Comparison of MBA EBV and LIAISON EBV assays Using clinical samples

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1. Purpose of the Evaluation

The aim of the evaluation was to assess the diagnostic agreement and clinical interpretability of the Microblot-Array EBV kit compared with the established LIAISON chemiluminescence method. The evaluation was performed on clinical samples from routine diagnostic practice, including samples with challenging clinical interpretation and concurrent infections. It focused in particular on:

- **Agreement in antibody classification** for IgM, IgG (IgA) classes between the two methods
- **Specificity of VCA IgM determination** in situations known for cross-reactivity (concurrent acute viral infections – parvovirus B19, CMV)
- **Differentiation of infection phase** (acute/primary, past, reactivation)
- **Benefit of the antigen-specific profile of MBA EBV** (12 antigens) compared with the LIAISON method (VCA) for clinical decision-making

The reference framework was the clinical diagnosis and, for selected samples molecular detection (PCR for parvovirus B19, EBV).

2. Methodology and Evaluated Parameters

2.1 Evaluated methods

Microblot-Array EBV, BioVendor

- **Principle**: Multiplex immunoblot in an ELISA well
- **Tested assays and their antigens**:
  - **MBA EBV IgA**: EBNA-1, EBNA-2, VCA p18, VCA p23, EA-D p54, EA-D p138, EA-R p85, Rta, ZEBRA, gp85, gp350 and LMP1.
  - **MBA EBV IgG:** EBNA-1, EBNA-2, VCA p18, VCA p23, EA-D p54, EA-D p138, EA-R p85, Rta, ZEBRA, gp85, gp350 and LMP1.
  - **MBA EBV IgM:** EBNA-1, EBNA-2, VCA p18, VCA p23, EA-D p54, EA-D p138, EA-R p85, Rta, ZEBRA, gp85, gp350 and LMP1.

LIAISON, DiaSorin

- **Principle**: Chemiluminescence immunoassay
- **Tested assays and their antigens**:
  - **LIAISON EBV IgM**: VCA
  - **LIAISON VCA IgG:** VCA

2.2 Samples

- 30 clinical sera
  - Infectious mononucleosis
  - Past EBV infections
  - Immunocompromised patients (hemato-oncology, transplantation, malignancy)
  - Concurrent infections: Parvovirus B19, CMV

3. Summary Results

Indicator	Value
Total number of samples evaluated	**30**
IgG classification agreement (positive/negative) MBA EBV vs. LIAISON	**30 / 30 (100 %)**
Clinically relevant IgM differences favoring MBA EBV specificity	**5 samples (acute parvovirus B19)**
False-positive VCA IgM on LIAISON eliminated by MBA EBV	**4 samples + 1 reclassified***
Cases of cross-reactivity (acute CMV) detected by both methods	**1 (sample 24-1674)**
Early seroconversion detected by MBA earlier than LIAISON	**1 (sample 24-205)**

**Note: In sample 24-2038, a 46-year-old patient with acute parvovirus B19 infection (PCR confirmed), EBV serology on MBA indicates a past/reactivated infection rather than an acute primary infection: VCA IgM is absent, but a full IgG profile is present, including marker ZEBRA, together with IgA against VCA p18/LMP1, indicating active EBV replication. The highly positive VCA IgM on LIAISON is a false result here – it is a cross-reaction during acute B19 infection, which MBA EBV correctly does not reproduce. Clinically, this is not acute EBV; but acute parvovirus B19 infection, and the EBV finding corresponds to reactivation.*

4. Key Finding – false-Positive LIAISON VCA IgM in Parvovirus B19 Infection

In acute parvovirus B19 infection, polyclonal activation of B lymphocytes occurs, a well-known cause of false-positive VCA IgM (and CMV IgM) results in several immunoassay systems. In this dataset, **LIAISON showed high VCA IgM positivity in all samples with confirmed parvovirus B19 infection**, while MBA EBV did not show this false reactivity:

Sample	Age	Parvovirus B19 PCR	LIAISON VCA IgM	MBA EBV VCA IgM
24-2	9	positive	**pos. (>160)**	**negative**
24-168	9	positive	**pos. (>160)**	**negative**
24-1919	10	positive	**pos. (>160)**	**negative**
24-1960	11	positive	**pos. (>160)**	**negative**
24-2038	46	positive	**pos. (>160)**	**no acute VCA IgM profile***

** In sample 24-2038, no acute VCA IgM pattern was present (only isolated VCA p18), and the IgG profile, including EBNA-1, indicated a past/reactivated infection – i.e., without the false picture of acute primary infection suggested by LIAISON.*

Clinical impact: in both paediatric and adult patients with acute parvovirus infection (with rash, arthralgia, or cytopenia), using VCA IgM alone risks a misdiagnosis of acute EBV infection. MBA EBV reduces this risk of overestimation and supports correct clinical decision-making.

5. Other Clinically Significant Observations

5.1 Cross-reactivity in acute CMV infection (sample 24-1674)

In a patient with acute CMV infection (high CMV IgM, low avidity), EBV VCA IgM was positive by both methods. This is a heterologous (cross) response accompanying an acute herpesvirus infection. Here, MBA EBV provides a differentiated picture of the individual antigens, which facilitates distinguishing it from a true acute EBV primary infection.

5.2 Early seroconversion (sample 24-205)

In an early case of infectious mononucleosis, LIAISON VCA IgM was only borderline (39.6), whereas MBA EBV already showed reactivity to early antigens. The acute infection was serologically confirmed 14 days later. In this case, MBA EBV therefore enabled earlier detection of seroconversion.

5.3 Agreement in IgG classification and added value of the antigen profile

In the IgG class, both methods agreed on the positive/negative classification in all 30 samples. In addition, MBA EBV differentiates individual antigens, allowing more precise staging without the need for supplementary tests.

6. Clinical Benefits of specific antigens in MBA EBV

LIAISON provides four tests for EBV diagnostics (VCA IgM, VCA IgG, EA-D IgG, EBNA-1 IgG). In this comparison, only VCA IgM and VCA IgG were tested. MBA EBV detects twelve antibodies in a single test within each class, yielding a pattern rather than a single number. In this comparison, this brought the following clinical advantages:

- **Distinguishing reactivation from acute infection**: In 24-2038, VCA IgM was negative, but IgG/IgA showed ZEBRA and LMP1 (replication markers not measured by LIAISON) → reactivated, not acute, EBV
- **Earlier detection of the acute phase:** In 24-205, LIAISON VCA IgM was borderline, MBA had already detected the early antigens EA-D p54 and ZEBRA; acute infection confirmed 14 days later
- **Complete staging in a single run:** In sample 23-16711 (hemophagocytic lymphocytosis associated with EBV, 8 years old), MBA simultaneously demonstrated VCA p18, EA-D p54/p138, and ZEBRA in IgM, and VCA and EA-D in IgG, but without EBNA-1 IgG – a clear picture of acute/ongoing EBV. In this clinically severe condition (HLH), the antigen profile in a single run confirmed EBV as the trigger, without the need for avidity or confirmatory testing.
- **Mucosal/replication activity:** In immunocompromised sample 24-80, IgM was negative and IgG corresponded to past infection, but IgA against VCA p18 and gp350 revealed reactivation activity.
- **Higher specificity:** better differentiation from cross-reactivity. In samples with acute parvovirus B19 infection (24-2, 24-168, 24-1919, 24-1960), VCA IgM on LIAISON was highly positive (>160), while MBA was negative across all markers. Separating VCA into p18/p23 and having distinct EA/ZEBRA markers showed that the LIAISON was not a true anti-VCA antibody but rather nonspecific reactivity due to B19.

Overview: antigen → diagnostic information → clinical benefit

Antigen	What it indicates	Clinical benefit
VCA p18, VCA p23	Differentiation of anti-VCA response	Differentiation of anti-VCA response
EA-D p54, EA-D p138	Activity/replication, early phase	Earlier detection of acute infection
ZEBRA, Rta	Lytic cycle, reactivation	Differentiation of acute infection from reactivation
EBNA-1, EBNA-2	Past vs. ongoing infection	Staging without avidity testing
LMP1	Latent/reactivation activity	Adjunct for assessing reactivation
gp85, gp350	Mucosal/neutralizing response	Reactivation in immunocompromised patients
ZEBRA, Rta	Lytic cycle, reactivation	Differentiation of acute infection from reactivation

7. Comments

The MBA EBV results correspond well with the clinical diagnoses across the entire sample spectrum. The main difference compared with LIAISON does not lie in overall positivity/negativity (which is identical for IgG), but rather in the specificity and interpretability of acute-phase determination. Because MBA EBV tests antibodies against individually defined antigens rather than a summary VCA signal, it is less susceptible to the nonspecific polyclonal and heterologous reactions typical of concurrent acute infections (parvovirus B19, CMV). At the same time, the antigen-resolved profile provides diagnostic information that would otherwise have to be obtained through separate confirmatory tests (e.g., EBNA differentiation).

8. Conclusion

- **Complete IgG agreement:** MBA and LIAISON agreed on the qualitative IgG classification in all 30 samples
- **Higher specificity of MBA EBV IgM:** MBA EBV eliminated the false-positive VCA IgM that LIAISON showed in acute parvovirus B19 infection (confirmed by PCR)
- **More precise staging:** the antigen-specific profile makes it possible to reliably distinguish acute, past, and reactivated infection and reduces the risk of overestimating acute EBV infection
- **Clinical benefit:** in indications with an increased risk of cross-reactivity (concurrent acute viral infections, immunocompromised patients), MBA EBV provides a more reliable and interpretively richer result

9. Limitations of the Evaluation

- This is an exploratory laboratory comparison on a small dataset (n = 30); it does not replace a formal validation/verification study with calculated sensitivity, specificity, and agreement (κ).
- The dataset was deliberately enriched with clinically challenging and concurrent infections, which highlights differences between the methods but does not represent the typical spectrum of routine practice.

Appendix A. Overview of Individual Samples

Series I – March 12, 2024

Sample	Clinical dx / age	LIAISON VCA IgM	MBA EBV IgM	IgG agreement	Interpretation
23-16711	Hemophagocytic lymphocytosis associated with EBV, 8 y	pos. (>160)	pos.	match	Acute/recent EBV – agreement between both methods
24-2	Parvovirus B19 (PCR pos.), 9 y	pos. (>160)	**negative**	match	LIAISON falsely pos. VCA IgM; MBA correctly negative
24-36	Liver failure (K72.1), 1 y	pos. (98.4)	no acute profile	match	LIAISON pos. IgM, MBA does not confirm acute infection; IgG negative
24-53	Myelodysplasia (D46.4), 6 y	neg. (<10)	neg.	match	Past infection – match
24-70	Non-Hodgkin lymphoma, 13 y	neg.	neg.	match	Past infection – match
24-80	B-cell CLL, 75 y	neg.	neg.	match	Past infection (EBNA-1 IgG pos.) – match
24-94	Infectious mononucleosis, 14 y	pos. (82.6)	pos.	match	Acute IM – match
24-108	Breast malignancy; B19 pos., 45 y	neg.	neg.	match	Past infection – match
24-168	Parvovirus B19 (PCR pos.), 9 y	pos. (>160)	**negative**	match	LIAISON falsely pos. VCA IgM; MBA correctly negative
24-205	Early IM (confirmed 14 days later), 18 y	borderline (39.6)	pos.	match	MBA detected early seroconversion sooner than LIAISON
24-282	Infectious mononucleosis, 5 y	pos. (>160)	pos.	match	Acute IM – match
24-306	J84.0; EBV PCR in blood neg., 61 y	borderline (28.9)	inconclusive	match	More consistent with chronic/past profile; IgM inconclusive on both
24-333	Infectious mononucleosis, 17 y	pos. (>160)	pos.	match	Acute IM – match
24-334	Infectious mononucleosis, 2 y	pos. (>160)	pos.	match	Acute IM – match
24-1674	Acute CMV, low avidity, 49 y	pos. (62.9)	pos.	match	EBV VCA IgM pos. during acute CMV / cross-reaction on both methods

Series II – March 21, 2024

Sample	Clinical dx / age	LIAISON VCA IgM	MBA EBV IgM	IgG agreement	Interpretation
24-1919	Parvovirus B19 (PCR pos.), 10 y	pos. (>160)	**negative**	match	LIAISON falsely pos. VCA IgM; MBA correctly negative
24-1960	Parvovirus B19 (PCR pos.), 11 y	pos. (>160)	**negative**	match	LIAISON falsely pos. VCA IgM; MBA correctly negative

Sample	Clinical dx / age	LIAISON VCA IgM	MBA EBV IgM	IgG agreement	Interpretation
24-2038	Parvovirus B19 (PCR pos.), 46 y	pos. (>160)	**VCA p18 only**	match	Full IgG profile incl. EBNA-1 → past/reactivated EBV, not primary infection; LIAISON overestimates acute VCA IgM
24-2061	Tongue base malignancy, 51 y	neg. (<10)	borderline	match	MBA more sensitive (weak VCA p23 IgM); IgG = past infection
24-2077	Dermatitis, 66 y	neg.	neg.	match	Past infection – match
24-2093	Papilledema, 7 y	neg.	neg.	match (neg.)	Seronegative – match
24-2179	Infectious mononucleosis, 23 y	pos. (>160)	pos.	match	Acute IM – match
24-2225	Chest wall malignancy, 69 y	neg.	neg.	match	Past infection – match
24-2312	ALL; B19 pos., 2 y	neg.	neg.	match	Past/reactivated in immunocompromised patient – match
24-2539	Abdominal pain, 8 y	pos. (125)	pos.	match	Acute profile – match
24-2560	ALL, suspected EBV infection, 17 y	pos. (>160)	pos.	match	Acute primary infection – match
24-2641	Liver transplant, 1.5 y	borderline (31.8)	neg.	match	LIAISON borderline, MBA shows no acute IgM; IgG = past infection
24-2648	B-cell CLL, 53 y	pos. (155)	pos.	match	Match
24-2810	Post-EBV infection status, 14 y	neg.	neg.	match	Past infection – match
24-3534	Chronic tonsillitis; CMV low avidity, 36 y	pos. (48.3)	pos.	match	Match

Highlighted rows indicate samples with acute parvovirus B19 infection, where a difference in VCA IgM specificity was observed. „IgG agreement“ expresses the agreement in positive/negative classification between MBA EBV and LIAISON.

Appendix B. Specific MBA EBV Antibody Levels (U/ml)

The tables show the measured antibody levels against individual EBV antigens across all three classes (IgM, IgG, IgA). This is the antigen-resolved output of the MBA EBV kit; the LIAISON method does not provide this level of detail (it reports only summary VCA IgM, VCA IgG, EA-D IgG, and EBNA-1 IgG).

Antibody levels are given in U/ml. Color coding follows the kit's evaluation: **positive** (red), **borderline** (orange), negative (gray). „Summary“ is the overall classification of the given class by the instrument. The calibration control (POS/PC) is not shown. Highlighted rows = samples with acute parvovirus B19 infection.

B.1 IgM Class

Series I – March 12, 2024

Sample	EBNA-1	EBNA-2	VCA p18	VCA p23	EA-D p54	EA-D p138	EA-R p85	Rta	ZEBRA	gp85	gp350	LMP1	Summary
23-16711	175.92	<30	**768.54**	**201.67**	**758.40**	**793.39**	<30	<30	**679.81**	<30	67.55	96.72	**POS.**

Sample	EBNA-1	EBNA-2	VCA p18	VCA p23	EA-D p54	EA-D p138	EA-R p85	Rta	ZEBRA	gp85	gp350	LMP1	Summary
24-2	<30	<30	<30	44.42	33.69	<30	<30	<30	<30	<30	<30	<30	NEG.
24-36	<30	<30	<30	34.06	<30	<30	<30	<30	<30	<30	<30	32.76	NEG.
24-53	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	NEG.
24-70	<30	<30	<30	33.96	<30	<30	<30	<30	31.66	<30	<30	<30	NEG.
24-80	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	NEG.
24-94	367.93	36.22	194.23	487.74	787.93	636.65	<30	<30	107.57	<30	<30	87.61	POS.
24-108	<30	<30	33.73	83.44	112.27	32.63	<30	<30	<30	<30	<30	61.19	NEG.
24-168	<30	<30	<30	30.41	<30	<30	<30	<30	<30	<30	<30	<30	NEG.
24-205	99.11	<30	<30	46.68	370.01	75.73	<30	<30	369.85	<30	<30	<30	POS.
24-282	74.80	<30	266.91	92.78	147.05	77.23	<30	36.39	<30	<30	<30	67.57	POS.
24-306	<30	<30	181.59	58.16	42.93	<30	<30	<30	<30	<30	<30	<30	NEG.
24-333	190.14	<30	101.84	205.42	62.56	128.95	<30	<30	723.04	<30	<30	60.85	POS.
24-334	60.84	<30	670.00	59.59	221.53	74.42	<30	<30	31.90	<30	<30	<30	POS.
24-1674	249.57	34.33	54.15	264.67	95.39	160.57	<30	<30	<30	<30	<30	<30	POS.

Series II – March 21, 2024

Sample	EBNA-1	EBNA-2	VCA p18	VCA p23	EA-D p54	EA-D p138	EA-R p85	Rta	ZEBRA	gp85	gp350	LMP1	Summary
24-1919	<30	<30	<30	77.89	51.54	174.84	<30	<30	<30	<30	46.50	32.15	NEG.
24-1960	<30	<30	<30	32.47	<30	30.38	<30	<30	<30	<30	<30	39.02	NEG.
24-2038	72.84	<30	40.79	69.82	36.68	58.45	<30	<30	<30	<30	<30	61.83	NEG.
24-2061	38.45	<30	<30	537.05	<30	57.11	<30	<30	<30	<30	<30	38.39	POS.
24-2077	<30	<30	<30	<30	45.93	<30	<30	<30	<30	<30	<30	<30	NEG.
24-2093	49.75	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	NEG.
24-2179	189.39	<30	267.52	167.80	122.85	146.18	<30	<30	120.46	<30	<30	51.44	POS.
24-2225	<30	<30	<30	62.50	<30	<30	<30	<30	<30	<30	<30	<30	NEG.
24-2312	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	NEG.
24-2539	<30	<30	<30	31.26	<30	<30	<30	<30	<30	<30	<30	<30	NEG.
24-2560	251.83	<30	228.99	189.40	435.32	858.38	40.14	<30	141.57	<30	<30	33.89	POS.
24-2641	104.75	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	NEG.
24-2648	58.15	<30	989.33	115.63	132.95	66.26	<30	<30	<30	<30	<30	41.50	POS.
24-2810	30.98	<30	<30	35.85	<30	<30	<30	<30	<30	<30	<30	<30	NEG.
24-3534	<30	<30	<30	<30	41.83	<30	<30	<30	38.91	<30	<30	131.37	NEG.

B.2 IgG Class

Series I – March 12, 2024

Sample	EBNA-1	EBNA-2	VCA p18	VCA p23	EA-D p54	EA-D p138	EA-R p85	Rta	ZEBRA	gp85	gp350	LMP1	Summary
23-16711	<30	<30	934.64	68.75	803.16	693.97	<30	<30	83.05	<30	<30	<30	POS.
24-2	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	NEG.
24-36	<30	<30	119.98	72.58	33.32	34.11	<30	<30	104.74	<30	<30	<30	NEG.
24-53	<30	<30	921.95	921.95	284.63	146.23	<30	<30	778.53	<30	<30	<30	POS.
24-70	<30	<30	857.22	857.22	680.61	586.67	<30	159.89	849.84	<30	<30	<30	POS.
24-80	895.75	<30	895.75	208.98	110.44	34.78	<30	<30	30.22	<30	<30	<30	POS.
24-94	<30	<30	619.88	66.46	931.20	108.56	<30	<30	750.15	<30	<30	<30	POS.
24-108	707.98	<30	934.87	784.53	591.42	192.51	<30	<30	857.84	<30	<30	<30	POS.
24-168	923.68	<30	923.68	48.96	<30	<30	<30	<30	91.26	<30	<30	<30	POS.
24-205	<30	<30	<30	<30	<30	<30	<30	<30	645.23	<30	<30	<30	POS.
24-282	<30	<30	958.56	33.36	<30	<30	<30	<30	42.14	<30	<30	<30	POS.
24-306	<30	<30	850.18	715.10	179.56	44.30	<30	<30	54.24	<30	<30	<30	POS.
24-333	<30	<30	925.00	200.34	<30	<30	<30	<30	814.32	<30	<30	<30	POS.
24-334	<30	<30	813.40	64.02	69.78	39.83	<30	<30	319.03	<30	<30	<30	POS.
24-1674	825.62	<30	972.55	123.84	<30	<30	<30	<30	85.96	<30	<30	<30	POS.

Series II – March 21, 2024

Sample	EBNA-1	EBNA-2	VCA p18	VCA p23	EA-D p54	EA-D p138	EA-R p85	Rta	ZEBRA	gp85	gp350	LMP1	Summary
24-1919	<30	<30	<30	42.82	<30	<30	<30	<30	<30	<30	<30	<30	NEG.
24-1960	<30	<30	34.90	39.08	<30	<30	<30	117.26	<30	<30	<30	<30	NEG.
24-2038	30.35	<30	903.54	903.54	<30	35.37	<30	<30	210.23	<30	<30	<30	POS.
24-2061	746.52	<30	894.19	<30	<30	<30	<30	<30	<30	<30	<30	<30	POS.
24-2077	358.10	<30	930.09	307.19	<30	34.63	<30	<30	83.95	<30	<30	<30	POS.
24-2093	<30	<30	159.81	35.95	<30	<30	<30	<30	94.33	<30	<30	<30	NEG.
24-2179	<30	<30	854.65	333.29	210.77	<30	<30	<30	<30	<30	<30	<30	POS.
24-2225	133.60	<30	940.60	940.60	<30	67.79	<30	<30	827.10	<30	<30	<30	POS.
24-2312	158.71	<30	976.42	976.42	73.37	224.99	<30	46.23	973.38	<30	<30	<30	POS.
24-2539	966.09	<30	966.09	56.45	31.90	<30	<30	<30	111.39	<30	<30	<30	POS.
24-2560	<30	<30	941.27	78.16	905.58	268.85	<30	<30	941.27	<30	<30	<30	POS.
24-2641	<30	<30	987.24	66.76	<30	<30	<30	<30	75.89	<30	<30	<30	POS.
24-2648	36.61	30.17	985.91	106.71	35.02	33.87	30.18	30.63	90.91	30.21	30.06	30.06	POS.
24-2810	<30	36.20	901.20	412.53	283.69	83.84	<30	35.13	422.34	<30	<30	<30	POS.
24-3534	977.91	<30	982.50	874.43	<30	66.74	<30	<30	212.11	<30	<30	<30	POS.

B.3 IgA Class

Series I – March 12, 2024

Sample	EBNA-1	EBNA-2	VCA p18	VCA p23	EA-D p54	EA-D p138	EA-R p85	Rta	ZEBRA	gp85	gp350	LMP1	Summary
23-16711	<30	<30	47.12	83.97	143.85	458.77	<30	33.93	78.07	55.10	32.63	41.30	POS.
24-2	<30	<30	<30	59.97	35.90	53.81	<30	48.73	<30	<30	31.83	<30	NEG.
24-36	71.49	<30	49.16	201.00	84.79	277.87	162.81	97.41	241.57	101.30	122.32	53.65	POS.
24-53	<30	<30	<30	50.26	<30	41.45	<30	<30	<30	<30	<30	<30	NEG.
24-70	<30	<30	313.00	200.57	114.70	479.24	<30	32.58	79.69	<30	42.29	<30	POS.
24-80	<30	39.20	379.99	90.18	<30	54.66	<30	30.65	<30	<30	269.62	<30	POS.
24-94	<30	<30	234.28	168.26	763.41	129.31	<30	<30	169.29	<30	<30	<30	POS.
24-108	<30	33.81	74.65	97.19	36.86	128.00	34.73	<30	75.90	<30	58.26	<30	NEG.
24-168	<30	<30	<30	52.64	<30	40.63	<30	<30	<30	<30	<30	<30	NEG.
24-205	<30	<30	<30	78.44	248.03	201.94	39.57	<30	475.41	<30	<30	33.77	POS.
24-282	40.00	40.38	710.81	43.35	40.00	40.35	43.72	53.05	40.00	40.00	40.14	41.32	POS.
24-306	<30	36.40	631.98	115.04	32.96	56.33	<30	<30	34.30	<30	43.65	36.31	POS.
24-333	<30	60.69	592.11	92.56	<30	47.13	30.08	<30	639.71	31.68	<30	217.46	POS.
24-334	<30	109.97	54.54	143.43	79.88	166.45	<30	<30	<30	<30	<30	<30	NEG.
24-1674	<30	47.02	76.02	58.40	<30	672.36	<30	<30	<30	<30	<30	<30	POS.

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Sample	EBNA-1	EBNA-2	VCA p18	VCA p23	EA-D p54	EA-D p138	EA-R p85	Rta	ZEBRA	gp85	gp350	LMP1	Summary
24-1919	<30	32.74	<30	35.95	<30	<30	<30	38.93	<30	<30	43.99	<30	NEG.
24-1960	<30	<30	<30	57.30	<30	<30	<30	144.52	54.32	<30	<30	<30	NEG.
24-2038	<30	38.85	611.04	128.02	<30	<30	<30	34.89	<30	<30	116.61	735.26	POS.
24-2061	<30	<30	191.36	54.27	<30	30.94	<30	<30	<30	<30	163.49	<30	BORD.
24-2077	<30	<30	<30	57.23	<30	<30	<30	<30	<30	<30	51.31	<30	NEG.
24-2093	<30	<30	<30	41.82	<30	36.01	<30	<30	<30	<30	<30	<30	NEG.
24-2179	<30	<30	35.47	59.04	47.32	69.83	<30	<30	<30	<30	<30	<30	NEG.
24-2225	137.45	43.32	356.29	134.91	<30	<30	<30	40.45	142.07	<30	81.26	<30	POS.
24-2312	<30	<30	<30	43.11	<30	<30	<30	<30	47.53	<30	<30	<30	NEG.
24-2539	<30	174.89	129.56	804.52	300.56	162.58	<30	54.65	340.50	<30	72.41	<30	POS.
24-2560	<30	32.87	567.73	158.22	507.67	142.66	<30	<30	231.32	<30	54.28	<30	POS.
24-2641	<30	<30	<30	96.45	31.25	92.22	65.27	43.11	127.91	39.53	32.79	<30	NEG.
24-2648	<30	<30	299.29	113.89	31.25	32.73	<30	<30	<30	<30	<30	<30	POS.
24-2810	<30	<30	<30	49.12	<30	<30	<30	<30	<30	<30	<30	<30	NEG.
24-3534	<30	<30	433.48	179.11	32.65	49.14	<30	37.62	<30	<30	<30	249.36	POS.