



MEDICAL COVERAGE GUIDELINES
SECTION: LABORATORY

ORIGINAL EFFECTIVE DATE: 02/19/13
LAST REVIEW DATE: 01/22/19
LAST CRITERIA REVISION DATE: 09/21/16
ARCHIVE DATE:

LABORATORY TESTING FOR GALECTIN-3

Non-Discrimination Statement and Multi-Language Interpreter Services information are located at the end of this document.

Coverage for services, procedures, medical devices and drugs are dependent upon benefit eligibility as outlined in the member's specific benefit plan. This Medical Coverage Guideline must be read in its entirety to determine coverage eligibility, if any.

This Medical Coverage Guideline provides information related to coverage determinations only and does not imply that a service or treatment is clinically appropriate or inappropriate. The provider and the member are responsible for all decisions regarding the appropriateness of care. Providers should provide BCBSAZ complete medical rationale when requesting any exceptions to these guidelines.

The section identified as "Description" defines or describes a service, procedure, medical device or drug and is in no way intended as a statement of medical necessity and/or coverage.

The section identified as "Criteria" defines criteria to determine whether a service, procedure, medical device or drug is considered medically necessary or experimental or investigational.

State or federal mandates, e.g., FEP program, may dictate that any drug, device or biological product approved by the U.S. Food and Drug Administration (FDA) may not be considered experimental or investigational and thus the drug, device or biological product may be assessed only on the basis of medical necessity.

Medical Coverage Guidelines are subject to change as new information becomes available.

For purposes of this Medical Coverage Guideline, the terms "experimental" and "investigational" are considered to be interchangeable.

BLUE CROSS®, BLUE SHIELD® and the Cross and Shield Symbols are registered service marks of the Blue Cross and Blue Shield Association, an association of independent Blue Cross and Blue Shield Plans. All other trademarks and service marks contained in this guideline are the property of their respective owners, which are not affiliated with BCBSAZ.

Description:

Galectin-3 has been investigated as an in vitro test that quantitatively measures galectin-3 serum or EDTA-plasma to be used in clinical evaluation as an aid in assessing the prognosis of individuals diagnosed with chronic heart failure.

MEDICAL COVERAGE GUIDELINES
SECTION: LABORATORY

ORIGINAL EFFECTIVE DATE: 02/19/13
LAST REVIEW DATE: 01/22/19
LAST CRITERIA REVISION DATE: 09/21/16
ARCHIVE DATE:

LABORATORY TESTING FOR GALECTIN-3 (cont.)

Criteria:

For laboratory testing for Presage ST2, see BCBSAZ Medical Coverage Guideline #O948, “ST2 Assay for Chronic Heart Failure”.

- Laboratory testing for galectin-3 is considered **experimental or investigational** based upon:
1. Insufficient scientific evidence to permit conclusions concerning the effect on health outcomes, and
 2. Insufficient evidence to support improvement of the net health outcome.

These laboratory tests or assays include, *but are not limited to*:

- ARCHITECT® Galectin-3 Assay
- BGM Galectin-3® System

Resources:

Literature reviewed through 02/06/18. We do not include marketing materials, poster boards and non-published literature in our review.

1. Ahmad T, Fiuzat M, Neely B, et al. Biomarkers of myocardial stress and fibrosis as predictors of mode of death in patients with chronic heart failure. *JACC Heart Fail.* Jun 2014;2(3):260-268.
2. Al-Atassi T, Malas T, Mesana T, Chan V. Mitral valve interventions in heart failure. *Curr Opin Cardiol.* Mar 2014;29(2):192-197.
3. Atabakhshian R, Kazerouni F, Raygan F, Amirrasouli H, Rahimpour A, Shakeri N. Assessment of the Relationship between Galectin-3 and Ejection Fraction and Functional Capacity in the Patients with Compensated Systolic Heart Failure. *Int Cardiovasc Res J.* Dec 2014;8(4):143-147.
4. Bayes-Genis A, de Antonio M, Vila J, et al. Head-to-head comparison of 2 myocardial fibrosis biomarkers for long-term heart failure risk stratification: ST2 versus galectin-3. *J Am Coll Cardiol.* Jan 21 2014;63(2):158-166.
5. Bazaeva EV, Myasnikov RP, Metelskaya VA, Boytsov SA. [Diagnostic Value of Biochemical Markers in Patients With Chronic Heart Failure With Reduced, Borderline and Preserved Left Ventricular Ejection Fraction]. *Kardiologiya.* Mar 2017;57(3):39-45.
6. Billebeau G, Vodovar N, Sadoune M, Launay JM, Beauvais F, Cohen-Solal A. Effects of a cardiac rehabilitation programme on plasma cardiac biomarkers in patients with chronic heart failure. *Eur J Prev Cardiol.* Jul 2017;24(11):1127-1135.

MEDICAL COVERAGE GUIDELINES
SECTION: LABORATORY

ORIGINAL EFFECTIVE DATE: 02/19/13
LAST REVIEW DATE: 01/22/19
LAST CRITERIA REVISION DATE: 09/21/16
ARCHIVE DATE:

LABORATORY TESTING FOR GALECTIN-3 (cont.)

Resources: (cont.)

7. Carrasco-Sanchez FJ, Paez-Rubio MI. Review of the prognostic value of galectin-3 in heart failure focusing on clinical utility of repeated testing. *Mol Diagn Ther.* Dec 2014;18(6):599-604.
8. Chen K, Jiang RJ, Wang CQ, et al. Predictive value of plasma galectin-3 in patients with chronic heart failure. *European review for medical and pharmacological sciences.* Apr 2013;17(8):1005-1011.
9. Coburn E, Frishman W. Comprehensive review of the prognostic value of galectin-3 in heart failure. *Cardiol Rev.* Jul-Aug 2014;22(4):171-175.
10. Djousse L, Matsumoto C, Petrone A, Weir NL, Tsai MY, Gaziano JM. Plasma galectin 3 and heart failure risk in the Physicians' Health Study. *Eur J Heart Fail.* Mar 2014;16(3):350-354.
11. FDA. BGM Galectin-3 assay. 11/17/2010.
12. Felker GM, Fiuzat M, Shaw LK, et al. Galectin-3 in ambulatory patients with heart failure: results from the HF-ACTION study. *Circ Heart Fail.* Jan 2012;5(1):72-78.
13. Francia P, Adduci C, Semprini L, et al. Osteopontin and galectin-3 predict the risk of ventricular tachycardia and fibrillation in heart failure patients with implantable defibrillators. *J Cardiovasc Electrophysiol.* Jun 2014;25(6):609-616.
14. French B, Wang L, Ky B, et al. Prognostic Value of Galectin-3 for Adverse Outcomes in Chronic Heart Failure. *J Card Fail.* Nov 10 2015.
15. Gaze DC, Prante C, Dreier J, et al. Analytical evaluation of the automated galectin-3 assay on the Abbott ARCHITECT immunoassay instruments. *Clin Chem Lab Med.* Jun 2014;52(6):919-926.
16. Grande D, Leone M, Rizzo C, et al. A Multiparametric Approach Based on NT-proBNP, ST2, and Galectin3 for Stratifying One Year Prognosis of Chronic Heart Failure Outpatients. *Journal of cardiovascular development and disease.* Jul 15 2017;4(3).
17. Gullestad L, Ueland T, Kjekshus J, et al. The predictive value of galectin-3 for mortality and cardiovascular events in the Controlled Rosuvastatin Multinational Trial in Heart Failure (CORONA). *Am Heart J.* Dec 2012;164(6):878-883.
18. Hattasch R, Spethmann S, de Boer RA, et al. Galectin-3 increase in endurance athletes. *Eur J Prev Cardiol.* Oct 2014;21(10):1192-1199.

MEDICAL COVERAGE GUIDELINES
SECTION: LABORATORY

ORIGINAL EFFECTIVE DATE: 02/19/13
LAST REVIEW DATE: 01/22/19
LAST CRITERIA REVISION DATE: 09/21/16
ARCHIVE DATE:

LABORATORY TESTING FOR GALECTIN-3 (cont.)

Resources: (cont.)

19. Jagodzinski A, Havulinna AS, Appelbaum S, et al. Predictive value of galectin-3 for incident cardiovascular disease and heart failure in the population-based FINRISK 1997 cohort. *International journal of cardiology*. Aug 1 2015;192:33-39.
20. Ky B, Putt M, Sawaya H, et al. Early increases in multiple biomarkers predict subsequent cardiotoxicity in patients with breast cancer treated with doxorubicin, taxanes, and trastuzumab. *J Am Coll Cardiol*. Mar 4 2014;63(8):809-816.
21. Lakomkin SV, Skvortsov AA, Goriunova TV, Masenko VP, Tereshchenko SN. [Galectin 3--a new biomarker for diagnostics and outcome of chronic heart failure]. *Kardiologija*. 2012;52(3):45-52.
22. Lok DJ, Klip IT, Lok SI, et al. Incremental prognostic power of novel biomarkers (growth-differentiation factor-15, high-sensitivity C-reactive protein, galectin-3, and high-sensitivity troponin-T) in patients with advanced chronic heart failure. *Am J Cardiol*. Sep 15 2013;112(6):831-837.
23. Lopez-Andres N, Rossignol P, Iraqi W, et al. Association of galectin-3 and fibrosis markers with long-term cardiovascular outcomes in patients with heart failure, left ventricular dysfunction, and dyssynchrony: insights from the CARE-HF (Cardiac Resynchronization in Heart Failure) trial. *Eur J Heart Fail*. Jan 2012;14(1):74-81.
24. McCullough PA, Olobatoke A, Vanhecke TE. Galectin-3: a novel blood test for the evaluation and management of patients with heart failure. *Rev Cardiovasc Med*. 2011;12(4):200-210.
25. Medvedeva EA, Berezin, II, Shchukin YV. [Galectin-3, Markers of Oxidative Stress and Renal Dysfunction in Patients With Chronic Heart Failure]. *Kardiologija*. Mar 2017;57(3):46-50.
26. Meijers WC, Januzzi JL, deFilippi C, et al. Elevated plasma galectin-3 is associated with near-term rehospitalization in heart failure: a pooled analysis of 3 clinical trials. *Am Heart J*. Jun 2014;167(6):853-860 e854.
27. Miller WL, Saenger AK, Grill DE, Slusser JP, Bayes-Genis A, Jaffe AS. Prognostic Value of Serial Measurements of Soluble Suppression of Tumorigenicity 2 and Galectin-3 in Ambulatory Patients With Chronic Heart Failure. *J Card Fail*. Aug 14 2015.
28. Naylor M, Wang N, Larson MG, Vasan RS, Levy D, Ho JE. Circulating Galectin-3 Is Associated With Cardiometabolic Disease in the Community. *Journal of the American Heart Association*. 2015;5(1).
29. Nymo SH, Aukrust P, Kjekshus J, et al. Limited Added Value of Circulating Inflammatory Biomarkers in Chronic Heart Failure. *JACC Heart Fail*. Apr 2017;5(4):256-264.

MEDICAL COVERAGE GUIDELINES
SECTION: LABORATORY

ORIGINAL EFFECTIVE DATE: 02/19/13
LAST REVIEW DATE: 01/22/19
LAST CRITERIA REVISION DATE: 09/21/16
ARCHIVE DATE:

LABORATORY TESTING FOR GALECTIN-3 (cont.)

Resources: (cont.)

30. Pouleur AC. Which biomarkers do clinicians need for diagnosis and management of heart failure with reduced ejection fraction? *Clin Chim Acta*. Nov 15 2014.
31. Schmitter D, Cotter G, Voors AA. Clinical use of novel biomarkers in heart failure: towards personalized medicine. *Heart Fail Rev*. May 2014;19(3):369-381.
32. Srivatsan V, George M, Shanmugam E. Utility of galectin-3 as a prognostic biomarker in heart failure: where do we stand? *Eur J Prev Cardiol*. Sep 29 2014.
33. Stolen CM, Adourian A, Meyer TE, Stein KM, Solomon SD. Plasma galectin-3 and heart failure outcomes in MADIT-CRT (multicenter automatic defibrillator implantation trial with cardiac resynchronization therapy). *J Card Fail*. Nov 2014;20(11):793-799.
34. van der Velde AR, Gullestad L, Ueland T, et al. Prognostic value of changes in galectin-3 levels over time in patients with heart failure: data from CORONA and COACH. *Circ Heart Fail*. Mar 2013;6(2):219-226.
35. Wu AH, Wians F, Jaffe A. Biological variation of galectin-3 and soluble ST2 for chronic heart failure: implication on interpretation of test results. *Am Heart J*. Jun 2013;165(6):995-999.
36. Yu X, Sun Y, Zhao Y, et al. Prognostic value of plasma galectin-3 levels in patients with coronary heart disease and chronic heart failure. *International heart journal*. May 13 2015;56(3):314-318.
37. Zhang T, Shao B, Liu GA. Research on clinical value of galectin-3 in evaluating the prognosis of acute heart failure. *European review for medical and pharmacological sciences*. Oct 2017;21(19):4406-4410.



MEDICAL COVERAGE GUIDELINES
SECTION: LABORATORY

ORIGINAL EFFECTIVE DATE: 02/19/13
LAST REVIEW DATE: 01/22/19
LAST CRITERIA REVISION DATE: 09/21/16
ARCHIVE DATE:

LABORATORY TESTING FOR GALECTIN-3 (cont.)

Non-Discrimination Statement:

Blue Cross Blue Shield of Arizona (BCBSAZ) complies with applicable Federal civil rights laws and does not discriminate on the basis of race, color, national origin, age, disability or sex. BCBSAZ provides appropriate free aids and services, such as qualified interpreters and written information in other formats, to people with disabilities to communicate effectively with us. BCBSAZ also provides free language services to people whose primary language is not English, such as qualified interpreters and information written in other languages. If you need these services, call (602) 864-4884 for Spanish and (877) 475-4799 for all other languages and other aids and services.

If you believe that BCBSAZ has failed to provide these services or discriminated in another way on the basis of race, color, national origin, age, disability or sex, you can file a grievance with: BCBSAZ's Civil Rights Coordinator, Attn: Civil Rights Coordinator, Blue Cross Blue Shield of Arizona, P.O. Box 13466, Phoenix, AZ 85002-3466, (602) 864-2288, TTY/TDD (602) 864-4823, crc@azblue.com. You can file a grievance in person or by mail or email. If you need help filing a grievance BCBSAZ's Civil Rights Coordinator is available to help you. You can also file a civil rights complaint with the U.S. Department of Health and Human Services, Office for Civil Rights electronically through the Office for Civil Rights Complaint Portal, available at <https://ocrportal.hhs.gov/ocr/portal/lobby.jsf>, or by mail or phone at: U.S. Department of Health and Human Services, 200 Independence Avenue SW., Room 509F, HHH Building, Washington, DC 20201, 1-800-368-1019, 800-537-7697 (TDD). Complaint forms are available at <http://www.hhs.gov/ocr/office/file/index.html>

Multi-Language Interpreter Services:

Spanish: Si usted, o alguien a quien usted está ayudando, tiene preguntas acerca de Blue Cross Blue Shield of Arizona, tiene derecho a obtener ayuda e información en su idioma sin costo alguno. Para hablar con un intérprete, llame al 602-864-4884.

Navajo: Dii kwe'é atah nilinigií Blue Cross Blue Shield of Arizona haada yit'éego bina'idilkidgo éi doodago Háida bíjá anilyeedigií t'áadoo le'é yina'idilkidgo beehaz'áanii hólo dii t'áá hazaadk'ehjí háká a'doowotgo bee haz'á doo baqah ilinígóó. Ata' halne'ígíí kojí' bich'í' hodilnih 877-475-4799.

Chinese: 如果您，或是您正在協助的對象，有關於插入項目的名稱 Blue Cross Blue Shield of Arizona 方面的問題，您有權利免費以您的母語得到幫助和訊息。洽詢一位翻譯員，請撥電話 在此插入數字 877-475-4799。

Vietnamese: Nếu quý vị, hay người mà quý vị đang giúp đỡ, có câu hỏi về Blue Cross Blue Shield of Arizona quý vị sẽ có quyền được giúp và có thêm thông tin bằng ngôn ngữ của mình miễn phí. Để nói chuyện với một thông dịch viên, xin gọi 877-475-4799.

Arabic:

إن كان لديك أو لدى شخص تساعد أسئلة بخصوص Blue Cross Blue Shield of Arizona، فلديك الحق في الحصول على المساعدة والمعلومات الضرورية بلغتك من دون أية تكلفة. للتحدث مع مترجم اتصل بـ 877-475-4799.

