven reference serums were tested 10 times by the reference laboratory of the Veterinary and Agrochemical Research Centre (VAR) and the validated results were issued between 16 February 2007 and 20 April 2007, i.e., before the start of the proficiency-test. On all occasions, the reference serums encoded 'ILT07-IBRNS2', 'ILT07-IBRNS3', 'ILT07-IBRNS4', and 'ILT07-IBRNS5' scored 'Negative' (absence of detectable gE antibodies against Infectious Bovine Rhinotracheitis) and the reference serums encoded 'ILT07-IBRPS1', 'ILT07-IBRPS2', 'ILT07-IBRPS3', 'ILT07-IBRPS4', 'ILT07-IBRPS5', 'ILT07-IBRPS6', and 'ILT07-IBRPS7' scored 'Positive' (presence of detectable gE antibodies against Infectious Bovine Rhinotracheitis). Consequently, these reference serums were considered as reliable samples to evaluate the absence or presence of gE-specific antibodies against Infectious Bovine Rhinotracheitis in serum of bovine origin.

III.3. Classification of results, levels of agreement and threshold for qualification

III.3.1. Classification of results

Results provided by the participating laboratories are categorized as *success* (positive result when the reference sample is truly positive, negative result when the reference sample is truly negative, non-interpretable result when the reference sample is truly non-interpretable) or *failure* (positive result when the reference sample is truly negative or non-interpretable, negative result when the reference sample is truly positive or non-interpretable, non-interpretable result when the reference sample is truly negative or positive).

III.3.2. Levels of agreement

The levels of agreement achieved by the participating laboratories are expressed as the percentages of successes for all 30 samples carried out for this proficiency-test.

III.3.3. Threshold for qualification

Following the procedure, a participating laboratory is only qualified if the level of agreement is at least 90%.

IV. Results

For confidentiality reasons, the participating laboratories are quoted anonymously and the concordance table is safely kept at the Coordination Centre for Veterinary Diagnostics (CCVD) of the Veterinary and Agrochemical Research Centre (VAR).

IV.1. Reference samples

IV.1.1. Allocation of samples to participating laboratories

All participating laboratories were given:

- i. 12 aliquots of reference serum samples free from detectable gE-specific antibodies against Infectious Bovine Rhinotracheitis: ILT07-IBRNS2 samples (n = 2), ILT07-IBRNS3 samples (n = 4), ILT07-IBRNS4 samples (n = 3), and ILT07-IBRNS5 samples (n = 3)
- ii. 18 aliquots of reference serum samples containing detectable gE-specific antibodies against Infectious Bovine Rhinotracheitis: ILT07-IBRPS1 samples (n = 4), ILT07-IBRPS2 samples (n = 2), ILT07-IBRPS3 samples (n = 2), ILT07-IBRPS4 samples (n = 2), ILT07-IBRPS5 samples (n = 2), ILT07-IBRPS6 samples (n = 4), and ILT07-IBRPS7 samples (n = 2)

IV.1.2. Transfer and start of the analyses

The 30 aliquots of reference samples were sent on 23 April 2007 to each of the five participating laboratories (150 aliquots in total). The five laboratories acknowledged receipt of the samples on the same day. The analyses were carried out on 23 (LAB3), 24 (LAB4) and 25 (LAB1, LAB2, and LAB5) April 2007.

IV.2. Dates at which results were returned to the CCVD

Results from participating laboratories have been received on 25 (LAB3), 26 (LAB1, and LAB4) and 27 (LAB2, and LAB5) April 2007.

IV.3. Compliance with the procedure

All participating laboratories have provided a duly dated and signed copy of the results.

IV.4. Levels of agreement

Four participating laboratories have reached 100% of agreement for the detection of specific detectable gE antibodies against Infectious Bovine Rhinotracheitis (Table 1). One participating laboratory reached only 96.7% of agreement for the detection of specific detectable gE antibodies against Infectious Bovine Rhinotracheitis (Table 1).

Table 1. Outcome of the assessment of Infectious Bovine Rhinotracheitis reference serum samples: Agreement between results generated by the participating laboratories (LABNR) and the status of reference samples as determined by repeated screening of samples free from detectable gE-specific antibodies against Infectious Bovine Rhinotracheitis ('ILT07-IBRNS2', 'ILT07-IBRNS3', 'ILT07-IBRNS4', and 'ILT07-IBRNS5') or containing detectable gE-specific antibodies against Infectious Bovine Rhinotracheitis ('ILT07-IBRPS1', 'ILT07-IBRPS2', 'ILT07-IBRPS3', 'ILT07-IBRPS4', 'ILT07-IBRPS5', 'ILT07-IBRPS6', and 'ILT07-IBRPS7'). The purpose of the proficiency-test is to determine the presence/absence of detectable gE-specific antibodies against Infectious Bovine Rhinotracheitis in reference serums.

Success while screening the samples (0 = Failure, 1 = Success)					
Variable	LABNR				
	1 (N=30)	2 (N=30)	3 (N=30)	4 (N=30)	5 (N=30)
	N (%)	N (%)	N (%)	N (%)	N (%)
0	0 (0.0)	0 (0.0)	0 (0.0)	1 (3.3)	0 (0.0)
1	30 (100.)	30 (100.)	30 (100.)	29 (96.7)	30 (100.)

IV.5. Variability among participating laboratories

The responses of the five participating laboratories that provided their results for Infectious Bovine Rhinotracheitis reference serum are displayed in Table 2.

Table 2. The responses (RESULT) of the participating laboratories (LABNR) with the identification (SAMPLE) of the reference serum samples, the position (LABPOSIT) of the reference serum samples in the block, and the results (STATUS) obtained by repeated screening. Reference samples include samples free from detectable gE-specific antibodies against Infectious Bovine Rhinotracheitis ('ILT07-IBRNS2', 'ILT07-IBRNS3', 'ILT07-IBRNS4', and 'ILT07-IBRNS5') or containing detectable gE-specific antibodies against Infectious Bovine Rhinotracheitis ('ILT07-IBRPS1', 'ILT07-IBRPS2', 'ILT07-IBRPS3', 'ILT07-IBRPS4', 'ILT07-IBRPS5', 'ILT07-IBRPS6', and 'ILT07-IBRPS7').

	LABNR	LABPOSIT	SAMPLE	STATUS	RESULT	SUCCESS
1	1	1	ILT07-IBRPS1	POS	POS	1
2	1	2	ILT07-IBRPS4	POS	POS	1
3	1	3	ILT07-IBRNS5	NEG	NEG	1
4	1	4	ILT07-IBRNS2	NEG	NEG	1
5	1	5	ILT07-IBRNS3	NEG	NEG	1
6	1	6	ILT07-IBRPS1	POS	POS	1
7	1	7	ILT07-IBRPS2	POS	POS	1
8	1	8	ILT07-IBRPS6	POS	POS	1
9	1	9	ILT07-IBRPS3	POS	POS	1
10	1	10	ILT07-IBRPS5	POS	POS	1
11	1	11	ILT07-IBRNS3	NEG	NEG	1
12	1	12	ILT07-IBRPS7	POS	POS	1
13	1	13	ILT07-IBRPS6	POS	POS	1
14	1	14	ILT07-IBRNS4	NEG	NEG	1
15	1	15	ILT07-IBRNS4	NEG	NEG	1
16	1	16	ILT07-IBRPS6	POS	POS	1
17	1	17	ILT07-IBRPS7	POS	POS	1
18	1	18	ILT07-IBRNS5	NEG	NEG	1
19	1	19	ILT07-IBRPS1	POS	POS	1
20	1	20	ILT07-IBRNS3	NEG	NEG	1
21	1	21	ILT07-IBRPS2	POS	POS	1
22	1	22	ILT07-IBRPS5	POS	POS	1
23	1	23	ILT07-IBRNS2	NEG	NEG	1
24	1	24	ILT07-IBRPS3	POS	POS	1
25	1	25	ILT07-IBRNS4	NEG	NEG	1
26	1	26	ILT07-IBRPS1	POS	POS	1
27	1	27	ILT07-IBRPS6	POS	POS	1
28	1	28	ILT07-IBRNS3	NEG	NEG	1
29	1	29	ILT07-IBRNS5	NEG	NEG	1
30	1	30	ILT07-IBRPS4	POS	POS	1

(CONTINUED)

	LABNR	LABPOSIT	SAMPLE	STATUS	RESULT	SUCCESS
31	2	1	ILT07-IBRPS1	POS	POS	1
32	2	2	ILT07-IBRPS6	POS	POS	1
33	2	3	ILT07-IBRNS3	NEG	NEG	1
34	2	4	ILT07-IBRNS5	NEG	NEG	1
35	2	5	ILT07-IBRPS4	POS	POS	1
36	2	6	ILT07-IBRPS1	POS	POS	1
37	2	7	ILT07-IBRPS4	POS	POS	1
38	2	8	ILT07-IBRNS5	NEG	NEG	1
39	2	9	ILT07-IBRNS2	NEG	NEG	1
40	2	10	ILT07-IBRNS3	NEG	NEG	1
41	2	11	ILT07-IBRPS1	POS	POS	1
42	2	12	ILT07-IBRPS2	POS	POS	1
43	2	13	ILT07-IBRPS6	POS	POS	1
44	2	14	ILT07-IBRPS3	POS	POS	1
45	2	15	ILT07-IBRPS5	POS	POS	1
46	2	16	ILT07-IBRNS3	NEG	NEG	1
47	2	17	ILT07-IBRPS7	POS	POS	1
48	2	18	ILT07-IBRPS6	POS	POS	1
49	2	19	ILT07-IBRNS4	NEG	NEG	1
50	2	20	ILT07-IBRNS4	NEG	NEG	1
51	2	21	ILT07-IBRPS6	POS	POS	1
52	2	22	ILT07-IBRPS7	POS	POS	1
53	2	23	ILT07-IBRNS5	NEG	NEG	1
54	2	24	ILT07-IBRPS1	POS	POS	1
55	2	25	ILT07-IBRNS3	NEG	NEG	1
56	2	26	ILT07-IBRPS2	POS	POS	1
57	2	27	ILT07-IBRPS5	POS	POS	1
58	2	28	ILT07-IBRNS2	NEG	NEG	1
59	2	29	ILT07-IBRPS3	POS	POS	1
60	2	30	ILT07-IBRNS4	NEG	NEG	1

(CONTINUED)

	LABNR	LABPOSIT	SAMPLE	STATUS	RESULT	SUCCESS
61	3	1	ILT07-IBRPS2	POS	POS	1
62	3	2	ILT07-IBRPS5	POS	POS	1
63	3	3	ILT07-IBRNS2	NEG	NEG	1
64	3	4	ILT07-IBRPS3	POS	POS	1
65	3	5	ILT07-IBRNS4	NEG	NEG	1
66	3	6	ILT07-IBRPS1	POS	POS	1
67	3	7	ILT07-IBRPS6	POS	POS	1
68	3	8	ILT07-IBRNS3	NEG	NEG	1
69	3	9	ILT07-IBRNS5	NEG	NEG	1
70	3	10	ILT07-IBRPS4	POS	POS	1
71	3	11	ILT07-IBRPS1	POS	POS	1
72	3	12	ILT07-IBRPS4	POS	POS	1
73	3	13	ILT07-IBRNS5	NEG	NEG	1
74	3	14	ILT07-IBRNS2	NEG	NEG	1
75	3	15	ILT07-IBRNS3	NEG	NEG	1
76	3	16	ILT07-IBRPS1	POS	POS	1
77	3	17	ILT07-IBRPS2	POS	POS	1
78	3	18	ILT07-IBRPS6	POS	POS	1
79	3	19	ILT07-IBRPS3	POS	POS	1
80	3	20	ILT07-IBRPS5	POS	POS	1
81	3	21	ILT07-IBRNS3	NEG	NEG	1
82	3	22	ILT07-IBRPS7	POS	POS	1
83	3	23	ILT07-IBRPS6	POS	POS	1
84	3	24	ILT07-IBRNS4	NEG	NEG	1
85	3	25	ILT07-IBRNS4	NEG	NEG	1
86	3	26	ILT07-IBRPS6	POS	POS	1
87	3	27	ILT07-IBRPS7	POS	POS	1
88	3	28	ILT07-IBRNS5	NEG	NEG	1
89	3	29	ILT07-IBRPS1	POS	POS	1
90	3	30	ILT07-IBRNS3	NEG	NEG	1

(CONTINUED)

	LABNR	LABPOSIT	SAMPLE	STATUS	RESULT	SUCCESS
91	4	1	ILT07-IBRPS6	POS	POS	1
92	4	2	ILT07-IBRPS7	POS	POS	1
93	4	3	ILT07-IBRNS5	NEG	NEG	1
94	4	4	ILT07-IBRPS1	POS	POS	1
95	4	5	ILT07-IBRNS3	NEG	NEG	1
96	4	6	ILT07-IBRPS2	POS	POS	1
97	4	7	ILT07-IBRPS5	POS	POS	1
98	4	8	ILT07-IBRNS2	NEG	NEG	1
99	4	9	ILT07-IBRPS3	POS	POS	1
100	4	10	ILT07-IBRNS4	NEG	NEG	1
101	4	11	ILT07-IBRPS1	POS	POS	1
102	4	12	ILT07-IBRPS6	POS	POS	1
103	4	13	ILT07-IBRNS3	NEG	NEG	1
104	4	14	ILT07-IBRNS5	NEG	NEG	1
105	4	15	ILT07-IBRPS4	POS	POS	1
106	4	16	ILT07-IBRPS1	POS	POS	1
107	4	17	ILT07-IBRPS4	POS	POS	1
108	4	18	ILT07-IBRNS5	NEG	NEG	1
109	4	19	ILT07-IBRNS2	NEG	NEG	1
110	4	20	ILT07-IBRNS3	NEG	NEG	1
111	4	21	ILT07-IBRPS1	POS	POS	1
112	4	22	ILT07-IBRPS2	POS	POS	1
113	4	23	ILT07-IBRPS6	POS	POS	1
114	4	24	ILT07-IBRPS3	POS	POS	1
115	4	25	ILT07-IBRPS5	POS	POS	1
116	4	26	ILT07-IBRNS3	NEG	NEG	1
117	4	27	ILT07-IBRPS7	POS	POS	1
118	4	28	ILT07-IBRPS6	POS	NI	0
119	4	29	ILT07-IBRNS4	NEG	NEG	1
120	4	30	ILT07-IBRNS4	NEG	NEG	1

(CONTINUED)

	LABNR	LABPOSIT	SAMPLE	STATUS	RESULT	SUCCESS
121	5	1	ILT07-IBRNS3	NEG	NEG	1
122	5	2	ILT07-IBRPS7	POS	POS	1
123	5	3	ILT07-IBRPS6	POS	POS	1
124	5	4	ILT07-IBRNS4	NEG	NEG	1
125	5	5	ILT07-IBRNS4	NEG	NEG	1
126	5	6	ILT07-IBRPS6	POS	POS	1
127	5	7	ILT07-IBRPS7	POS	POS	1
128	5	8	ILT07-IBRNS5	NEG	NEG	1
129	5	9	ILT07-IBRPS1	POS	POS	1
130	5	10	ILT07-IBRNS3	NEG	NEG	1
131	5	11	ILT07-IBRPS2	POS	POS	1
132	5	12	ILT07-IBRPS5	POS	POS	1
133	5	13	ILT07-IBRNS2	NEG	NEG	1
134	5	14	ILT07-IBRPS3	POS	POS	1
135	5	15	ILT07-IBRNS4	NEG	NEG	1
136	5	16	ILT07-IBRPS1	POS	POS	1
137	5	17	ILT07-IBRPS6	POS	POS	1
138	5	18	ILT07-IBRNS3	NEG	NEG	1
139	5	19	ILT07-IBRNS5	NEG	NEG	1
140	5	20	ILT07-IBRPS4	POS	POS	1
141	5	21	ILT07-IBRPS1	POS	POS	1
142	5	22	ILT07-IBRPS4	POS	POS	1
143	5	23	ILT07-IBRNS5	NEG	NEG	1
144	5	24	ILT07-IBRNS2	NEG	NEG	1
145	5	25	ILT07-IBRNS3	NEG	NEG	1
146	5	26	ILT07-IBRPS1	POS	POS	1
147	5	27	ILT07-IBRPS2	POS	POS	1
148	5	28	ILT07-IBRPS6	POS	POS	1
149	5	29	ILT07-IBRPS3	POS	POS	1
150	5	30	ILT07-IBRPS5	POS	POS	1

V. Discussion

The purpose of this proficiency-test is to assess performances of participating laboratories when analyzing:

- (i) reference serums free from detectable gE-specific antibodies against Infectious Bovine Rhinotracheitis,
- (ii) reference serums containing detectable gE-specific antibodies against Infectious Bovine Rhinotracheitis.

Four participating laboratories provided responses that were in full agreement with the true status of the reference serums. One participating laboratory reached only 96.7% of agreement.

The latter was due to 1 sample (ILT07-IBRPS6) which was reported once as a NI (doubtful with a % competition of 33.9%) while the status of that sample was defined as positive. The other 3 aliquots of the same sample were reported as positive (with % competition of 68.6, 67.3 and 74.1) by that laboratory as by the other laboratories.

VI. Conclusions

According to the procedure currently in force, the performances of a participating laboratory are satisfactory if at least 90% of the results provided by this laboratory are in agreement with the status of the reference serum samples (Section III.3.3. of this Report). Consequently, all five participating laboratories achieved a satisfactory performance.

The Committee

Head CCVD: Koen Mintiens

Unit "quality system surveillance & inter-laboratory trials": Katia Knapen

Reference Laboratory: Carine Letellier

Preparation of test items: Bart Verheyden

Data management : Cecile Herr and Yves Van der Stede