

DR. TOM'S TICK-BORNE ILLNESS LAB CHEAT SHEET



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About the Author

Dr. Tom treats some of the sickest, most sensitive patients suffering from chronic Lyme disease and other environmentally acquired illnesses. He focuses on optimizing the body's self-healing systems in order to achieve optimal health with simple, natural interventions; utilizing more conventional approaches when needed.

Each individual is a unique unity of body, mind and spirit.

Successful treatment strategies are patient-centered and

address all three levels. The true source of radiant health is within each of us. Dr. Tom's goal is to empower each of his patients to get in touch with their inner source of health so they can experience optimal health.

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Dr. Tom's Tick-Borne Illness Lab Cheat Sheet

***Aka Dr. Tom's List of labs that might be considered
in the workup of suspected Tick-borne Illness***

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Thank you for your interest in my lab cheat sheet. Please note, this is just a place to begin. A resource to help you get started. It is by no means a replacement for proper medical training, a comprehensive history and physical exam or professional medical judgement.

I decided to make this Lab Cheat Sheet because many of the providers I was speaking to were frustrated with not knowing

where to start. And, if they went to “the Lyme lab,” they were asking patients to spend unbelievable amounts of money without really knowing if it was necessary. I went through the same thing in my practice. For over a decade, I’ve constantly adjusted my testing strategy to optimize the efficacy in coming to an accurate diagnosis, while also being as cost-effective as possible for my patients. This testing strategy is by no means 100% applicable in all cases, nor is it complete. There are always special circumstances. But, understanding which pathogens are in which tick and which labs are offering the best test for each of the pathogens can greatly enhance your diagnostic abilities while keeping testing costs to a necessary level.

Please remember, this is a starting point. There are advanced tests and advanced testing strategies out there, however, without a strong understanding of tick-borne illness testing as a foundation, your job will be harder and your patients may not be getting the best initial workup possible.

I have provided a recommended testing strategy for each of the three major tick species in the US. There are certainly other ticks and other pathogens. For example, *Ixodes pacificus* carries most of the same pathogens as *Ixodes scapularis*. May there be some discrepancies, sure, but for the most part they carry the same pathogens and the necessary testing is the same.

Labs are listed in the order in which I generally offer them. You will notice that no one lab gets the number one position for any test. That’s because each lab has an area where they may offer a particular diagnostic advantage. They have something unique to offer or, in some cases, they are all offering essentially the same test so there is no reason to go to a specialty lab to get a test that

would otherwise be covered by insurance. This is the case with *Anaplasma* and *Ehrlichia* testing. There is no significant benefit to going to a specialty lab in order to test for these pathogens.

Another important point is you don't need to work every patient up for every known tick-borne pathogen. If you know they have evidence of exposure to Lyme on a western blot and want to evaluate for possible co-infection, there is no need to check them for Rocky Mountain Spotted Fever or *Ehrlichia*, these are not Deer tick pathogens. If you're not sure what they were bitten by, that's a different story. But, keep in mind, it is estimated that 95% of Lyme is transmitted by a bite from a nymph, because they are so darn small! Dog and Lone Star ticks are the same size or larger than an adult Deer tick and all of these are much more easily found early and removed. This is likely why Lyme is so prevalent and infections from these larger ticks are less common. This is not to say don't consider these pathogens or don't test for them, just use common sense. In most cases, it is unnecessary to order every test possible.

Since the first couple of editions of this lab cheat sheet, I have made several updates to reflect changes in test availability and added a few notes on the science of lab testing. Several new tips have been added to this document. I hope you find them helpful.

Deer tick or Blacklegged tick (*Ixodes scapularis*)

***Borrelia burgdorferi* Antibody Screen AND Western Blot**

1. Igenex
 1. Lyme IFA
 2. Lyme Western Blot IgM & IgG
2. Imugen
 1. Lyme IgA/IgG/IgM screen and IgG western blot x 2 strains checked
 2. Lyme IgM western blot can be obtained by writing it in on the bottom of the order form
3. Local lab

Babesia microti

1. Imugen IgM & IgG
2. Igenex IgM & IgG
3. Local lab IgM & IgG

***Babesia duncani* (WA-1)**

1. Igenex IgM & IgG
2. Local labs, such as Quest, Labcorp, offer WA-1 IgG only

Anaplasma phagocytophilum

4. Imugen IgM & IgG
5. Local lab IgM & IgG

***Bartonella henselae* Antibodies**

1. Galaxy IgG only (see Tip 2)
2. Igenex IgM & IgG
3. Local lab IgM & IgG

Borrelia miyamotoi

1. Imugen IgM & IgG
2. Igenex (western blot or immunoblot, no antibody titer)

DNA PCR, especially for early diagnosis

1. Imugen for Borrelia, Babesia, Anaplasma
2. Igenex for Borrelia, Babesia, Anaplasma, Bartonella

Medicare

1. Imugen is covered
2. Most Igenex tests covered

Medicaid

1. Imugen is covered

Dog tick (*Dermacentor variabilis*)

Rocky Mountain Spotted Fever

1. Imugen IgM & IgG
2. Local lab IgM & IgG
3. Igenex (IgG only)

Tularemia

1. Imugen
2. Local lab
3. Not offered at Igenex

Lone Star tick (*Ambloyomma americanum*)

Rocky Mountain Spotted Fever

1. Imugen IgM & IgG
2. Local lab IgM & IgG
3. Igenex (IgG only)

Ehrlichiosis

- 1. Imugen IgM & IgG**
- 2. Local lab IgM & IgG**
- 3. Igenex IgM & IgG**
- 4. PCR from Imugen**
- 5. PCR from Igenex**

Q Fever (*Coxiella burnetii*)

- 1. Local lab**

STARI Borreliosis

- 1. No commercial testing is easily available**

Some Lab Tips:

Tip 1: Imugen is covered by Medicare and Medicaid. They also offer some discounts for prompt payment. Please contact Imugen for specific details. Imugen has a fast turn around rate and I find their results clinically relevant. Despite being an out of network lab, they bill on the patient's behalf and are commonly covered. *They were recently acquired by Quest and insurance coverage should be improving even more.*

Tip 2: Bartonella IgMs are usually very transient, if they appear at all. IgGs of >1:256 are considered indicators of recent infection or relapse, per the standard medical literature. Galaxy results of 64 or greater should be considered as positive. Igenex also offers Bartonella henselae IgM/IgG. Galaxy and Igenex have different ranges than many other labs, so please double check the reference ranges of the lab you are using.

Tip 3: Yersina can cause chronic reactive arthritis. Something to consider, particularly if symptoms started with GI illness.

Tip 4: Borderline Francisella titers may be due to cross-reactive antibodies to Brucella, Yersinia, Proteus.

Tip 5: Know what pathogens are transmitted by which ticks and order labs accordingly.

Tip 6: Ticks are commonly co-infected which means your patients are often co-infected as well. Serologic testing is not validated in a co-infection model, so we do not know for sure how each test will respond if the host is co-infected. Serial testing may be required when co-infection is suspected, but not found initially. Diagnose and treat your patient and the signs and symptoms they present with using the labs to support, not make, your diagnosis.

Tip 7: Borrelia miyamotoi is a relapsing fever Borrelia transmitted by Ixodes ticks. Its presentation can look like Babesia, Anaplasma and/or Lyme disease. There are case reports of it being misdiagnosed as Anaplasmosis. If your patient has been bitten by an Ixodes tick or is suspected or diagnoses as having Lyme, Babesia or Anaplasma, do not forget to check for possible Borrelia miyamotoi.

Tip 8: Armin now does UPS shipping, which my office has found much easier than dealing with DHL. Their turn around on test results is relatively quick.

Tip 9: Just because you're thinking tick-borne illness or similar infection, don't forget about the rest of medicine.

Tip 10: This is not an exhaustive list, it is a starting point. Many experienced providers will utilize other testing methods to help aid their diagnosis.

Tip 11: These tips are based upon my training and clinical experience studying persistent tick-borne illness for over a decade. We all still have a ton to learn and I am no different. This is a constantly evolving work that I hope you find helpful. If you have any questions, most labs have representatives who are happy to help you. I've learned a lot this way and encourage you to do the same. Take the information they provide and critically evaluate it, applying what you find valid, then reassessing its clinical usefulness constantly.

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I hope this helps!

A handwritten signature in black ink that reads "Dr. Tom". The signature is written in a cursive, flowing style with a long horizontal line extending from the end of the name.