The Common Mechanisms of Fungal-Viral Damage in CFIDS, Vaccines-Autism, and “Chronic Lyme”/New Great Imitator, per the CDC, NIH and IDSA

Contents

I. Background on fungal antigens (mycoplasmal, eperythrozoal, mycobacterial, spirochetal, Chlamydial, Candidal, etc) causing immunosuppression, changes to erythrocyte osmotic potential (hypoxic fatigue), and activating vaccine viruses; IMAGE of OspA from the Korean HIV-MassSpec study, 1996

II. SUNY-SB/Dattwyler/JJ Halperin/IDSA on seronegative, immunosuppressive Lyme and fungi, when discussing LYMErix, OspA or Borreliosis (1988)

III. Thimerosal is put in vaccines to prevent fungi because they help activate viruses via immunosuppression, and inhibition of apoptosis of fungally infected B cells in particular.

IV. CDC and BigPharma on fungal-viral synergy / vaccine-failure conditions and vaccines (On Kynurenines, serotonin and melatonin synthesis, ROS by-products and intracellular damage resulting in pain & other symptomology without classical “autoimmunity” and “inflammation” – SSRIs and Lyrica as treatments come to mind)

V. Fungal antigens inhibit apoptosis – the first step in chronic disease and dysimmunity; seen again recently in Treg boosters in chemo. State of the Art mentions Pam3Cys inhibits apoptosis (2013)

VI. Fungi/ TLR2/1-agonists, as are found in mycoplasma and spirochetes, cause immunosuppression in the form of a lack of antibodies as shown in the downregulation of the HLA/MHC molecules and cytokine production. (In parallel = failed fungal vaccines)

VII. Expansion of Tolerance to viruses (Harding) and LPS (Medvedev) (matches the new NIH/wustl definition, post-sepsis syndrome

VIII. CDC on chronic EBV causing fatigue via mitochondrial dysfunction

IX. Mycoplasma TLR2/1- agonist lipids affecting/inhibiting cell metabolism including transmembrane potential (This report is already seen above, re apoptosis, but the other important observation is in what mycoplasmal TLR2/1-agonist lipids do to intracellular organelles and membranes) causing fatigue.

X. Tregs and Pam3Cys - “Our Best Frenemy” (Pam3Cys as a chemo adjuvant could be a bad idea because of its inhibition of apoptosis, leading to cancer; thankfully the State of the Art on using Tregs as adjuvants includes a mention of Pam3Cys acting like BCL2-class molecules, inhibiting apoptosis.)

XI. Lyme, OspA and Epstein-Barr/similar herpes reactivation, Great Imitator, “L2 Diagnostics,” NINDS’ MS-Lyme Group (Martin & Marques), Duray on EBV, Halperin, Schoen and Luft on LYMErix causing the same disease as Chronic Neurologic Lyme

XII. A Parallel Dynamic: Malaria and EBV and the production of Burkitts Lymphoma; and we expect to find high rates of Chronic Fatigue Syndrome in Africa and we do. Chronic Active EBV suppresses HLA processing so we never associate pathologies such as ME/CFS with antibody studies; all of such reports have to be discarded from data summaries and analysis.

XIII. IDSA’s policy papers on rapid diagnosis and 7-8 X more accurate, sensitive and complete diagnoses on all sorts of samples. Will never be deployed not because it is too costly to purchase Mass Spec instrumentation, but because no IDSA or CDC member can sell an office test kit. It’s not about humans or health, after all, it’s just about the money, the royalties.

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I. Background on fungal antigens (mycoplasmal, eperythrozoal, mycobacterial, spirochetal) causing immunosuppression, changes to erythrocyte osmotic potential (hypoxic fatigue), and activating vaccine viruses:

1953 IV. THE RELATIONSHIP OF EPERYTHROZOON COCCOIDES TO THE HEPATITIS VIRUS OF PRINCETON MICE
"In Swiss mice, animals with high natural resistance to hepatitis virus, the pathogenicity of this agent was markedly enhanced by combined infection with eperythrozoa. Eperythrozoa were maintained throughout 18 successive passages in normal Princeton and Swiss weanlings with intact spleens. The combined infection of Princeton mice with eperythrozoa and the virus component of Gledhill, Dick, and Andrewes, which is nearly inactive when injected alone, resulted in acute hepatitis with fatal outcome."
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2136329/?tool=pubmed

[The effect of Eperythrozoon suis infection on the osmotic fragility of erythrocytes]
“Osmotic fragility of erythrocytes was tested in weaned pigs experimentally infected with Eperythrozoon (E.) suis. Acute eperythrozoonosis of splenectomized pigs led to an increase of osmotic fragility. It is supposed that E. suis infection causes a structural change in erythrocyte membrane. Possible mechanisms of this cell membrane injury are discussed.”

So, what is a fungal antigen? What is “What's handled by TLR2 and TLR1 as a dimer?” Among them are tri-acylated antigens like OspA (there are others). Look up on Wikipedia or elsewhere (google images) these terms, before proceeding here. We are talking about how the immune system manages molecules that make up infectious disease pathogens. Science is all visual, so take it slow to absorb the images in your mind, or at least find a way to have easy access to these images and their structure-function again.

Remember that the entire HHS.gov and so called “medical” field and so-called “doctors” have entirely defaulted on all medical science. Therefore, this is a wide-open field for all well trained persons, especially in this business of immunosuppression-come-virus-reactivation that the authors are relating here.

There are 8 million people in America who have Fibromyalgia and 4 million who have Chronic Fatigue Syndrome according to the NIH, yet still, to this day (2015), we have to suffer idiots and low-lives with “MD” after their names, who in the media claim there are not valid biomarkers of Chronic Fatigue/ME/Fibromyalgia. Clearly such individuals gave up reading and rely totally on the drug reps for medical training. And there is no drug yet that reverses fungal antigen tolerance, and there are a huge number of people worldwide who have suffered through septic shock and they all have the same, “chronic poor health” outcome. Therefore if you are a human being and an English speaker or writer or have access to Western culture and science databases, all this belongs to you, and is your burden and your privilege to serve and share with others so that they no longer be slandered, libeled and abused.

Spirochetes bear and shed FUNGAL antigens of the "TLR2/1" type or are tri-acylated (have 3 fatty acid groups attached to a protein group with a very electronegative cysteine with 3 esters at its core). This type of antigen suppresses the immune system in most people -in 85% of us who do not have the arthritis prone HLAs. That means chronic Lyme - and all spirochetal diseases are
permanent - will not test as if it is a hypersensitivity response in most people. Yet, the Lyme ELISA only detects these HLA-linked hypersensitivity cases.

2001; *Toll-like receptor 2-dependent inhibition of macrophage class II MHC expression and antigen processing by 19-kDa lipoprotein of Mycobacterium tuberculosis.*

Department of Pathology, Case Western Reserve University and University Hospitals of Cleveland, Cleveland, OH 44106, USA.

Noss EH, Pai RK, Sellati TJ, Radolf JD, Belisle J, Golenbock DT, Boom WH, Harding CV.

Mycobacterium tuberculosis (MTB) induces vigorous immune responses, yet persists inside macrophages, evading host immunity. MTB bacilli or lysate was found to inhibit macrophage expression of class II MHC (MHC-II) molecules and MHC-II Ag processing. This report characterizes and identifies a specific component of MTB that mediates these inhibitory effects. The inhibitor was extracted from MTB lysate with Triton X-114, isolated by gel electroelution, and identified with Abs to be MTB 19-kDa lipoprotein. Electroelution- or immunoaffinity-purified MTB 19-kDa lipoprotein inhibited MHC-II expression and processing of both soluble Ags and Ag 85B from intact MTB bacilli. Inhibition of MHC-II Ag processing by either MTB bacilli or purified MTB 19-kDa lipoprotein was dependent on Toll-like receptor (TLR) 2 and independent of TLR 4. Synthetic analogs of lipopeptides from Treponema pallidum also inhibited Ag processing. Despite the ability of MTB 19-kDa lipoprotein to activate microbicidal and innate immune functions early in infection, TLR 2-dependent inhibition of MHC-II expression and Ag processing by MTB 19-kDa lipoprotein during later phases of macrophage infection may prevent presentation of MTB Ags and decrease recognition by T cells. This mechanism may allow intracellular MTB to evade immune surveillance and maintain chronic infection.


The following is an example of Pam3Cys or OspA taken from a Korean journal article on HIV’s and SIV’s Pam3Cys:


http://newjournal.kcsnet.or.kr/main/j_search/j_download.htm?code=B961118
We are currently using several mass spectral techniques to characterize the amino acid sequences of the Pam3Cys peptides found in the envelop glycoproteins of HIV-1 and the Simian Immunodeficiency Virus (SIV). Conventional FAB-MS analysis using standard matrices, such as glycerol and nitrobenzyl alcohol, is not particularly effective for these molecules, largely due to their tendency to aggregate. Here,
Very much like what happened to OspA in the vaccine vials resulting in the blot-smudging that made the OspA vaccine trial results totally unreadable, which is another aspect of this Lyme fraud.

There are other TLR2/1 agonists besides triacyl lipoproteins from fungal pathogens. (In your PubMed research also use the term TLR1/2 agonist.)

II. SUNY-SB/Dattwyler/JJ Halperin/IDSA on seronegative, immunosuppressive Lyme and fungi, when discussing LYMErix, OspA or Borreliosis (1988)

Modulation of natural killer cell activity by Borrelia burgdorferi.

"Effect of B burgdorferi Culture on Normal PBL
"...when lymphocytes are cultured in the presence of growing Bb there is a marked inhibition ( p < .0005 ) of NK activity on days 3, 5, and 7 when compared to lymphocytes cultured in BSKII media in the absence of spirochetes. This effect is not due to a selective depletion or toxicity to endogenous NK since viability studies and monoclonal antibodies demonstrate no significant changes after culture with the organism.
"The inhibition is directly attributable to the organism or its supernatants (data not shown)."

The supernatant would naturally contain the hydrophobic lipoproteins like OspA.

Seronegative Lyme Disease Dissociation of specific T- and B-lymphocyte responses to Borrelia burgdorferi.

"The diagnosis of Lyme disease often depends on the measurement of serum antibodies to Borrelia burgdorferi, the spirochete that causes this disorder. Although prompt treatment with antibiotics may abrogate the antibody response to the infection, symptoms persist in some patients. We studied 17 patients who had presented with acute Lyme disease and received prompt treatment with oral antibiotics, but in whom chronic Lyme disease subsequently developed. Although these patients had clinically active disease, none had diagnostic levels of antibodies to B. burgdorferi on either a standard enzyme-linked immunosorbent assay or immunofluorescence assay. On Western blot analysis, the level of immunoglobulin reactivity against B. burgdorferi in serum from these patients was no greater than that in serum from normal controls. "The patients had a vigorous T-cell proliferative response to whole B. burgdorferi, with a mean (±SEM) stimulation index of 17.8±3.3, similar to that (15.8±3.2) in 18 patients with chronic Lyme disease who had detectable antibodies. The T-cell response of both groups was greater than that of a control group of healthy subjects (3.1±0.5; P<0.001).
"We conclude that the presence of chronic Lyme disease cannot be excluded by the absence of antibodies against B. burgdorferi and that a specific T-cell blastogenic response to B. burgdorferi is evidence of infection in sero-negative patients with clinical indications of chronic Lyme disease. (N Engl J Med 1988; 319:1441–6.)...
"The disorder in these seronegative patients reflected a dissociation between T-cell and B-cell immune responses, in which the cell-mediated arm of the immune response was intact yet the humoral portion of the response to B. burgdorferi appeared to be blunted. This diminished antibody response is in contrast to the T-cell anergy commonly observed in several chronic infections (e.g., infection with...
Mycobacterium leprae or M. marinum, filariasis, and some chronic fungal infections (29-33))

This was one of JJ Halperin's and Raymond Dattwyler's references for the above Seronegative Lyme Assay:

1976; **Suppressor thymus-derived lymphocytes in fungal infection.**

“Thymus-derived lymphocyte (T-cell) function, as determined in vivo by cutaneous reactivity to several antigens and in vitro by responsiveness to mitogens and antigens, was assessed in 14 patients infected with a variety of fungal organisms. While all patients manifested a normal frequency of peripheral blood T cells, only seven patients reacted to at least one of the antigens used for cutaneous testing and demonstrated normal in vitro T proliferative responses. Three patients exhibited cutaneous anergy but normal in vitro T-cell reactivity while four patients demonstrated persistent anergy and marked in vitro T-cell hyporeactivity which was independent of activity of infection, concurrent medication, or any associated disorders. The marked diminution of in vitro T-cell reactivity noted for these later four patients was not due to a deletion of antigen- or mitogen-reactive cells. Thus, patients' cells which had been initially cultured for 7 days without any mitogenic or antigenic stimulus and which were subsequently washed and recultured with phytohemagglutinin, concanavalin A, or histoplasmin demonstrated a marked increase in their responsiveness. Moreover, this reactivity noted for recultured cells could be suppressed by a nonphagocytic, nonadherent, nonimmunoglobulin-bearing, sheep red blood cell rosette-forming population of cells isolated from the fresh peripheral blood mononuclear cells of the same patient. While these "regulator" T cells were capable of suppressing T-proliferative responses to antigens and mitogens, they did not diminish pokeweed mitogen-induced immunoglobulin synthesis by normal bone marrow-derived lymphocytes. Patients in whom suppressor "T" cells were found were at risk for relapsing, disseminated fungal infection.”

Look at the references here (dates, topics):

III. **Thimerosal is put in vaccines to prevent fungi because they help activate viruses via immunosuppression, and inhibition of apoptosis of fungally infected B cells in particular.**

2012, Dec, NYTimes; Doctors admit Thimerosal is put in vaccines to prevent fungi:

*Vaccine Rule Is Said to Hurt Health Efforts*

"But a proposal that the ban include thimerosal, which has been used since the 1930s to prevent bacterial and fungal contamination in multidose vials of vaccines, has drawn strong criticism from pediatricians…. They say that the ethyl-mercury compound is critical for vaccine use in the developing world, where multidose vials are a mainstay…Banning it would require switching to single-dose vials for vaccines, which would cost far more and require new networks of cold storage facilities and additional capacity for waste disposal, the authors of the articles said."
IV. CDC and BigPharma in fungal-viral synergy / vaccine-failure conditions and vaccines (On Kynurenines, serotonin and melatonin synthesis, ROS by-products and intracellular damage resulting in pain & other symptomology without classical “autoimmunity” and “inflammation” – SSRIs and Lyrica as treatments come to mind)

CDC’s Patent, US # 7,632,510,
*Methods of inducing flavivirus immune responses through the administration of recombinant flaviviruses comprising an engineered Japanese encephalitis virus signal sequence*

"Finally, there is the risk that the virus may not be fully or completely inactivated or attenuated and thus, the vaccine may actually cause disease."


CDC SAYS, …*Measles, Mumps, and Rubella -- Vaccine Use and Strategies for Elimination of Measles, Rubella, and Congenital Rubella Syndrome and Control of Mumps: Recommendations of the Advisory Committee on Immunization Practices (ACIP)*

"Updated information on adverse events and contraindications, particularly for persons with severe HIV infection, persons with a egg allergy or gelatin allergy, persons with a history of thrombocytopenia, and persons receiving steroid therapy [are immunosuppressed - KMD]."

http://www.cdc.gov/mmwr/preview/mmwrhtml/00053391.htm

CDC SAYS: *Human Exposure to Brucella abortus Strain RB51 -- Kansas, 1997*

http://www.cdc.gov/mmwr/preview/mmwrhtml/00051495.htm

[In the above, an immunosuppressed pregnant cow was given a Brucella (LYMErix-like) "live attenuated" vaccine and the baby cow ended up with the disease, which then was transferred to the humans handling the cow and her dead baby. This parallels what is happening to children who are vaccinated while immunosuppressed, or who receive mycoplasmally (LYMErix-like) contaminated vaccines -KMD.]

In the case of pandemic MRSA, as we have seen, the vaccine didn’t work because TLR2 agonists (lipoproteins) suppress the immune system. We also learned from this MRSA vaccine patent, that (US patent 7,771,728, Intercell AG) that there is a risk of reversion to virulence if live attenuated viruses are injected into immunosuppressed persons:

*Method for identification, isolation and production of antigens to a specific pathogen*

"Several established vaccines consist of live attenuated organisms where the risk of reversion to the virulent wild-type strain exists. In particular in immunocompromised hosts this can be a live threatening scenario. Alternatively, vaccines are administered as a combination of pathogen-derived antigens together with compounds that induce or enhance immune responses against these antigens (these compounds are commonly termed adjuvant), since these subunit vaccines on their own are generally not effective."

CDC SAYS that stress hormones like cortisol activate viruses (but when fungi activate latent viruses it is not reversible, as is shown in other EBV-diseases such as Lupus, cancer, MS, and CFIDS/Lyme):

**2012; The effect of exogenous corticosterone on West Nile virus infection in Northern Cardinals (Cardinalis cardinalis)**

“Corticosterone was administered at levels that individuals enduring chronic stressors (i.e., long-term inclement weather, food shortage, anthropogenic pollution) might experience in the wild. Corticosterone greatly impacted mortality: half of the corticosterone-implanted cardinals died between five - 11 days post-inoculation whereas only one of nine sham-implanted (control) birds died. … No differences were found in viral titer between corticosterone- and sham-implanted birds. However, cardinals that survived infections had significantly higher average body temperatures during peak infection than individuals that died… In sum, this study indicates that elevated corticosterone could affect the survival of WNV-infected wild birds, suggesting that populations may be disproportionately at-risk to disease in stressful environments.”

[The same is true for humans and cortisol and the activation of latent herpesviruses; just go to PubMed and look for a astronauts and EBV, or medical students and EBV,… – you’ll see cortisol come up ;); when astronauts or wannabee doctors are stressed out, they may have cortisol-activated EBV. But regular humans no, they have some psychiatric disorder. Why the big secret, no one knows since it’s common knowledge that arrogance is the cowardly calling card of assholes.]

**1981; Adhesion of mycoplasmas to eukaryotic cells.**

“Many pathogenic mycoplasmas are surface parasites, adhering to the epithelial linings of the respiratory and urogenital tracts. Since mycoplasmas lack cell walls their plasma membrane comes in close contact with that of their host, allowing exchange of components between the two membranes and possibly fusion. The tight association of the parasite with its host is illustrated in scanning electron micrographs of Mycoplasma pneumoniae and M. gallisepticum adhering to human red blood cells. Specialized structure at the tips of the mycoplasma cells appear to function as attachment organelles. Our main aim has been to chemically define the receptors on the host cell and the binding sites on the mycoplasma cells responsible for adhesion. Glycophorin (the major sialoglycoprotein of human red blood cells) serves as the main or sole receptor for M. gallisepticum whereas M. pneumoniae binds to additional receptors on human red blood cells. Trypsin treatment of M. pneumoniae cells abolishes their ability to attach to human red cells, suggesting the protein nature of the binding sites. M. pneumoniae membranes solubilized by detergents were subjected to affinity chromatography on glycophorin-Sepharose so that membrane components with high affinity for glycophorin could be isolated. The fraction isolated consisted of several proteins (relative molecular mass 25 000 and 45 000). The binding of this fraction to red cells was relatively low but appeared to be specific, as it was inhibited by glycophorin but not by its hydrophobic moiety. The possibility is discussed that the exposure of the binding sites on the mycoplasma cell surface is influenced by the electrochemical ion gradient across the membrane.


RELATED ARTICLES TO THE ONE IMMEDIATELY ABOVE (Read!!, 240):
AND this is on oxidized lipoproteins


Remember ROS are by-products of lipids broken down by kynurenines/quinolinic acid, the production of which makes L-tryptophan less available to produce serotonin and melatonin.

Quinolinic acid – intracellular ROS from mycoplasma lipids:

This is might be one of the reasons you get pain without classic “autoimmune” humoral, “inflammation.” It’s a cellular response, not humoral (as seen in classic autoimmune diseases) as explained by Dattwyler, above.

Finally, everyone should know that the CDC, knowing fungal antigens injected directly into the bloodstream causes irreversible immunosuppression and “immune damage,” later performed research fraud in order to deny that mycoplasma play any role in the chronic immune-suppression disease or fatigue: Throwing out the RBCs to which mycoplasma adhere before looking for mycoplasma, clue:

2003; Absence of Mycoplasma species DNA in chronic fatigue syndrome

“Blood was collected in sodium citrate Vacutainer tubes (Beckton Dickinson) and shipped by overnight courier to the Centers for Disease Control (CDC), where plasma was collected by separation on lymphocyte separation medium (LSM; ICN Biomedicals). Plasma (1 ml) was concentrated to approximately 250 μl in a Centricon centrifugal filter unit YM-100 (Millipore). Cell-free plasma DNA was extracted by using a QIAamp DNA Mini kit (Qiagen) according to the manufacturer's instructions and quantified by using a DyNA Quant 200 fluorometer (Amersham Biosciences).”

http://jmm.sgmjournals.org/content/52/11/1027.long

So, it is pretty important that everyone know what the CDC did here. They do not want anyone to know mycoplasma are involved in Chronic Fatigue Syndrome.

V. Fungal antigens inhibit apoptosis – the first step in chronic disease and dysimmunity; seen again recently in Treg boosters in chemo. State of the Art mentions Pam3Cys inhibits apoptosis (2013)

2004, Israel, Mycoplasma fermentans inhibits tumor necrosis factor alpha-induced apoptosis in the human myelomonocytic U937 cell line.

“In conclusion, M. fermentans significantly inhibits TNFalpha-induced apoptosis in U937 cells, and its effect is upstream of the mitochondria and upstream of caspase-8.”


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The inhibitory effect of Mycoplasma fermentans on tumour necrosis factor (TNF)-alpha-induced apoptosis resides in the membrane lipoproteins.

“Mycoplasma have been shown to be involved in the alteration of several eukaryotic cell functions, such as cytokine production, gene expression and more. We have previously reported that infection of human myelomonocytic U937 cell line with live Mycoplasma fermentans (M. fermentans) inhibited tumour necrosis factor (TNF-alpha)-induced apoptosis.”


2000; Gary Wormser and his exact language when he writes about how OspA inhibits the immune response:

Modulation of lymphocyte proliferative responses by a canine Lyme disease vaccine of recombinant outer surface protein A (OspA).

The modulation of human lymphocyte proliferative responses was demonstrated with a recombinant outer surface protein A (OspA) vaccine preparation for the prevention of Borrelia burgdorferi infection. After exposure to either the unaltered vaccine preparation or OspA prepared in saline, normal lymphocyte responses to the mitogens concanavalin A, phytohemagglutinin-M or pokeweed mitogen, or the antigen BCG were consistently reduced. Whole cell extracts of B. burgdorferi also modulated immune responses but required a much greater quantity of protein than needed for the OspA preparation. The magnitude of modulation was directly dependent on the quantity of OspA. OspA interferes with the response of lymphocytes to proliferative stimuli including a blocking of cell cycle phase progression. Future studies designed to delete the particular region or component of the OspA molecule responsible for this effect may lead to improved vaccine preparations.


By the way, no dog vaccine ever prevented spirochetes. The vaccines may have blunted the arthritis result, but they never prevented spirochetes. You’ll notice in their language that they measure their fake vaccines efficacies in the production of antibodies rather than whether there is any spirochetal flagellin DNA to be found in their mammalian victims.

VI. Fungi/TLR2/1-agonists, as are found in mycoplasma and spirochetes, cause immunosuppression in the form of a lack of antibodies as shown in the downregulation of the HLA/MHC molecules and cytokine production. (In parallel = failed fungal vaccines)

1999, Radolf, et al:

Toll-like receptor 2 functions as a pattern recognition receptor for diverse bacterial products.

“Lyme disease and syphilis are acute and chronic inflammatory disorders caused by the spirochetal pathogens Borrelia burgdorferi and Treponema pallidum subsp. pallidum, respectively (15, 16). Both spirochetes lack LPS (17, 18); however, they do possess abundant membrane lipoproteins (19). There now exists a large body of evidence that spirochetal lipoproteins and synthetic lipohexapeptide analogs are potent activators of monocytes/macrophages, neutrophils, lymphocytes, endothelial cells, and fibroblasts and that acyl modification of the peptides is essential for these proinflammatory activities (20-29). More recent
observations suggest that the mechanisms underlying monocytic cell activation by motile *B. burgdorferi* and *T. pallidum* are identical to those employed by their purified membrane constituents (30). These results support the notion that lipoproteins are the principle component of intact spirochetes driving the host immune response during Lyme disease and syphilis. Similarly, lipoproteins and lipopeptides derived from the human pathogen *Mycoplasma fermentans* are also potent activators of monocytes/macrophages and may play an important role in the inflammatory response during infection (31-33).

“The cellular activation induced by the lipoproteins or lipoprotein-derived lipopeptides from *B. burgdorferi* and *T. pallidum* resembles that of the LPS signaling pathway, as CD14 appears to facilitate cellular activation by both types of pathogenic membrane structures (21, 25). However, several differences have been observed between LPS and lipoprotein cellular activation, indicating the utilization of different signaling elements. For example, spirochetal and mycoplasma lipoproteins and lipopeptides activate macrophages from LPS hyporesponsive C3H/HeJ mice (23, 24, 27,31). In addition, whereas Chinese hamster ovary (CHO)-K1 cells become remarkably sensitive to LPS after transfection with CD14 (34-36), they remain insensitive to the lipoproteins, lipopeptides, and motile *B. burgdorferi* (21, 30, 32). These observations led us to hypothesize that differences in main signaling components exist between lipoproteins and LPS.

“We have recently found that CHO-K1 cells do not express an mRNA transcript for full-length and functional TLR2 (37). This observation raised the possibility that the lack of functional TLR2 might account for the failure of CHO/CD14 cells to respond to bacterial structures other than LPS. To test this hypothesis, we engineered stable CHO/CD14 fibroblast cell lines that express TLR2. The transfected cells were highly susceptible to activation by lipoproteins and lipopeptides from *B. burgdorferi*, *T. pallidum*, and *M. fermentans*, as well as to activation by live motile *B. burgdorferi*. In contrast, cells expressing TLR1 or TLR4 did not acquire responsiveness to bacterial lipoproteins/lipopeptides. Moreover, we observed a TLR2-mediated cell activation by *Mycobacterium avium*, an important pathogen in AIDS. Similar studies have documented inducible responses to other bacteria as well, including staphylococci, listeria, tuberculosis, and the pneumococcus, suggestive of wide-spread recognition of bacteria by TLR2 (10, 11,38,39) 2 3 We propose that TLR2 mediates cellular responses to structures from numerous microbial cell wall constituents and may thus be central in host recognition of diverse bacterial pathogens. Therapies directed at the TLRs may be useful anti-inflammatory agents for a large variety of chronic and acute bacterial infections.”

http://www.jbc.org/content/274/47/33419.long

*Mycobacterium tuberculosis* LprG (Rv1411c): A Novel TLR-2 Ligand That Inhibits Human Macrophage Class II MHC Antigen Processing1
http://www.jimmunol.org/cgi/content/full/173/4/2660

The 19-kD antigen and protective immunity in a murine model of tuberculosis.
“These results are consistent with a model in which the presence of the 19-kD protein has a detrimental effect on the efficacy of vaccination with live mycobacteria.”

http://www.ncbi.nlm.nih.gov/pubmed/11179309

LUFT and Schoen/Persing on OspA – fungal - causing systemic disease (parallels the above TB vaccine failure and the failed childhood vaccines failure):

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1998, FDA Minutes (read all of it, it is pretty awesome):
http://www.fda.gov/ohrms/dockets/ac/98/transcpt/3422t1.rtf

BEN LUFT: "The point that I wanted to make in regard to the study is that there is very heavy dependence on serologic confirmation. And when we start thinking about the adverse events, *** it was stated originally when we got the overview of the disease that the disease is really quite protean [means not limited to "bad knees- KMD]. And actually the adverse events are very similar to what the disease manifestations are.**** And if you start to, as I think Dr. Hall was eluding to -- if you start to kind of say well how often do you actually become sero positive, you can start to have a different take on when someone has an adverse event of whether it is disease specific or infection specific versus vaccine specific. And I think that that is an important issue that we have to deal with. I can only say from my own ..."

1996; Persings RICO-RICO patent developed with Robert Schoen on LYMErix causing systemic disease like chronic Lyme (unsurprising since it is a TLR2/1 agonist and therefore fungal like the failed Tb vaccines):

"Method for detecting B. burgdorferi infection"
"Additional uncertainty may arise if the vaccines are not completely protective; vaccinated patients with multisystem complaints characteristic of later presentations of Lyme disease may be difficult to distinguish from patients with vaccine failure. ...The present invention provides a method useful to detect a B. burgdorferi infection in a subject. The method provided by the invention is particularly useful to discriminate B. burgdorferi infection from OspA vaccination, although it is sufficiently sensitive and specific to use in any general Lyme disease screening or diagnostic application. Thus, the method of the invention is particularly appropriate for large scale screening or diagnostic applications where only part of the subject population has been vaccinated or where the vaccination status of the population is unknown."

Chronic Fatigue Data, independent from the CDC. In it you can see a generalized immune deficiency and low cytokines production.

Changes in immune parameters seen in Gulf War veterans but not in civilians with chronic fatigue syndrome.
VII. Expansion of Tolerance to viruses and LPS (matches the new NIH/wustl definition, post-sepsis syndrome):

2003; Medvedev and Cross-Tolerance TLR4 – to LPS, or plain old regular bacteria

*Induction of in vitro reprogramming by Toll-like receptor (TLR)2 and TLR4 agonists in murine macrophages: effects of TLR "homotolerance" versus "heterotolerance" on NF-kappa B signaling pathway components.*


2012; Harding and Cross Tolerance TLR7/9 agonists such as viruses

*TLR2 signaling depletes IRAK1 and inhibits induction of type I IFN by TLR7/9.*

"Because IRAK1 is required for TLR7/9-induced IFN-I production, we propose that TLR2 signaling induces rapid depletion of IRAK1, which impairs IFN-I induction by TLR7/9. This novel mechanism, whereby TLR2 inhibits IFN-I induction by TLR7/9, may shape immune responses to microbes that express ligands for both TLR2 and TLR7/TLR9, or responses to bacteria/virus coinfection."

[http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3262948/](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3262948/)

*Dormant viruses re-emerge in patients with lingering sepsis, signaling immune suppression*

"Patients with lingering sepsis had markedly higher levels of viruses detectable in the blood, compared with the healthy controls and critically ill patients without sepsis. Among the sepsis patients, for example, the researchers found that 53 percent had Epstein-Barr virus, 24 percent had cytomegalovirus, 14 percent had herpes-simplex virus, and 10 percent had human herpes simplex virus-7."
"These viruses generally don’t lead to significant illness in people who are healthy but can cause problems in patients who are immune-suppressed."

http://news.wustl.edu/news/Pages/27015.aspx

FULL JOURNAL REPORT, snippet…

Reactivation of Multiple Viruses in Patients with Sepsis

“Sepsis is the host's non-resolving inflammatory response to infection that leads to organ dysfunction [1], [2]. A current controversial hypothesis postulates that if sepsis pursues a protracted course, it progresses from an initial primarily hyper-inflammatory phase to a predominantly immunosuppressive state [3]–[7]. Experimental therapeutic approaches in sepsis have almost exclusively focused on blocking early inflammation or host-pathogen interaction and failed [8]–[10]. Recently, immunoadjuvant therapies that boost host immunity, e.g., GM-CSF and interferon-γ, have been successful in small clinical trials thereby supporting the concept that reversing immunosuppression in sepsis is a plausible strategy to improve outcome [11], [12]. However, several issues have limited this approach including lack of consensus that immunosuppression is a clinically important phenomenon [5], [6], [13]. Also, difficulty in identifying patients with impaired immunity as well as determining optimal timing for administration pose significant challenges to pursuing this approach [14]. While immunoadjuvant therapies might improve sepsis survival if administered during the later immunosuppressive phase, these agents might worsen outcome if given during the early hyper-inflammatory phase [4], [14]. Thus, a means to distinguish these two contrasting phases of sepsis is needed not only to verify the hypothesis that sepsis progresses to an immunosuppressive state but also to guide use of potential agents which boost immunity.

“Latent viruses such as cytomegalovirus are normally held in abeyance by cellular and immune surveillance mechanisms which if impaired, for example by immunosuppressive medications, often result in viral reactivation, replication, and virally-mediated tissue injury [15]–[20]. Sepsis impairs innate and adaptive immunity by multiple mechanisms including apoptosis-induced depletion of immune effector cells and induction of T-cell exhaustion thereby possibly predisposing to viral reactivation and dissemination [21]–[23]. …”

http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0098819

NEW, by the NIH (agreeing with the above description of ME/CFS and Chronic Lyme/Fibro):

Surviving Sepsis: Detection and Treatment Advances

By Carolyn Beans for the National Institutes of Health  |  August 18, 2014 08:43am ET

"Preventing Secondary Infections"

"Some people who survive sepsis can develop secondary infections days or even months later. A research team that included Richard Hotchkiss, Jonathan Green and Gregory Storch of Washington University School of Medicine in St. Louis suspected that this is because sepsis might cause lasting damage to the immune system. To test this hypothesis, the scientists compared viral activation in people with sepsis, other critically ill people and healthy individuals. The researchers looked for viruses like Epstein-Barr and herpes simplex that are often dormant in healthy people but can reactivate in those with suppressed immune systems. [Sepsis Has Long-Term Impact for Older Adults. Study Finds]"

http://www.livescience.com/47387-sepsis-diagnosis-treatment-research-nigms.html

©2015, Society for the Advancement of Scientific Hermeneutics, Common Mechanisms; CFIDS, Autism, & Lyme, per CDC
*Multiple co-infections (Mycoplasma, Chlamydia, human herpes virus-6) in blood of chronic fatigue syndrome patients: association with signs and symptoms.*

Nicolson GL1, Gan R, Haier J.  
"Previously we and others found that a majority of chronic fatigue syndrome (CFS) patients showed evidence of systemic mycoplasmal infections, and their blood tested positive using a polymerase chain reaction assay for at least one of the four following Mycoplasma species: M. fermentans, M. hominis, M. pneumoniae or M. penetrans. Consistent with previous results, patients in the current study (n=200) showed a high prevalence (overall 52%) of mycoplasmal infections. Using forensic polymerase chain reaction we also examined whether these same patients showed evidence of infections with Chlamydia pneumoniae (overall 7.5% positive) and/or active human herpes virus-6 (HHV-6, overall 30.5% positive). Since the presence of one or more infections may predispose patients to other infections, we examined the prevalence of C. pneumoniae and HHV-6 active infections in mycoplasma-positive and -negative patients. Unexpectedly, we found that the incidence of C. pneumoniae or HHV-6 was similar in Mycoplasma-positive and -negative patients, and the converse was also found in active HHV-6-positive and -negative patients. Control subjects (n=100) had low rates of mycoplasmal (6%), active HHV-6 (9%) or chlamydial (1%) infections, and there were no co-infections in control subjects. Differences in bacterial and/or viral infections in CFS patients compared to control subjects were significant. Severity and incidence of patients' signs and symptoms were compared within the above groups. Although there was a tendency for patients with multiple infections to have more severe signs and symptoms (p<0.01), the only significant differences found were in the incidence and severity of certain signs and symptoms in patients with multiple co-infections of any type compared to the other groups (p<0.01). There was no correlation between the type of co-infection and severity of signs and symptoms. The results indicate that a large subset of CFS patients show evidence of bacterial and/or viral infection(s), and these infections may contribute to the severity of signs and symptoms found in these patients.”


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**VIII. CDC on chronic EBV causing fatigue via mitochondrial dysfunction (Suzanne Vernon)**

*Preliminary evidence of mitochondrial dysfunction associated with post-infective fatigue after acute infection with Epstein Barr virus.*

"Those who developed post-infective fatigue had gene expression profiles indicative of an altered host response during acute mononucleosis compared to those who recovered uneventfully. Several genes including ISG20 (interferon stimulated gene), DNAJB2 (DnaJ [Hsp40] homolog and CD99), CDK8 (cyclin-dependent kinase 8), E2F2 (E2F transcription factor 2), CDK8 (cyclin-dependent kinase 8), and ACTN2 (actinin, alpha 2), known to be regulated during EBV infection, were differentially expressed in post-infective fatigue cases. Several of the differentially expressed genes affect mitochondrial functions including fatty acid metabolism and the cell cycle."

"CONCLUSION: These preliminary data provide insights into alterations in gene transcripts associated with the varied clinical outcomes from acute infectious mononucleosis."  

And the CDC admits in this same report, full text, that it has been known for 50 years that Chronic EBV is associated with Chronic Fatigue:
"However, some individuals exhibit prolonged illness with fatigue, mood changes and cognitive impairment. Such prolonged illness following infectious mononucleosis has been recognized for at least half a century [9]."

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1373655/?tool=pubmed

IX. Mycoplasma TLR2/1-agonist lipids affecting/inhibiting cell metabolism including transmembrane potential (This report is already seen above, re apoptosis, but the other important observation is in what mycoplasmal TLR2/1-agonists lipids do to intracellular organelles and membranes)

Mycoplasma fermentans inhibits tumor necrosis factor alpha-induced apoptosis in the human myelomonocytic U937 cell line.

“Loss of mitochondrial inner transmembrane potential induced by TNF is reduced in U937 cells infected with M. fermentans…”

"In many apoptosis scenarios, including TNF-mediated apoptosis, the mitochondrial inner transmembrane potential (Δm) collapses. To investigate whether the antiapoptotic effect of M. fermentans in TNF-induced apoptosis is upstream or downstream of the mitochondria, we measured the loss in Delta-Sigma, induced by TNF (20 ng/ml), in infected and noninfected cells. At 24 h post infection, the cultures were stimulated with TNF (20 ng/ml) for 2 h, and each culture was stained with 3,3′-dihexyloxacarbocyanine iodide (DiOC₆ (3)) and analyzed by FACS (a typical experiment is shown in Figure 6a).

http://www.nature.com/cdd/journal/v11/n11/full/4401482a.html

X. Tregs and Pam3Cys - “Our Best Frenemy”

Without sounding alarmed, we notice that some researchers think a mouse model of inhibiting the inhibitor Tregs in humans where the Tregs’ suppressive activity can be over-run with Pam3Cys as sort of an immune boost. We certainly hope they know humans do not have the same TLR2s as mice.

2011; TLR1/TLR2 Agonist Induces Tumor Regression by Reciprocal Modulation of Effector and Regulatory T Cells
http://www.jimmunol.org/content/186/4/1963.long

This next report, of course, says be careful when considering OspA as a chemo adjuvant because it is known to cause the same immunosuppression and inhibition of apoptosis as we mentioned here previously. And of course, what happens when OspA causes the inhibition of apoptosis especially in EBV infected cells? Right. The reactivation of those herpesviruses, just as seen with fungally contaminated pediatric vaccines - the kids are getting the viruses instead of the protection.
**TLR agonists: our best frenemy in cancer immunotherapy.**

TLR2 stimulation on human CD4+CD45RO+ memory cells also induces IFN-γ production, and these levels are increased when combined with IL-2 [43, 48]. Lipoproteins from *Mycobacterium tuberculosis*, a TLR2 agonist, can stimulate memory CD4+ T cells directly, resulting in enhanced proliferation, as well as IL-2 and IFN-γ production. Although resting CD4+ T cells responded to lipoproteins, as evidenced through NF-kB activation, such as CD8 T cells, CD4 T cells also required concomitant TCR signaling to induce proliferation and cytokine production [69]. ***In addition to enhancing T cell effector function, TLR2 agonists have been shown to promote T cell longevity and are associated with increased expression of antiapoptotic molecules A1 and Bcl-xL and down-regulation of the proapoptotic protein Bim [43, 53].***

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3656332/

Right, OspA acts like a BCL2 class molecule, inhibiting apoptosis, not to mention the intracellular damage and the reactivation of latent herpes viruses and what-not.

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**XI. Lyme, OspA and Epstein-Barr/similar herpes reactivation, Great Imitator, “L2 Diagnostics,” NINDS’ MS-Lyme Group (Martin & Marques), Duray on EBV, Halperin, Schoen and Luft on LYMErix causing the same disease as Chronic Neurologic Lyme**

First of all let’s remember that Lyme was the New Great Imitator after the first Great Imitator, Syphilis, since they both are known to cause cancer, MS, Lupus, RA, many of the leukemias, etc. And we know most of those diseases are actually chronic active Epstein-Barr and/or similar herpesviruses. So, later in the disease, the Chronic Fatigue-like, immunosuppressed, seronegative Lyme victims are dealing with a post-sepsis-like outcome which could be seen as a slow septic shock result. Regardless, once Lyme is advanced into the chronic neurologic stage, it’s about more than spirochetes – it’s about the reactivation of the herpes.


“Epstein-Barr virus (EBV) efficiently drives proliferation of human primary B cells in vitro, a process relevant for human diseases such as infectious mononucleosis and posttransplant lymphoproliferative disease. Human B-cell proliferation is also driven by ligands of Toll-like receptors (TLRs), notably viral or bacterial DNA containing unmethylated CpG dinucleotides, which triggers TLR9. Here we quantitatively investigated how TLR stimuli influence EBV-driven B-cell proliferation and expression of effector molecules. CpG DNA synergistically increased EBV-driven proliferation and transformation, T-cell costimulatory molecules, and early production of interleukin-6. CpG DNA alone activated only memory B cells, but CpG DNA enhanced EBV-mediated transformation of both memory and naive B cells. Ligands for TLR2 or TLR7/8 or whole bacteria had a weaker but still superadditive effect on B-cell transformation. Additionally, CpG DNA facilitated the release of transforming virus by established EBV-infected lymphoblastoid cell lines. These results suggest that the proliferation of EBV-infected B cells and their capability to interact with immune effector cells may be directly influenced by components of bacteria or other microbes present at the site of infection.”


©2015, Society for the Advancement of Scientific Hermeneutics, Common Mechanisms; CFIDS, Autism, & Lyme, per CDC
NIH, in the NYTimes once again, Lyme reactivates at least the herpes:

When Lyme Disease Lasts and Lasts – Jane Brody
"Complicating the picture is the fact that some people with PTLDS symptoms apparently never had Lyme disease in the first place, Dr. Marques said in an interview. There are other infectious organisms — Epstein-Barr virus, for example — that can produce similar symptoms and may be the real culprits."

Why would Marques say that? She and Martin were in charge of the “MS-Lyme” Division of NINDS. We remind everyone, especially people with “MD” after their names, that “MS-Lyme” is not a disease of the knee or a Dearborn kind of Lyme. It is a secondary, AIDS-like outcome, where the secondaries or the opportunistics themselves have an HLA-linked hypersensitivity response. But obviously not in every case will the non-HLA-knees people have a subsequent non-HLA-knees-plus-yes-HLAs-for-the-opportunistics outcome.

1989, NIH, IDSA, National Cancer Institute and US Army’s Paul Duray:

Clinical pathologic correlations of Lyme disease.
"Immature B cells can also be seen in the spinal fluid. These cells can appear quite atypical- not unlike those of transformed or neoplastic lymphocytes." --
Full Text: http://www.actionlyme.org/IDSA_CLINIPATH_DURAY.htm

"On occasion, these atypical-appearing large lymphocytes have been misinterpreted in biopsy by several laboratories as cells of a malignant lymphoma or leukemia. Bb antigens, then, may stimulate growth of immature lymphocytic subsets in some target organs, as well as in the cerebrospinal fluid (Szyfelbein and Ross 1988). Usual bacterial infections do not produce such lymphocytic infiltrates in tissue. These immunoblastoid cells in Bb infections at times resemble those found in Epstein-Barr virus infections. Does Bb reactivate latent virus infections in tissues? Do some tick inocula harbor simultaneous infectious agents (ixodid ticks can harbor Rickettsiae, Babesia microti, and Ehrlichia bacteria, in addition to Bb), producing multi-agent infections in some hosts? Further studies can clarify these issues by mans of tissue-based molecular probe analysis." -

Paul Duray, NCI, NIH, Ft. Detrick, at the 1992 ALDF Cold Spring Harbor Conference
http://www.amazon.com/Lyme-Disease-Immunologic-Approaches-Communications/dp/0879693770

MINDS’ MS-Lyme’s Martin and Marques, 2006, on how Lyme causes humoral immunosuppression, but with chronic inflammation in the brain, and on how fungal lipoproteins shed by these spirochetes might leave you with not even anti-flagellar antibodies:

2006; Borrelia burgdorferi Induces TLR1 and TLR2 in human microglia and peripheral blood monocytes but differentially regulates HLA-class II expression.
"The spirochete Borrelia burgdorferi is the agent of Lyme disease, which causes central nervous
system manifestations in up to 20% of patients. We investigated the response of human brain microglial cells, glial progenitors, neurons, astrocytes, as well as peripheral blood monocytes to stimulation with B. burgdorferi. We used oligoarrays to detect changes in the expression of genes important for shaping adaptive and innate immune responses. We found that stimulation with B. burgdorferi lysate increased the expression of Toll-like receptors (TLRs) 1 and 2 in all cell types except neurons. However, despite similarities in global gene profiles of monocytes and microglia, only microglial cells responded to the stimulation with a robust increase in HLA-DR, HLA-DQ, and also coexpressed CD11-c, a dendritic cell marker. In contrast, a large number of HLA-related molecules were repressed at both the RNA and the protein levels in stimulated monocytes, whereas secretion of IL-10 and TNF-alpha was strongly induced. These results show that signaling through TLR1/2 in response to B. burgdorferi can elicit opposite immunoregulatory effects in blood and in brain immune cells, which could play a role in the different susceptibility of these compartments to infection.”


This report by Martin and Marques means you might not even have anti-flagellar antibodies (flagellin is a TLR5-agonist) after being exposed to shed fungal OspA-like antigens (TLR2/1-agonists):

2006; *Borrelia burgdorferi* lipoprotein-mediated TLR2 stimulation causes the down-regulation of TLR5 in human monocytes.

Toll-like receptors (TLRs) trigger innate immune responses via the recognition of conserved pathogen-associated molecular patterns. Lipoproteins from *Borrelia burgdorferi*, the agent of Lyme disease, activate inflammatory cells through TLR2 and TLR1. We show that stimulation of human monocytes with *B. burgdorferi* lysate, lipidated outer surface protein A, and triacylated lipopeptide Pam3CysSerLys4 results in the up-regulation of both TLR2 and TLR1 but the down-regulation of TLR5, the receptor for bacterial flagellin, and that this effect is mediated via TLR2. TLR4 stimulation had no effect on TLR2, TLR1, and TLR5 expression. Human monocytes stimulated with TLR5 ligands (including p37 or flaA, the minor protein from *B. burgdorferi* flagella) up-regulated TLR5. In addition, TLR2 stimulation rendered cells hyporesponsive to a TLR5 agonist. These results indicate that diverse stimuli can cause differential TLR expression, and we hypothesize that these changes may be useful for either the pathogen and/or the host.


So, while some people say “you can’t have a disease without inflammation or antibodies,” here, clearly with fungal diseases like Lyme or Relapsing Fever, or Post-Sepsis Chronic Fatigue Syndrome, are diseases with none of the kinds of markers with which any “MD” with a low IQ and who likely graduated at the bottom of his class would be satisfied. Why “introduce complicating variables like the blood brain barrier,” they’ve been known to say. (That is a quote from Steve Malawista, Yale, 2001, Rheumatology in the 21st Century, if you can believe it. Maybe they meant the 15th century.)


Since the possibility of interruption of latent EBV infection has been suggested by the induction of the lytic virus cycle with chemical substances, other viruses, and by immunosuppression, we hypothesized that the same effect might happen in *B. burgdorferi* sensu lato infection as happens in Lyme disease patients with positive serology for both agents. We have observed EBV replication in lymphoblastoid cells after superinfection with *B. garinii* and *B. afzelii* strains after 1 and 4 h of their interaction. We found that viral and borrelial antigens persisted in the lymphoblasts for 3 and 4 days. Morphological
and functional transformation of both agents facilitate their transfer to daughter cells. Association with lymphoblasts and internalization of B. garinii by tube phagocytosis increased replication of viruses more successfully than B. afzelii and chemical inductors. Demonstration of such findings must be interpreted cautiously, but may prove a mixed borrelial and viral cause of severe neurological disease.”


That’s reminiscent of CV Harding, Medvedev, and wustl & the NIH’s “post sepsis syndrome” right?

Basically we should be calling spirochetes, myco-chetes since the MSMedia and MSMedicine seem to think spirochetes are not their own ancient phylum – shedders of fungal lipoproteins -, but plain old regular bacteria:

2003; Borrelia burgdorferi-induced tolerance as a model of persistence via immunosuppression.

"If left untreated, infection with Borrelia burgdorferi sensu lato may lead to chronic Lyme borreliosis. It is still unknown how this pathogen manages to persist in the host in the presence of competent immune cells. It was recently reported that Borrelia suppresses the host's immune response, thus perhaps preventing the elimination of the pathogen (I. Diterich, L. Härter, D. Hassler, A. Wendel, and T. Hartung, Infect. Immun. 69:687-694, 2001). Here, we further characterize Borrelia-induced immunomodulation in order to develop a model of this anergy. We observed that the different Borrelia preparations that we tested, i.e., live, heat-inactivated, and sonicated Borrelia, could desensitize human blood monocytes, as shown by attenuated cytokine release upon restimulation with any of the different preparations. Next, we investigated whether these Borrelia-specific stimuli render monocytes tolerant, i.e. hyporesponsive, towards another Toll-like receptor 2 (TLR2) agonist, such as lipoteichoic acid from gram-positive bacteria, or towards the TLR4 agonist lipopolysaccharide. Cross-tolerance towards all tested stimuli was induced. Furthermore, using primary bone marrow cells from TLR2-deficient mice and from mice with a nonfunctional TLR4 (strain C3H/HeJ), we demonstrated that the TLR2 was required for tolerance induction by Borrelia, and using neutralizing antibodies, we identified interleukin-10 as the key mediator involved. Although peripheral blood mononuclear cells tolerized by Borrelia exhibited reduced TLR2 and TLR4 mRNA levels, the expression of the respective proteins on monocytes was not decreased, ruling out the possibility that tolerance to Borrelia is attributed to a reduced TLR2 expression. In summary, we characterized tolerance induced by B. burgdorferi, describing a model of desensitization which might mirror the immunosuppression recently attributed to the persistence of Borrelia in immunocompetent hosts.

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC162029/?tool=pubmed

From the Lyme and Lupus Clinic at Yale (now “L2 Diagnostics”)– whoops, it's really about EBV:

2004, Defective control of latent Epstein-Barr virus infection in systemic lupus erythematosus.

“EBV infection is more common in patients with systemic lupus erythematosus (SLE) than in control subjects, suggesting that this virus plays an etiologic role in disease and/or that patients with lupus have impaired EBV-specific immune responses. In the current report we assessed immune responsiveness to EBV in patients with SLE and healthy controls, determining virus-specific T cell responses and EBV viral loads using whole blood recall assays, HLA-A2 tetramers, and real-time quantitative PCR. Patients with SLE had an approximately 40-fold increase in EBV viral loads
compared with controls, a finding not explained by disease activity or immunosuppressive medications. The frequency of EBV-specific CD69+ CD4+ T cells producing IFN-gamma was higher in patients with SLE than in controls. By contrast, the frequency of EBV-specific CD69+ CD8+ T cells producing IFN-gamma in patients with SLE appeared lower than that in healthy controls, although this difference was not statistically significant. These findings suggest a role for CD4+ T cells in controlling, and a possible defect in CD8+ T cells in regulating, increased viral loads in lupus. These ideas were supported by correlations between viral loads and EBV-specific T cell responses in lupus patients. EBV viral loads were inversely correlated with the frequency of EBV-specific CD69+ CD4+ T cells producing IFN-gamma and were positively correlated with the frequencies of CD69+ CD8+ T cells producing IFN-gamma and with EBV-specific, HLA-A2 tetramer-positive CD8+ T cells. These results demonstrate that patients with SLE have defective control of latent EBV infection that probably stems from altered T cell responses against EBV.”


XII. A Parallel Dynamic: Malaria and EBV and the production of Burkitts Lymphoma; and we expect to find high rates of Chronic Fatigue Syndrome in Africa and we do. Chronic Active EBV suppresses HLA expression, so we never associate pathologies such as ME/CFS with antibody studies; all of such reports have to be discarded from data summaries and analysis.

Burkitts Lymphoma caused by Malaria and EBV, Does the model of OspA and Borreliosis activating EBV fit?

*Structure and dynamic behavior of Toll-like receptor 2 subfamily triggered by malarial glycosylphosphatidylinositoles of Plasmodium falciparum.*

“The recognition of GPs of the protozoans *P. falciparum* or *Toxoplasma gondii* appears to be via TLR2 and TLR4 29. In an experimental study by Krishnegowda et al. 30, using mouse macrophages and human monocytes, *P. falciparum* malarial GPs consisting of three fatty acid chains were favourably recognized by human and mouse TLR2- TLR1 30. Moreover, one of the derivatives of GPs called sn- 2- lyso GPI was the ligand for the hTLR2- hTLR6 complex. The above result was confirmed in another recent experimental study using macrophages from gene knockout mice, in addition to human monocytes and anti- human TLR1 and TLR6 sera 31. The ECD of TLR2 has the potential to recognize GPs in the same binding sites of lipopeptides because the structural patterns of GPs and lipoproteins are similar, although they are different classes of compounds 30. There is sufficient evidence for TLR2 recognition of GPs; however, the binding site of GPs and the interacting residues in the protein that would be useful for developing anti- malarial drugs or vaccines are still unknown.

“In the present study, we used some of the methods discussed below to determine the details of the interaction of the TLR2 subfamily with *P. falciparum* Man4- GPI and the sn- 2 lyso GPI derivative. Molecular docking is a widely used modelling tool for predicting the exact positioning of a ligand in the active site of a protein 32. Hence, in the present study, we employed molecular docking to investigate the interactions between *P. falciparum* Man4- GPI and hTLR2- hTLR1 and between sn- 2 lyso GPI and mTLR2- mTLR6. In addition, MD simulations that can report at the atomic level are appropriate for highlighting the dynamics of a given structure to validate the experimental studies on the ligand- induced dimerization analysis of TLRs 33. It is well known that ligands induce dimerization of the TLR2 subfamily 17; therefore, by utilizing MD techniques, we simulated the
subfamily of TLR2 for 15 ns as a monomer and dimer in the absence and presence of the GPI to better understand the ligand-induced dimerization and activation mechanism at the atomic level.  
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4163636/

We would expect, naturally, then to find quite a lot of Chronic Fatigue Syndrome in Africa and we do. As an aside, we know not to use antibody studies for finding the herpesviruses in diseases of immunosuppression like this, so any such studies will be thrown out.

2007; The prevalence of chronic fatigue syndrome in Nigeria.
“The present study found adult rates of chronic fatigue syndrome (CFS) in Nigeria that were somewhat higher than rates from community-based CFS epidemiologic studies in the USA. The rates of chronic fatigue for both adults and children were also higher than in existing community-based studies. It is possible that the presence of several fatiguing illnesses such as malaria and typhoid, the lack of adequate healthcare resources and poverty in Nigeria, place individuals at greater risk for fatigue and its syndromes. There is a need for more epidemiologic studies on the prevalence and sociodemographic characteristics of CFS in developing countries.”


Don’t expect antibodies, you have to do proper DNA analysis such as proposed by IDSA with MassSpec DNA – say the next 2 reports:

2009; Down-regulation of MHC class II expression through inhibition of CIITA transcription by lytic transactivator Zta during Epstein-Barr virus reactivation.
The presentation of peptides to T cells by MHC class II molecules is of critical importance in specific recognition to a pathogen by the immune system. The level of MHC class II directly influences T lymphocyte activation. The aim of this study was to identify the possible mechanisms of the down-regulation of MHC class II expression by Zta during EBV lytic cycle. The data in the present study demonstrated that ectopic expression of Zta can strongly inhibit the constitutive expression of MHC class II and CIITA in Raji cells. The negative effect of Zta on the CIITA promoter activity was also observed. Scrutiny of the DNA sequence of CIITA promoter III revealed the presence of two Zta-response element (ZRE) motifs that have complete homology to ZREs in the DR and left-hand side duplicated sequence promoters of EBV. By chromatin immunoprecipitation assays, the binding of Zta to the ZRE(221) in the CIITA promoter was verified. Site-directed mutagenesis of three conserved nucleotides of the ZRE(221) substantially disrupted Zta-mediated inhibition of the CIITA promoter activity. Oligonucleotide pull-down assay showed that mutation of the ZRE(221) dramatically abolished Zta binding. Analysis of the Zta mutant lacking DNA binding domain revealed that the DNA-binding activity of Zta is required for the trans repression of CIITA. The expression of HLA-DRalpha and CIITA was restored by Zta gene silencing. The data indicate that Zta may act as an inhibitor of the MHC class II pathway, suppressing CIITA transcription and thus interfering with the expression of MHC class II molecules.

2002: The lytic cycle of Epstein-Barr virus is associated with decreased expression of cell surface major histocompatibility complex class I and class II molecules.

“Human herpesviruses utilize an impressive range of strategies to evade the immune system during their lytic replicative cycle, including reducing the expression of cell surface major histocompatibility complex (MHC) and immunostimulatory molecules required for recognition and lysis by virus-specific cytotoxic T cells. Study of possible immune evasion strategies by Epstein-Barr virus (EBV) in lytically infected cells has been hampered by the lack of an appropriate permissive culture model. Using two-color immunofluorescence staining of cell surface antigens and EBV-encoded lytic cycle antigens, we examined EBV-transformed B-cell lines in which a small subpopulation of cells had spontaneously entered the lytic cycle. Cells in the lytic cycle showed a four- to fivefold decrease in cell surface expression of MHC class I molecules relative to that in latently infected cells. Expression of MHC class II molecules, CD40, and CD54 was reduced by 40 to 50% on cells in the lytic cycle, while no decrease was observed in cell surface expression of CD19, CD80, and CD86. Downregulation of MHC class I expression was found to be an early-lytic-cycle event, since it was observed when progress through late lytic cycle was blocked by treatment with acyclovir. The immediate-early transactivator of the EBV lytic cycle, BZLF1, did not directly affect expression of MHC class I molecules. However, BZLF1 completely inhibited the upregulation of MHC class I expression mediated by the EBV cell-transforming protein, LMP1. This novel function of BZLF1 elucidates the paradox of how MHC class I expression can be downregulated when LMP1, which upregulates MHC class I expression in latent infection, remains expressed in the lytic cycle.”


XIII. IDSA’s policy papers on rapid diagnosis of CNS diseases, 7X more accurate and complete diagnoses on all sorts of samples. Will never be deployed not because it is too costly to purchase Mass Spec instrumentation, but because no IDSA or CDC member can sell an office test kit. It’s not about humans or health, after all, it’s just about the money, the royalties.

"Virological diagnosis of central nervous system infections by use of PCR coupled with mass spectrometry analysis of cerebrospinal fluid samples."

"Viruses are the leading cause of central nervous system (CNS) infections, ahead of bacteria, parasites, and fungal agents. A rapid and comprehensive virologic diagnostic testing method is needed to improve the therapeutic management of hospitalized pediatric or adult patients. In this study, we assessed the clinical performance of PCR amplification coupled with electrospray ionization-time of flight mass spectrometry analysis (PCR-MS) for the diagnosis of viral CNS infections. Three hundred twenty-seven cerebrospinal fluid (CSF) samples prospectively tested by routine PCR assays between 2004 and 2012 in two university hospital centers (Toulouse and Reims, France) were retrospectively analyzed by PCR-MS analysis using primers targeted to adenovirus, human herpesviruses 1 to 8 (HHV-1 to -8), polyomaviruses BK and JC, parvovirus B19, and enteroviruses (EV). PCR-MS detected single or multiple virus infections in 190 (83%) of the 229 samples that tested positive by routine PCR analysis and in 10 (10.2%) of the 98 samples that tested negative. The PCR-MS results correlated well with herpes simplex virus 1 (HSV-1), varicella-zoster virus (VZV), and EV detection by routine PCR assays (kappa values [95% confidence intervals], 0.80 [0.69 to 0.92], 0.85 [0.71 to 0.98], and 0.84 [0.78 to 0.90], respectively), whereas a weak correlation was observed with Epstein-Barr virus (EBV) (0.34 [0.10 to 0.58]). Twenty-six coinfections and 16 instances of uncommon neurotropic viruses (HHV-7 [n = 13], parvovirus B19 [n = 2], and adenovirus [n = 1]) were identified by the PCR-MS analysis, whereas only 4 coinfections had been prospectively evidenced using routine PCR assays (P < 0.01). In conclusion, our results demonstrated that PCR-MS analysis is a valuable tool to identify common neurotropic viruses in CSF (with, however,
limitations that were identified regarding EBV and EV detection) and may be of major interest in better understanding the clinical impact of multiple or neglected viral neurological infections.”

COMPARE that to this IDSociety.org position paper on the issue of using rapid mass-spec PCR on spinal fluid samples for rapid detection of the CNS infections the NIH knows is driving Chronic Fatigue and Chronic Lyme:

"Unmet diagnostic needs in infectious disease"
1. Introduction
The importance of diagnostic testing in the management of infectious diseases (ID) was recently highlighted in the report of the Infectious Diseases Society of America’s (IDSA) Diagnostics Task Force report: “Better Tests: Better Care: Improved Diagnostics for Infectious Diseases” (Caliendo et al., 2013). Similar sentiments are expressed in the report on Antibiotic Resistance Threats in the United States Centers for Disease Control (2013) from the Centers for Disease Control and Prevention (CDC). ****A number of new diagnostic technologies for ID are rapidly emerging: e.g., broad-range PCR, next-generation sequencing, and matrix-assisted laser desorption/ionization time of flight mass spectrometry.***
The reports from the IDSA and the CDC highlight deficiencies in current diagnostic methods and call for approval and access to methods that are rapid and available at the point of care, use direct-from-specimen analysis, and demonstrate high levels of sensitivity and specificity across a wide range of disease syndromes. The importance of syndrome-based panels (e.g., for central nervous system, bloodstream and respiratory tract infections) is highlighted in the IDSA report (Caliendo et al., 2013). Both the IDSA and CDC emphasize the critical need for culture-independent testing for specific pathogens and their pattern of susceptibility to antimicrobial agents...." http://ein.idsociety.org/media/publications/papers/2014/Blaschke_DMID_14_Unmet_Diagnostic_Needs.pdf

Idsociety’s “Policy Paper” on the same, rapid diagnostics (MassSpec-PCR. But that can’t fit in a test kit, see, so there is no profit in it for the IDSA and CDC DNA profiteers. Superbugs will continue to kill people and there will be more calamities of the hospital acquired and new infection sort. And more of the Ebola and MERS and SARS sort…. If there is no money to be made, IDSA is not interested.

Better Tests, Better Care: Improved Diagnostics for Infectious Diseases
Angela M. Caliendo,1 David N. Gilbert,2,3 Christine C. Ginocchio,4,5,6 Kimberly E. H…