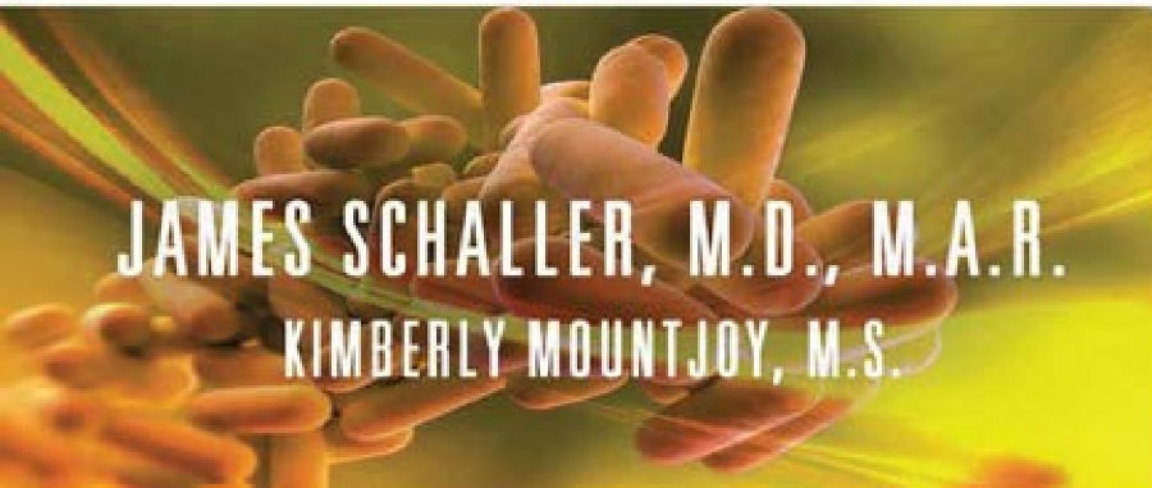
CĪŅA AR BIOFILMĀM

KĀPĒC JŪSU ANTIBIOTIKAS ANO ANTI SĒNĒM F AIL

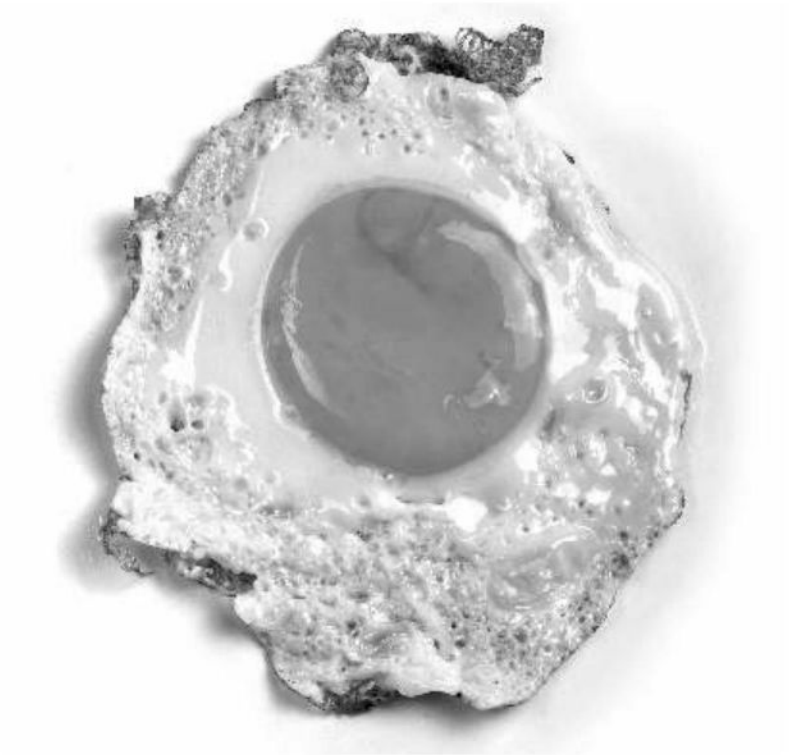
Risinājumi Laima slimī bai, hroniskam sinusī tam,
Pneimonija, rauga infekcijas, brū ces, auss
Infekcijas, smaganu slimī bas, zarnu slimī bas,
Slikta elpa, cistiskā fibroze un implanti

LIELS TRŪKUŠ AIS DABELS HRONISKĀS SLIMĪ BAS MĪ KLĀ



Kas ir biofilma?

Vienkāršā, zinātniska bioplēves definīcija: jebkura mikroorganismu grupa, kurā šūnas pielīp viena pie otras uz virsmas. Tie parasti atrodas izveidotā slānī, ko sauc par "gļotu".



Salī dziniet bioplēvi ar ceptu olu. Dzeltenais dzeltenums ceptas olas centrā ir baktēriju vai sēnīšu infekcija.

Lielāko balto daļu, kas ieskauj dzeltenumu, var saukt par “bioplēvi”. Tas aizsargā iekšējo infekciju jeb dzeltenumu gan no antibiotikām, gan no cilvēka imūnsistēmas.

Uz olas ārējās malas ir redzamas ļoti mazas apceptas maliņas. Tos ir viegli palaist garām olas izmēra dēļ. Mēs izliksimies, ka tās ir antibiotikas vai infekcijas iznīcinošas ķīmiskas vielas. Tie ir bezjēdzīgi, jo tie nekad netiek garām olas ārējai baltajai malai. Olu baltums viņiem ir kā siena.

Kam ir bioplēves infekcijas?

Uzzinot par masveida vietu un situāciju daudzveidī bu, kurās bioplēves ir izplatī tas, un uzskatot, ka tas biež i vien ir baktēriju un sēnī š u organismu parastais stāvoklis, jū s sākat saprast, ka ikvienam var bū t bioplēves infekcija vai infekcijas.

Ko mēs meklējam š ajā grāmatā?

Š is materiāls parādī s daudzus veidus, kā izlauzties cauri "olu baltumam" jeb bioplēvei. Kad tas notiek, parasti ir daudz vieglāk iznī cināt infekciju, ko attēlo olas dzeltenums vai dzeltenais centrs.

Biofilmas ir galvenais cieš anu un nāves cēlonis

Biofilmas ķermeņa atraš anās vietas un situācijas

- Infekcija, kas ilgst vairāk nekā 2 nedē ļ as
- Galvenais nāves cēlonis bērniem lī dz 6 gadu vecumam
- Zobu aplikums — cilvēka mutēir aptuveni 25 000 baktēriju sugu, no kurām aptuveni 1000 atrodas zobu aplikuma bioplēvē

- Rauga infekcijas
- Pēcoperācijas infekcijas
- Vēzis
- Slikta elpa
- smaganu slimī ba vai periodontī ts*
- Zobu bojājums •

Plauš u infekcijas

- urī nceļ u sistēmas infekcijas
- Mutes baktērijas — var kaitēt sirds artērijām un izraisī t nāvi un palielināt zarnu vēzi
- Hroniskas ausu infekcijas
- Sinusa infekcijas**
- Hronisks tonsilī ts
- Brū ces
- Zobu birstes galviņas — tostarp skaņas kustī gās galviņas

- Katetri urī na izvadī šanai
- Mākslī gie ceļ i, gū ž as un citas locī tavas
- Sirds vārstuļ u infekcijas
- Bojājumi vai čū las
- Laima slimī ba
- Jebkura veida IV katetri
- Urī na katetri
- Kontaktlēcas
- Implantētas ierī ces — jebkura implantēta vai ievietota ierī ce var nosū tī t baktērijas uz smadzenēm, aknām vai nierēm.
- Hroniskas prostatas infekcijas
- Leģionāru slimī ba un daudzas citas biotoksī nu baktērijas, kas eksplodē jebkurā iekš telpu ū denī
- Pelēguma slimī bas — kas var rasties no pelēguma uzkrāšanās jebkurā stāvoš ā iekš telpu ū denī , ti, plū di, jumta, pagraba vai logu noplū des, mitrinātāji, neizmantotas Waterpik™ vai citas zobu tī rī šanas ierī ces, kondensāts maiņstrāvas kanālos utt. • Cistiska

fibroze — pārmērī ga gļ otu veidoš anās elpceļ os ļ auj baktērijām, piemēram, Pseudomonas aeruginosa, pārspēt baktēriju iznī cinātājus aiz bioplēves apvalka.

- Pazaudētas ļermeņa daļ as
- Ādas, matu vai nagu infekcijas
- Artrī ts
- Endokardī ts
- Kaulu infekcijas
- Pinnes

Sarakstam varētu pievienot daudzas citas lietas, tostarp ļ oti nopietnas problēmas saistī bā ar bioplēves piesārņojumu ū denī un desmitiem citu ar veselī bu saistī tu un ražošanas metož u.

*Ārsts Deivids Kenedijs, pensionēts zobārsts, ž ēlojās, ka lielākajai daļ ai pieaugušo amerikāņu ir smaganu slimī ba — vēl viens baktēriju bioplēves stāvoklis, kas saistī ts ar hronisku infekciju. Tātad, cik plaš i izplatī ta ir šī slēptā veselī bas aprū pes epidēmija?

**Ondine Biopharma intervija [ar Ričardu Longlendu] atklāja, ka 38 000 000 cilvēku šajā valstī ir (vai bija) hroniska sinusa problēma.

***Rikardo Murga; Terija S. Forstere. Bioplēvju loma Legionella pneumophila izdzī vošanā dzeramā ū dens modeļ a modelī . Microbiology (2001), 147, 3121–3126.

CĪŅA AR BIOFILMĀM

Kāpēc jū su antibiotikas un pretsēnī šu lī dzekļ i neizdodas

Risinājumi Laima slimī bai, hroniskam sinusī tam,
Pneimonija, rauga infekcijas, brū ces, auss
Infekcijas, smaganu slimī bas, zarnu slimī bas,
Slikta elpa, cistiskā fibroze un implanti

Galvenais pazudis gabals hronisku slimī bu mī klā

Dž eimss Š allers, MD, MAR
un
Kimberlija Mauntdž oja, MS

Starptautiskā infekcijas slimī bu prese
Bank Towers • Newgate Center (suite 305)
5150 Tamiami Trail North [Highway 41]
Neapole, Florida 34103

Paš reizēo biofilmu dzī vī bas glābš anas atbilž u sniegš ana Skaidrs un klinš u ciets

Š obrī d dokumentos, emuāros un grāmatās varat izlasī t divus gadus vē rtas biofilmu sagrauš anas iespē jas. Tas aizņems 1000–1500 stundas. Un jums bū tu vairākas iespē jas, ko piedāvāt. Š eit ir daž i to iespē ju piemē ri, kuras varē tu atrast š ajos dokumentos, emuāros un grāmatās.

Izvairieties no magnija	EDTA	Peru pieniņš
Izvairieties no cukura un graudiem	DMSO	Timiāns
NAC	Vankomicī ns	Citronzāle
Norspermidī ns	Gentamicī ns	Serrapeptidāze
Cis 2 – decēnskābe	Banderol	2-aminobenzimidazols
Lumbrokināze	Izvairieties no taukiem	Ehinokandī ni

Kā atrast saprātī gu mārketingu un pārliecī bu par bioplēves aģentu kā risinājumu?

Toms un Lisa blogā raksta, ka produkts "x" un recepte "d" ir izcilas ārstē šanas metodes, lai mazinātu bioplēves infekcijas hroniska noguruma (CFS) un fibromialģijas (FM) gadī jumā. Cilvē ki ir satraukti, jo viņu parastajam ārstam nav bū tisku risinājumu un interese par bioplēves infekcijām.

Problē ma ir tāda, ka "x" vai "d" var noderē t, lai grautu bioplē vi vai palī dzē tu pārvarē t slimī bu. Taču esiet uzmanī gi, veidojot ātras saites. Ārstē šana "a" var darboties tikai desmit infekciju bioplēvē, un mums ir pierādī jumi, ka tā darbojas tikai trī s infekciju gadī jumā.

Mū su mē rķis ir parādī t jums, ko liecina labi pē tī jumi, lai jū s un jū su ārsts varē tu sākt ar faktiem un saprast iemeslu, kas saistī ts ar iespē jamo biofilmu izmē ģinājumu.

Piemē ram, jū su infekcija dzelzs lietoš anā var lī dzināties Laima slimī bai. Saito un daudzi citi ziņo, ka atš ķirī bā no visiem citiem zināmajiem organismiem borē lijas, Laima slimī bas izraisī tājas, var pastāvē t bez dzelzs, metāla, kas nepieciešams visai citai dzī vī bai. Tā vietā Borrelia izmanto mangānu.

Ko darī t, ja jū su slimī ba, kuras pamatā ir biofilma, nākotnē tiks atklāta ar tādu paš u spē ju dzī vot labi bez dzelzs? Tas varē tu nozī mē t, ka bioplēves lī dzeklis, kas mazina Laima slimī bas bioplē vi, varē tu noderē t jū su labā. Baktē riju un sē nī š u infekciju bioplēvē m ir lī dzī ga neaizsargātī ba pret bioplēves traucē tāju. Zinot, kā darbojas jū su infekcija, var palī dzē t noteikt, kurš bioplēves lī dzeklis darbosies.

http://phys.org/news/2013-03-scientists-reveal-quirky-feature-lyme.html#jCp. Skatī ts 2014. gada 26. martā.

Saturs

Medicīnas revolūcija 1

Biofilmu pieci posmi 2

Ievadattēli ar biofilmām 3

Biežāk sastopama baktērija, kas atrodama uz visas cilvēka ādas 4

"Staph" infekcijas ir kļuvušas izturīgas pret lielāko daļu antibiotiku 5

Medicīnas aprindās biofilmas ignorē..... 20

"Biofilmu" padarīšana dzidru 21

Ciešanu, zemākas funkcionēšanas, invaliditātes un
nāves novēršana no biofilmām 24

Vispirms likvidējot bioplēvi, antibiotikas kļūst efektīvas 26

Ļoti īsi cilvēku un biofilmu paraugi 27

Risinājumi 30

Biofilmas ir ļoti daudzveidīgas 32

Dziļas biofilmu daudzveidības piemēri 32

Dubultais sitiens: baktērijas ar bioplēvi un rezistenci pret zālēm 34

Ir pret antibiotikām rezistenti "superbugs".
nopietni draudi "ļoti tuvā nākotnē" 36

Īss vārds par biofilmām Laimā 37

Laima slimība (Borēlijas) un bioplēves 38

Divas dažādas baktērijas vienā biofilmā. Katastrofa: izplatīta
Zobu higiēna 39

Biofilmas kopšanas paraugs 40

Bartonella un Babesia Biofilms? 43

Secinājums par ērču un blusu pārnēsātām bioplēvēm 43

Bioplēves un plaušu vai sinusa infekcijas:
dzirnavu medicīnas katastrofas anatomija 45

Komandu sporta veidi: kad visas vairākas infekcijas veido biofilmas 46

Brīdinājums: biofilmas un īsas, sasteigtas medicīniskās sesijas 47

Ēteriskās eļļas 48

Eugenola pamati 52

Eugenols un bioplēves 53

Linalool 57

Rezerpīns 59

Biofilmu slepkavas “kraušana” 60

Terpenoīdi 61

Alicīns un ķiploki 64

Serrapeptidāze 67

Lumbrokināze 72

Nattokināze 73

Terminalia chebula Retz 74

Vēzis 77

Laktoferīns 82

Laktoferīna iegāde 84

Laktoferīna ksilītā kombinētā ārstēšana 86

Tradicionālo cukuru ierobežošana: iekaisuma un bioplēvju samazināšanās? 87

Cukura ksilīts 88

Eritritols 90

Organoselēns 93

Vai magnija trūkums kavē bioplēves? 94

Tauku ierobežošana, lai ārstētu bioplēves 97

Houttuynia cordata Thunb (HCT) 101

Biofilmu iedarbināšanas ķīmiskāliju paraugi ir pagriezti atpakaļ pret baktērijām... 104

Dubultā apstrāde 105

Augu avoti reti dod tikai vienu noderīgu ķīmisku vielu 106

Nitroksolīns 107

Lizocīms 109

Aspirī ns un nesteroī die pretiekaisuma lī dzekļ i 110

Azitromicī ns (Zithromax) 113

Sudrabs 115

Gingerol 119

Stēvija 121

Cumunda pamati 123

Cumanda un bioplēves 125

Eritromicī ns 126

Mī ļ ais 128

Slikta elpa 134

Apgrieztās aminoskābes grauj bioplēves 136

Cathelicidin LL-37 139

RNSIII inhibējoš ais enzī ms (RIP) 141

Tinidazols (Tindamax) un Metronidazols (Flagyl) 142

Tuberkuloze (TB) 143

Jauns rī ks, lai palī dzētu iznī cināt TB? 144

Pārtikas pulveris, antibakteriāls spēks 145

Secinājums 146

Pielikums 147

Dr. Š alera klī niskās publikācijas 153

Citas Dr. Schallera grāmatas 155

Atruna 169

Sazināš anās ar Dr Schaller 170

Medicī nas revolū cija

Bioplēves infekcijas teorija ir dziļ a revolū cija infekciju izpētē, kas var bū t sāpī gas, invalidizē još as un patiesī bā ir galvenais slepkava atkarī bā no cilvē ka vecuma.

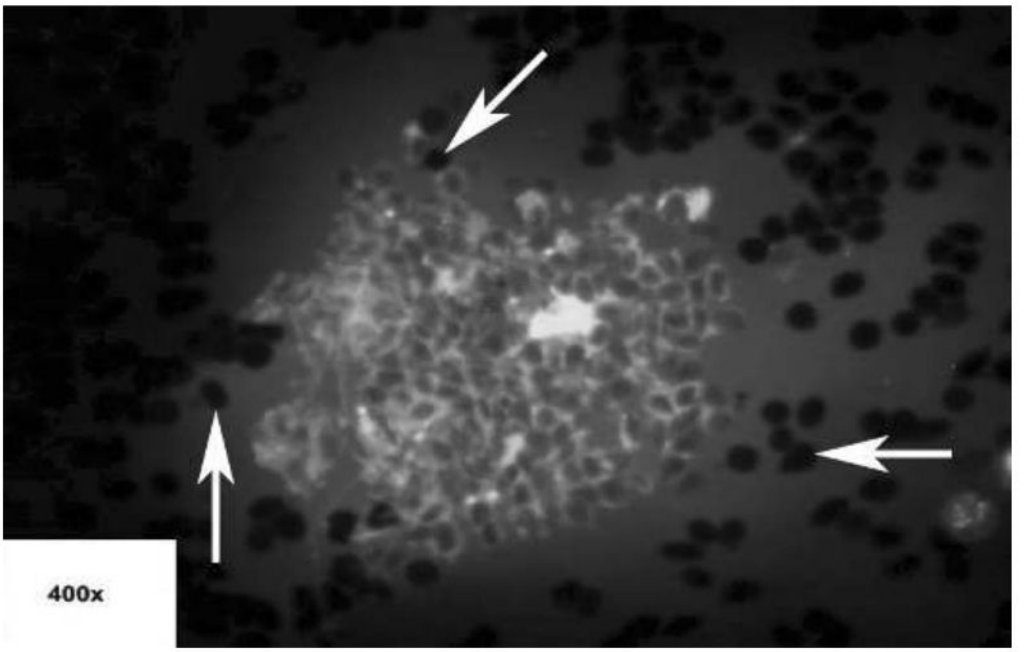
Infekcijas sāk atgriezties tajos laikos, kad cilvē ki nomira no vienkārš ām infekcijām. Jaunā bioplēves infekciju pasaule varētu nogalināt vairāk cilvē ku nekā Pirmā un Otrā pasaules kara laikā, ja lietas ātri nemainī sies gan attī stī tajās, gan neattī stī tajās valstī s. Tā kā bioplēves nozī me ir lē na un tāpē c ārsti lē ni pieņem jaunus biofilmu risinājumus, pat vismodernākie ārsti var uztvert biofilmas nopietni tikai tad, ja ir pierādī ts, ka arvien vairāk cilvē ku kļ ū st invalī di un mirst to dē ļ . . Paš laik lielākajai daļ ai biofilmu trū kst kā cieš anu un nāves cē lonis. Tātad bioplēves bez risinājumiem ir tikpat nopietnas kā poliomielī ts 19. gadsimtā bez vakcī nas, un upuru skaita ziņā tās ir daudz postoš ākas nekā HIV/AIDS.

Lielākā daļ a baktē riju dzī vo kopienās, kurām parasti ir unikālas aizsargājoš as bioplēves. 1% baktē riju, kas inficē cilvē kus vai ietekmē cilvē ka dzī vī bu, peld atseviš ķi, un, ja tās tiek atrastas asinī s, tās netiktu atrastas kopā ar bioplēves gļ otām.

Nacionālie veselī bas institū ti lē š, ka vairāk nekā 80% mikrobu infekciju cilvē ka organismā izraisa bioplēve, daudzas no tām rada hroniskas un atkārtotas problē mas. Vai arī Glovackim ir taisnī ba un 99% baktē riju dzī vo bioplēvē? Neatkarī gi no tā, vai kā aprē ķinu izmantojat NIH 80% vai Glowacki 99%, bioplēves ir nopietns apsvē rums infekciju gadī jumā.

Gł owacki R, Strek P, Zagórska-Swiezy K, Skł adzień J, Oleś K, Hydzik-Sobocińska K, Miodoński A. [Biofilm no pacientiem ar hronisku rinosinusī tu. Morfoloģ iskie SEM pē tī jumi].[Raksts poļ u valodā]. Otolaringols Pol. 2008;62(3):305-10.

Ievadattēli ar biofilmām



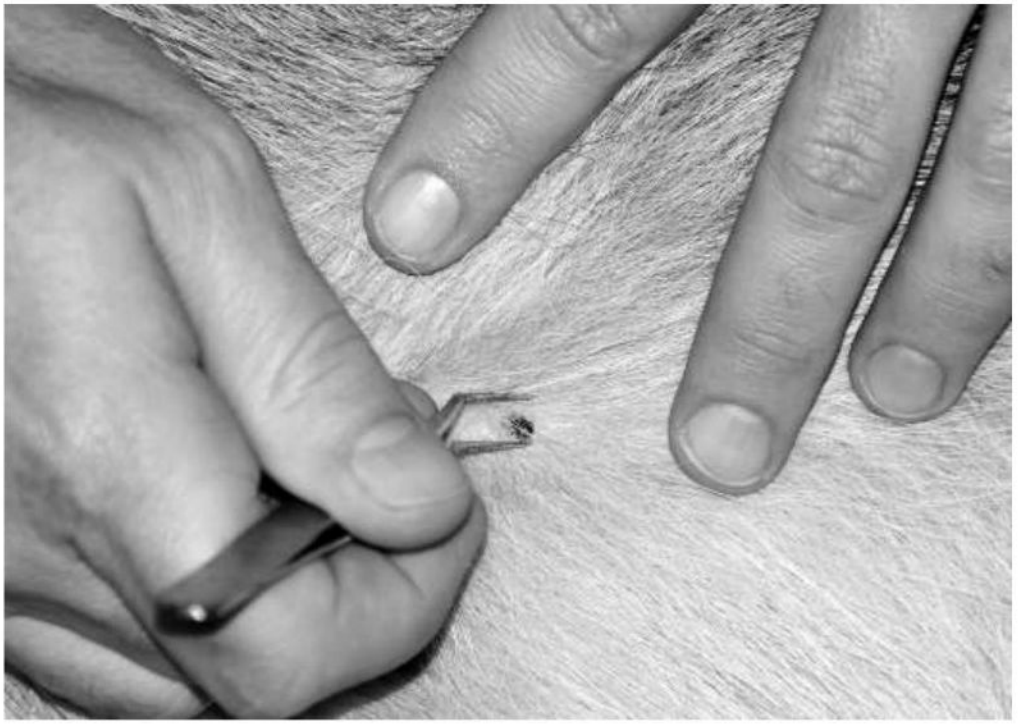
Jauns ģenētiski unikāls vienšū nu parazī ts, kas raž o bioplēvi ar nosaukumu FL1953 vai Protomyxzoa rheumatica. (Šī ī pašā uztriepe ir labākais veids, kā atklāt šos vienšū nas parazī tus cilvēka ķermenī , jo DNS vai PCR tests ne vienmēr ir pozitī vs).

Simts tumšie ovāli šī attēla ārpusē, kas parādī ti iepriekš , ir 8 mikronu izmēra sarkanās asins šū nas (RBC). Centra masa ir bioplēves bumbiņa ar daudzām sarkanajām asins šū nām bioplēves masā.

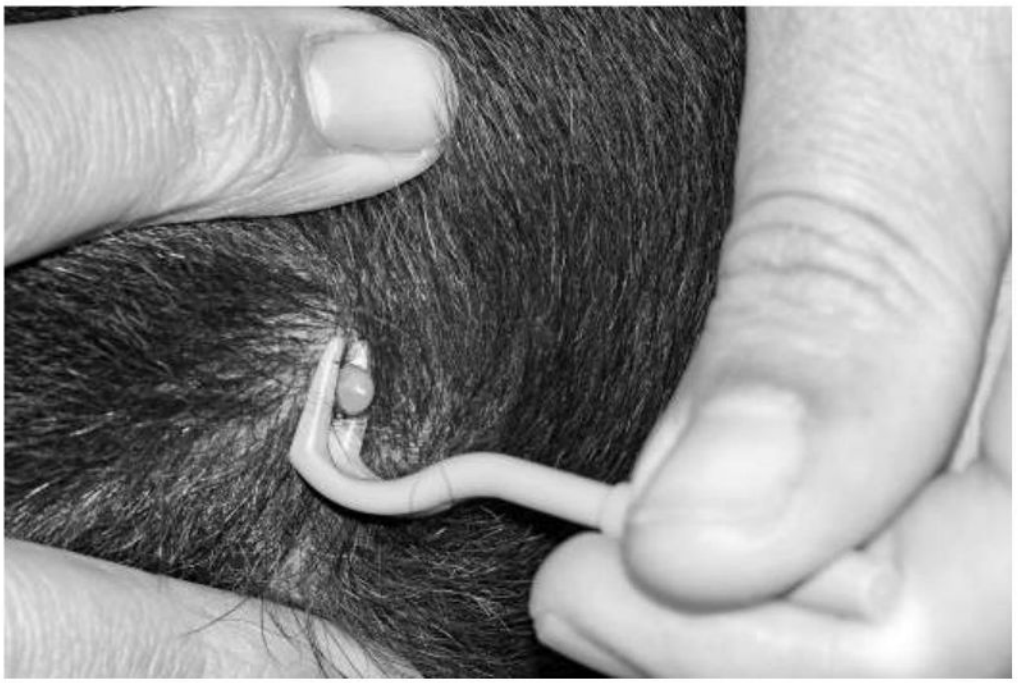
Šī bioplēve, kas parādī ta iepriekš , parasti ir sastopama tiem, kam ir ērču pārnēsātas infekcijas, piemēram, ļ oti izplatī tā Bartonella, Laima slimī bas Borrelia baktērija un nāvējošā Babēzija. Lai gan daž as ērču pārnēsātās slimī bas var būt sliktākas nekā citas vai biež āk nekā citas, visas ir potenciāli nāvējošas, ja tās netiek izskaustas. Šis iepriekš parādī tais parazī ts ir vienšū nas infekcija, kas saistī ta ar Babēziju un malāriju, un, kad no tā tiek noņemta bioplēve, tas izskatās kā nenobriedusi malārija. Saskaņā ar Slimī bu kontroles centru datiem šis ir unikāls vienšū nis. Tā nav ne Babēzija, ne malārija. Šo infekciju sauc par FL1953 vai Protomyxzoa rheumat-ica. Tas veido milzī gu daudzumu bioplēves, un milzī gā centra masa šajā attēlā satur simtiem sarkano asins šū nu.

Tā kā mēs aplūkojam dažādus orgānus un bioplēves cēloņus, mēs nedrīkstam izlaist bioplēves infekciju pārnēsātāju, ko pārnēsā vairāk nekā 200 dzīvu būtņu vismaz trīs kontinentos — iksodu ērci. Tajā ir vismaz divi nopietni biofilmu veidotāji: FL1953 un ļoti sarežģītas ģenētiski uzlabotas Laima baktērijas. Mēs joprojām mācāmies par visām iespējamām infekcijām, ko tas pārnēsā.

Lūdzu, ņemiet vērā, ka mati izskatās kā liela zāle, tāpēc šī ērce ir daļa no šāda izmēra. Ja jūs apvienojat neredzamību ar kodumu, kam ir pretsāpju līdzeklis, antihistamīns, antikoagulants un pretiekaisuma līdzeklis, jums ir slepens infekcijas nesējs. Viena ērču siekalu ķīmiskā viela Sialostatin L ir tik labs imūnsistēmu nomācošs enzīms, ka tas var inhibēt astmu (Horka 2012).



Suņi var būt cilvēka labākie draugi, bet ne tad, ja pieskaraties viņu siekalām, bet ne tad, ja tie ienes jūsu mājā vai automašīnā ērces vai blusas. Pieņemsim, ka katram sunim un kaķim, kas dzīvo ārpus pilsētas, iespējams, ir bijusi ērču vai blusu kodumi.



"Biofilmu" padarī šana skaidras

Bioplēve ir kā dimetānnaftalī ns olī veļ ļ as baseina centrā, un uz eļ ļ as ārējās malas ir pipari, kas attēlo infekcijas iznī cinošās šū nas. Viņi nevar pārvietoties, lai iznī cinātu santī mu. Bioplēves baktēriju kopienas ir parastais vairuma cilvēku infekciju stāvoklis. Mums ir mācī ts, ka infekcijas ir izolētas baktērijas, kas peld apkārt, un tā ir nopietna kļū da.
Tas parāda, cik tālu mums jāiet zinātnē, ja galvenā baktēriju forma bioplēves baktēriju kopienas — ir jauns, bet būtisks jēdziens. Kad 2004. gadā izveidoju sarakstu ar divdesmit piecām iespējām, kā iznī cināt biofilmas, nebija lielas intereses.

> Mū sdienās nespēja iznī cināt bioplēves ar dažādām iespējām ir burtiski veselī bas katastrofa.

Šī s grāmatas rakstī šanas un publicēšanas mērķis ir izveidot pieejamu, uz atkārtotu meklēšanu balstī tu iespēju kopumu kopā ar citām iespējamām iespējām, lai prezentētu tī ru risinājumu grāmatu, kas piedāvā jaunākos iespējamos pašreizējos un jaunākos risinājumus simtiem saistī to slimī bu. ar biofilmām.
Bioloģiskās plēves barjeru var būt pilnī gi neiespējami noņemt vai pārspēt, izmantojot parastās iespējas, ko izmanto ārsti, infekciju speciālisti, naturopāti, alternatī vās medicī nas skolas, ēterisko eļ ļ u praktizētāji, akupunktū ras speciālisti, medmāsas vai ārstniecī bas augu speciālisti.

Ar šo grāmatu mēs ceram palī dzēt jums un jū su ārstam/dziedniekam, izpētot šobrī d pieejamās iespējas. Mēs meklējām pēdējos piecos gados publicētās publikācijas PubMed — milzī gajā medicī nas zinātnes datubāzē "Apstrādei ar biofilmu". Iespēju klāsts ir iespaidī gs un ne vienmēr tas, ko jū s varētu sagaidī t. Šī grāmata ir paredzēta, lai sniegtu jums plašas iespējas, kā novērst jū su ciešanas, invaliditāti un pat nāvi.

Pēc gadiem ilgiem pētī jumiem un studijām esmu sapratis, ka infekcijas slimī bu "eksperti" uz biofilmas, iespējams, jau sen ir zaudējuši karu, un patiesī bā daudzi, iespējams, nekad nav zinājuši par visām cī ņām. Pa-

Ļoti ī si cilvēku un biofilmu paraugi

2004. gadā Ričards Longlends pēc mugurkaula operācijas ļ oti slikti atveseļ ojās no noslēpumainas slimī bas. Turpmākajos mēneš os viņš cieta no daudzām problēmām — galvassāpēm, locī tavu sāpēm un vēlāk sirds un smadzeņu problēmām, brutāla noguruma un domāš anas traucējumiem.

Medicī nas sistēma viņam iebilda, bet visbeidzot 2007. gadā viņš tika ārstēts no mikoplazmas, kas radās iespējama operācijas procesa rezultātā, jebkurā vietā slimnī cā vai publiskā vietā vai ērces dē .

Lielākā daļ a manu pacientu pirms nākš anas pie manis ir apmeklējuš i 3 lī dz 200 ārstu. Es saprotu viņa pieredzi. Lai noteiktu diagnozi, Longlenda kungam bija jāapmeklēvairāk nekā divdesmit ārsti. Š ajā grū tajā periodā viņš izveidoja izcilu filmu ar nosaukumu "Kāpēc es esmu tik slims?" Viņš ir pacientu čempions farmaceitisko un naturopātisko lī dzekļ u izmantoš anā, lai atbrī votu savu ķermeni no sistēmiskām baktēriju bioplēvēm.

***

Edvardam ir 78 gadi, un viņam ir trī s meitas un astoņi mazbērni. Viņš tika ievietots slimnī cā elpas trū kuma dē . Viņam ir slikta pneimonija vai infekcija plauš ās. Viņam paliek arvien sliktāk. Personas ir atveseļ ojuš ās, izmantojot lī dzekļ us, kas uzvar daudzas ar bioplēvi aizsargātas pneimonijas.

***

Linda jau vairākus gadus ir nogurusi un viņai ir problēmas ar skolu. Es nesen atklāju, ka viņai ir vairākas ērču infekcijas, kuru dē vairāk nekā piecpadsmit laboratorijas rezultāti ir bijuš i neparasti. Vakar viņa piezvanī ja, un sāpju dē aiz ceļ gala es teicu viņai doties uz ātro palī dzī bu. Nepilnas dienas laikā viņai tika konstatēti 23 trombi plauš ās un kājās. Viņai ir aizdomas, ka tā ir Babēzija, iekaisums un FL1953. Mums bija aģenti, kas nogalināja š os aģentus, tostarp FL1953, 2006. gadā.

***

It would be an error to say that nattokinase, lumbrokinase, serrapeptidase, EDTA, gentamicin, vancomycin, Samento, Banderol, olive products, poorly known herbs with fair lab testing in humans, clove bud oil, diet, chelation, three to four part amino acid mixes, NAC, Rife, diet changes or a vast range of other options not listed, will **work for all biofilms.** For example, an elderly patient dying of a lung infection or another person with painful and treatment-resistant sinus infection *will not* have the same biofilm.

As a trend, trying different options to destroy a biofilm is less dangerous than allowing it to spread.

A Brief Word on Biofilms in Lyme

At times, individuals who have tick- and flea-borne infections, like Bartonella, Babesia and Borrelia (Lyme disease), can feel their treatment is minimal or incomplete. Debates rage over the diagnosis and treatment of Lyme and tick-borne diseases; whether the pain is from residual dead infection incorporated into tissue or one of the many infections carried by the I. scapularis tick, we still have patients' misery.

After writing **twelve books** which include many pages on non-Borrelia infections, "Lyme testing" seems like alphabet testing in which ***one only looks for the vowel "a."*** Due to the lack of acceptance of the number and complexity of tick-borne infections, there is a lack of up to date education, leaving quality medical doctors to evaluate tick and flea infections in the ***abstract,*** by which I mean that they very falsely and sadly do not realize the full magnitude of ***"the alphabet."***

Specifically, they "diagnose" by ignoring inflammation alterations, nutrient changes, hormone deficits, immunity changes caused by tick-borne infections, and chemicals made or suppressed by direct tick and flea infectious agents. I discuss these in my three most recent tick and flea infection books. All are available in English. All can be found free through inter-library loan, for less than $20 USD, or at www.personal-consult.com under the "free books" button. No one can expect to become an expert in this massive area after reading any guide or merely going to ten conferences, because these cluster infections impact twenty areas of medical and scientific knowledge.

In the last four years, researchers like **Dr. Eva Sapi have shown Lyme is like some other spirochetes—it has biofilms. These are very tough biofilms to defeat unless caught in the "acute stage."** A tough, "mature biofilm" allows organisms to "**laugh at" many antibiotics.**

Some medical professionals interested in Lyme often ignore the immune suppressing Bartonella bacterium, which is more common than Lyme. Ignoring coinfections may increase the risk of fatality with Babesia and possibly **FL1953**. These healers also may not realize that the highly

genetically complex Lyme spirochete appears to have a troublesome biofilm. Performing a simple direct test at laboratory companies whose testing kits have reduced sensitivity will probably result in more negatives for tick-borne diseases. The ultimate result is anti-science and anti-truth. Searching for tick infections with one test is like writing in "Lincoln" at the next presidential election.

Lyme Disease (Borrelia) and Biofilms

Several researchers believe *Borrelia burgdorferi,* the active agent of Lyme disease, has biofilms. Lyme organism biofilms have been found in culture and in the tick gut. Lyme cysts and biofilms have also been noted in patient skin biopsies using focus floating microscopy according to Dr. Eisendle publishing in the *American Journal of Pathology.*

Further, we see in Lyme that biofilm formation is dependent on cyclic di-GMP expression and we see that in Lyme (Stricker and Johnson).

Brihuega B, Samartino L, Auteri C, Venzano A, Caimi K. In vivo cell aggregations of a recent swine biofilm-forming isolate of Leptospira interrogans strain from Argentina. Rev Argent Microbiol. 2012 Jul-Sep;44(3):138-43. PMID:23102459

Cogoni V, Morgan-Smith A, Fenno JC, Jenkinson HF, Dymock D. Treponema denticola chymotrypsin-like proteinase (CTLP) integrates spirochaeteswithin oral microbial communities. Microbiology. 2012 Mar;158(Pt 3):759-70. Epub 2012 Feb 7. PMID:22313692

Sapi E, Kaur N, Anyanwu S, Luecke DF, Datar A, Patel S, Rossi M, Stricker RB. Evaluation of in-vitro antibiotic susceptibility of different morphological forms of Borrelia burgdorferi. Infect Drug Resist. 2011;4:97-113. Epub 2011 May 3. PMID:21753890

Stricker RB, Johnson L. Lyme disease: the next decade. Infect Drug resist. 2011; 4: 1-9. PMID: 21694904

Sapi E, Bastian SL, Mpoy CM, Scott S, Rattelle A, Pabbati N, Poruri A, Burugu D, Theophilus PA, Pham TV, Datar A, Dhaliwal NK, MacDonald A, Rossi MJ, Sinha SK, Luecke DF. Characterization of biofilm formation by Borrelia burgdorferi in vitro. PLoS One. 2012;7(10):e48277. Epub 2012 Oct 24. PMID:23110225

lease of bacteria in the human body will be like a dangerous tornado in a field. It is a wise concern.

For these two problems regarding biofilm-held infections suddenly being released, here are useful solutions:

1. You need many infection killing options for use since more is better to prevent “seeding” of dispersed infection.
2. You want the biofilm killing options to destroy biofilms by different mechanisms. This makes the dispersed seeded infections naked to the immune system.
3. Biofilm tools are given initially at low doses and then increased gradually to large doses since often in the beginning patients have massive inflammation and a drastic increase in killing of biofilm organisms in a short time could cause trouble with bone marrow, liver, heart, eye, or kidney issues, or merely create more dead infectious debris resulting in patient misery.
4. You may need to pulse (use every other day) or fully stop this treatment because once a wave of biofilm eroding agents strips off or severely damages a biofilm of an infection, the same antibiotics that were useless in the past can become very effective.
5. There is no single master biofilm destroyer, yet some are broader than others.

Bartonella and Babesia Biofilms?

Most people have heard of the profoundly common tick infection Lyme disease, but they may not know Bartonella is more common than Lyme and is carried by far more vectors (Breitschwerdt). Babesia decimated the cattle population in the southern United States many decades ago and is more dangerous in humans than Lyme.

Currently, we have no solid data showing Bartonella and Babesia have biofilms.

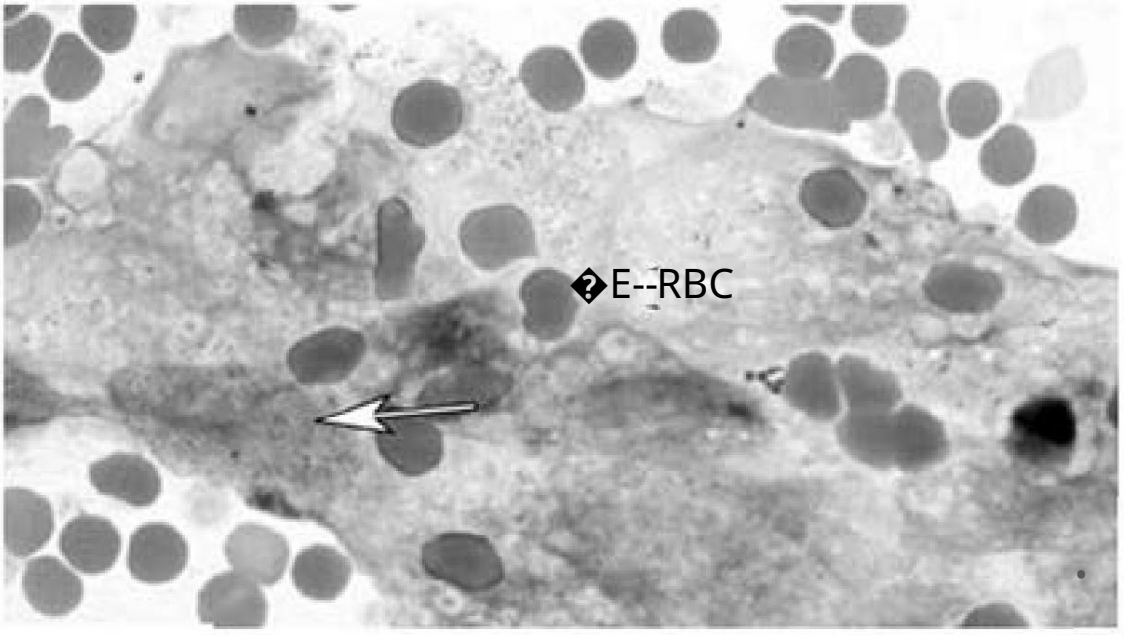
Tick and Flea-Borne Biofilms Conclusion

Below you will see that mouth spirochetes routinely have biofilms. Another spirochete is Leptospira which is able to make biofilms in many environments and may contribute to lost pregnancy in mammals (Brihuega).

In terms of tick and flea infection biofilms, I would focus on **FL1953** (Protomyxzoa) and Lyme, since both have been known and treated by us since 2006, though the former was killed without knowing its genetic uniqueness. We are learning what decreases their biofilm pathology and have agents that should work if one is open to look at diverse approaches. A synthetic "antibiotic only approach" to biofilms, including antibiotics targeted to hit biofilms, might be similar to typing with one finger.

There are herbalists, such as Stephen Buhner, who propose selected herbs to treat some tick infections. And, in terms of **primary treating herbs to kill organisms,** there are also credible options that are not always herbal in use for a tick or flea infection. We will continue to use **advanced lab testing,** typically only allowed under physician supervision, to determine by serious extensive ***indirect*** **blood exam** biochemistry tests to see which infection is actually destroyed in people experiencing benefit from herbal therapy. In any event, I enjoyed this line from Buhner: *"I can't really say what will clear all biofilms."*

Vā viens biofilmas attēla paraugs



Tumš ais IOWld oVlls ai:e sarkanās asinis "°Us (-blade upp« vārna), Tho "lapa" diat sākas no lllo right low« '°'11«, pļ auj uz kreiso augšēo omeru, slim an biofill,\ rnllffffial IOW\ll' pļ auj poi111i11g uz mazu bam:rium. (Piy Labaratoriea)

Eugenola pamati

Eugenols ir atrodams daudzās ēteriskajās eļļās un augos. Piemēram, tas lielā mērā ir atrodams krustnagliņu pumpuru ēteriskajā eļļā, bet arī mazākā devā kanēļa lapās un tās ēteriskajā eļļā. Saskaņā ar PubChem tas ir atrodams arī pimento, līča, sassafras, masoy mizu eļļās, kampara eļļā un čamčvi augos. Iedarbī gums un koncentrācija ļoti atšķiras atkarī bā no avota un ekstrakcijas metodes. Turklāt tas nav tikai spēcī gs biofllm līdzeklis; tai ir citas pārsteidzošas īpašī bas, piemēram, pretvīrusu iedarbī ba un pretvēža iedarbī ba.

Piemēram, Tragoolpua un Jatisatienr parādī ja, ka eugenols ietekmē mutes un dzimumorgānu herpes atkarī bā no sugas, celma un citiem faktoriem. Viņi skaidri norādī ja, ka ēteriskā eļļa var būt spēcī gāka par vienkāršu ekstraktu. Patiešām, mutes un dzimumorgānu herpes, attiecī gi HSV-1 un HSV-2, nevarēja vairoties euge-nol klātbūtnē. Al-Sharif ir parādījis ievērojamu vēža ietekmi. Ļoti zemai koncentrācijai (2 µM) ir specifiska toksicitāte pret dažādām krūts vēža šūnām. Šis nogalināšanas efekts tika veicināts, ierosinot vēža šūnu nāves ceļu un samazinot E2F 1 un survivīna līmeni - divas molekulas, kas ir būtiskas šūnu izdzīvošanai. Tas arī kavēja krūts vēzi

genes. Importantly, these anti-proliferative and pro-cancer cell death effects were also observed inside body grafts placed in non-human animals.

http://pubchem.ncbi.nlm.nih.gov/summary/summary.cgi?cid=3314

Tragoolpua Y, Jatisatienr A. Anti-herpes simplex virus activities of Eugenia caryophyllus (Spreng.) Bullock & S. G. Harrison and essential oil, eugenol. Phytother Res. 2007; 21(12):1153-8.

Al-Sharif I, Remmal A, Aboussekhra A. Eugenol triggers apoptosis in breast cancer cells through E2F1/survivin down-regulation. BMC Cancer. 2013 Dec 13;13(1):600. [Epub ahead of print]

Eugenol and Biofilms

Recently, Dr. Zhou has reminded us of a special process that is involved in the formation of dangerous biofilms. Basically, many bacteria have a "chatty" way of talking to other cells such as other bacteria. So, bacteria use chemicals or cause other bacteria to make chemicals to help them survive and often act to harm you or a loved one.

Eugenol is so effective that at very low amounts, it still disrupted bacteria chemical communication. This is very important in a biofilm destroying agent. If cells cannot communicate, it is doubtful they can form communities. Biofilms are community creations. **Further, eugenol at very low doses, called "sub-inhibitory concentrations" inhibited biofilm formation.**

One type of biofilm research being conducted compares biofilm killers head to head. The results are not always the same, perhaps in part because the infections are not always the same. Note that in an Epub abstract before publication, Malic explains that the best essential oil for urinary catheters, with or without biofilms, against fourteen different bacteria was eugenol. This is why I believe this substance is a "double killer." It can defeat many biofilms, and then kill the organism making the biofilm. Finally, in this study, eugenol did better than tea tree oil.

Linalool

According to the Merriam-Webster dictionary, the word linalool is derived from a Medieval Latin phrase meaning “wood of the aloe.” Linalool has a nice smelling alcohol and essential oils. It is used in perfumes, soaps, and flavoring materials.

In terms of biofilms, it seems to be most effective when **the essential oil part** is used, which has **the most evidence of killing Candida albicans.** (Candida albicans is the cause of yeast infections.) Yet, again, it is the essential oil fraction that not only **inhibits the growth** of Candida albicans but also of the bacteria Lactobacillus casei, Staphylococcus aureus, Streptococcus sobrinus, Porphyromonas gingivalis and Streptococcus mutans cell suspensions, all of them associated with oral cavity disease, according to Alviano and Mendonça-Filho. Yet, Budzyńska reported this essential oil did not fully remove biofilms formed by Staphylococcus aureus (ATCC 29213) and Escherichia coli (NCTC 8196) on the surface of routine medical materials such as urinary catheters, infusion tubes and surgical mesh.

Hsu found that linalool could be effective against Candida albicans due to its many genetic blocking effects. For example, using a scanning electron microscope and other technology, many signs of the effect of linalool to destroy Candida or inhibit its growth could be noted. Hsu found blocking actions against genes involving adhesion production and the formation of “branches” or the mold’s hyphae were both decreased by linalool.

http://www.merriam-webster.com/dictionary/linalool

Budzyńska A, Wieckowska-Szakiel M, Sadowska B, Kalemba D, Rózalska B. Antibiofilm activity of selected plant essential oils and their major components. Pol J Microbiol. 2011;60(1):35-41. PMID:21630572

Alviano WS, Mendonça-Filho RR, Alviano DS, Bizzo HR, Souto-Padrón T, Rodrigues ML, Bolognese AM, Alviano CS, Souza MM. Antimicrobial activity of Croton cajucara Benth linalool-rich essential oil on artificial biofilms and planktonic microorganisms. Oral Microbiol Immunol. 2005 Apr;20(2):101-5.

Reserpine

Reserpine is a substance found in the roots of some types of Rauwolfia that has been made into a traditional medicine. It is used to lower high blood pressure and help with psychotic symptoms, but side effects have limited its use.

While it may not be comfortable to use at modest or high dosing, very low dosing, according to Magesh, showed it to be profoundly powerful against Klebsiella pneumoniae. In one report, he used reserpine and was able to stop biofilms in this pneumoniae infection at a fraction of the dose thought to inhibit growth.

Specifically, a tiny fraction of this drug, a mere 0.0156 mg/ml, stopped biofilm production in Klebsiella pneumoniae. So, it may be possible that we have another example of a medical truth I use every day:

"Change the dose and you change the drug or herb."

In this case, perhaps it is possible that 1/10th of the lowest size tablet, 0.1 mg, could harm Klebsiella and other infections and be safe for the patient. However, the raw materials for making it may be hard to find some months according to ASHP who tracks pharmacy shortages.

Magesh H, Kumar A, Alam A, Priyam, Sekar U, Sumantran VN, Vaidyanathan R. Identification of natural compounds which inhibit biofilm formation in clinical isolates of Klebsiella pneumoniae. Indian J Exp Biol. 2013 Sep;51(9):764-72.

http://www.ashp.org/DrugShortages/Current/Bulletin.aspx?id=975

"Stacking" Biofilm Killers

While physicians may ponder the problems caused by biofilms in practice, I rarely encounter the doctor who understands that it is usually better to have more than one treatment. In the article below, **oral biofilm infections were controlled best by three agents, not merely one.** For example, Alves explains that when you are going to irrigate or clean a root canal area, that two mouth bacteria infections protected by their biofilms have these same film barriers decreased significantly by treatment with farnesol, xylitol and lactoferrin together.

The same results were found in wounds. One of the best treatments for wounds is the use of a silver-based wound dressing or bandage, together with a gel containing xylitol and lactoferrin (Ammons).

Alves FR, Silva MG, Rôças IN, Siqueira JF Jr. Biofilm biomass disruption by natural substances with potential for endodontic use. Braz Oral Res. 2013 Jan-Feb;27(1):20-5. PMID:23306623

Ammons MC, Ward LS, James GA. Anti-biofilm efficacy of a lactoferrin/xylitol wound hydrogel used in combination with silver wound dressings. Int Wound J. 2011 Jun;8(3):268-73. Epub 2011 Apr 1. PMID:21457463

Terpenoids

I would like to mention a class of options that come from a familiar substance, chemicals from tea tree oil. We have already mentioned linalool which is part of this class individually, since it comes up as a leading biofilm killer. According to Raut, as many as 14 terpenoids derived from tea tree oil inhibit biofilms, and α-terpineol, nerol, isopulegol, carvone, linalool, α-thujone and farnesol are worthy of special note. Eight terpenoids have effects on **mature** yeast biofilms (Candida albicans).

A study by Ramage shows tea tree oil (TTO), terpinen-4-ol (T-4-ol), and α-terpineol displaying potent activity against 69 biofilm-forming Candida strains, of which T-4-ol and α-terpineol displayed rapid kill action.

Of these three, T-4-ol displayed no significant toxicity to cells. These data provide further laboratory evidence that TTO and its derivative components, specifically T-4-ol, exhibit strong antimicrobial properties against fungal biofilms. Further, T-4-ol appears to possess safety advantages over the complete essential oil (TTO) and may be suitable for prevention and treatment of established oral and upper throat cavity candidosis. Certain terpenoids are components of spices or food ingredients generally regarded as safe (GRAS) (Pauli 2006).

In another study, several chemicals from plants were tried against two very common bacteria (Budzyńska), Staphylococcus aureus (ATCC 29213) and Escherichia coli (NCTC 8196), both with biofilms on the surface of ***routine*** medical products, i.e., urinary catheter, infusion tube and surgical mesh. All three are present in most advanced hospitals and other settings. Surgical mesh was the surface most prone to persistent colonization since the biofilms that formed on it, both by S. aureus and E. coli, were difficult to destroy.

Melaleuca alternifolia is the source of Tea Tree Oil (TTO). Lavandula angustifolia yields Lavender, English Lavender and True Lavender (LEO). Melissa officinalis is Lemon balm (MEO). Tea Tree oil, Lemon balm, alpha-terpineol and terpinen-4-ol showed stronger anti-biofilm

Allicin and Garlic

Garlic has been used as a medicine throughout human history. Allicin is considered one of the medically useful components of garlic. Other useful components are discussed in Chinese language pharmacology texts.

As early as 2003, the use of allicin against Staphylococcus epidermidis had reported effects on biofilm formation at low dosing. Pérez-Giraldo reported that lab testing showed that allicin diminished biofilm formations.

Lihua reported ten years later that allicin impacts Pseudomonas aeruginosa biofilm. This is hardly casual information, since P. aeruginosa is likely resistant to multiple antibiotics, and this resistance may be due to biofilms. Organosulfur allicin has been shown to inhibit surface-adherence of bacteria and Lihua demonstrated that allicin could inhibit early bacterial adhesion which is a first step to bacterial community formation, usually just before biofilm production.

Other researchers isolated various components of garlic and tested the most active components. The following three components were examined:

1. garlic extract
2. allicin
3. diallyl sulfide (DAS)

They were tested against the serious mouth and dental infection Aggregatibacter actinomycetemcomitans, the primary cause of severe aggressive periodontitis and other non-oral infections.

Lumbrokinase

We appreciate that some people interested in progressive medicine feel this enzyme, Lumbrokinase, is a useful substance. Some have suggested it is useful in the removal of biofilms. If that is true, we had trouble finding the evidence for that position. However, it does seem that some researchers see a potential for this enzyme to "digest" pathological clots. This possibility seems to have some support, and at this time we will only wait for further research. Since we are only proposing biofilm options that are supported by research and since human use is just starting in research settings, we do not promote this agent at this time.

Ryu GH, Park S, Han DK, Kim YH, Min B. Antithrombotic activity of a lumbrokinase immobilized polyurethane surface. ASAIO J. 1993 Jul-Sep;39(3):M314-8. PMID:8268550

Kim JS, Kang JK, Chang HC, Lee M, Kim GS, Lee DK, Kim ST, Kim M, Park S. The thrombolytic effect of lumbrokinase is not as potent as urokinase in a rabbit cerebral embolism model. J Korean Med Sci. 1993 Apr;8(2):117-20. PMID: 8397927

Mihara H, Sumi H, Yoneta T, Mizumoto H, Ikeda R, Seiki M, Maruyama M. A novel fibrinolytic enzyme extracted from the earthworm, Lumbricus rubellus. Jpn J Physiol. 1991;41(3):461-72. PMID:1960890

Wang KY, Tull L, Cooper E, Wang N, Liu D. Recombinant Protein Production of Earthworm Lumbrokinasefor Potential Antithrombotic Application. Evid Based Complement Alternat Med. 2013;2013:783971. Epub 2013 Dec 12. Review. PMID:24416067

Cao YJ, Zhang X, Wang WH, Zhai WQ, Qian JF, Wang JS, Chen J, You NX, Zhao Z, Wu QY, Xu Y, Yuan L, Li RX, Liu CF. Oral fibrinogen-depleting agent lumbrokinase for secondary ischemic stroke prevention: results from a multicenter, randomized, parallel-group and controlled clinical trial. Chin Med J (Engl). 2013 Nov;126(21):4060-5. PMID:24229674

Huang CY, Kuo WW, Liao HE, Lin YM, Kuo CH, Tsai FJ, Tsai CH, Chen JL, Lin JY. Correction to Lumbrokinase Attenuates Side-Stream-Smoke-Induced Apoptosis and Autophagy in Young Hamster Hippocampus: Correlated with eNOS Induction and NFκB/iNOS/COX-2 Signaling Suppression. Chem Res Toxicol. 2013 Jul 15;26(7):1126. Epub 2013 Jun 7. PMID:23746067

tract also made the pneumonia far more susceptible to the antibiotic tobramycin. Further, genes involved with resistance to antibiotics were down-regulated.

- Bag published that highly resistant urine organ infections were more vulnerable to treatment with T. chebula but proposed this is due to its ability to collect iron, since adding iron reduced its effect. However, Bag only tested one of many chemicals from this fruit, and I would suggest other components may have antibacterial action and work by other means.
- Four carefully chosen antibacterial plants *(P. guajava, T. chebula, A. aspera,* and *M. elengi)* are combined with four solvent extracts (hexane, ethyl acetate, ethanol, and methanol) by Kamal Rai Aneja, who initially evaluated their anti-cavity activity against *S. mutans.* All four of the plants showed activity against *S. mutans.* Ethyl acetate extracts of the four plants showed high antibacterial activity against *S. mutans,* superior to the other solvent extracts. Further, *T. chebula* ethyl acetate extract acts as an effective anti-cavity agent by inhibiting *S. mutans* and *C. albicans.* However, we were unable to find evidence if the benefit of these chemicals involved biofilm removal.

In conclusion, we appreciate that this medicine is proposed to both dissolve Lyme biofilms and also destroy the underlying Lyme bacteria. We offer no opinion on this belief. We do not want to oppose or support its use in terms of biofilm ability. It appears this fruit does act on the bacteria biofilm of P. aeruginosa, but Lyme bacteria are not the same as P. aeruginosa bacteria. Lyme is also profoundly more genetically complex than a “relative” spirochete bacterium, syphilis.

Therefore, while we do note that this medicine has antibacterial and cell protection actions, and **we accept some patients feel better,** we presently cannot say it is due to biofilm removal in those with tick-borne infections.

Cancer

Cancer has many causes. Some things increase your risk and other things can decrease your risk. It is rarely pure genetics, even in those with genetic vulnerability. We know some types of plastics increase rates of breast cancer. We know the 200 poisons in cigarettes cause lung cancer. We know various chemicals made by various companies can increase cancer, despite the reality that most US and international chemicals have limited or no top research on their safety.

I like my dental hygientist. And, I like making sure my gums and teeth are "safe." Why? At first it was because I want to have teeth in twenty years. But, she correctly reminds me that heart attacks are increased by gum disease which is routine in many countries.

Yet, even this passionate healer was not aware of the role of biofilms in cancer. Yes, I said cancer. We are only beginning to understand the role of infections in triggering cancer diseases.

Many years ago, I was working with a physician who asked me to help research possible cures for his cancer. Eventually, that cure was found and written up, taking over 200 hours and many months to complete, with the help of a top medical editor in North America—the former editor of the *Journal of the American Medical Society* and forty other journals, specifically, George Lundberg, who worked feverishly to get this death disorder cure in print ASAP (Schaller).

Years later, he asked me to write a follow up, and we had found that over eight top infection specialists in the United States had missed Babesia, a common parasite that is harder to kill than malaria and which can occasionally increase eosinophils (Schaller). The patient's trouble included the fact that he had so many eosinophils, his blood could clot quickly. The point? Eosinophils are a type of white blood cell designed to kill parasites. The man's disorder (HES) Idiopathic Hypereosinophilic Syndrome, which is often fatal and means that eosinophils reproduce out of control, was primed by a Babesia infection. Not all patients with HES also have a Babesia infection, but after writing six books which

Lactoferrin Xylitol Combination Treatment

In a fascinating look at this proposed double treatment, Mary Ammons shares that treatment of Pseudomonas aeruginosa biofilm with both lactoferrin and xylitol inhibits the ability of bacteria to respond to damage resulting from lactoferrin iron chelation.

Pseudomonas aeruginosa has been identified as the most common biofilm-forming infection in chronic wounds. The immune stimulating molecule lactoferrin and the rare sugar alcohol xylitol, together, were effective in the lab against P. aeruginosa biofilms.

How? Lactoferrin iron chelation was identified as the primary means by which lactoferrin undermines the bacterial membrane. Amazingly, this combination showed huge alterations in the expression of the bacteria's genes, but these changes are too complex for a summary. The findings mean that critical chemicals made by P. aeruginosa had changed.

Siderophore detection verified that xylitol is the component of this unique double treatment that inhibits the ability of the bacteria to produce siderophores under conditions of iron restriction. Siderophores sound complicated—here is the simple meaning: they are some of the strongest iron binders in the world and they are made by bacteria, viruses and fungi.

The study concludes with two points:

1. Lactoferrin treatment of P. aeruginosa biofilms results in destabilization of the bacterial cell membrane through iron chelation.

2. Combining lactoferrin and xylitol inhibits the ability of P. aeruginosa biofilms to respond to environmental iron restriction.

Access to iron is profoundly hard for bacteria when this combination is used.

Erythritol

Erythritol is an amazing sugar. For example, when it was given to children head-to-head with xylitol or sorbitol it was clearly superior. Here is a summary of the research:

Runnel writes: "Three-year consumption of erythritol-containing candies by initially 7- to 8-year old children was associated with reduced plaque growth, lower levels of plaque acetic acid and propionic acid, and reduced oral counts of mutans streptococci compared with the consumption of xylitol or sorbitol candies."

In a similar way, Japanese researchers show highly advanced reasons for erythritol superiority over xylitol and sorbitol (Hashino). While this study is very dense, let me at least try to list the stunning findings:

1. By advanced confocal microscopic observations, the most effective sugar used to reduce P. gingivalis accumulation onto an S. gordonii substratum was erythritol, as compared with xylitol and sorbitol.

2. In addition, erythritol moderately suppressed S. gordonii monotypic biofilm formation.

3. To examine the inhibitory effects of erythritol, they analyzed the metabolomic profiles of erythritol-treated P. gingivalis and S. gordonii cells. Metabolome analyses showed that a number of critical bacteria chemicals were decreased by erythritol.

4. Next, metabolites of erythritol- and sorbitol-treated cells were examined. Erythritol significantly decreased the levels of P. gingivalis dipeptides. They tended to be increased by sorbitol.

Amazingly, it appears erythritol has inhibitory effects on two diverse species with biofilms, and it acts by at least five very distinct mechanisms.

Dowd reported that biofilm formation was completely inhibited in a standard wound approach by 10% erythritol in either of the two San-

Does Magnesium Deprivation Hinder Biofilms?

Before we decide to remove an element that is used in vast numbers of important enzymes, we have to have a foundation. First, in some basic physiology texts, calcium displaces magnesium inside human cells. My impression of this research is that suboptimal magnesium increases systemic inflammation, vascular death such a heart attacks, and cancer. Dibaba shows that the higher the magnesium in diet the lower C-reactive protein. This protein is associated with inflammation. If you lower inflammation you decrease deaths.

Qu pooled studies of approximately a half a million people to examine the results. The greatest risk reduction occurred when magnesium intake increased from 150 to 400 mg/day. A significant inverse association was found between dietary magnesium intake and total cardiovascular events. Serum magnesium concentrations are linearly and inversely associated with the risk of cardiovascular troubles such as heart attacks and brain strokes. Since magnesium is poorly absorbed even when chelated to an amino acid, it is perhaps useful to note the useful dose was 400 mg, when compared to minimal benefit from 150 mg orally.

Del Gobbo also examined vast studies and wrote: “Clinical hypomagnesemia and experimental restriction of dietary magnesium increase cardiac arrhythmias.” Deadly ischemic heart disease, in which a person dies due to poorly oxygenated blood reaching the entire heart, was more common in those with no magnesium supplementation or very low oral magnesium dosing. Simply, “circulating and dietary magnesium are inversely associated with [cardiovascular disease].” Further, Qu shows, in another study, a significant drop in intestinal cancers with a reasonable magnesium intake. While we may not know the mechanism for these useful findings, they are not felt to be due to chance.

Song and Leff clearly show why a small number of scientists and physicians have pondered lowering human magnesium Mg^{2+} levels. They remind us that Mg^{2+} can influence bacterial adhesion, which is part of biofilm process. In their study, the bacterium Pseudomonas fluorescens was used to investigate the influence of Mg^{2+} on biofilm growth.

Nitroxoline

We are not going to spend significant time on this fifty year-old antibiotic because it is not used in many countries, and it is a quinolone, and quinolones all seem to have serious risk of tendon damage. For example, it is possible nitroxoline has the same risks as other quinolones (www.drugbank.ca/drugs/DB01422).

Quinolones easily enter cells and are often used to treat intracellular pathogens such as Mycoplasma pneumoniae.

The FDA has increased warnings regarding side effects since the drugs were first approved. I just want to focus on three side effects that might not be routine but are possible risks with many quinolones:

- Damage to nerves outside the brain: This could present as sensory nerve or muscle nerve injury causing paresthesias, hypoaesthesias, dysesthesias, and weakness. New pain, burning, tingling, numbness and/or weakness, or new decreased abilities to detect light touch, pain, temperature, position sense, vibratory sensation, and/or motor strength are basic nerve functions and show damage; these are reasons to stop taking the drug.
- Tendon damage: While some focus on the Achilles tendon, actual tears of tendons have occurred in the hand, the shoulder, the thigh, or other locations. Some are helped with surgery. Other patients feel the surgical or other treatment still leaves them with damage. It is believed by some that the use of prednisone and other cortical steroids meant to drop inflammation increases the risk of tendon damage. Perhaps this is especially true in older seniors. Surprisingly, tendons can rupture after the medication is stopped. Some have suggested that IV, transdermal or sublingual magnesium might decrease the risk, but I am not aware this hypothesis has been proven (Schaller).

Aspirin and NSAIDS

We have previously said it is best to see biofilms like a key, and using AIDS as an example, it was only after AZT in 1996 with **the arrival of protease inhibitors that those quickly dying, experienced a "Lazarus effect," in which AIDS patients who looked to be ready to die recovered markedly in 30 days.** Medications used in AIDS are tough medications, even if they are miracles. Some may question offering a section on the tough medications aspirin and NSAIDS.

While we appreciate that aspirin and various other over the counter NSAIDS may not be optimal, perhaps due to concerns of liver, kidney or ulcer issues, we are discussing infections that invade and cannot be stopped by your body. You might need all the help you can get. So we offer some synthetic options here that may offer help against a top killing and disabling problem—**biofilm-protected** infections.

For example, fluconazole-resistant Candida is increasing worldwide. Fluconazole is also called Diflucan. Biofilms are one reason for a decreased effect in treatment. Aspirin, diclofenac, ketoprofen, tenoxicam, and ketorolac all undermined biofilms or their processes. They all reduced fungal adhesion, and increased biofilm detachment with low concentrations of anti-inflammatory agents. Microscopic examination confirmed the tested drugs had a significant effect on reduction of Candida adhesion and biofilm development. The drugs also made fluconazole work more effectively against fluconazole-resistant C. albicans (Abdelmegeed).

Another useful way to involve aspirin is by teaming it up with the chelation chemical EDTA. Both aspirin and EDTA possess broad antimicrobial activity for biofilm cultures. Aspirin used for 24 hours was successful in eradicating P. aeruginosa, E. coli and C. albicans biofilms. Moreover, exposure to the Aspirin-EDTA combination completely destroyed bacterial biofilms after only four hours in simulation lab testing (Al-Bakri).

Azithromycin (Zithromax)

This medication is almost a household name and is known as the "Z-Pak" which contains brand name Zithromax pills that are still in use today. Despite being in use many years and used very routinely, this medication still has a strong use in addressing biofilms.

For example, Maezono showed that azithromycin was markedly superior compared to other routine antibiotics in killing gum infection bacteria. Specifically, azithromycin at **very low dosing** undermined four strains of Porphyromonas gingivalis. This determination involved the use of two fascinating techniques.

Azithromycin dropped the bacteria "gasoline" or ATP in the bacteria, which means the bacteria had decreased function or were dead. Cyanide kills humans in part due to dropping ATP levels—it is not a trivial substance. Further, the power of azithromycin was seen clearly with a confocal laser scanning microscope, which has the ability that the long name suggests—seeing the decreased amount of bacteria.

One of the most common hospital infection risks is MRSA; it causes a number of potentially deadly diseases. This "MRSA"simply means routine staph aureus is no longer able to be killed or it is resistant to methicillin, so it reproduces unchecked. Azithromycin is proposed as one solution to MRSA based partly on its biofilm defeating abilities at very low dosing.

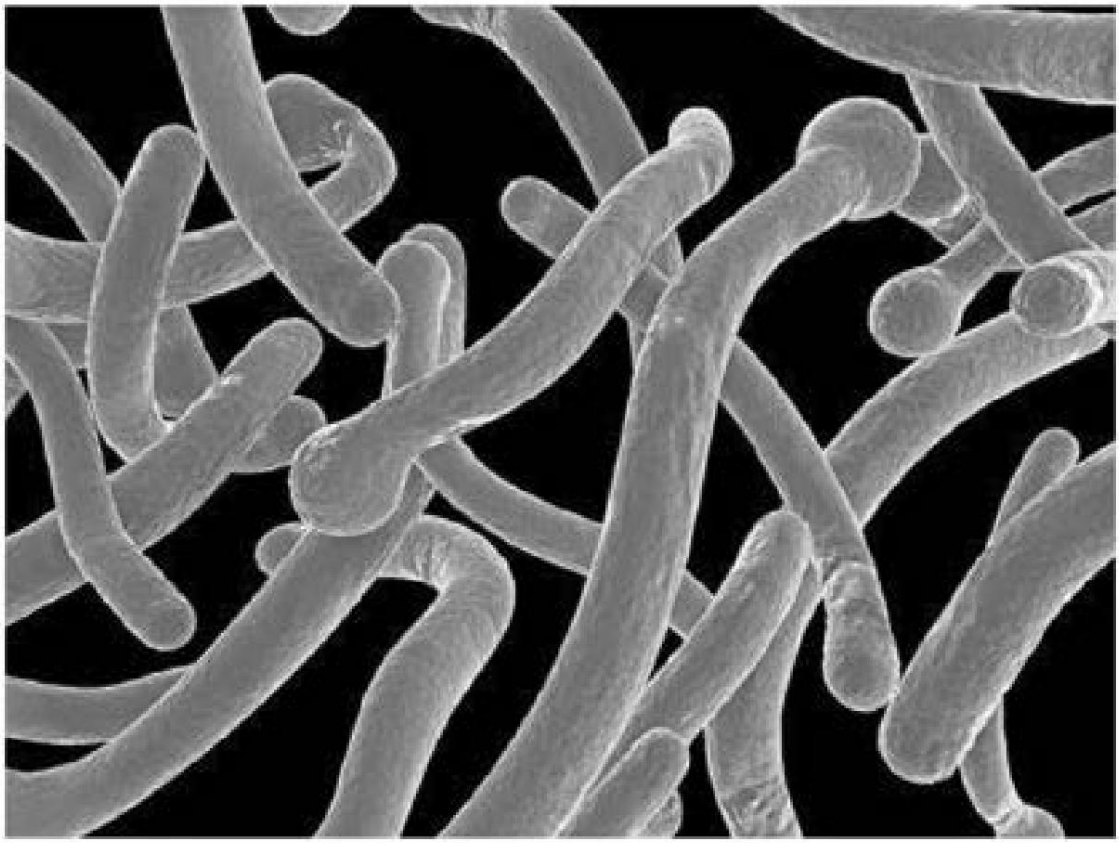
Gui shows that azithromycin was active against methicillin-resistant Staphylococcus aureus (MRSA) strains. It reduced the production of α-hemolysin and biofilm formation at very low "sub-inhibitory" concentrations. So, azithromycin may be useful in the treatment of α-hemolysin-producing and biofilm-forming MRSA infections.

Maezono H, Noiri Y, Asahi Y, Yamaguchi M, Yamamoto R, Izutani N, Azakami H, Ebisu S. Antibiofilm effects of azithromycin and erythromycin on Porphyromonas gingivalis. Antimicrob Agents Chemother. 2011 Dec;55(12):5887-92. Epub 2011 Sep 12. PMID:21911560

Sudrabs

Apstrāde ar sudrabu, ko izmanto pret bioplēvēm brū cēs, nepārprotami ir bijusi efektī va. Patieš ām, 1% sudraba krēms ir veiksmī gi izmantots, lai ārstētu un novērstu infekcijas slimniekiem visā pasaulē.

Starptautiskā brū ču infekcijas institū ta pārskats liecina, ka dati joprojām norāda uz sudrabu kā labāko ārstēš anu. Piemēram, Monteiro pārbaudī ja koloidālo sudrabu pret sēnī š u bioplēvēm. Š ī darba secinājums ir ļ oti stingrs: neatkarī gi no pētī jumā izmantotajām koncentrācijām sudrabs ietekmēja Candida bioplēvju matricas sastāvu un struktū ru.



3-dimensiju renderēts tuvplāns ar Candida albicans.

Cumanda and Biofilms

Dr. Eva Sapi and her colleagues found in their superior laboratory that cumanda had some mild killing effects on the Lyme bacteria, but more importantly for this book, Lyme **biofilm** communities grown in her lab were reduced 43% by this herb at low dosing. The dosing for a dynamic human or animal body was not explored or proposed by this researcher or any other researcher as of February 2014. Searching by its Latin and popular name did not yield any articles relevant for use on infections.

Finally, while Lyme disease is a common and disabling infection, it is hardly the only infectious agent in the many infections carried by Ixodes ticks. While this preliminary research is very useful, it is possible cumanda may have impact inside a body for Lyme and Bartonella treatment. More study is needed. I regret that we only examined cumanda for Bartonella and not Lyme.

Our conclusion was that cumunda hindered Bartonella more than Levaquin (levofloxacin), Zithromax (azithromycin), Rifabutin (mycobutin) and other proposed options. To determine treatment effect one needs to know **the indirect actions of Bartonella, Babesia, FL1953, Lyme, inflammation systems, etc. by *lab analysis using different companies.***

Theophilus PA, Burugu D, Pourur i A, Luecke DF. Sapi E. Effect of Medicinal Agents on the Different Forms of Borrelia burgdorferi Lyme disease or Lyme borreliosis is a tick-borne multisystemic disease caused by different species of Borrelia. http://healthyeats-nl.blogspot.com/2013/07/effect-of-medicinal-agents-stevia-and.html

Erythromycin

Gomes found that erythromycin at low doses actually enhanced the growth of biofilms in C. diphtheriae. Penicillin acted the same way. Of further concern is that not only did these antibiotics increase biofilm formation but in this case they enhanced infections by strains of C. diphtheriae. Diphtheriae is a very dangerous infection without access to effective antibiotics. It is dangerous enough with good ones.

Returning to biofilm-promoted gum disease such as gingivitis, in the United States, over 50% of adults had gingivitis on an average of 3 to 4 teeth. Adult periodontitis, measured by the presence of periodontal pockets > or = 4 mm, was found in about 30% of the population on an average of 3 to 4 teeth. Lost gum attachment to teeth of at least 3 mm was found in 40% of the population (Oliver).

The density of adherent P. gingivalis cells were significantly decreased by using erythromycin at very low dosing called “sub-MIC levels.” One strain was not affected by erythromycin. Finally, erythromycin was not effective for inhibition of P. gingivalis biofilm cells at very low dosing.

Erythromycin Key Findings

- Low doses actually grew some biofilms
- Penicillin also grew some biofilms
- It enhanced strains of dangerous C. diphtheriae
- Gum disease from P. gingivalis cells was much less sticky at very low dosing.
- Erythromycin was not effective for inhibition of P. gingivalis biofilm cells at very low dosing.

Contacting Dr. Schaller

Should you wish to talk to Dr. Schaller he offers individualized education consults, which can be arranged by calling 239-263-0133. Please leave all your phone numbers, a working email and a fax number. These consults are typically in 15 minute units and can last as long as you wish. All that is required is the completion of a short informed consent form.

If you would like a full diagnostic consult or to see Dr. Schaller as a patient, know he treats patients from all over the USA and from outside the country. He meets with you first and then does follow-up care with you by phone.

If you would like to fly in to see Dr. Schaller, his staff are very familiar with all the closest airports, and we have special hotel discounts.