

Serology Tests for COVID-19

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Kansas Department of Health and Environment is alerting providers and clinical laboratories to use caution when interpreting serology results for SARS-CoV2. Under a new policy, the Food and Drug Administration (FDA) is allowing manufacturers to sell serology test kits as long as the manufacturers state that the assays have been validated. These newly available tests to identify antibodies to SARS-CoV-2 are of uncertain reliability and are inadequate in diagnosing acute COVID-19 infection. In general, serology tests often cross-react with similar viruses. For example, a serology test for SARS-CoV2 may be positive because it has identified a common human coronavirus. Therefore, all symptomatic patients that are IgM positive for SARS-CoV2 should be tested via PCR for confirmation. At this time COVID-19, serology tests should not be the only diagnostic test used for clinical diagnosis.

Over 70 test developers have notified the FDA that they have serological tests available for use. However, some firms are falsely claiming that their serological tests are FDA approved or authorized, or falsely claiming that they can diagnose COVID-19, which they cannot. The FDA is not independently assessing these tests for reliability, sensitivity, or specificity, or requiring an Emergency Use Authorization. To date, only one manufacturer (Cellex) has received an Emergency Use Authorization (EUA) from the FDA for an IgM/IgG rapid test. Even though this test has an EUA this does not mean that it has been evaluated and approved by the FDA. The package insert contains limited information regarding test performance. Because the FDA has not reviewed validation data for any of these serology assays, these tests have not been assessed for reliability, sensitivity or specificity by a nonpartial regulatory agency.

FDA has also stated that any test which does not have an EUA may only be performed by a high complexity clinical laboratory according to the guidelines of the Clinical Laboratory Improvement Act (CLIA). Any questions about CLIA guidelines should be forwarded to the state CLIA certification officers. To determine if a product has been granted an EUA and the specifics about the applicability, see the [FDA EUA website](#).

To address the possible limitations, the FDA requires all serology test reports include the following messages:

- The test is not FDA-approved, may not reliably assess exposure to SARS-CoV-2, and should not be used as the sole basis to diagnose or exclude infection.
- Negative results do not rule out SARS-CoV-2 infection. If prior exposure is suspected, use follow-up testing with a molecular diagnostic test (PCR) to rule out infection.
- Positive results may be due to past or present infection with non-SARS-CoV-2 coronavirus species, such as human coronavirus HKU1, NL63, OC43, or 229E

In general, serologies are used to improve diagnosis of infections when combined with molecular tests. The timeframe for seroconversion (i.e. IgM or IgG turn positive) to SARS-CoV-2 is unknown, so it is impossible to reliably determine what a positive or negative test means. A negative serologic test may give a false sense of security when

negative, but indeed this may be early in the course of illness prior to seroconversion. Conversely a positive IgG may also give false security, as this may be because of past infections with common cold viruses, which do not protect individuals from SARS-CoV-2. Nor do we know what IgG titer is protective. Additionally, elderly and immunocompromised individuals often do not mount an adequate antibody response, subsequently the results for these populations are especially problematic. KDHE is recommending, to accurately detect current COVID-19 infections, a validated molecular diagnostic test should be used. However, if laboratories are performing serology, all results are required to be reported to KDHE.

