Dental DNA Lyme Panel FAQs

Question: What kind of sample can I send for the Lyme Panel?

Answer: This test is designed to test urine. 30mL of urine is adequate. Borrelia (Lyme organism) is a spirochete. It has been detected in infected root canal teeth. You may send an oral sample in the form of a dental point or special floss we can include in our kit at no additional cost. That being said, our preferred specimen type is urine. We had a patient who was certain her bed ridden son had Lyme. We found a positive result after he moved his elbows, knees and neck, then captured his urine within the hour. We believe this movement forced some of the Lyme spirochete out of these joints, allowing us to detect this DNA on our fourth attempt. We recommend this procedure before urine collection. First morning urine should not be sent: it contains too many interfering substances and often gives a false negative result. We can also test ticks for the presence of this microbe's DNA

Question: What does your Lyme Panel test for?

Answer: The test uses primers which are specific for the genes of the Borrelia burgdorferi flagella, outer surface protein A, B and C. A positive test result for any of these 4 genes indicates the presence of the Lyme organism. Co-infectors tested for now include Babesia divergens, Babesia duncani, Babesia microti, Bartonella bacilliformis, Bartonella henselae, Bartonella quintana, and Ehrlichia chaffeensis. These are microbes that can travel along with the Lyme organism during the tick bite. Information on all of these microbes can be found under the Lyme Panel hyperlink under Tests Provided. This is a PCR (DNA based) test, not an antibody or Western Blot test. In our efforts to constantly improve our tests, we have recently added microbes that cause Lyme disease in Europe specifically Borrelia miyamotoi, and Borrelia recurrentis. We test for 10 different microbes in total.

Question: Can the urine sample be frozen?

Answer: According to previous research by other labs, freezing urine seemed to interfere with the detection of the Lyme Panel's DNA. Further research by our lab has shown that detection might actually be improved by freezing. We suggest sending half of the sample frozen in one tube (marked frozen) and the other half as follows: It is recommended that an empty 50mL tube that comes with the kit be placed into the freezer pack, then frozen before the sample is collected. Remove the 50mL tube from the frozen freezer pack, place urine inside, then place back into frozen freezer pack for immediate shipping. The urine may be refrigerated over the weekend, with optimal shipping on a Monday or Tuesday.

Question: How does the Dental DNA Lyme Panel differ from the Western Blot test?

Answer: The western blot is a widely used analytical technique used to detect specific proteins in a sample of tissue homogenate or extract. It uses gel electrophoresis to separate native proteins by 3-D structure or denatured proteins by the length of the polypeptide. The proteins are then transferred to a membrane (typically nitrocellulose or PVDF), where they are stained with antibodies specific to the target protein. The gel electrophoresis step is included in western blot analysis to resolve the issue of the cross-reactivity of antibodies. The problem with the western blot is that it is protein antibody based. Proteins denature under a variety of conditions, making it unrecognizable to the antibody specific for that protein. Antibodies, even monoclonal antibodies have a lower specificity for their target than primers in a PCR mix. Antibodies are raised in animals, which may have been exposed to others antigens that cross react with other protein species. On top of this problem is the actual transfer of the protein from the 3D gel to nylon or nitrocellulose. A bubble (commonly occurs) between the gel and the nylon/nitrocellulose, with actually prevent the transfer of the protein, giving a false negative. PCR uses amplification for its target DNA. One copy is turned into a billion copies in 2 hours. There is some amplification if antibody is tagged with biotin in Western blot, but the specificity and sensitivity of PCR is orders of magnitude greater than that of Western blot. Having performed both tests, Robert Wheeler finds that PCR is the better test for less false positives and false negatives.