



**BlueCross BlueShield
of Alabama**

Name of Blue Advantage Policy:

Antigen Leukocyte Antibody Test

Policy #: 165

Latest Review Date: October 2021

Category: Laboratory

BACKGROUND:

Blue Advantage medical policy does not conflict with Local Coverage Determinations (LCDs), Local Medical Review Policies (LMRPs) or National Coverage Determinations (NCDs) or with coverage provisions in Medicare manuals, instructions or operational policy letters. In order to be covered by Blue Advantage the service shall be reasonable and necessary under Title XVIII of the Social Security Act, Section 1862(a)(1)(A). The service is considered reasonable and necessary if it is determined that the service is:

1. *Safe and effective;*
2. *Not experimental or investigational*;*
3. *Appropriate, including duration and frequency that is considered appropriate for the service, in terms of whether it is:*
 - *Furnished in accordance with accepted standards of medical practice for the diagnosis or treatment of the patient's condition or to improve the function of a malformed body member;*
 - *Furnished in a setting appropriate to the patient's medical needs and condition;*
 - *Ordered and furnished by qualified personnel;*
 - *One that meets, but does not exceed, the patient's medical need; and*
 - *At least as beneficial as an existing and available medically appropriate alternative.*

Routine costs of qualifying clinical trial services with dates of service on or after September 19, 2000 which meet the requirements of the Clinical Trials NCD are considered reasonable and necessary by Medicare. Providers should bill **Original Medicare for covered services that are related to **clinical trials** that meet Medicare requirements (Refer to Medicare National Coverage Determinations Manual, Chapter 1, Section 310 and Medicare Claims Processing Manual Chapter 32, Sections 69.0-69.11).*

POLICY:

Blue Advantage will treat **Antigen Leucocyte Cellular Antibody test (ALCAT)** as a **non-covered** benefit and as **investigational** for all indications.

Blue Advantage does not approve or deny procedures, services, testing, or equipment for our members. Our decisions concern coverage only. The decision of whether or not to have a certain test, treatment or procedure is one made between the physician and his/her patient. Blue Advantage administers benefits based on the members' contract and medical policies. Physicians should always exercise their best medical judgment in providing the care they feel is most appropriate for their patients. Needed care should not be delayed or refused because of a coverage determination.

DESCRIPTION OF PROCEDURE OR SERVICE:

The Antigen Leukocyte (Cellular) Antibody Test (ALCAT) is intended to diagnose intolerance to foods and other environmental agents. It is a blood test that assesses the response of leukocytes and platelets to a panel of foods and/or other environmental agents, by measuring the change in size and number of cells following exposure to a specific agent.

Intolerance of Environmental Agents or Food

Environmental illness refers to a physiologic reaction that is triggered by an exogenous agent, which can be ingested, inhaled, or absorbed through direct contact with skin. The physiologic reaction can be an immunologic response or a nonimmunologic response. An adverse physiologic reaction to exogenous antigens has been proposed to play a causative role in a wide variety of illnesses, including allergies, gastrointestinal tract disorders such as irritable bowel syndrome, eczema, chronic fatigue, and migraine headache.

Food allergy is the most well-defined type of environmental illness and is estimated to affect 8% of children. In most cases, true food allergy is characterized by a classic immunologic response (i.e., an immunoglobulin E-mediated reaction in response to a specific protein allergen). Reactions can range from mild symptoms to life-threatening anaphylaxis. Current guidelines for the diagnosis and management of food allergies have been developed by the National Institute of Allergy and Infectious Disease.

Food intolerance is a broader term that overlaps with food allergy but is less well-defined. Food intolerance refers to physiologic reactions that are triggered by a particular food but which are not immune-mediated. It is hypothesized that physiologic reactions to food may manifest as a range of nonspecific symptoms, such as gastrointestinal complaints, headache, fatigue, and musculoskeletal complaints and that these symptoms may become chronic with repeated exposure. An example of food intolerance, distinguished from a true food allergy, is lactose intolerance, in which dairy products incite a nonimmunologic reaction that can lead to a constellation of gastrointestinal symptoms.

Treatment of environmental illness primarily involves avoidance of the inciting agent. Acute allergic reactions are treated in the same way as other types of allergies, with antihistamines, steroids, and supportive measures. In cases of a severe allergy where an agent cannot be definitively avoided, patients can carry and self-administer auto-injectable epinephrine when needed. Prophylactic antihistamines can also be used to prevent or lessen reactions. Allergy immunotherapy may be appropriate for selected allergens.

For patients with food intolerance that is not allergy based, identification of the inciting agent(s) can be difficult because the symptoms are chronic. Use of an elimination diet is considered the best way to identify intolerant agents. In an elimination diet, specific food or food group is eliminated from the diet for a specified period, and symptoms are observed. Following the elimination period, a re-challenge can be performed to ascertain whether symptoms return. Elimination diets often need to be done sequentially with a large number of items, so the process can be lengthy and cumbersome.

Antigen Leukocyte Antibody Test

The Antigen Leukocyte (Cellular) Antibody Test (ALCAT) test is intended to identify foods and other environmental agents for which an individual may have intolerance. It is not intended to diagnose food allergy. The test is based on the theory that a substantial increase in leukocyte size and number is characteristic of an intolerant response. Identifying the specific inciting agent facilitates avoidance of that agent, which may lead to a reduction in symptoms. In this regard, ALCAT testing has been used as a tool for developing an elimination diet that targets the most likely offending agents.

The test is performed by taking a sample of blood, which is first treated to remove the red blood cells and then tested to determine the baseline number and size of leukocytes and platelets. Measurement of size and count of cells is performed by the Coulter technique, which is a standard technique in clinical hematology. Next, a small quantity of blood is incubated with multiple agents. Following exposures, change in the number and size of cells is determined for each exposure. A 10% increase in the size of leukocytes is considered characteristic of a response to an intolerant agent.

The ALCAT website (Cell Sciences Systems) lists 11 separate panels consisting of various combinations of foods, herbs, food additives/coloring, and environmental chemicals. The total number of agents tested in these panels ranges from 70 to 357.

KEY POINTS:

The most recent literature review was performed through July 19, 2021.

Summary of Evidence

For individuals who have a suspected intolerance of environmental agents or food who receive the ALCAT, the evidence includes a randomized controlled trial (RCT) and case series. The relevant outcomes are morbid events and medication use. There is a lack of published research on the diagnostic accuracy of the ALCAT test; therefore it is not possible to determine the

sensitivity, specificity, and/or predictive value of the test compared with alternatives. A few low-quality studies have reported improvement in outcomes following use of ALCAT, but it is not possible to determine whether these changes occur as a result of test itself, bias, variation in the natural history of the condition, and/or the placebo effect. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

Practice Guidelines and Position Statements

The purpose of the following information is to provide reference material. Inclusion does not imply endorsement or alignment with the evidence review conclusions.

In 2010, the National Institute of Allergy and Infectious Disease published guidelines on the diagnosis and management of food allergy. These guidelines defined and distinguished food intolerance from food allergy but did not provide recommendations

U.S. Preventive Services Task Force Recommendations

Not applicable.

KEY WORDS:

Antigen leukocyte cellular antibody test, ALCAT, Life Eating and Performance (LEAP), Mediator Release Testing (MRT), IgE concentration food allergy testing, IgG Food and Environmental testing, Enzyme-Linked, Immunosorbent Assay, environmental illness, food intolerance, food allergy

APPROVED BY GOVERNING BODIES:

Clinical laboratories may develop and validate tests in-house and market them as a laboratory service; laboratory-developed tests must meet the general regulatory standards of the Clinical Laboratory Improvement Amendments. The ALCAT is available under the auspices of the Clinical Laboratory Improvement Amendments. Laboratories that offer laboratory-developed tests must be licensed by the Clinical Laboratory Improvement Amendments for high-complexity testing. To date, the U.S. Food and Drug Administration has chosen not to require any regulatory review of this test.

BENEFIT APPLICATION:

Coverage is subject to member's specific benefits. Group specific policy will supersede this policy when applicable.

CURRENT CODING:

CPT code:

83516	Immunoassay for analyte other than infectious agent antibody or infectious agent antigen; qualitative or semiquantitative, multiple step method
86849	Unlisted immunology procedure

REFERENCES:

1. Boyce JA, Assa'ad A, Burks AW, et al. Guidelines for the diagnosis and management of food allergy in the United States: report of the NIAID-sponsored expert panel. J Allergy Clin Immunol. Dec 2010; 126(6 Suppl): S1-58.
2. Buczyłko K, Obarzanowski T, Rosiak K et al. Prevalence of food allergy and intolerance in children based on MAST CLA and ALCAT tests. Roczn Akad Med Białymst 1995; 40(3):452-6.
3. Cell Sciences Systems. Alcat Test. n.d.; <https://cellsciencesystems.com/patients/alcat-test/>. Accessed September 21, 2021
4. Gupta RS, Dyer AA, Jain N et al. Childhood food allergies: current diagnosis, treatment, and management strategies. Mayo Clin Proc 2013; 88(5):512-26.
5. IOM (Institute of Medicine). 2011. Clinical Practice Guidelines We Can Trust. Washington, DC: The National Academies Press.
6. Kaats GR PD, Parker LK. The Short Term Efficacy of the ALCAT Test of Food Sensitivities to Facilitate Changes in Body Composition and Self-reported Disease Symptoms: A Randomized Controlled Study. The Bariatrician 1996; Spring: 18-23.
7. Mylek D. ALCAT Test results in the treatment of respiratory and gastrointestinal symptoms, arthritis, skin and central nervous system. Roczn Akad Med Białymst 1995; 40(3):625-9.
8. NIAID-Sponsored Expert Panel, Boyce JA, Assa'ad A et al. Guidelines for the diagnosis and management of food allergy in the United States: report of the NIAID-sponsored expert panel. J Allergy Clin Immunol 2010; 126(6 Suppl):S1-58.
9. Solomon B.A. The ALCAT Test - A guide and barometer in the therapy of environmental and food sensitivities. Environmental Medicine 1992; 9(2):1-6.
10. Wüthrich B. Unproven techniques in allergy diagnosis. J Investig Allergol Clin Immunol 2005; 15(2): 86-90.

POLICY HISTORY:

Adopted for Blue Advantage, March 2005

Available for comment May 1-June 14, 2005

Medical Policy Group, May 2006

Medical Policy Group, May 2007
Medical Policy Group, May 2009
Medical Policy Group, May 2010
Medical Policy Group, May 2011
Medical Policy Group, September 2011
Available for comment September 22 through November 7, 2011
Medical Policy Group, January 2013
Medical Policy Group, February 2014
Medical Policy Group, February 2015
Medical Policy Group, October 2017
Medical Policy Group, October 2018 **(9)**: 2018 Updates to Description, Key Points. No new references. No change to policy statement. Added key words: environmental illness, food intolerance, food allergy. Removed “ALCAT” from policy title to match association.
Medical Policy Group, November 2019
Medical Policy Group, October 2020
Medical Policy Group, October 2021

This medical policy is not an authorization, certification, explanation of benefits, or a contract. Eligibility and benefits are determined on a case-by-case basis according to the terms of the member’s plan in effect as of the date services are rendered. All medical policies are based on (i) research of current medical literature and (ii) review of common medical practices in the treatment and diagnosis of disease as of the date hereof. Physicians and other providers are solely responsible for all aspects of medical care and treatment, including the type, quality, and levels of care and treatment.

This policy is intended to be used for adjudication of claims (including pre-admission certification, pre-determinations, and pre-procedure review) in Blue Cross and Blue Shield’s administration of plan contracts.