

# Complement Factor Bb

*AN IMMUNOASSAY FOR THE QUANTITATION OF THE BB FRAGMENT OF FACTOR B, AN INDICATOR OF THE ACTIVATION OF THE ALTERNATIVE COMPLEMENT PATHWAY*

## Test Highlights

- Factor Bb is a product of the cleavage of factor B, a beta globulin involved in the alternative pathway of the complement system.
- The Bb fragment, when bound to factor C1b, serves as a protease that is able to cleave additional C3 molecules.
- No alternative pathway activation is possible in the absence of Bb generation.
- By quantifying the amount of Bb, the extent of alternative pathway activation at the time of sample collection can be measured.
- Bb levels in sera samples do not reflect the level of alternative pathway activation at the time of sample collection due to alternative pathway activation during clot formation.

## Clinical Background

- The activation of the alternative complement pathway can be triggered by a variety of substances, including microbial polysaccharides or lipids, gram-negative bacterial lipopolysaccharides, and surface determinants present on some viruses, parasites, virally infected mammalian cells, and cancer cells.
- In autoimmune diseases, the alternative complement pathway may contribute directly to tissue damage.
- Elevated levels of Bb fragment could aid in clinical monitoring of the following diseases:
- Kidney diseases, such as chronic glomerulonephritis and lupus nephritis.
- Skin diseases, such as pemphigus herpetiformis and pemphigus vulgaris.
- Rheumatoid arthritis, sickle cell anemia, gram-negative bacteremia, and spontaneous preterm birth.

## Indications for Ordering

Monitoring of complement alternative pathway activation in autoimmune and inflammatory disorders.

## Interpretation

Bb value in EDTA plasma exceeding the upper level of the reference interval should be interpreted as evidence of complement alternative pathway activation.

## Limitations

Serum samples should not be tested with factor Bb assay.

## Methodology

Enzyme-linked immunosorbent assay (ELISA).

## Related Tests

[Complement Factor B \(0051720\)](#)

## References

1. Thurman J and Holers VM. The central role of the alternative pathway in human disease. *J Immunology* 2006;176:1305–10.
2. Sturfelt G and Truedsson L. Complement and its breakdown products in SLE. *Rheumatology* 2005;44:1227–32.
3. Aggarwal, et al. Evidence for activation of the alternative complement pathway in patients with juvenile rheumatoid arthritis. *Rheumatology* 2000;39:189–92.
4. Lynch AM, et al. Complement activation fragment Bb in early pregnancy and spontaneous preterm birth. *Am J Obstet Gynecol* 2008; 354: e1–8.

## Test Information

2003042

Complement Factor Bb

For specific collection, transport, and testing information, refer to the ARUP website at [www.aruplab.com](http://www.aruplab.com).

For information on test selection, ordering, and interpretation, refer to ARUP Consult® at [www.arupconsult.com](http://www.arupconsult.com).