

**The small**

# **Diagnostic - Therapy - Booklet on Borrelia and Co - Infections for Clinicians and Practitioners**

**eBook from the Internet**

**Tables, Comments, Literature**

by

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## Abstract

### Diagnostics

#### The Diagnosis is made clinically

- [http://www.xerlebnishaft.de/symptomatik\\_lyme.pdf](http://www.xerlebnishaft.de/symptomatik_lyme.pdf)
- <http://www.xerlebnishaft.de/symptomatik.pdf>
- <http://www.erlebnishaft.de/kommentalternativ.pdf>

#### Systemic immunodeficiencies

- <http://www.xerlebnishaft.de/defizienzspektrum.pdf>
- <http://www.xerlebnishaft.de/complement.pdf> [http://www.xerlebnishaft.de/kommentinhalt\\_zell.pdf](http://www.xerlebnishaft.de/kommentinhalt_zell.pdf)
- <http://www.erlebnishaft.de/laboruntersuchungen.pdf>
- [http://www.xerlebnishaft.de/labor\\_und\\_therapieoptionen.pdf](http://www.xerlebnishaft.de/labor_und_therapieoptionen.pdf)
- <http://www.erlebnishaft.de/kommentstoffwparam.pdf>

#### Pathogen spectrum

- <http://www.xerlebnishaft.de/infektursachenspektrum.pdf>
- <http://www.erlebnishaft.de/staphylococcusaureus.pdf>

#### Direct detection of Borrelia

- [http://www.erlebnishaft.de/borrelien\\_direktnachweis.pdf](http://www.erlebnishaft.de/borrelien_direktnachweis.pdf)

#### Indirect proof of Borrelia

- <http://www.xerlebnishaft.de/serollyme.pdf>
- <http://www.erlebnishaft.de/dauerheilung.pdf>

### Therapy

#### Intensive treatment

- [http://www.xerlebnishaft.de/management\\_nach\\_zeckenkontakt.pdf](http://www.xerlebnishaft.de/management_nach_zeckenkontakt.pdf)
- <http://www.kabilahsystems.de/gegen.pdf>
- <http://www.kabilahsystems.de/kommentkontrollunters.pdf>
- <http://www.xerlebnishaft.de/mitochondrien.pdf>
- <http://www.xerlebnishaft.de/immunsuppression.pdf>
- <http://www.kabilahsystems.de/diaetblatt.pdf> <http://www.xerlebnishaft.de/diaet.pdf>

#### Combination treatment

- <http://www.kabilahsystems.de/antibiosetherapieplan.pdf>
- <http://www.xerlebnishaft.de/antibiosetherapie.pdf>
- <http://www.kabilahsystems.de/probiotika.pdf>
- <http://www.kabilahsystems.de/entgiftung.pdf>
- <http://www.kabilahsystems.de/ph.pdf>
- <http://www.xerlebnishaft.de/phytotherapie.pdf>
- <http://www.kabilahsystems.de/pflanzlicheantimikrobiotika.pdf>
- <http://www.kabilahsystems.de/schmerz.pdf>
- <http://www.kabilahsystems.de/immunsti.pdf>
- <http://www.kabilahsystems.de/biogeneamineundpeptide.pdf>
- <http://www.xerlebnishaft.de/vitamine.pdf>
- [http://www.xerlebnishaft.de/elektro\\_spur\\_ph.pdf](http://www.xerlebnishaft.de/elektro_spur_ph.pdf)
- <http://www.kabilahsystems.de/ungesaettfets.pdf>
- [http://www.kabilahsystems.de/q10\\_und\\_l.pdf](http://www.kabilahsystems.de/q10_und_l.pdf)
- <http://www.kabilahsystems.de/polyphenole.pdf>
- <http://www.kabilahsystems.de/hyperkoagulation.pdf>
- [http://www.kabilahsystems.de/bakt-stabilis\\_entwaff.pdf](http://www.kabilahsystems.de/bakt-stabilis_entwaff.pdf)
- <http://www.kabilahsystems.de/adjuvantien.pdf> <http://www.kabilahsystems.de/antizyt-chem.pdf>

## Long-term treatment of chronic courses

1. **Long-term - therapy** (at least 3 month, better 6 month duration of antibiotic therapy)
2. **Interval – therapy or sequence – therapy** (long term antibiotic treatment with fixed-frequency-breaks)
3. **Patient adapted interval - therapy** (symptom adapted long-term antibiotic treatment in disease relapse or in cases of new infections)
4. **„Slap“ – therapy** (cases of acute relapses: shock - treatment e.g. with formerly helpful anti-infective combinations, over a period of at least 3 or 7 days)

→ [http://www.kabilahsystems.de/antibiotika\\_langzeit.pdf](http://www.kabilahsystems.de/antibiotika_langzeit.pdf)

→ <http://www.erlebnishaft.de/dauerheilung.pdf>

## Special treatment success – obstacles

### Choice of inappropriate antimicrobial agents

Beta laktam – antibiotics such as Ceftriaxon in resistant bacteria (partially [at Borrelia](#) \*\* and generally in all co-Infektions), in protozoa and in all viruspersister – activities.

→ <http://www.erlebnishaft.de/stressvar1.pdf>

### Stealth-forms of bacteria, Bakteria persister

→ <http://www.erlebnishaft.de/stressvar1.pdf>

→ <http://www.erlebnishaft.de/stressvar2.pdf>

→ <http://www.xerlebnishaft.de/trotzantibiosepat.pdf>

→ <http://www.erlebnishaft.de/trotzantibiosetier.pdf>

### Biofilms

→ <http://www.erlebnishaft.de/biofilmed.pdf>

→ <http://www.xerlebnishaft.de/quorum.pdf>

### Intracellular pathogens

#### Chlamydia etc.

→ [http://www.kabilahsystems.de/chlamydia\\_pneumoniae.pdf](http://www.kabilahsystems.de/chlamydia_pneumoniae.pdf)

→ [http://www.xerlebnishaft.de/borrel\\_inflam\\_lymphom\\_neopl.pdf](http://www.xerlebnishaft.de/borrel_inflam_lymphom_neopl.pdf)

Obligate intracellular pathogens	Optional intracellular pathogens
Chlamydia spp, Coxiella burnetii, Ehrlichia spp, Erwinia spp, Rickettsia spp, Parachlamydia spp Mycobacterium leprae, Tropheryma Whipplei, Waddlia etc.	Borrelia spp, Treponemen, Leptospiren, Bartonellen, Mycoplasmen, Brucella spp, Legionella spp, Listeria spp, Mycobacterium spp, Neisseria spp, Salmonella spp, Shigella spp, Yersinia spp, Babesia spp, Toxoplasma, Protomyxzoa spp, Trypanosomen, Streptokokken spp, Candida etc.

→ [http://www.xerlebnishaft.de/bakt\\_pathogenitaetsfaktoren.pdf](http://www.xerlebnishaft.de/bakt_pathogenitaetsfaktoren.pdf)

→ <http://www.xerlebnishaft.de/krebsstammzelltherapie.pdf>

## Biological basic knowledge

→ <http://www.xerlebnishaft.de/kommentinhalt.pdf>

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# 1 Diagnostic

## 1.1 The Diagnosis is made clinically

Symptom selection	"Chronic Lyme disease" is an multi infectious disease at a immunoweakened host										
	Borrelia	Chl. pneumoniae	Chl. trachomatis	Mykoplasma	Bartonella	Ehrlichia	Rickettsia	Yersinia	Babesia	EBV virus	Coxsackie virus
	○	○	○	○	○	○	○	○	○	○	○
limbs, tendon pain	■	■	■	■	■	■	■	■	■	■	■
muscle pain	■	■	■	■	■	■	■	■	■	■	■
joint pain	■	■	■	■	■	■	■	■	■	■	■
memory- concentration problems	■	■	■	■	■	■	■	■	■	■	■
headache	■	■	■	■	■	■	■	■	■	■	■
nausea, vomiting	■	■	■	■	■	■	■	■	■	■	■
encephalitis	■	■	■	■	■	■	■	■	■	■	■
fatigue, exhaustion	■	■	■	■	■	■	■	■	■	■	■
feverish feeling	■	■	■	■	■	■	■	■	■	■	■
chills, tremors	■	■	■	■	■	■	■	■	■	■	■
flu symptoms	■	■	■	■	■	■	■	■	■	■	■
stomach ache	■	■	■	■	■	■	■	■	■	■	■
diarrhea	■	■	■	■	■	■	■	■	■	■	■
jaundice	■	■	■	■	■	■	■	■	■	■	■
Increased liver values	■	■	■	■	■	■	■	■	■	■	■
enlargement of the spleen	■	■	■	■	■	■	■	■	■	■	■
dark urine	■	■	■	■	■	■	■	■	■	■	■
urination with itching	■	■	■	■	■	■	■	■	■	■	■
deteriorated seeing	■	■	■	■	■	■	■	■	■	■	■
heart problems	■	■	■	■	■	■	■	■	■	■	■
cough	■	■	■	■	■	■	■	■	■	■	■
pneumonia	■	■	■	■	■	■	■	■	■	■	■
anemia	■	■	■	■	■	■	■	■	■	■	■
rash	■	■	■	■	■	■	■	■	■	■	■
Skin bleeding	■	■	■	■	■	■	■	■	■	■	■
lymphadenopathy	■	■	■	■	■	■	■	■	■	■	■
suppurating tonsils, dental probl.	■	■	■	■	■	■	■	■	■	■	■

**characteristic symptoms**

- [http://www.xerlebnishaft.de/symptomatik\\_lyme.pdf](http://www.xerlebnishaft.de/symptomatik_lyme.pdf)
- <http://www.xerlebnishaft.de/symptomatik.pdf>
- <http://www.erlebnishaft.de/kommentalternativ.pdf>

### 1.1.1 Laboratory tests

<b>MINIMUM SCREENING TESTS</b> and thoughts, suggestions <b>RED = Baseline studies, O = BLACK = supplementary investigations</b>			
<b>Borrelia</b>	<b>Chlamydia</b>	<b>Metabolic parameters</b>	
<b>O Borrelia Elispot LTT</b>	<b>O Chlamydia pneumoniae Elispot LTT</b>		
<b>O Borrelia IgG, IgM EIA</b> <b>O Borrelia IgG, IgM Blot</b>	<b>O Chlamydia pneum. IgG und IgA antibodies</b>		
	<b>O Chlamydia trachomatis Elispot LTT</b>		
<b>Ehrlichia</b>	<b>O Chlamydia trachomatis antibodies</b>		
<b>O Ehrlichia Elispot LTT</b>	<b>Mykoplasma</b>		
<b>O Ehrlichia IgM and IgG antibodies</b>	<b>O Mykoplasma IgG and IgA antibodies</b>		
<b>Bartonella</b>	<b>Yersinien</b>		
<b>O Bartonellen IgG antibodies</b>	<b>O Yersinia Elispot LTT</b>	<b>leaky gut, dysbiosis</b>	
	<b>Rickettsia</b>		
<b>Protozoa</b>		<b>O Bowel movement:</b>	
<b>O Babesia IgG antibodies</b>	<b>„Organ-profile“</b>	<b>Hormones and Chaperones</b>	
	<b>O BB gr, GOT, GPT, AP, Che, Bili, Amylase, Lipase, CK, Krea., Urea, K, TSH basal</b>		
	<b>Others</b>		
		<b>Arginine metabolism and neurotransmitters</b>	
<b>Nematodes, Filaria species</b>	<b>Virusses</b>		
		<b>Immunology, Allergy, Human genetics</b>	
<b>Streptokokki, Staphylokokki</b>	<b>Autoimmunity diseases</b>		
<b>Urinary tract infection</b>		<b>O CD3-/CD57+ Cells</b>	
		<b>Mykobakterial-Hist.</b>	
→ <a href="http://www.erlebnishaft.de/laboruntersuchungen.pdf">http://www.erlebnishaft.de/laboruntersuchungen.pdf</a> → <a href="http://www.xerlebnishaft.de/labor_und_therapieoptionen.pdf">http://www.xerlebnishaft.de/labor_und_therapieoptionen.pdf</a>			

LABORATORY TESTS RED = Basis BLACK = base supplement			
<b>Borrelia</b>	<b>Chlamydia</b>	<b>Metabolic parameters</b>	
○ Borrelia Elispot LTT ○ or SpiroFind-test	○ Chlamydia pneum. Elispot LTT	○ CRP ○ Procalcitonine (PCT)	
○ Borrelia IgG, IgM EIA ○ Borrelia IgG, IgM blot	○ Chlamydia pneum. IgG, IgM und IgA Ak ○ Chlamydia PCR	○ Soluble ferritin receptor, <u>Selenium</u> , Zinc, <u>Folic acid</u> , <u>Vitamin B12</u> , HbA1c	
○ Borrelia PCR multiplex ○ Pathogen culture + PCR ○ Skin biopsy, histology ○ Mikroskopie focus float.	○ Chlamydia trachomatis Elispot LTT	○ <b>Th1-Th2-balance</b> ○ <u>Cholecalciferol = vitamin D3</u> (vitamin D active), <u>vitamin E</u> ○ <b>Intracellular ATP</b>	
<b>Ehrlichia</b>	○ Chlamydia trachoma. IgG, IgM, IgA antibodies	○ Homocysteine (Methyl- cyc.) ○ Spermidine (Methyl- cyclus)	
○ Ehrlichia Elispot LTT ○ Ehrlichia PCR	<b>Mykoplasma</b>	○ Anti SA, Anti CCP [ACPA ,Anti-citrulinated peptide antibodies]	
○ Ehrlichia IgM and IgG antibodies	○ Mykoplasma IgG, IgM and IgA antibodies	○ <b>ANA –screening test</b> ○ ENA AK (extractable. nucl. AB)	
<b>Bartonella</b>	<b>Yersinia</b>	○ Neopterin (bakt. cont. form.)	
○ Bartonella IgG antibodies	○ Yersinia IgG, IgA AB ○ Yersinia Elispot LTT	<b>Irritable bowel syndrome, leaky gut, dysbiosis</b>	
○ Bartonella PCR ○ VEGF vasc.endoth.growth fact	<b>Rickettsia</b>	○ <b>URINE:</b> Lactulose- Mannitol-test (leaky gut)	
<b>Apicomplexa</b>	○ Rickettsia IgG AB ○ Rickettsia PCR	○ <b>Bowel m.:</b> Flora status (Bakt., yeasts, pH, fungi, Chlostrid., Yersinia, worm eggs)	
○ <b>Protomyxzoa rheumatic</b> <b>Blastocystis hominis</b>	„Organ profile“	<b>Hormones, Chaperones</b>	
○ Babesia IgG AB	○ BB gr, GOT, GPT, AP, che, bili, amylase, lipase, CK, krea., urea., K, Na, Mg, TSH basal, Quick, PTT	○ Cortisone (3x, every 30 Min. in the morning collected saliva) ○ <u>BH4 Tetrahydrobiopterin</u>	
○ Babesia - PCR ○ Babesia - FISH	○ TPHA (Searching test for syphilis) ○ Gonococcal antibodies	○ DHEA, progesterone, oestradiol, testosterone (3x every 30 Min. collected saliva)	
○ <b>Mycroscopy</b> Babesia, Leishmania (Thick smear in the early stages)	○ HIV-Test (AIDS-test, with patients written consent only!)	<b>Arginine metabolisme, neurotransmitters</b>	
○ <b>Toxoplasma</b> <b>antibodies</b>	<b>Virus types</b>	○ Carbonylproteines (NO-Str.)	
<b>Nematodes, filaria</b>	○ EBV (Epstein-Barr - virus) ○ <b>EBV Elispot LTT</b> ○ HSV (Herpes simplex – v.)	○ <b>URINE:</b> Citrulline, pH- profile, 3-nitrotyrosine, (Nitro stress) 5-hydr.-Indolacetic acid (Neuro.)	
○ Trichina antibodies ○ Dwarf nematode ELISA or PCR (in case of Eosinophilia, IgE ! )	○ CMV (cytomegalo - vrus) ○ <b>CMV Elispot LTT</b>	<b>Immunity, Allergy, Human genetics</b>	
○ Nematodes antibodies ○ Filaria AB (p. stay in tropics)	○ Coxsackie (virus)	○ <b>GST-A, P450, NAT2</b> (PCR)	
<b>Heavy metals, toxins</b>	○ Parvo virus B19 ○ Zoster, Borna, Meas., Röt.	○ Total protein / elektrofores. ○ <b>va.nt CJD-test Creutzfeldt</b>	
○ Al, Cd, Pb, Hg, Cu, creatinine, porphyrins	<b>Autoimmune- diseases</b>	○ <b>C3a, C4a complement</b> ○ P53 ( <i>guardian of the genome</i> )	
<b>Streptococci, Staphylococci</b>	○ Hepatitis serology ○ <b>Nagalase</b> ( <u>Tu., chr.infect</u> )	○ <b>HLA-DR1-4, HLA-B27</b> ( <i>gen. Marker rheumatoid arthritis</i> )	
○ <b>ASL-titers</b> ○ Antistaphylococci-titers	○ SLE (Syst. Lupus eryth.)	○ <b>CD3-/CD57+ Cells</b>	
<b>Urinary tract infekt etc.</b>	○ APS (Antiphospholipid - Sy.) ○ ANCA (Anti - neutrophil cytoplasmatic AB) <u>TGF-β</u>	<b>Mycobacterial-Histolog.</b> ○ Mycobacteria assay	
○ <b>URINE</b> Strip: pH, Ery, Leuk ○ <b>URINE</b> <u>Mycotoxin detect.</u>			

- <http://www.xerlebnishaft.de/defizienzspektrum.pdf> <http://www.erlebnishaft.de/laboruntersuchungen.pdf>  
→ <http://www.xerlebnishaft.de/complement.pdf> [http://www.xerlebnishaft.de/kommentinhalt\\_zell.pdf](http://www.xerlebnishaft.de/kommentinhalt_zell.pdf)  
→ [http://www.xerlebnishaft.de/labor\\_und\\_therapieoptionen.pdf](http://www.xerlebnishaft.de/labor_und_therapieoptionen.pdf)



### 1.1.1.1 Pathogen spektrum

<u>Infektion causes in chronic multisystem diseases</u>	
<b>Virus species</b>	Listeria
Coxsackie Virus	Haemophilus influenzae
<u>Epstein Barr Virus</u>	Franzisella
<u>Herpes Virus species</u>	Shigella
Cytomegalo virus	Meningokokci
Hepatitis C Virus	Coxiella, <u>Yersinia</u>
Masles virus	<b>Spirochaetes</b>
Polio virus	<u>Borrelia</u>
Varizella zoster virus	Leptospira
Enterovirus	Treponemes
Parvo B19	<b>Protozoa, Apicomplexa</b>
Influenza virus	<u>Babesia</u>
Rubella virus	<u>Toxoplasma</u>
West Nile virus	Plasmodia
Human endogenous retrovirus sp.	<b>Yeasts</b>
HIV	<u>Candida</u>
u.a.m.	<b>Fungi</b>
<b>Bacteria</b>	Cryptokocci
<u>Bartonella</u>	Coccidia
<u>Chlamydia</u>	Histoplasmas
<u>Mykoplasma</u>	<b>Prions</b>
<u>Anaplasma / Ehrlichia</u>	<u>Variant Creutzfeldt-Jakob</u>
Rickettsia	<b>Parasites</b>
Streptococci	Blastocysts, <u>mikrofilariae</u>
<u>Atypical mycobacteria (MOT)</u>	Taeniae

- <http://www.xerlebnishaft.de/infektursachenspektrum.pdf>
- <http://www.erlebnishaft.de/staphylococcusaureus.pdf>
- <http://www.xerlebnishaft.de/mitochondrien.pdf>
- [http://www.xerlebnishaft.de/chronisch\\_eng.pdf](http://www.xerlebnishaft.de/chronisch_eng.pdf)
- <http://www.erlebnishaft.de/kommentalternativ.pdf>

#### 1.1.1.1.1 Direct detection of Borrelia

**Bacteria culture**

**PCR-method**

**Bakterial culture + PCR method**

**Focus floating microscopy and fluorescence video microscopy**

**Histology**

**(Fluoreszenz-) Video microscopy plus immune - histochemistry**

- [http://www.erlebnishaft.de/borrelien\\_direktnachweis.pdf](http://www.erlebnishaft.de/borrelien_direktnachweis.pdf)
- [http://www.erlebnishaft.de/borrelien\\_direkt.pdf](http://www.erlebnishaft.de/borrelien_direkt.pdf)
- [http://www.xerlebnishaft.de/expand\\_koch\\_post.pdf](http://www.xerlebnishaft.de/expand_koch_post.pdf)

#### 1.1.1.1.1.1 Indirekt evidence of Borrelia

Compared with the disease pathogen variants that are included in the test set, the **Borrelia Western blot and ELISA serology** has a **specificity of ~ 99%** and a sensitivity (true positive rate, **hit rate**) of **~ 43%**. The variants of Borrelia that are not included in the test kit, go undetected.

**Pros:** "The claim of Wilske et al (2007) that, for a Lyme disease stage III always sero - positivity would be present, based solely on the work ... 1 and 2". However, the literature contains numerous other reports that are contrary to the view of Wilske and prove that **in the Lyme disease stage III Sero - negativity often occurs**" (Berghoff W. 2014) [http://www.praxis-berghoff.de/dokumente/berghoff30062014\\_2/Kapitel\\_22-2\\_Serologie\\_im\\_Spaetstadium.pdf](http://www.praxis-berghoff.de/dokumente/berghoff30062014_2/Kapitel_22-2_Serologie_im_Spaetstadium.pdf)

**Cons:** References 1, 2, 3 "Currently we have **detection rates for serum antibodies** by 20-50% in case of the localized form of the infection, 70-90% in the early disseminated form of the disease and almost **100% in the late Disease-form** (stage III). "(Wilske B, Fingerle V et al. 2007) <http://www.ncbi.nlm.nih.gov/pubmed/17266710>

- <http://www.erlebnishaft.de/kommentserollyme.pdf>
- <http://www.xerlebnishaft.de/serollyme.pdf>, <http://www.xerlebnishaft.de/west.pdf>
- <http://www.erlebnishaft.de/dauerheilung.pdf>

## Persistent Borrelien IgM-Titers

<b>Pros:</b> "... we have identified a cell population that is responsible for the IgM production in the bone marrow, and that this cell population is a new feature of IgM, namely the maintenance of <b>long-term immunity during intracellular bacterial infection</b> ".	<b>Cons:</b> In the chronic Lyme borreliosis the detection of IgM Antibodies are almost always <b>false positive results</b> .
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Persistent Borrelia **IgM titers** are a **current mark of intracellular immune response**. **Autoimmune mechanisms are rather rare in chronic Lyme disease**. A positive serology indicates that the patient was infected and that he is arguably still infected. Note the half-lives of the antibodies **in vivo**.

→ <http://www.erlebnishaft.de/kommentserolverllyme.pdf>

## Positive Lyme disease - serology despite antibiotic therapy, antibody kinetics

<b>Pro: A Positive Lyme disease - serology</b> despite antibiotic therapy <b>is a sign of Borrelia - persistence.</b>	<b>Cons:</b> "... so-called" positive "immunoblots from joint fluid can lead to inappropriate antibiotic treatment and delays the diagnosis of other disorders." There are to be found <b>memory cells or new infections</b> . You will never see any signs of pathogen persistences.
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→ <http://www.erlebnishaft.de/kommentserolverllyme.pdf>

→ <http://www.xerlebnishaft.de/serollyme.pdf>

→ <http://www.erlebnishaft.de/dauerheilung.pdf>

## Cellular immunity markers

**CD57, LTT, TH1/TH2 balance, Eosinophilia, TLR1-2-3-7-13-17, HLA, P53**

→ [http://www.xerlebnishaft.de/kommentinhalt\\_zell.pdf](http://www.xerlebnishaft.de/kommentinhalt_zell.pdf)

→ <http://www.xerlebnishaft.de/defizienzspektrum.pdf>

→ <http://www.xerlebnishaft.de/mitochondrien.pdf>

## CD57 natural killer cells in Lyme and Co-infektions

<b>Pro:</b> The normalization of the number of CD57 + T cells is considered as a <b>potential indicator of treatment success</b> . But this indicator is not specific for Borrelia infection.	<b>Contra:</b> The reduction in the number of CD57 + T cells is <b>not typical of chronic Lyme disease</b> .
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The investigation of a CD57 expression **complements the serological Borrelia and Co-infection diagnostics** and the complementary functional tests such Elispot LTT® or the result of the Th1 / Th2 Tests.

- <http://www.erlebnishaft.de/kommentcd57.pdf>
- <http://www.erlebnishaft.de/cd57.pdf>

## Interferon gamma test, Elispot LTT bzw. T – Zell Spot, lymphocyte-transformation test Borrelia

<b>Pro:</b> The interferon-gamma test so-called Elispot LTT test indicates the <b>current quantity and quality of a T - cell - immune response</b> by the amount of cytokine - production.	<b>Contra:</b> The gamma interferon test, the Elispot LTT has been <b>evaluated only for monitoring the course of tuberculosis</b> .
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In chronic Lyme disease and co-infections, interferon gamma test, the so-called Elispot LTT **complements the serological diagnosis** and the outcome of **CD57 expression**.

- <http://www.erlebnishaft.de/kommentlitt.pdf>
- <http://www.erlebnishaft.de/litt.pdf>

## TH1/TH2 Balance

**Th1** dominance conveys a chronic inflammatory condition.

**Th2** dominance favors allergic reactions.

**The Th17** pathway suppresses Th1 responses and the course will become a **chronic inflammation**.

## Eosinophilia

Main cause of eosinophilia are **allergies (atopies)**, especially IgE-mediated allergic reactions. Other causes include **parasites** (eg, liver flukes, nematodes. [Therapy. pyrantel (eg B.Helmex®), albendazole (eg Eskazole®), mebendazole (eg Vermox®).] or ectoparasites), **fungi** or **foreign bodies** or **neoplasia** eg mast cell tumors (lymphomas rarely). Eosinophilia may be also a sign of incipient recovery ("the dawn of recovery").

**Multiple allergy** is called Multiple Chemical Sensitivity - also known as MCS - or as chemical injury, chemical sensitivity, a so called environmental disease.

→ <http://www.xerlebnishaft.de/eosinophilie.pdf>

## TLR2-1-3-7-13

**Toll-like receptors, TLR, toll-like receptors** are the **Pattern Recognition Receptors**, PRRs of innate immunity, the pattern recognition systems of the innate immune system.

→ [http://www.erlebnishaft.de/TLR2\\_1\\_3\\_7\\_13.pdf](http://www.erlebnishaft.de/TLR2_1_3_7_13.pdf)

## HLA

The **human leukocyte antigen system (HLA)** system. HL antigens resemble a group of human genes that are important for the function of the immune system is of central importance.

→ [http://www.xerlebnishaft.de/genetische\\_faktoren.pdf](http://www.xerlebnishaft.de/genetische_faktoren.pdf)

## P53

**The tumor suppressor protein P53** ensures that a cell divides only when its genetic material is intact. This is not the case with a tumor cell. Then p53 shows its two main effects: at repairable damage cell cycle arrests (stopping cell division) in irreparable damage induction of apoptosis (cell death) has to follow.

→ <http://www.erlebnishaft.de/p53.pdf>

## 2 Therapy

### 2.1 Intensive treatment

#### In case of not fully sucked tick

1. **Antibiotic therapy** especially in **pathological** laboratory **test result of the tick**: treat the patient as shown in the next or next on section.
2. **Information is needed** about the patient necessary medical contact after 30 days, about possible co-infections, intestinal protection while on antibiotic therapy and the ways to protect oneself from further tick bites.

#### Sucked tick

1. **Immediately medication use** as described in the section: erythema migrans or recommend 2 x 1 doxycycline 100-200 mg / day for at least 20 days
2. **Borrelia - serology** (ELISA and blot) instantly, and with unremarkable laboratory result then once more control of the blood test after 30 days.
3. **Information** of the patient on necessary medical contact after 30 days, about possible co-infections, intestinal protection while on antibiotic therapy and the ways to protect oneself from further tick bites.

→ [DBG ILADS / IDSA](#)

#### Erythema migrans

1. **Disease history, physical examination, laboratory tests, imaging procedures, photo - documentation!**
2. **Immediately taking** 2 x 1 doxycycline 100-200 mg / day, **or** minocycline 2 x 100 mg / day plus 500 or 600 mg azithromycin 3 x / week, for example, Mon., Wed., Fri. plus artesunate intense 600 or 800 per day **for at least 40 days** (a quarantana, introduced in 1374 in Venice) **or 60 days with patients written informed consent only.**
3. **Adjuvant therapy**: intestinal protection, protection of mitochondria, metabolism, symptomatic treatment as necessary.
4. **Individual taking medication plan** and [treatment procedures plan](#)
5. **Information** about the patient's co-infections, the possible lengthiness of the disease, the likelihood of chronicity of infection and possible disease relapses and possible protective measures against tick bites.

→ [DBG ILADS / IDSA](#)

## Chronic Lyme disease and co – infections

1. Disease history, physical examination, laboratory tests, imaging, and possibly photo – documentation.
2. Discussion of the outcome of history, physical examination, laboratory tests, and additional studies, on the risks of treatment in general and about the pros and cons of long - term antibiotics including the discussion of necessary, therapeutic complementary measures. Possibly response behavior of the patient in dealing with himself. Consent info duration healing [Written informed consent](#)  
[Info about possible duration of healing process](#)
3. Individual treatment plan for the first 45 or 60 days.
4. [Control investigation - dates](#)
5. **Information** of the patient on necessary medical contact after 30 days, about possible co-infections, intestinal protection while on antibiotic therapy and the ways to protect oneself from further tick bites.
6. **Information to [DBG ILADS / IDSA Viewpoints and perspectives](#)**  
→ [http://www.xerlebnishaft.de/management\\_nach\\_zeckenkontakt.pdf](http://www.xerlebnishaft.de/management_nach_zeckenkontakt.pdf)

In the case of [contraindications](#) <http://www.xerlebnishaft.de/phytotherapie.pdf>

→ <http://www.kabilahsystems.de/gegen.pdf>

In patients with **multisystem diseases caused by pathogens** usually several infections are found that come into question as causes for the disease, so called **mixed infections**.

### Valid arguments for combinations of antibiotics, especially in mixed infections:

1. Extension of the therapy response spektrums
2. Effect synergism
3. Preventing oft he development of antibiotic resistances

### Valid arguments against antibiotic combinations:

1. Effect antagonism, occasionally
2. Toxicity
3. Interaction with other drugs
4. Costs

## Course of treatment

**Every two weeks, check-ups at the doctor**

**STANDARD BLOOD – Investigations**

**Blood count, AST, ALT, GGT, creatinine, Na, K, Ca, Mg, blood pressure**

**STANDARD IMAGING – Procedures**

**ECG** – when taking macrolides, quensyl, quinine, (**QTc** interval not longer than 440 milliseconds)

**Additional SPECIAL – Studies**

In case of infusion with **Ceftriaxone** every 4 weeks abdominal **sonography** (gall bladder).  
When taking **hydroxychloroquine** (Quensyl) every 3 months **Ophthalmologist**.

**Additional investigations**

When digestive – problems, then **test digestion on pathogens, fungi, worm eggs**  
In urinary tract – problems, then **urine-strip test** etc.

→ **Every two month control and check-up in the infectious disease center**

**STANDARD – tests** (arrange laboratory tests ten days before this planned meeting please)

**Elispot LTT – Tests + CD57 natural killer cells, (evtl. etc.)**

→ **Patient-Doctor exploration / conversation, duration at least 30 minutes**

→ <http://www.kabilahsystems.de/kommentkontrollunters.pdf>

## Mitochondria

**Mitochondria** have extensive metabolic functions, they produce 30 times more **ATP (adenosine triphosphate)** as it is formed during **glycolysis** fermentation. **ATP is the major energy currency of the cell-nucleated (eukaryotic) organisms.**

→ <http://www.xerlebnishaft.de/mitochondrien.pdf> <http://www.xerlebnishaft.de/krebsstammzelltherapie.pdf>

## Autoimmune disease

**Autoimmune** means a serious disease, it is understood as overreaction of the immune system against the body's own tissues. Immunosuppressive therapies are justified only after an infection as a possible cause has been ruled out with certainty.

→ <http://www.xerlebnishaft.de/immunsuppression.pdf>

**Nutrition, fluid, exercise, oral / dental care, stress normalisation**

→ <http://www.kabilahsystems.de/diaetblatt.pdf>

→ <http://www.xerlebnishaft.de/diaet.pdf>



## 2.1.1 Antibiotic combination treatment (selection patterns)

Antibiotic groups	drug	pathogen										
		Borre-lia	Barto-nella	Yersi-nia	Babe-sia Proto-myxo-a	Chla-mydia	Myko-plas-ma	Ehrlic-hia	Myco-bakte-ria „MOT“	Toxo-plas-ma	Morg-elles	Virus-es
No mono therapy!	<u>Ceftriaxone</u>	X*	x									
	Betalactames	<u>Cefuroxim</u>	K*		X*							
	<u>Amoxicilline</u>	X	X*									
Makrolides	<u>Azithromycin</u>	X* X*	X*	X	X	X*	X*	X*	X	X	X*	x
	Clarithromyc.	K*				x			x			
Lincosamide	<u>Clindamycin</u>				X X					X		
Tetrazyklines	<u>Min.-/Dox.-/T.</u>	X* X*	X*	X	X	X*	X	X	X	X	X*	x
Ansamycines	<u>Rifampicin</u>		X*		X	X*	X	X	X	X		
Chinolones	<u>Levofloxazin</u>			X X		X	X	X	Coxiella, Franzisella, Rickettsia ..			
	<u>Ciprofloxazin</u>		X			X		x				
Vitamin-antagonists	Cotrim Rat.®	K*	X*	X	X	X	X	X	X	X	X*	
Antimetabolites	<u>Dapson®</u>						X		X			
	Sulfadiazin					x				X		
	Daraprim®									X		
Antiprotozoik	Malarone®				X					x		
<u>Lysosomotropics</u>	<u>Artemisia +</u>	X* X*	X*	X	X	X*	X	X	X	X	X*	X
	Hydr.chloroq.	X* X*	X*	*	X	x	x	x	*	*	X*	*
Nitroimidaz.	<u>Metronidazole</u>	X			X	x					X*	
Antimycotics	<u>Fluconazole</u>	X									X*	
<u>Anthelmintics</u>	Mebendazol										X*	
Virustatics u.	<u>Inosiplex</u>	*	*	*	*	*	*	*	*	*	*	X X
<u>Phenothiazine</u>	Valaciclovir											X
PH	Lactulose	x	x	x	x	x	x	x	x	x	x	x
Phyto	<u>Phytother. 1</u>	X*	x	x	x	X*	x	x	x	x	x	x
standard	Phytother. 2	X	x	x	x	X	x	x	x	x	x	x
	<u>Pyrazinamide</u>		.		.	.	.	.	X			
	Methylenblue	.			.	.	.	.		.		
	INH					.			.			
	AmphoMoral	.									x	
	Rifaximin			x					x			
Others	Tigecyclin	.				.	.	.				
	<u>Fidaxomicin</u>											
	Vancomycin											
	Daptomycin											
	Phosphomycin											
	Mupirocin 2%											

.....x, \* Drugs of choice x, \*.....

→ <http://www.kabilahsystems.de/antibiosetherapieplan.pdf>

Bacterial escape mechanisms, eg Borrelia  
Chronic disease processes, eg Lyme Borreliosis  
Artemisinine, Lysosomotropics, Makrolides, Clindamycin, Tetrazyklone, Betalaktame, Rifampicin, Metronidazole, Isoprinosine (Delimmun®), Levofloxazin, Pyrazinamid, Pentoxifyllin, Chlorpromazin, Vermox, Fluconazol, Dapson

See also appendix 3, page 29

## Combinations of treatment (no responsibility is taken, the attending physician will decide)

<a href="#">Standard combination-antibiotic therapy</a>	<b>Artemisia annua plus Tetracycline</b> (Minocycline, Doxycycline) <b>plus Macrolides</b> (Azithromycin oder Clindamycin, Chlarithromycin) with an individuel plan on taking fort wo or three months with <a href="#">Control investigation plan</a>
<b>Additional antibiotics per indication</b>	<b>Isoprinosine</b> [per 16 days], <b>Rifampicin</b> oder <b>Trimethoprim/Cotrimoxazol</b> ; <b>Betalactames</b> (Ceftriaxon, Cefuroxim, Cefotaxim; Amoxicillin in children and in pregnancy) except inan emergency or disease flar <u>as additional medication</u> to the above ment. standards: <a href="#">Levofloxazin</a> [10 days], <a href="#">Metronidazol</a> [10 days]
→	<b>Note contraindikations</b> <a href="http://www.kabilahsystems.de/gegen.pdf">http://www.kabilahsystems.de/gegen.pdf</a>
<b>Standard phytotherapeutic alternatives</b>	<b>In case of contraindikations: Phytotherapy Plant derived antimikrobiotics Antibiotibioc therapy - survey</b>
→	<b>Antibiotic resistance testing</b> <a href="http://www.erlebnishaft.de/staphylococcusaureus.pdf">http://www.erlebnishaft.de/staphylococcusaureus.pdf</a>
<b>Important adjuvants</b>	<b>Probiotics</b> plus <b>sp. Fatty acids</b> plus <b>Polyphenols</b> plus <b>B-Vitamins+Folic acic</b> plus <b>Q10 and Carnitin</b> ,
<b>Additional Adjuvants per indikation</b>	<b>Elektrolytes and trace elements, biogenic amines and peptides, vitamin D3, analgetics, pentoxifylline, chlorpromazine, antikoagulation</b>
→	<b>Diet sheet</b> <a href="http://www.kabilahsystems.de/diaetblatt.pdf">http://www.kabilahsystems.de/diaetblatt.pdf</a> / <b>detoxification, immunstimulation</b>
<a href="#">Borreli</a>	<b>Artemisia annua plus Tetracyclins</b> (Minocyclin, Doxycyclin) <b>plus Macrolids</b> (Azithromycin oder Clindamycin; Chlarithromycin), in acute phasein addition to the standard antibiotic therapy: <b>Beta-laktam antibiotics</b> (Ceftriaxon, Cefuroxim, Cefotaxim) offset in time
Rickettsiia	<b>Artemisia annua plus Betalaktamantibiotics</b> (Ceftriaxon, Cefuroxim, Cefotaxim, Amocicillin) <b>plus Tetracyclins</b> (Minocycline, Doxycycline) <b>plus Macrolids</b> (Azithromycin oder Clindamycin; Chlarithromycin)
Leptospira	<b>Artemisia annua plus Betalaktam antibiotics</b> (Penicillin G, Ceftriaxon, Cefuroxim, Cefotaxim, Amocicillin), <b>Tetracycline</b> (Minocycline, Doxycycline) <b>plus Macrolids</b> (Azithromycin oder Clindamycin; Chlarithromycin); <b>Amphotericin B</b>
<a href="#">Bartonella</a>	<b>Artemisia annua plus Tetracycline</b> (Minocycline, Doxycycline) <b>plus Macrolids</b> (Azithromycin oder Clindamycin; Chlarithromycin) <b>plus Rifampicin or Cotrimoxazole</b>
<a href="#">Yersinia</a>	<b>Artemisia annua plus Tetracycline</b> (Minocycline, Doxycycline) <b>plus Macrolids</b> (Azithromycin oder Clindamycin; Chlarithromycin); <b>Ciprofloxazin</b> [10 days]
<a href="#">Babesia, Protomyxcoa</a>	<b>Azithromycin (oder Clindamycin) plus Malarone®</b> [10 days] bzw. <b>Wellvone-suspension®</b>
<a href="#">Toxoplasma</a>	<b>Artemisia annua plus Pyrimethamin</b> (Daraprim) <b>plus Cotrimoxazole or Sulfadiazine plus Macrolides</b> (azithromycin or Clindamycin; Chlarithromycin)
<a href="#">Coccidia</a>	<b>Sulfonamide plus Trimethoprim, Metronidazole or Tinidazole</b>
Leischmania	<b>Metronidazole</b> [10 days], <b>Cotrim forte or Rifampicin plus Amphotericin B</b>
Malariaerreger	<b>Artemisia annua, Malarone®</b> [10 days], <b>Hydroxychloroquine plus Tetracyclines</b> (Minocycline, Doxycycline), Coartem®, Riamet®
<a href="#">Chlamydia</a>	<b>Artemisia annua plus Tetracyclines</b> (Minocycline, Doxycycline) <b>plus Macrolides</b> (Azithromycin or Clindamycin; Chlarithromycin) <b>plus Rifampicin oder Sulfonamide, Levofloxazin</b> [10 days]
<a href="#">Mycoplasma</a>	<b>Artemisia annua plus Tetracyclines</b> (Minocycline, Doxycycline) <b>plus Macrolides</b> (Azithromycin oder Clindamycin; Chlarithromycin), <b>plus Rifampicin, Levofloxazin</b>
<a href="#">Ehrlichia</a>	<b>Artemisia annua plus Tetracyclines</b> (Minocycline, Doxycycline) <b>plus Macrolides</b> (Azithromycin oder Clindamycin; Chlarithromycin), <b>plus Rifampicin; Levofloxazin</b> [10 d.]
<a href="#">Mycobakteria</a>	<b>STANDARD MEDS plus Rifampicin plus Pyrazinamid; Dapsone</b> (Lepra)
Epstein Barr-, Coxsackie-Herpes-, Cytomegalie – v.	<b>STANDARD MEDS plus Delimmun</b> [16 days]
Borna virus	<b>STANDARD MEDS plus Amantadine</b> [14 days, minimum 100 mg / day]
Coxiella	<b>Tetracyclines</b> (Minocycline, Doxycycline) <b>plus Rifampicin or Cotrimoxazol</b>
Chlostridia	<b>Vancomycin, plus Metronidazole</b> [10 days] or <b>Fidaxomicin</b>
Campylobacter	<b>Macrolides</b> (Azithromycin or Clindamycin; Chlarithromycin) <b>plus Gentamycin</b>
Helicobacter	<b>Betalaktam antibiotics</b> (Ceftriaxon, Cefuroxim, Cefotaxime, Amoxicillin) <b>plus Macrolides</b> (Azithromycin oder Clindamycin; Chlarithromycin) <b>plus Pantoprazole</b>
Legionella	<b>Macrolides</b> (Azithromycin oder Clindamycin, Chlarithromycin) <b>plus Rifampicin; Levofloxazin</b> [10 days]
Nematodes	<b>Mebendazol</b> [6 days]
Liver fluke	<b>Pyrantel pamoate, Metronidazole or Tinidazole</b>
Trematodes	<b>Albendazole</b>
Fungi	<b>Fluconazole, Amphmoronal®, Moronal</b>
<a href="#">Morgella</a>	<b>Tetracyclines</b> (Minocyclin, Doxycycline) <b>plus Macrolides</b> (Azithromycin oder Clindamycin; Chlarithromycin) <b>plus Mebeendazole</b> [separately for 6 days in an interval], <b>Fluconazole</b> [separately in an therapy interval]

→ <http://www.xerlebnishaft.de/antibiosetherapie.pdf>

## Probiotics

**Probiotics are live, non-pathogenic microorganisms (bacteria or yeast) that have been used for centuries because of their potential health benefits.**

**They are marketed for the prevention and treatment of a variety of disorders, including diarrhea, irritable bowel syndrome and inflammatory bowel disease.**

→ <http://www.kabilahsystems.de/probiotika.pdf>

## Detoxification

**Sugar metabolism, plant-feeding deterrents, adsorbents and chelates, amino acids and proteins, metals, and vitamins.**

→ <http://www.kabilahsystems.de/entgiftung.pdf>

## Hydrogen-ion concentration, PH value etc.

**H<sub>2</sub>, V-ATPase, PH, cytoskeleton, neurotoxins, food intolerance, irritable bowel syndrome, leaky gut, heavy metals, halogenated hydrocarbons, spices, phyto-therapeutics**

→ <http://www.kabilahsystems.de/ph.pdf>

## Phytotherapy and adjunctive therapies in long-term antibiotics

**Herbal antimicrobials, anti-inflammatories, analgesics and immune activators, psycho-hygiene, diet, metabolic supportiva, physiotherapy.**

→ <http://www.xerlebnishaft.de/phytotherapie.pdf>  
→ <http://www.kabilahsystems.de/pflanzlicheantimikrobiotika.pdf>  
→ <http://www.kabilahsystems.de/kommentmedbegleittherapie.pdf>

## Treatment of symptoms (selection patterns)

Substances overview RED = preferred GREY = not preferred	Drugs individually to be chosen
Magnesium <b>in combination</b>	
<b>Magnesium citrate, -glutamate</b>	
<b>Magnesium L-aspartate</b>	
Ka, Na, Mg - granules	
Pancreas (pig), trypsin, chymotr., bromelain, papain, rutoside	
Bromelain, Trypsin, Rutosid	
<b>Acetylcysteine in combination-therapy</b>	
<b>Prednisone in very low doses only</b>	
<b>Minocycline</b>	
Doxycycline	
Boswellia serrata D3	
<b>Devil's claw root</b>	
<b>Willow bark extract</b>	
Mary's thistle extract	
Grapefruit seed extract	
Aconitum napellus (externally)	
Dimethylsulfon (MSM) (externally)	
<b>Acute: Acetylic acid 300 mg / day</b>	
<b>Acetylic acid 100 mg possibly plus 1 cup coffee</b>	
Ibuprofen, Diclofenac	
Sulfasalazil	
<b>Hydroxychloroquine</b>	
quinine	
<b>Cyanocobalamin komb. B1, B6, Folic acid</b>	
<b>DL-Alphaipoic acid [polyneuropathy]</b>	
Pregabalin	
Gabapentin	
Lidocaine (externally)	
Capsaicin (externally)	
Trimipramine	
Amitryptiline	
<b>L-Tryptophan in combination-therapy</b>	
Low dose Naltrexone	
Johannis herb extract	
Doxylaminohydrogensuccinat	
Poppy cabage, oats	
Johannis herb plus valerian	
<b>Tramadol</b>	
<b>Tilidin, naloxone 300, 600 mg</b>	
Morphine	
<b>Oxycodon 10, 20, 30, 60 .. 450 mg</b>	
Tetrahydrocannabinol	

→ <http://www.kabilahsystems.de/schmerz.pdf>

## **Inflammation** (lat. inflammatio) <http://www.inflammatio.de/>

**Immune competence** is a fine balance between inflammation and tolerance to environmental influences.

### **Markers of immune competence**

**CD57+ natural killer cells** <http://www.erlebnishaft.de/kommentcd57.pdf>  
<http://www.erlebnishaft.de/cd57.pdf>, **CD28-positive CD8 cells**  
**TH1/TH2-balance** <http://www.laborzentrum.org/dokumente/th1-th2-immunbalance.pdf>  
**TNF alpha, IL1, IL6, ATP intracell. etc.** <http://www.xerlebnishaft.de/mitochondrien.pdf>  
**Complement factors (C, Nagalase)** <http://www.xerlebnishaft.de/complement.pdf>  
**Human leucozyte antigen (HLA)** [http://www.xerlebnishaft.de/genetische\\_faktoren.pdf](http://www.xerlebnishaft.de/genetische_faktoren.pdf)  
**Toll like rezeptor (TLR)** [http://www.erlebnishaft.de/TLR2\\_1\\_3\\_7\\_13.pdf](http://www.erlebnishaft.de/TLR2_1_3_7_13.pdf)  
**P53 (guardian of the genome)** <http://www.erlebnishaft.de/p53.pdf>

→ [http://www.kabilahsystems.de/bakt-stabilis\\_entwaff.pdf](http://www.kabilahsystems.de/bakt-stabilis_entwaff.pdf)

**An immune stimulation must be indexed.** The reduced immune competence must be documented prior to the start of the immunostimulatory treatment.

→ <http://www.kabilahsystems.de/immunsti.pdf>

### **Biogenic amines and peptides, proteins**

**Protein has sulfur** (Amino acids: Cystein, Methionin).  
**Thioester-groups** (SH-groups) **in the complement system metabolism** <http://xerlebnishaft.de/complement.pdf> **play a key role as a mediator between protein and purine metabolism. Thioester and nitro compounds**, spermidin, L-arginine, L-proline, N-acetyl cysteine, glutathione, allicin, sulfoxides, sulfonic acids, histones, specific peptides and auto-vaccines, some peptide antibiotics, the proteome and prions.

**L-Tryptophan and peptide hormones.**

→ <http://www.kabilahsystems.de/biogeneamineundpeptide.pdf>

### **Vitamins, electrolytes and trace elements**

**Water-soluble vitamins** such as: Tetrahydro folic acid, vitamin B12, B-vitamins, nicotinic acid, niacin

**Fat-soluble vitamins** such as: Vitamin D3, vitamin E. Fat-soluble vitamins can be overdosed.

→ <http://www.xerlebnishaft.de/vitamine.pdf>

### **Elektrolytes and trace elements**

→ [http://www.xerlebnishaft.de/elektro\\_spur\\_ph.pdf](http://www.xerlebnishaft.de/elektro_spur_ph.pdf)

## Fatty acids

**Most fatty acids, especially in a pH range of 4.5 to 6.0, in a slightly acidic environment, have fungicidal and antimicrobial effects.**

→ <http://www.kabilahsystems.de/ungesaettfetts.pdf>

## Mitochondrial dysfunction

**Mitochondrial dysfunctions are in the focus of chronic multi-system diseases and cancer.**

→ [http://www.kabilahsystems.de/q10\\_und\\_l.pdf](http://www.kabilahsystems.de/q10_und_l.pdf)

→ <http://www.xerlebnishaft.de/krebsstammzelltherapie.pdf>

## Polyphenols

**Polyphenols** are aromatic compounds; aroma = fragrant

**Phytonutrients, steroid hormones, adrenal- and sex hormones of animals and man:** mineralocorticoids such as **aldosterone**, glucocorticoids such as **cortisol**, estrogens such as **estradiol**, progestins such as **progesterone**, androgens such as **testosterone**

→ <http://www.kabilahsystems.de/polyphenole.pdf>

## Anticoagulants, antizytokines, antichemokines

**Anti-coagulant acting dietary supplements:** garlic, vitamin E, fish oil / Omega 3 fatty acids

**Anticoagulants** (arranged in ascending order of potency): bromelain, wobenzym, serrapeptase, nattokinase, lumbrokinase, willow bark extrakt / quercetin / flavonoids, heparin, warfarin.

→ <http://www.kabilahsystems.de/hyperkoagulation.pdf>

## Practice-relevant ANTI- ZYTOKINES and ANTI- CHEMOKINES

→ <http://www.kabilahsystems.de/antizyt-chem.pdf>

## Outlook

**"In the not too distant days maybe we will protect ourselves when we coddle microorganisms that live in us, instead of fighting them." (N. Wolfe)**

→ [http://www.kabilahsystems.de/bakt-stabilis\\_entwaff.pdf](http://www.kabilahsystems.de/bakt-stabilis_entwaff.pdf)

### 2.1.1.1 Long-term treatment of chronic courses

**Long-term – therapy** (at least 3 months, better 6 months of permanently antibiosis)

**Interval – therapy or sequence – therapy** (long term antibiotic treatment with fixed-frequency treatment breaks or drug strategy changes)

**Patients adapted intervall – therapy** (symptom adapted permanent antibiosis at disease relapse or new disease manifestations)

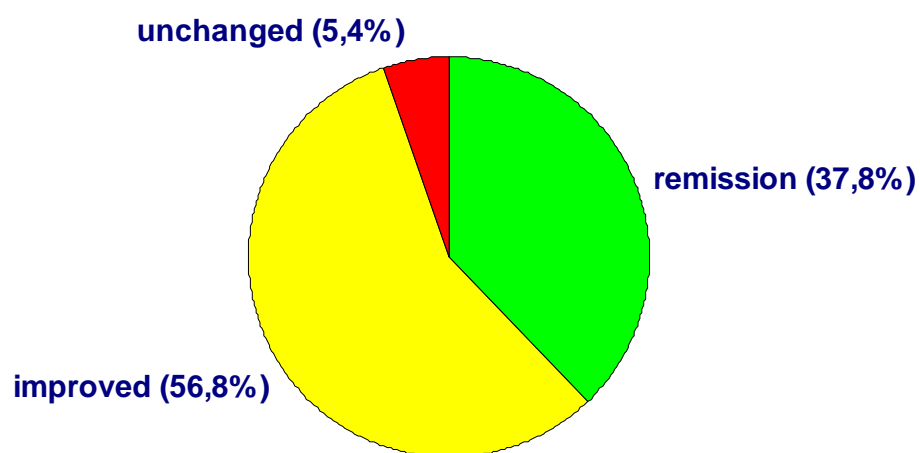
- „Slap“ – Therapie <sup>1</sup> (in cases of disease relapses: Shock – therapy, possibly with a drug combination that in former times already had helped, be taken for at least for 3 or 7 days until disappearance of the acute symptoms.)

→ [http://www.kabilahsystems.de/antibiotika\\_langzeit.pdf](http://www.kabilahsystems.de/antibiotika_langzeit.pdf)

#### Progress without treatment and possible cours of treatment

**"Lyme disease is a primary chronic infectious disease in which there is no spontaneous healing.** The thesis of a "prevalence titer" in the sense of a state of spontaneously recovered from the infection has never been proven and should now be obsolete."

→ <http://www.erlebnishaft.de/dauerheilung.pdf>



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<sup>1</sup> Huismans BD, Klemann W (2014) Antibiotika Langzeit-Therapie bei chronischer Lyme-Borreliose mit DNA-Nachweis durch PCR. Intensivbehandlung, Kombinationsbehandlung, Langzeitbehandlung. Bachelor Master Publishing.  
[http://www.diplomica-verlag.de/gesundheitswissenschaften\\_94/antibiotika-langzeit-therapie-bei-chronischer-lyme-borreliose-mit-borrelia-dna-nachweis-durch-pcr-intensivbehandlung-kombinationsbehandlung-langzeitbehandlung\\_159733.htm](http://www.diplomica-verlag.de/gesundheitswissenschaften_94/antibiotika-langzeit-therapie-bei-chronischer-lyme-borreliose-mit-borrelia-dna-nachweis-durch-pcr-intensivbehandlung-kombinationsbehandlung-langzeitbehandlung_159733.htm)

## 3 Special treatment - success - obstacles

### 3.1 Selection of inappropriate antibiotics

**Beta lactam – antibiotics** (penicillines and cephalosporines) **such as ceftriaxone in beta lactam - resistant bacteria** (partially at **Borrelia** \* - and generally in **all Borrelia disease – Co-Infections**), **as well as in protozoa and viruspersister – activities.**

- <http://www.erlebnishaft.de/stressvar2.pdf> (in: change of Borrelia immunogenicity)
- <http://www.kabilahsystems.de/antibiosetherapieplan.pdf>

#### 3.1.1 Bacterial Stealth- formes, persisters, round bodies

L-forms = filterable forms, **special forms of bacterial pleomorphism.** "Since many bacteria in the classical form pass through 0.45 µm pore filters, the term „filterable microbes“ should be reserved for variants which pass through a porosity of 0.25 µm [250 nanometers] or less Most CWD forms include filterable, viable units, but this is not invariable, depending on the age of the culture and nutrients supplied." In **Mattman L. (2001) Cell Wall Deficient Forms. Stealth Pathogens. CRC Press 3rd Edition, p.11**

- <http://www.erlebnishaft.de/stressvar1.pdf>
- <http://www.erlebnishaft.de/stressvar2.pdf>
- <http://www.xerlebnishaft.de/trotzantibiosepat.pdf> <http://www.erlebnishaft.de/trotzantibiosetier.pdf>

#### 3.1.1.1 Biofilms

Biofilms are extra- and intra – cellular **slime layers (films) from mikroorganisms**, consisting of bakteria, virus types, archaea, protozoa, fungi, virions and microalgae. biofilms are the so called „**Cities of Microbes**“. They are **sybiogenetisc living beings** with division of work, every single in his own way. **Biofilms** are resistant to antibiotics, unlike their wild, so-called free living **planktonic** variants.

- <http://www.erlebnishaft.de/biofilmmed.pdf>
- <http://www.xerlebnishaft.de/quorum.pdf>
- <http://www.erlebnishaft.de/kommentbiofilmmed.pdf>



### 3.1.1.1.1 Intracellular stay of pathogens and other resistance mechanisms

<b>Obligate</b> intracellular pathogens	<b>Facultative</b> intracellular pathogens
Chlamydia spp, Coxiella burnetii, Ehrlichia spp, Erwinia spp, Rickettsia spp, Parachlamydia spp, Mycobacterium leprae, Tropheryma Whipplei, Waddlia etc.	Borrelia spp, Treponemes, Leptospira, Bartonella, Mycoplasma, Brucella spp, Legionella spp, Listeria spp, Mycobacterium spp, Neisseria spp, Salmonella spp, Shigella spp, Yersinia spp, Babesia spp, Toxoplasma, Protomyxzoa spp, Trypanosomes, Streptococci spp, Candida etc.

- <http://www.erlebnishaft.de/stressvar1.pdf>
- [http://www.kabilahsystems.de/chlamydia\\_pneumoniae.pdf](http://www.kabilahsystems.de/chlamydia_pneumoniae.pdf)
- [http://www.xerlebnishaft.de/borrel\\_inflam\\_lymphom\\_neopl.pdf](http://www.xerlebnishaft.de/borrel_inflam_lymphom_neopl.pdf)
- [http://www.xerlebnishaft.de/bakt\\_pathogenitaetsfaktoren.pdf](http://www.xerlebnishaft.de/bakt_pathogenitaetsfaktoren.pdf)
- <http://www.xerlebnishaft.de/krebsstammzelltherapie.pdf>

**Defense and escape mechanisms of Borrelia against the human immune system and against antibiotics and chemotherapeutics.**

**Why borrelia may remain infectious despite intensive antibiotic treatment.**

- [http://www.xerlebnishaft.de/escape\\_eng.pdf](http://www.xerlebnishaft.de/escape_eng.pdf)

## 4 Biological basic knowledge

### 4.1 Update of the Henle-Koch postulates

The supplementation and extension of Henle-Koch's postulates at the molecular level (by Falkow, 1988) by the sequence-based identification of pathogens:

- A specific gen (or a feature) is found in pathogens.
- The inactivation of this gene (or of the feature) should be linked with a reduction of the virulence (or toxicity) of the pathogen.
- A return of the corresponding gene into the non-poisonous mutant must restore the previous virulence.

- [http://www.xerlebnishaft.de/expand\\_koch\\_post.pdf](http://www.xerlebnishaft.de/expand_koch_post.pdf)
- [http://www.xerlebnishaft.de/bakt\\_pathogenitaetsfaktoren.pdf](http://www.xerlebnishaft.de/bakt_pathogenitaetsfaktoren.pdf)

#### 4.1.1 Chemotaxis and horizontal gene transfer

Electromagnetism, chemotaxis, self-organisation.

- <http://www.xerlebnishaft.de/chemotaxis.pdf>
- <http://www.erlebnishaft.de/gentransfer.pdf>
- <http://www.xerlebnishaft.de/quorum.pdf>
- [http://www.erlebnishaft.de/selbst\\_muster\\_nano.pdf](http://www.erlebnishaft.de/selbst_muster_nano.pdf)

#### 4.1.1.1 Models of immunology

The **self – nonself model** was described by **Paul Ehrlich**. He introduced it as a result of his experiments on animals as a biological principle of horror autotoxicus (fear of self-destruction).

This understanding was modified in 1950 by **Sir Frank Macfarlane Burnet** by the concept of **self-tolerance**..

„In the **Danger-theory** of **Polly Matzinger (1994)** she describes that the Immune system does not respond to foreign substances, but to **situations that are potentially harmful**." (Monestier M (2007)

- [http://www.erlebnishaft.de/danger\\_model.pdf](http://www.erlebnishaft.de/danger_model.pdf)
- <http://www.xerlebnishaft.de/complement.pdf>
- <http://www.erlebnishaft.de/virusbaktimmun.pdf>

#### 4.1.1.1.1 Size comparison of life forms, an overview

Life forms, viral, bacterial stealth – forms, bio – films etc.

- <http://www.xerlebnishaft.de/lebensstrukturenvergleich.pdf>

## Discussion

This contribution has been created from necessity and experience and from the fascination which the author gained in 1973 through 2014 in clinic and practice when working with patients.

Key issues were from the beginning atherosclerosis and its sequelae, the arthrosis and arthritis, cancer and some psychosomatic and neurologic conspicuous behaviors of the patients we had seen.

Dealing with seriously ill patients over many decades has led to an intensive study of literature. Axel Hübner.<sup>2</sup> gave me for the present paper, the inspiration for the representation of the different pros and cons in the individual descriptions we had done.

The literature collection presented herein is neither perfect nor complete. We would like to stay tuned.

We would be delighted if we could possibly on reckless or negligent or even in some cases, deliberately false statements to the detriment of patients, we could bring some colleagues to think about.

If we had made by this work a contribution to a serious discussion on the above subject, we would be most happy.

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<sup>2</sup> Hübner A (2014) Gedanken und Fragen eines Klinikers zur Infektion mit Borrelien und Ko-Infekten. Grin Verlag. ISBN (eBook) 978-3-656-82040-6 ISBN (Buch) 978-3-656-82039-0 <http://www.grin.com/de/e-book/282739/gedanken-und-fragen-eines-klinikers-zur-infektion-mit-borrelien-und-ko-infekten> .

## Appendix

### Annex 1

#### More opinions on this topic by the author

PubMed listings

[http://www.ncbi.nlm.nih.gov/pubmed?Db=pubmed&Cmd=Search&Term=%22Huismans+BD%22\[Author\]&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed\\_ResultsPanel.Pubmed\\_DiscoveryPanel.Pubmed\\_RVAbstractPlus](http://www.ncbi.nlm.nih.gov/pubmed?Db=pubmed&Cmd=Search&Term=%22Huismans+BD%22[Author]&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_DiscoveryPanel.Pubmed_RVAbstractPlus)

Lebendigkeit - Selbstorganisation - Morphogenese: 5. Hauptsatz der Thermodynamik, das Phanés Sound Theorem. Grin Verlag 2007 <http://www.grin.com/de/e-book/71284/lebendigkeit-selbstorganisation-morphogenese-5-hauptsatz-der-thermodynamik>

Antimikrobielle Therapie bei Patienten mit chronischer Lyme-Borreliose und anderen chronischen Infektionskrankheiten. Grin Verlag 2007 <http://www.grin.com/de/e-book/85078/antimikrobielle-therapie-bei-patienten-mit-chronischer-lyme-borreliose>

Plädoyer für den Erregernachweis bei der chronischen Lyme-Borreliose. Grin Verlag 2008 <http://www.grin.com/de/e-book/86576/plaedoyer-fuer-den-erregernachweis-bei-der-chronischen-lyme-borreliose>

Langzeitbehandlung mit Antiinfektiva bei persistierender Borreliose mit Borrelien-DNA-Nachweis durch PCR. Grin Verlag 2008 <http://www.grin.com/de/e-book/117294/langzeitbehandlung-mit-antiinfektiva-bei-persistierender-borreliose-mit>

Formularsammlung und Diskussionsbeitrag zu Diagnostik und Therapie bei Patienten mit chronischer Lyme-Borreliose und Koinfektionen Grin Verlag (2009) <http://www.grin.com/de/e-book/122218/formularsammlung-und-diskussionsbeitrag-zu-diagnostik-und-therapie-bei>

Prolonged antibiotic therapy in PCR confirmed persistent Lyme disease Grin Verlag 2011 <http://www.grin.com/en/e-book/166179/prolonged-antibiotic-therapy-in-pcr-confirmed-persistent-lyme-disease#inside>

Etude rétrospective sur la maladie de Lyme. Grin Verlag 2014 <http://www.grin.com/fr/e-book/279155/etude-retrospective-sur-la-maladie-de-lyme>

Antibiotika Langzeit-Therapie bei chronischer Lyme-Borreliose mit Borrelien DNA-Nachweis durch PCR: Intensivbehandlung, Kombinationsbehandlung, Langzeitbehandlung. Bachelor + Master Publishing 2014. ISBN-10: 3956842588 □ ISBN-13: 978-3956842580

[http://www.diplomica-verlag.de/gesundheitswissenschaften\\_94/antibiotika-langzeit-therapie-bei-chronischer-lyme-borreliose-mit-borrelien-dna-nachweis-durch-pcr-intensivbehandlung-kombinationsbehandlung-langzeitbehandlung\\_159733.htm](http://www.diplomica-verlag.de/gesundheitswissenschaften_94/antibiotika-langzeit-therapie-bei-chronischer-lyme-borreliose-mit-borrelien-dna-nachweis-durch-pcr-intensivbehandlung-kombinationsbehandlung-langzeitbehandlung_159733.htm)

## Annex 2

### Following institutions were involved in the facts checks

Laboratory Staber <http://www.labor-staber.de/>

Infectolab <http://www.infectolab.de/>

Deutsches Chroniker Labor <http://deutsches-chroniker-labor.de/de/>

Zecklab Dr. Liebisch <http://www.liebisch.magix.net/public/>

Dermatohistopathology University Innsbruck  
<http://dermatologie.uki.at/page.cfm?vpath=forschung/histopathologische-forschung>

Videomikroskopie <http://lymerick.net/videomicroscopy.htm>

## Annex 3

### Recommendations for standardized antibiotic combinations.<sup>3</sup>

Standard antibiosis Borrelia and Co-Infektions level I

[Minocycline + Azithromycin + Artemisia annua or plaquenil \(+ nystatin\)](#)

Standard antibiosis Borrelia and Co-Infektions level II

[Minocycline + Azithromycin + Artemisia annua + Rifampicin \(or Septra\) \(+ nystatin\)](#)

Standard antibiosis Borrelia and Co-Infektions and Virus species level III

[Minocycline + Azithromycin + Artemisia annua or plaquenil + Delimmune \(+ nystatin\)](#)

Standard Antibiosis Borrelia and Co-Infektions in Treatment resistance level IV

[Minocycline + Azithromycin + Artemisia annua or plaquenil + Metronidazol 10 days, given as a single agent \(+ nystatin\)](#) or + [Levofloxazin 10 days, given as a single agent \(+ nystatin\)](#)

Standard Antibiose Borrelien und Ko-Infektionen und Protozoen

[Minocycline + Azithromycin + Artemisia annua or plaquenil + Malarone 10 days, given as a single agent \(+ nystatin\)](#)

Standard Antibiose Borrelien und Ko-Infektionen u. Überhandnehmen v. Hefen u. Pilzen

[Minocycline + Azithromycin + Artemisia annua or plaquenil + Fluconazole 10 days as a single agent \(+ nystatin\)](#)

Standard Antibiose Borrelien und Ko-Infektionen Akut (stationär), Kinder, Schwangere  
[Ceftriaxone or Amoxicillin + Azithromycin + Artemisia annua or plaquenil \(+ nystatin\)](#)

Combinations, overall view <http://www.xerlebnishaft.de/antibiosetherapie.pdf>

Combinations overview <http://www.kabilahsystems.de/antibiosetherapieplan.pdf>

Essential accompanying drug therapies

<http://www.kabilahsystems.de/kommentmedbegleittherapie.pdf>

Phytotherapy <http://www.xerlebnishaft.de/phytotherapie.pdf>

<http://www.kabilahsystems.de/pflanzlicheantimikrobiotika.pdf>

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<sup>3</sup> Year 2014.

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<http://www.wwwarchiv.de/wwwarchiv/anfang/all/recht.html>

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