OmicsArray™ Antigen Microarray User Manual

Catalog No. PA001, PA002, PA003, PA004, PA005, PA006, PA007, PA008

User Manual

GeneCopoeia, Inc.
9620 Medical Center Drive, #101
Rockville, MD 20850
USA

301-762-0888
301-762-3888

inquiry@genecopoeia.com

www.genecopoeia.com

I. Description

GeneCopoeia's OmicsArray™ antigen microarrays are protein microarrays designed to detect autoantibodies against certain antigens. The principle of the protein microarray is to fix a variety of verified autoantigens (proteins, peptides, nucleic acids) onto nitrocellulose (NC) membranes adhered to the surface of glass slides, and then incubate the arrays with body fluid samples (such as plasma, serum, lymph, urine, interstitial fluid, exudate, cell lysate, secretion, etc.). After washing, fluorescent secondary antibody incubation, data extraction and other steps, OmicsArray™ antigen microarrays provide information about autoantibodies present in the sample. OmicsArray™ antigen microarrays require only 1-50μl of sample to enable the simultaneous detection of hundreds of autoantibodies, which is very important for autoimmune-related research. OmicsArray™ antigen microarrays can be used to analyze the immune response of autoimmune diseases, allergies, tumor responses, vaccination and infection, organ transplantation, etc. on a large scale, providing a basis for disease early warning and diagnosis, scientific research such as disease process monitoring, treatment method selection, efficacy evaluation, and prognosis analysis. OmicsArray™ antigen microarrays are also powerful tools for discovering antibody markers of clinical value and studying the pathogenesis of diseases.

OmicsArray™ antigen microarrays have been developed for detection of common autoimmune diseases, allergic diseases, exposure to infectious agents (such as COVID-19), neurological disorders, and cancer, and are widely used in the research of related diseases.

II. Contents and Storage

Contents and storage recommendations for the OmicsArray™ protein microarrays are provided in the following table.

Catalog no.	Description	Amount	Storage
PA001	Autoantigens General Survey Microarray	120 superior-quality purified proteins and 8 controls	4 ℃
PA002	Brain and Central Nervous System Disorders Microarray	120 superior-quality purified proteins and 8 controls	
PA003	Cancer and Neoplasms Microarray	120 superior-quality purified proteins and 8 controls	
PA004	Human rheumatic diseases Microarray	Coming soon	

PA005	Human dermatologic disorders Microarray	Coming soon	
PA006	Human common allergens Microarray	75 superior-quality purified proteins and 8 controls	
PA007	Human vaccine evaluation Microarray	Coming soon	
PA008	SARS-CoV-2 coronavirus proteins Microarray	16 superior-quality purified proteins and 8 controls	

III. Protocol

Materials required but not provided

1. Slide rack and 16-well slide gasket
2. DNase I and associated buffer (NEB Cat. # M0303S)
3. PBS, PBST, blocking buffer (PBST+5%BSA), 0.1 M DTT
4. Nuclease free water
5. Cy3-conjutaged Goat Anti-Human IgG antibody, 1 mg/ml, or other Cy3-conjugated secondary antibodies
6. Alexa Fluor 647-conjugated Goat Anti-Human IgM antibody, 1 mg/ml, or other Cy5/Alexa Fluor 647-conjugated secondary antibodies
7. Tubes, tips, gloves, etc.
8. Shaker
9. GenePix 4000B Microarray Systems

Procedure

1. Plasma sample preparation
   Prepare digestion of each plasma sample according to the following table. Vortex, spin down briefly, incubate at room temp for 30 min on the shaker. For the control, no plasma sample is added.

Nuclease free water	6.5 ul
10x reaction buffer	1ul
0.1 M DTT	1 ul
DNase I	0.5 ul
Plasma sample	1 ul

2. Slide preparation
   Apply a 16-well slide gasket on one slide and then put into the rack, add 100 ul blocking buffer to each array well, incubate at room temp for 30 min on the shaker. After the incubation, wash the slide 2x times with PBST (100 ul for each well), each for 5 min.

3. Hybridization
a) Add 90 ul PBST into each plasma sample or control mix, add sample into each well of the slide (100 ul /each)
b) Incubate at room temp for 1 hour on the shaker.

4. Wash
a) Wash with PBST 100 ul/each well, 5 min on the shaker.
b) Wash with blocking buffer 100ul/each well, 5 min on the shaker.
c) Wash with PBST 100 ul/each well, 5 min on the shaker.

5. Secondary antibody incubation
a) Dilute anti-human IgG and anti-human IgM secondary antibody (or other secondary antibodies) 1:1000 in PBST.
b) Add 100 ul secondary antibody to each well.
c) Incubate at room temp for 1 hour on the shaker.

6. Wash
a) Wash with PBST 100 ul/each well, 5 min on the shaker, 3 times.
b) Wash with 45 ml PBS in 50 ml tube for 5 min on the shaker, 2 times.
c) Wash with 45 ml nuclease-free water in 50 ml tube for 5 min on the shaker, 2 times.
d) Spin down.

7. Use GenePix 4000B microarray systems to scan the slide. Use 532 nm channel to scan Cy3 fluorescence, and use 635 nm channel to scan Alexa Fluor-647 fluorescence.

IV. Limited Use License and Warranty

Limited Use License

The following terms and conditions apply to use of all OmicsArray™ protein microarray (the product). If the terms and conditions are not acceptable, the product in its entirety must be returned to GeneCopoeia within 5 calendar days. A limited End-User license is granted to the purchaser of the product. The Product shall be used by the purchaser for internal research purposes only. The product is expressly not designed, intended, or warranted for use in humans or for therapeutic or diagnostic use. The product must not be resold, repackaged or modified for resale, or used to manufacture commercial products without prior written consent from GeneCopoeia. This product should be used in accordance

with the NIH guidelines developed for recombinant DNA and genetic research. Use of any part of the product constitutes acceptance of the above terms.

Limited Warranty

GeneCopoeia warrants that the product meets the specifications described in the accompanying Product Datasheet. If it is proven to the satisfaction of GeneCopoeia that the product fails to meet these specifications, GeneCopoeia will replace the product. In the event a replacement cannot be provided, GeneCopoeia will provide the purchaser with a refund. This limited warranty shall not extend to anyone other than the original purchaser of the product. Notice of nonconforming products must be made to GeneCopoeia within 30 days of receipt of the product. GeneCopoeia's liability is expressly limited to replacement of product or a refund limited to the actual purchase price. GeneCopoeia's liability does not extend to any damages arising from use or improper use of the product, or losses associated with the use of additional materials or reagents. This limited warranty is the sole and exclusive warranty. GeneCopoeia does not provide any other warranties of any kind, expressed or implied, including the merchantability or fitness of the product for a particular purpose.

GeneCopoeia is committed to providing our customers with high-quality products. If you should have any questions or concerns about any GeneCopoeia products, please contact us at 301-762-0888.

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