

## EpiTuub™ Fecal Adenovirus Antigen Test Kit Rapid Immunochromatographic Test Device for the detection of Adenovirus Antigen in Feces



KT 918



30 Tests



2 – 8°C

US: For In Vitro Diagnostics Use



### INTENDED USE

This Adenovirus antigen test kit is intended for the direct qualitative detection of the presence of adenovirus antigen in patient fecal samples. The test might be used as an aid for detecting patients with acute gastroenteritis infected with adenovirus. It is for professional use only.

### SUMMARY OF PHYSIOLOGY

Adenoviruses are one of the main causes of acute gastroenteritis and diarrhea, especially in children under the age of two years. Adenoviruses have been identified in almost 12% of the faces of children with gastroenteritis. It was reported that adenovirus is the second leading cause of the hospitalized cases of diarrhea in infant and young children. If not treated, the infection may result in severe dehydration and disorders of body electrolyte balance. Therefore, it can be mortal in risk populations such as children, the elderly or immunosuppressed individuals. Adenovirus is transmitted by oral-fecal contact, but can result from the inhalation of aerosols as well. Its incubation period lasts 5 to 8 days. Characteristic symptoms include vomiting, hydrodiarrhoea, high temperature and stomach pains. There are 41 known human adenoviruses differentiated primarily by serological and DNA analysis. Morphologically, the viruses are non-enveloped icosahedral structure with their diameter of about 80 nm.

### ASSAY PRINCIPLE

The Adenovirus Rapid Test Strip employs dye-conjugated monoclonal antibodies specifically against human genus adenovirus antigens and a solid-phase coated monoclonal antibody specifically against adenovirus hexon antigens. In this test the specimen is first treated with an extraction solution to extract adenovirus antigens from the faces. Following extraction, the only step required is to screw the adenovirus test strip into the sample collection device. As the sample extraction flows through chamber and reach the test strip, the colored particles migrate. In the case of a positive result the specific antibodies present on the membrane will capture the colored particles. Different colored lines will be visible, depending upon the virus content of the sample. These lines, after 5 minutes of incubation at room temperature, are used to interpret the result.

### REAGENTS: Preparation and Storage

This test kit must be stored at 2 – 8°C upon receipt. For the expiration date of the kit refer to the label on the kit box. All components are stable until this expiration date.

**Prior to use allow all reagents to come to room temperature if the kit is stored at refrigerated condition.**

1. Adenovirus test strip	30
2. Fecal sample collection device	30
3. Single use green pipet	30
3. Patient label for sample collection device	30
4. Instruction for use	1

### SAFETY PRECAUTIONS

The reagents are for professional use only. Source material from which reagents of bovine serum was derived in the contiguous 48 United States. It was obtained only from donor health animals maintained under veterinary supervision and found free of contagious diseases. Wear gloves while performing this test and handle these reagents and patient samples as if they are infectious. Do not get in eyes, on skin, or on clothing. Do not ingest. On contact, flush with copious amounts of water for at least 15 minutes. When the assay procedure is completed, dispose of specimens (biohazard materials) carefully after autoclaving for at least one hour. Alternatively, treat with a 0.5 or 1% solution of sodium hypochlorite for one hour before disposal. Use Good Laboratory Practices.

### MATERIALS REQUIRED BUT NOT PROVIDED

1. Disposable pipette for watery sample collection
2. Positive Control

Both are for internal quality control use only. They are available from Epitope Diagnostics. Please contact your distributor or sales representative.

### SPECIMEN COLLECTION

Stool samples must be taken as soon as the symptoms appear. Viral particles decrease in number after one week, making the diagnosis more difficult. It is strongly recommended to test the freshly collected sample as soon as possible. The samples can be stored in the refrigerator for 24 hours. For longer storage they must be kept frozen at -20°C. In this case, the sample should be totally thawed, and brought to room temperature and homogenized before testing.

**For each solid specimen:** Unscrew the sampling lid and keep the sampling tube in a vertical position to prevent the loss of any extraction solution. Insert and twist the tip of the sampling lid into the stool specimen at two or more different sites. Collect fecal sample that is stuck to the surface of the sampling lid. Do not intentionally collect any separate and large pieces of fecal sample into the tube. Replace the sampling lid into the tube and secure tightly.  
**For each liquid specimen:** Unscrew the sampling lid and keep the sampling tube in a vertical position to prevent the loss of any extraction solution. Using the green pipet to collect **three drops** of the liquid stool sample and add to the sampling tube. Replace the sampling lid into the tube and secure tightly.

### ASSAY PROCEDURE

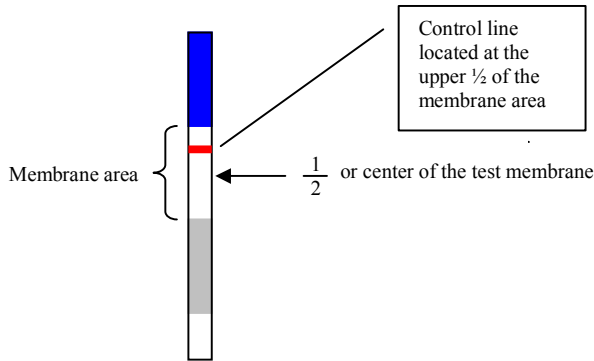
1. Bring foil pouch sealed test strips and collected specimens to room temperature (8 - 30°C).
2. Mix the sampling tube vigorously to ensure a good liquid suspension.

3. Position the sampling tube upper side down in vertical and let it sediment for about 1 minute.
4. Remove the test strip from the sealed foil pouch.
5. Screw the test strip **in a vertical position** into the sampling tube by **breaking into** the bottom seal of the sampling tube. Tighten securely!
6. Allow the solution flow into the bottom space of the test strip and keep the device **in a vertical position**.
7. Read test result at 5 minutes and do not interpret test result after 10 minutes.

## INTERPRETATION OF RESULTS

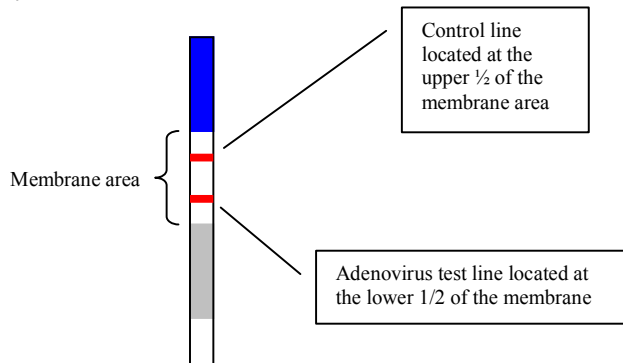
### • Valid Test:

The appearance of control line on the test reading membrane area indicates the test is valid. The control line located at the upper half of the test membrane area.



### • Positive:

If two red/pink colored bands are visible within 10 minutes, the test result is positive and valid.



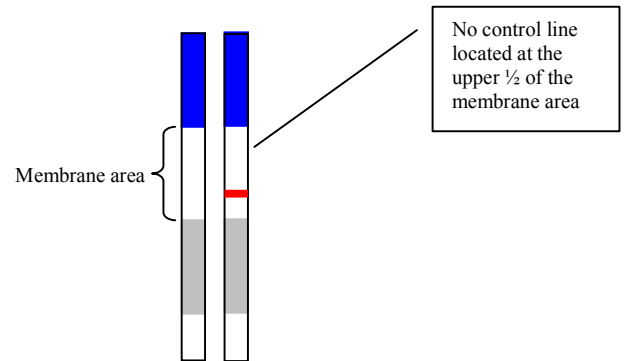
### • Negative:

If test area has no colored band and the control area displays a red/pink colored band, the test result is negative (see figure as Valid Test).

### • Invalid:

If a colored band does not form in the control area regardless there is any band in the test area, the test result is invalid.

Note: The control line located at the upper half of the test membrane area and the test line located at the lower half of it.



## QUALITY CONTROL

Good laboratory practices recommend the use of appropriate controls. There are two types of controls for the EpiTuub™ Adenovirus antigen test, the internal procedural control and external controls.

1. **Internal procedural control:** Each EpiTuub™ fecal adenovirus antigen test consists a build in procedural control. It will appear if the test has been performed correctly and the reagents are reactive. It does not ensure that the test line antibody is accurately detecting the presence or absence of viral antigen in the test fecal sample.
2. **External controls:** It is recommended to use external positive controls. The external positive controls are not provided with this kit, but are commercially available from Epitope Diagnostics. External controls are used to assure that the test line antibody is reactive. However, external controls will not detect an error in performing the patient sample test procedure. It is recommended that the external control be tested once per kit.

**You should always follow local, state, federal guidelines for running quality control.**

## LIMITATION OF THE PROCEDURE

1. The test should be used only for the detection of adenovirus antigen in fecal samples.
2. The test is qualitative and no quantitative interpretation should be made with respect to the intensity of the positive line, when reporting the result
3. Two hundred samples were evaluated to assure the correct performance of the test. The correlation of the results with other techniques (ELISA) was satisfactory. However, interferences in the performance of the tests should not be excluded.
4. No cross-reactions with other viruses or substances were observed during the evaluation of the test. A negative result does not totally exclude a possible adenovirus infection. The significance of the results must be evaluated in relation to the patient's clinical symptoms.
5. As with all diagnostic tests, the definitive clinical diagnosis must not be based on the result of a single test, but should only be made by the physician after all clinical and laboratory findings have been evaluated. EpiTuub™ fecal adenovirus antigen test is designed for the aid of clinical diagnosis and should not replace other diagnostic procedures.

## PERFORMANCE

The sensitivity and specificity of this adenovirus antigen test device are studied with 212 clinical samples and compared with an adenovirus antigen ELISA test. The data is showed as below.

EpiTuub™ ELISA	Positive	Negative	Total
Positive	61	1	62
Negative	1	149	150
Total	62	150	212

**Sensitivity:** 98 % (61/62 = 98.4%)

**Specificity:** 99 % (149/150 = 99.3%)

**Accuracy:** 99% (210/212 = 99.1%)

**Inter-series and intra-series accuracy:** 100 %

**Interference:** Cross reactivity has been evaluated and found to be negative compared to positive specimens of *Cryptosporidium parvum* and rotavirus.

#### LITERATURES

1. Nishio O, Ooseto M, Takagi K, Yamasita Y, Ishihara Y, Isomura S. Enzyme-linked immunosorbent assay employing monoclonal antibodies for direct identification of enteric adenoviruses (Ad40,41) in feces. *Microbiol Immunol.* 1990;34(10):871-7.
2. Vizzi E, Ferraro D, Cascio A, Di Stefano R, Arista S. Detection of enteric adenoviruses 40 and 41 in stool specimens by monoclonal antibody-based enzyme immunoassays. *Res Virol.* 1996 Nov-Dec;147(6):333-9.
3. Singh-Naz N, Rodriguez WJ, Kidd AH, Brandt CD. Monoclonal antibody enzyme-linked immunosorbent assay for specific identification and typing of subgroup F adenoviruses. *J Clin Microbiol.* 1988 Feb;26(2):297-300.
4. Uhnoo I, Wadell G, Svensson L, Johansson ME. Importance of enteric adenoviruses 40 and 41 in acute gastroenteritis in infants and young children. *J Clin Microbiol.* 1984 Sep;20(3):365-72.
5. Uhnoo I, Svensson L, Wadell G. Enteric adenoviruses. *Baillieres Clin Gastroenterol.* 1990 Sep;4(3):627-42.
6. Shinozaki T, Araki K, Fujita Y, Kobayashi M, Tajima T, Abe T. Epidemiology of enteric adenoviruses 40 and 41 in acute gastroenteritis in infants and young children in the Tokyo area. *Scand J Infect Dis.* 1991;23(5):543-7.

#### TECHNICAL ASSISTANCE AND CUSTOMER SERVICE

For technical assistance or place an order, please contact Epitepe Diagnostics, Inc. at (858) 693-7877 or fax to (858) 693-7678. [www.epitopediagnostics.com](http://www.epitopediagnostics.com)



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