Influenza A and B Antigens (various strains)

ZIVA™ Acute Respiratory Viral Serology Array

For research use only. Not for use in diagnostic procedures

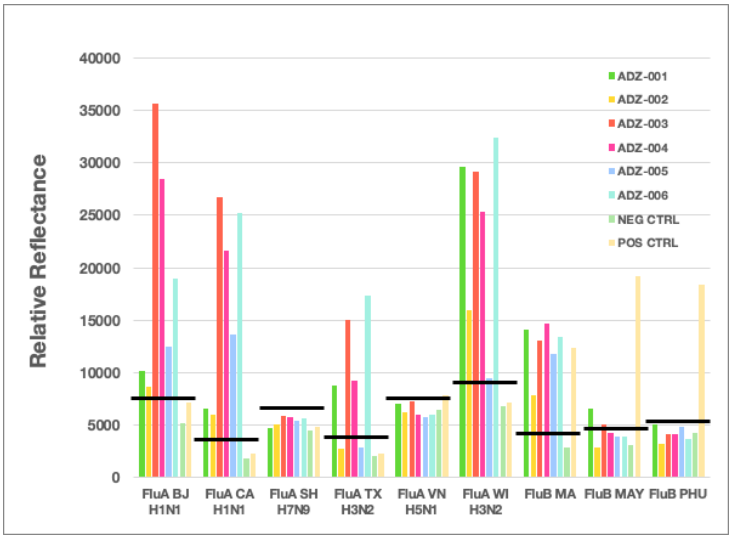
ADARZA BIOSYSTEMS

Description

Influenza A and B antigens

Strain	Origin	Uniprot Accession Number
Influenza A H3N2	Wisconsin-2005	H9XN87
Influenza A H3N2 HA1 Subunit	Texas-2012	R4L1D1
Influenza A H1N1	California	C3W5X2
Influenza A H1N1	Beijing	D3YSI0
Influenza A H7N9		R4NN21
Influenza A H5N1		D1LP63
Influenza B	Massachusetts	L0HRV0
Influenza B	Phuket	
Influenza B	Malaysia	C0RVT0

Influenza viruses total 3 million cases in the United States alone. Understanding of the virus and its mutations as well as effective vaccine development remains at the forefront of research. The influenza A and B virus consists of 12 main proteins, including its two primary surface proteins: Hemagglutinin (HA) and neuraminidase (NA). The influenza viral Hemagglutinin (HA) protein, targeted in all influenza viruses in this array, is a homo trimer with a receptor binding pocket on the globular head of each monomer. The 18 different antigens or subtypes of HA are used to bind to the target cells' sialic acid-containing receptors as well as facilitate entry into the target cell. Entry within the cell is achieved through fusion of the hose endosomal membrane with the viral membrane. The presence of antibodies binding to the HA region of the influenza virus has become an important diagnostic tool for researchers.



Data Analysis

Upon completion of the run by ZIVA, the images for each array are automatically analyzed. This process involves assessing the intensity of each spot assigned to a target analyte (minimum of 3 spots per analyte), calculating the average intensity for each analyte, and normalizing the average intensity to an internal standard on each array to produce the reflective intensity unit (RIU) per analyte.
The negative controls are used to determine the threshold of significance for a positive result. The threshold is based on the 95% confidence interval using a minimum of n=3 negative control replicates and is applied universally to all targets. In addition, the user can use the tag feature in the software for additional controls (negative and/or positive) and export the normalized RIU for customer-specific analysis.

Analytical Sensitivity

The following list of antigens will react with the positive control provided in the assay kit. Each antigen should result in a signal that is a minimum of + 2 SD above the negative control. The analytical sensitivity
*LOQ was determined by estimating the minimal amount of positive control that could be detected on a 95% confidence interval. The LOQ is an estimated range based off 3 independent assay runs.

Antigen	Type of positive control	Estimated LOQ (ng/ml)*
Influenza B Malaysia	Rabbit Polyclonal	53-71
Influenza B Phuket	Rabbit Polyclonal	336-455
Influenza B Massachusetts	Rabbit Polyclonal	1,033-1,356

In addition, the following antigens have been tested with either a monoclonal or polyclonal antibody as part of the validation and quality control of the array but are not provided in the positive control of the assay kit:

Antigen	Quality control
Influenza A H3N2 (Wisconsin, Texas)	Rabbit Polyclonal
Influenza A H2N1	Rabbit Polyclonal
RSV A and B	Rabbit Polyclonal
Influenza A H5N1	Rabbit Polyclonal
Influenza A H7N9	Rabbit Polyclonal

Analytical Reproducibility

Precision was assessed by analyzing the data from 9 independent assay runs using the positive and negative controls in the kit. Overall, intra-assay and inter-assay precisions were <4.3% and <7.7%, respectively. The precision analysis by antigen target is summarized below:

Target Antigen	Sample	Intra-assay CV%	Inter-assay CV%
Influenza A Beijing H1N1	Positive Ctrl	3.29%	12.19%
	Negative Ctrl	1.11%	5.15%
Influenza A California H1N1	Positive Ctrl	3.15%	13.22%
	Negative Ctrl	4.12%	4.69%
FluA WI H3N2	Positive Ctrl	6.32%	10.93%
	Negative Ctrl	3.12%	6.51%
FluA TX H3N2	Positive Ctrl	3.67%	10.93%
	Negative Ctrl	8.45%	6.51%
Influenza A Shanghai H7N9	Positive Ctrl	5.42%	6.17%
	Negative Ctrl	5.15%	6.36%
Influenza A Vietnam H5N1	Positive Ctrl	3.30%	3.54%
	Negative Ctrl	1.25%	3.99%
Influenza B Massachusetts	Positive Ctrl	1.40%	6.65%
	Negative Ctrl	3.46%	5.80%
Influenza B Malaysia	Positive Ctrl	2.75%	10.55%
	Negative Ctrl	4.27%	7.48%
Influenza B Phuket	Positive Ctrl	1.83%	4.44%
	Negative Ctrl	1.21%	6.67%

Specificity

This assay recognizes antibodies against the HA region of the influenza virus (strains as specified). Known positive samples were tested and assayed for cross reactivity. No significant cross-reactivity was noted.

Stability

Upon receiving your kit, the box can be stored in 4°C until use. All components are guaranteed for a minimum of 3 months from date of purchase when stored as specified.

Sample Collection and Storage

Sample Preparation

The sample collection and storage conditions listed below are intended as general guidelines.

Serum: Use a serum separator tube (SST) and allow samples to clot for 30 minutes at room temperature before centrifugation for 15 minutes at 1000 x g. Remove serum and assay immediately or aliquot and store samples at ≤ -20° C. Avoid repeated freeze-thaw cycles.

Plasma: Collect plasma using heparin or EDTA as an anticoagulant. Centrifuge for 15 minutes at 1000 x g within 30 minutes of collection. Assay immediately or aliquot and store samples at ≤ -20° C. Avoid repeated freeze-thaw cycles.

Frozen samples (serum or plasma): When using frozen samples, it is recommended to thaw the samples completely, mix well by vortexing and centrifuge prior to use in the assay to remove particulates.

Ordering information

Item Number	Item Description
MSZ7-ARV-FP3000K	Acute respiratory viral serology array v1.0 27 plex

References

1.White JM, Hoffman LR, Arevalo JH, et al. (1997). "Attachment and entry of influenza virus into host cells. Pivotal roles of hemagglutinin". In Chiu W, Burnett RM, Garcea RL. Structural Biology of Viruses. 2.Suzuki Y (March 2005). "Sialobiology of influenza: molecular mechanism of host range variation of influenza viruses". Biol. Pharm. Bull. 28 (3): 399–408. 3.Senne DA, Panigrahy B, Kawaoka Y, et al. (1996). "Survey of the hemagglutinin (HA) cleavage site sequence of H5 and H7 avian influenza viruses: amino acid sequence at the HA cleavage site as a marker of pathogenicity potential". Avian Dis. 40 (2): 425–37

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