

Tick and Tick Testing FAQs

1. What should I do if I find a tick biting me?

You should remove a biting tick as soon as you spot it, and it is easy to remove a tick safely using pointy tweezers. Simply grasp the tick's mouthparts as close to the skin as possible, and gently pull the tick straight out (steadily and firmly). Do not twist or jerk the tick. If the head or mouthparts remain in your skin, disinfect the area with rubbing alcohol.

In the event that the head or mouthparts remain in the skin or if you experience any symptoms, it is recommended that you consult your physician or seek medical attention. It is not recommended to wait for a tick to be tested because results may not be available for more than a week after submission.

2. Why does the Centers for Disease Control and Prevention (CDC) not recommend testing ticks for Lyme disease after they have bitten people?

According to the CDC, results of tick testing should not be used for treatment decisions. Positive results showing that the tick contains a disease-causing organism do not necessarily mean that you have been infected. Also, negative results can lead to false assurance—you may have been unknowingly bitten by a different tick that was infected. Finally, if you have been infected, you will probably develop symptoms before results of the tick test are available. If you do become ill, you should not wait for tick testing results before beginning appropriate treatment. For these reasons, the CDC does not recommend testing ticks from people for diagnostic purposes.

3. What diseases can ticks transmit?

Infected ticks can transmit a number of different diseases, including Lyme disease, Rocky Mountain spotted fever, and Tickborne relapsing fever. However, not all ticks are infected, and many ticks that people encounter in California do not carry disease. Interestingly, different diseases are transmitted by different types of ticks. Lyme disease can be transmitted by the western blacklegged tick (*Ixodes pacificus*) along the Pacific coast. Rocky Mountain spotted fever can be transmitted by dog and wood ticks, while Tickborne relapsing fever can be transmitted to humans through the bite of infected soft ticks.

4. What types of ticks are commonly found in California? And how do I recognize a tick?

Blacklegged ticks (*Ixodes pacificus*) and dog ticks (*Dermacentor* or *Rhipicephalus*) may be encountered in wilderness areas in California. Ticks are small arachnids, and like spiders they have eight legs as nymphs or adults. They also have piercing mouth parts, called the hypostome, that are used for biting.

5. What symptoms are seen with Lyme disease and when should I visit my doctor?

Early signs and symptoms of Lyme disease include fever, chills, headache, fatigue, pain in the muscles or joints, and swollen lymph nodes. In addition, a rash that looks like a bull's eye appears in approximately 70% to 80% of infected persons. If you have been bitten by a tick, watch the bite spot carefully. Within 3 days of being bitten, many people will develop a red spot

that never grows larger than a dime. This is a typical allergic reaction to the tick's saliva. However, if the bite mark grows to bigger than 2 inches, you should talk to your doctor since this could be a sign of infection. Later signs and symptoms of Lyme disease can include severe headaches, arthritis, facial palsy, and irregular heartbeat among other symptoms.

6. What should I do if I am having some of the symptoms of Lyme disease?

If you have had a tick bite and are experiencing the symptoms above, you should immediately consult your physician or seek medical attention. It is not recommended to wait for your tick to be tested because results may not be available for more than a week after submission.

7. How long does a tick have to be on me before I can get Lyme disease?

First off, remember that you can only get [Lyme disease](#) if a tick that is a carrier of the disease-causing microbe bites you. According to leading research, blacklegged ticks must be attached for longer than 24 hours to transmit the bacterium that causes Lyme disease. Ticks attached for less than 24 hours are not likely to transmit infection.

8. What can I do to prevent a tick from biting me?

One of the recommended ways to prevent tick bites is to treat shoes, socks, shorts/pants, and shirt with Permethrin tick repellent the day before going on a hike. Let it dry onto the fabric, and then go out and explore. It is also good to practice walking down the center of the trail and to do a thorough check for ticks when you get home.

9. How should I store a tick so that it can be tested?

Ticks are best kept in a Ziploc bag that has a moist paper towel (moistened with water) inside to prevent the tick body from drying out. Do NOT soak the tick in alcohol or any liquid other than water because it will make the tick untestable. Do not use a container that has stored anything other than water.

10. What types of tick testing are available at the Solano County Public Health Laboratory?

The public health laboratory offers tick identification and an indirect antigen fluorescent test for *Borrelia burgdorferi*, the causative agent of Lyme disease. If you want to test the tick for another tickborne disease, you may consider contacting your doctor or another laboratory for appropriate testing. In the case of tick testing, the public health laboratory does not provide referral services to other laboratories.

11. What does a positive test result mean?

A positive test means that organisms resembling *Borrelia burgdorferi*, the causative agent of Lyme disease, were found when testing the tick's mid-gut.

12. What does a negative result mean?

A negative test means that no organisms resembling *Borrelia burgdorferi*, the causative agent of Lyme disease, were found when testing the tick's mid-gut.

13. If a tick I submitted tests positive for *Borrelia burgdorferi*, does that mean I have Lyme disease?

No, it does NOT necessarily mean that the bitten person is infected by the bacteria. Studies have shown that, among other factors, the possibility of infection with *Borrelia burgdorferi* increases with the amount of time the tick is feeding on the person or if the tick was smashed on removal or mouth parts were left under the skin. The development of Lyme disease in humans after a tick bite depends on many factors. Some bitten persons never develop the disease. Others get a rash and nothing more. And some persons go on to get very serious and chronic problems. A person bitten by a tick carrying *Borrelia burgdorferi* should always consult with their physician. According to leading research, blacklegged ticks must be attached for longer than 24 hours to transmit the bacterium that causes Lyme disease. Ticks attached for less than 24 hours are not likely to transmit infection.

14. If the tick I submitted tests negative for *Borrelia burgdorferi*, does that assure me that I won't get Lyme disease?

A negative test shows that this particular tick did not harbor the Lyme disease organism, within the limits of the sensitivity of the indirect fluorescent antibody test. It does not mean that the person bitten is not infected with *Borrelia burgdorferi* or another tick-borne pathogen. The person might have been bitten by more than the one tick that was brought in for examination, or might have been bitten at another time.

15. Why was the tick I submitted considered unsatisfactory?

There are many reasons why a tick may be unsatisfactory for testing. Common reasons are that the tick dried out, the tick was placed in alcohol, or the specimen submitted was not a tick. To help ensure that a tick will be satisfactory for testing, please follow the tick removal and submission instructions above.

16. How frequently do ticks test positive in your laboratory?

The table below shows the positivity rate for ticks submitted to the Napa-Solano-Yolo-Marin County Public Health Laboratory from 2013 through 2017.

Ticks	2013	2014	2015	2016	2017	Total
Total submitted	220	529	645	708	712	2577
Positive	1	6	12	11	12	42
Negative	188	523	536	588	700	2535
Positivity rate	0.5%	1.1%	2.2%	1.8%	1.7%	1.6%

Note: Ticks are submitted by individual residents from various locations across the county, state, and nation. However, the majority of ticks are submitted from Marin County. The ticks evaluated include all species of ticks, including Ixodes species, Dermacentor species, Amblyomma species, and other tick species. Ixodes species are the primary vectors of Lyme disease in the United States. Other genera of ticks do not typically harbor *Borrelia burgdorferi*.

17. What is the sensitivity and specificity of the IFA test?

Both the sensitivity and specificity of the indirect fluorescent antibody test for *Borrelia burgdorferi* in ticks are estimated to be greater than 90%.

18. Can you recommend any additional resources on ticks and tick testing?

Please refer to the following links for additional information.

- a. <https://www.cdc.gov/ticks/index.html>
- b. <https://www.cdc.gov/lyme/resources/TickborneDiseases.pdf>

- c. <https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/Tick-Borne-Diseases.aspx>
- d. <https://www.marinhhs.org/lyme-disease-borrelia-burgdorferi>