

Lyme testing – finding a path through the labyrinth



With Lyme disease now firmly on our radar, the need for reliable testing is becoming more and more important. But getting valid results is not easy. Naturopath and nutritional therapist **Gilian Crowther**, director of research at the Academy of Nutritional Medicine, explains what's going on.



Official testing for Lyme disease in the UK applies the CDC-recommended system of a two-tier serodiagnostic algorithm: an initial enzyme-linked immunosorbent assay – “ELISA” – followed, if positive or equivocal, by an IgM and IgG “Western blot” (also called Immunoblot).

RIPL, the Rare and Imported Pathogens Laboratory at Public Health England in Porton Down, uses a synthetic C6 peptide derived from the spirochete’s VlsE (Variable major protein-like sequence expressed) for the ELISA.(1)

This is all with the aim of identifying the presence of *Borrelia burgdorferi*, the most well-known of the tick-borne bacteria known to cause the multi-systemic infection behind what we know as Lyme disease (there are more than 20 different *Borrelia* species).

The problem is that the VlsE constantly keeps ahead of the immune system by expressing different outer surface proteins – at least 15 variants are known.(2) The Western Blot is also an antibody test: electrophoresis is used to separate antigens from known positive samples across a polymer strip, which is then processed with the patient’s serum. *Borrelia* antibodies that match the antigens on the strip will bind. This at least uses more indicators than the single antigen in the ELISA test, but inaccuracy is still rife. If the antibodies are already bound in immune complexes, they cannot be detected. The spirochetes may be encapsulated in host tissue, may have changed into pleomorphic forms – eg round bodies – reducing the immune response, or

have agglomerated under biofilms.(3, 4)

A meta-analysis of Lyme test accuracy published by Prof Basant Puri of Hammersmith Hospital and Imperial College and Michael Cook in November 2016 concluded that the weighted mean sensitivity of all ELISA tests (over a 20-year period) was 62.3%, and 62.4% for the Western Blot.(5) With a mean sensitivity (the probability that a positive sample will be defined as positive by the test) of only 53.9% for synthetic C6 peptide ELISAs according to the meta-analysis above, 46% of cases are being missed and not even being referred for the confirmatory Western Blot, where a further 37.5% (on average) remain undetected.

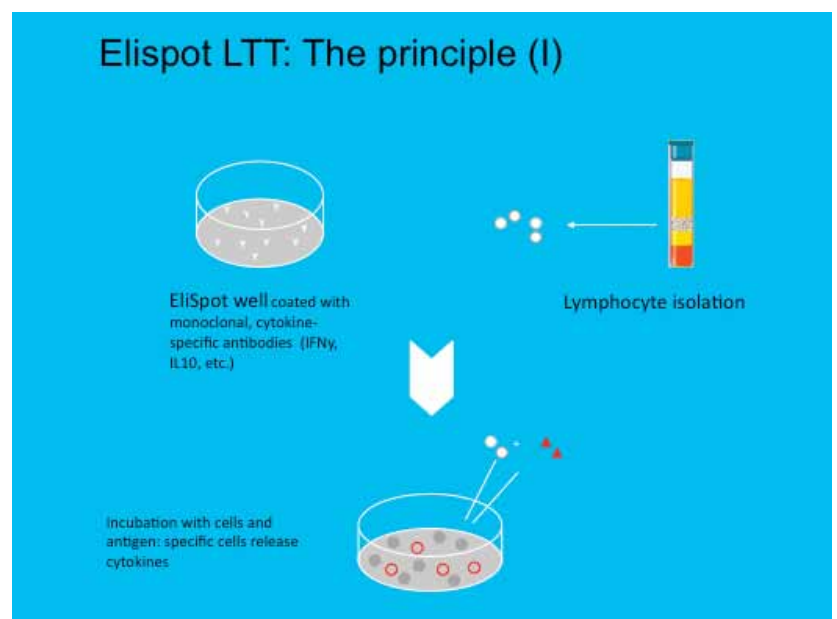
Puri and Cook concluded: “These results lend support to the recently published

conclusion of Stricker and Johnson (6) to the effect that ‘FDA-cleared commercial serological testing for Lyme disease is inadequate for the diagnosis of the disease.’”

More sensitive

Using the innate immune system’s T-cells to show a cellular response against Lyme antigens is much more sensitive, and indicates active infection (in contrast to antibodies, which can remain for months or years, long after an infection is gone). EliSpot (enzyme-linked immunosorbent spot) technology has long been used in Germany to do exactly this: it quantifies T-cells that secrete signature proteins (such as a given cytokine) against a specific antigen.

The *Borrelia* EliSpot evaluates the

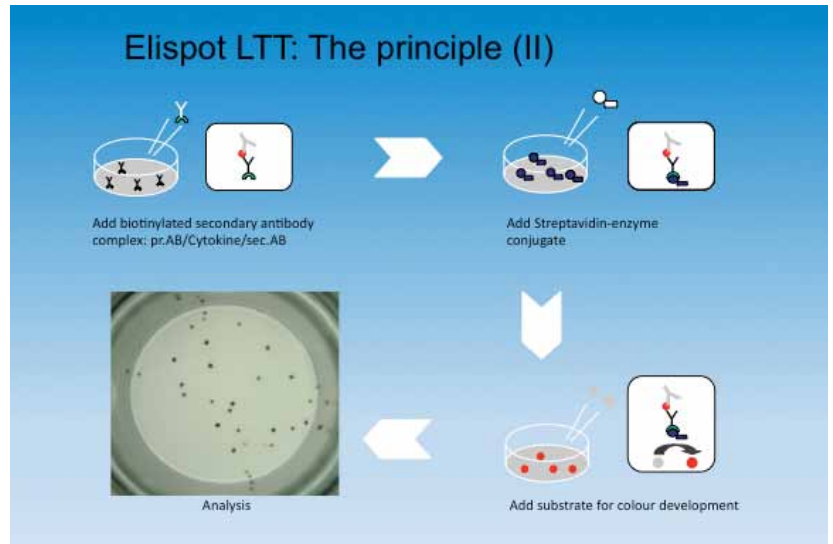


••• number of spot-forming units using a stimulation index (SI) based on IGRA (Interferon Gamma Release Assay), providing a measurement of *B. burgdorferi*-sensitive T cells in the peripheral blood. The ArminLabs test uses three different markers for the Borrelia EliSpot. The first is the full antigen, *Borrelia burgdorferi sensu stricto* (B-31 strain). The second is a peptide mix: outer surface protein (Osp) A from *Borrelia b. sensu stricto*, *Borrelia afzelii*, *Borrelia garinii*, native OspC, and a recombinant decorin-binding protein (Dbp) A. The third is Lymphocyte Function Antigen (LFA) 1 that is often associated with autoimmune disease. The EliSpot can now also be done for *Borrelia miyamotoi*, a newly discovered pathogenic form: "... the sensitivity of EliSpot is estimated at 84%, and the specificity is 94%..." [7]

CD57 levels

Using the CD57+ NK cell count provides additional support, as the CD57 lymphocyte subset appears to be a useful marker of long-term infection with the Lyme disease spirochete: Stricker and Winger have shown that 51% of patients with Lyme disease have significantly lower levels of CD57 before treatment, and a rise to normal range often correlates with recovery.(8)

Other tests that can be done via EliSpot are *Chlamydia pneumoniae*, *Chlamydia trachomatis*, *Ehrlichia/Anaplasma*, *Yersinia*,



Epstein Barr Virus (EBV), *Cytomegalovirus (CMV)*, and *HSV 1&2*.

Deep infections

It is becoming increasingly evident that deep-rooted infections/viruses often underlie conditions that have long been consigned to other categories, such as ME and fibromyalgia. Dr Armin Schwarzbach, MD, PhD, from ArminLabs gave a presentation during AONM's second "Lifting the Veil" conference (November 2015) based on evidence from scientific journals as well as his decades of experience. His title summed up the broad field of inquiry this testing addresses: "ME, MS,

fibromyalgia, Alzheimer's, Parkinsonism, Autism...Tailored Testing Protocols." (review the slides from this presentation free of charge on the AONM website at <http://aonm.org/ltv-conference-series> (see Lifting the Veil II).

Another presentation (October 2016) based entirely on scientific studies highlighted "Lyme Disease and Viruses: their role in degenerative & autoimmune conditions" (<http://aonm.org/October-2016-conference>).

ArminLabs, based in Augsburg, Germany, is a renowned laboratory for tick-borne infections. It is run by Dr Schwarzbach who has been a laboratory specialist for Lyme disease and co-infections for more than 15 years. He previously founded Infectolab, and has tested thousands of Lyme disease patients. He was a board member of ILADS (the International Lyme and Associated Diseases Society), and Chair of their laboratory testing and international committee.

AONM works together with Dr Schwarzbach due to his huge expertise, integrity, and compassion towards patients. Further details about ArminLabs testing can be found on the AONM webpage: <http://aonm.org/armin-labs/>.

• References online at www.cam-mag.com/references.

Naturopath and nutritional therapist Gillian Crowther, MA (Oxon), ND/NT, mBANT, CNHC reg, Cell Symbiosis Therapy UK Hotline, AONM Director of Research: www.aonm.org, www.cst-academy.co.uk.

Training on Lyme and co-infections

The Academy of Nutritional Medicine – AONM – is an interdisciplinary forum working towards the integration of conventional and complementary medicine. It aims to bring together expertise particularly on complex conditions such as ME, fibromyalgia, Lyme disease and the multiple co-infections and viruses that can underlie severe illness. AONM has helped to raise awareness of Lyme disease in the UK by holding regular conferences on the topic with world experts such as Dr Richard Horowitz, Dr Dietrich Klinghardt and Dr Joseph Jemsek. AONM represents ArminLabs in the UK – a section on its website explains how to fill out the checklists with your patients, order the tests, etc. AONM provides training on therapies for Lyme disease and co-infections, as well as on mitochondrial therapy (Cell Symbiosis Therapy – CST). AONM's next big conference is on May 14.

Videos of most of AONM's conferences are available, as well as an excellent DVD on the Acumen mitochondrial and toxicology tests (held by Dr. Charles Forsyth from the British Society for Ecological Medicine) from September 2014. Starting this month, AONM plans monthly webinars on interpretation of bacterial/viral results and discussion of therapies in small groups among both doctors and naturopaths/nutritional therapists. Register by contacting info@aonm.org, www.aonm.org.

Nutri bring back Pizzorno for toxicity research update

Naturopathic physician Dr Joe Pizzorno, ND, has long championed the need to support detoxification in the body and also looked at the ways in which we can reduce our exposure.

He has pioneered the use of a new mathematical model that shows clearer links between persistent organic pollutants (POPs) in our environment and specific

effects on health. In his lecture in London later this year Joe will propose that:

- More than 50% of ADHD is due to just three toxins
- More than 50% of diabetes cases are due to phthalates, arsenic and polycyclic aromatic hydrocarbons
- Nearly 45% of Alzheimer's may be linked to DDT

- Prostate cancer is 31.5% attributable to arsenic.
- More than 40% of gout in women can be related to arsenic.
- PCBs show strong links with heart attacks.
- Date: June 17. To register your interest and be the first to receive the booking information when it is available call Nutri Advanced on 0800 212 742 option 1 and ask to be added to the advanced notification list.