Test Definition: KKBRP

Kingella kingae PCR, B

Overview

Useful For

Aiding in the diagnosis of *Kingella kingae* infection using whole blood specimens

Method Name

Real-Time Polymerase Chain Reaction (PCR)

NY State Available

Yes

Specimen

Specimen Type

Whole Blood EDTA

Specimen Required

The high sensitivity of amplification by PCR requires the specimen to be processed in an environment in which contamination of the specimen by *Kingella kingae* DNA is unlikely.

Container/Tube:

Preferred: Lavender top (EDTA)

Acceptable: Royal blue top (EDTA), pink top (EDTA), or sterile vial containing EDTA-derived aliquot

Specimen Volume: 1 mL

Collection Instructions: Send specimen in original tube (preferred).

Specimen Minimum Volume

0.5 mL

Reject Due To

All specimens will be evaluated at Mayo Clinic Laboratories for test suitability.

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Whole Blood EDTA	Refrigerated (preferred)	7 days	
	Frozen	7 days	

Clinical and Interpretive

Clinical Information

Kingella kingae is a fastidious short Gram-negative bacillus that may colonize the oropharynx of young children. Colonization may occasionally lead to invasive disease via hematogenous dissemination, primarily in children younger than 4 years of age. This most commonly results in bone and joint infection; *K kingae* is the most frequent cause of osteomyelitis and septic arthritis in children aged 6 to 36 months. *K kingae* may also cause endocarditis, involving both native and prosthetic valves, in patients of any age and is considered part of the HACEK (*Haemophilus* species, *Aggregatibacter* species, *Cardiobacterium hominis*, *Eikenella corrodens*, and *Kingella* species) group of organisms, known for causing culture-negative endocarditis. *K kingae* produces a repeat-in-toxin (RTX) toxin.

Diagnosis of *K kingae* infection may be challenging due to the fastidious nature of the organism in culture. Evaluation of blood by PCR is a useful tool for the diagnosis of some cases of *K kingae* infection.

Reference Values

Not applicable

Interpretation

Apositive result indicates the presence of *Kingella kingae* DNA.

A negative result indicates the absence of detectable *K kingae* DNA, but does not negate the presence of the organism and may occur due toinhibition of PCR,sequence variability underlying primers or probes, or the presence of *K kingae* DNA in quantities less than the limit of detection of the assay.

Cautions

Test results should be used as an aid in diagnosis. The single assay should not be used as the only criteria to form a clinical conclusion, but results should be correlated with patient symptoms and clinical presentation. A negative result does not negate the presence of the organism or active disease.

This assay does not detect species of *Kingella* other than *kingae* or *negevensis* (see Supportive Data).

This assay cross-reacts with *Kingella negevensis*.(1)

Supportive Data

This assay was validated by testing 30-spiked positive ETDA whole blood samples and 10-negative samples. No PCR inhibitors were encountered. The assay was 100% sensitive and specific. The assay showed no cross-reactivity when tested with a panel of 67 bacterial isolates, including *Kingella* species other than *kingae*. The limit of detection (LoD) in EDTA-whole blood was 1.3 CFU/mcL.

Clinical Reference

1. El Houmami N, Bzdreng J, Durand GA, et al: Molecular tests that target the RTX locus do not distinguish between *Kingella kingae* and the recently described *Kingella negevensis* species. J Clin Microbiol 2017;55:3113-3122

2. Murphy TF: In Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases. Edited by GL Mandell, JE Bennett, R Dolin. Seventh edition. Philadelphia, Churchill Livingstone/Elsevier, 2010, pp 2774-2776

3. Zbinden R: *Aggregatibacter*, *Capnocytophaga*, *Eikenella*, *Kingella*, *Pasteurella*, and Other Fastidious or Rarely Encountered Gram-Negative Rods. In Manual of Clinical Microbiology. Edited by JH Jorgensen, KC Carroll, G Funke, MA Pfaller. 11th edition. Washington DC. ASM Press 2015, pp 652-666

4. Yagupsky P: *Kingella kingae*: carriage, transmission, and disease. Clin Microbiol Rev. 2015 Jan;28(1):54-79

5. Madigan T, Cunningham SA, Ramanan P, et al: Real-Time PCR Assay for Detection of *Kingella kingae* in Children. J Pediatr Infect Dis 2018;13:216-233

Performance

Method Description

Nucleic acid is extracted from the specimen using the automated MagNA Pure instrument. Target specific primers are used to amplify the *rxtB* gene region of *Kingella kingae*; amplification is monitored by detecting fluorescence produced by target specific FRET hybridization probes. This real-time PCR reaction takes place on a LightCycler instrument. Detection of the *K kingae* target is performed through melting curve analysis using the LightCycler software.(Cockerill FR, Uhl JR: Applications and challenges of real-time PCR for the clinical microbiology laboratory. In Rapid Cycle Real-Time PCR Methods and Applications. Edited by U Reischl, C Wittwer, F Cockerill. Berlin, Germany, Springer-Verlag, 2002, pp 3-27; Zbinden R: *Aggregatibacter, Capnocytophaga, Eikenella, Kingella, Pasteurella*, and Other Fastidious or Rarely Encountered Gram-Negative Rods. In Manual of Clinical Microbiology. 12th edition. Edited by K Carroll, M Pfaller. Washington DC, ASM Press, 2019, pp 656-669)

PDF Report

No

Day(s) Performed

Monday, Wednesday, Friday

Report Available

2 to 7 days

Specimen Retention Time

1 week

Performing Laboratory Location

Rochester

Fees and Codes

Fees

- Authorized users can sign in to Test Prices for detailed fee information.
- Clients without access to Test Prices can contact Customer Service 24 hours a day, seven days a week.
- Prospective clients should contact their Regional Manager. For assistance, contact Customer Service.

Test Classification

This test was developed, and its performance characteristics determined by Mayo Clinic in a manner consistent with CLIA requirements. This test has not been cleared or approved by the US Food and Drug Administration.

CPT Code Information

87798

LOINC® Information

Test ID	Test Order Name	Order LOINC Value
KKBRP	Kingella kingae PCR, B	65809-6

Test Definition: KKBRP

Kingella kingae PCR, B

Result ID	Test Result Name	Result LOINC Value
48451	Specimen Source	31208-2
48338	Kingella kingae PCR, B	65809-6