

TREATMENT OF SYSTEMIC PATHOGEN-ASSOCIATED BIOFILM
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The CDC estimates that biofilm is associated with 65% of all infections and 85% of chronic or recurrent infections. Any infection involving a medical device, implant, prosthesis, etc. is always associated with biofilm. Native valve endocarditis and osteomyelitis are biofilm-associated diseases. Any infection which has a high treatment failure rate or recurrence rate should be considered to be biofilm-associated. Examples include chronic sinusitis, recurrent otitis media, recurrent yeast vaginitis, and chronic prostatitis.

Extragastrintestinal pathogenic biofilms usually involve fibrin and extracellular matrix components. Fibrin involvement has been particularly well documented for Staphylococcal and *Pseudomonas* biofilms.

The following suggested approaches are based on my review of the literature on what agents available as supplements have antibiofilm properties and are well absorbed following oral administration. Clinicians have been using these approaches with success in a variety of settings. The agents I suggest are available from ProThera®, Inc or Klaire Labs®. One of the suggested agents, lactoferrin, contains dairy allergens and may not be appropriate for patients with dairy allergies. Another key component is Serralase™ which contains serratia peptidase 15,000 SPU, papain 450,000 PU, bromelain 360 GDU, and catalase 75 IU per tablet. Nattokinase is yet another agent in my suggested approach. It is a serious fibrinolytic and inhibitor of plasminogen activator inhibitor type 1 (PAI-1). It should be used with caution in patients on blood thinners and I strongly believe doses in excess of 400 mg/day should not be used.

A general systemic antibiofilm protocol should at a minimum consist of Serralase™ and an appropriate antimicrobial. It has recently become possible to clinically test microbial biofilm antibiotic sensitivities. This testing is not covered by insurance and is available on an investigational basis. However, in the case of pneumonia complicating cystic fibrosis, it has become invaluable. It may become so for other infectious diseases. The biofilm antibiotic sensitivities test is called BioFILM PA by Innovotech, Inc. If you want to know more about it contact Damian Sowa 888-670-5445 ext. 225 or damian.sowa@innovotech.ca.

Recurrent or chronic sinusitis/otitis media

Serralase™ 4 tablets bid fasting x 30 days
Lactoferrin 500 mg bid x 30 days
Nattokinase 100 mg bid x 30 days
Topical InterFase® 6.25 mg/mL (500 mg in 80 mL NS) lavage as needed
High potency, multispecies probiotic (Ther-Biotic® Complete) 200 billion CFU/d to support mucosal immunity
Appropriate antimicrobials

Yeast vaginitis/bacterial vaginosis

Serralase™ 4 tablets bid fasting x 30 days
Lactoferrin 500 mg bid x 30 days
Topical InterFase® 6.25 mg/mL (3 capsules in 1.5 cups 1 to 5 distilled vinegar to warm tap water) douche bid x 2-3 days
High potency, multispecies probiotic (Ther-Biotic® Women's Formula) 100 billion CFU/d indefinitely to reduce recurrence risk
Appropriate antimicrobials

Chronic prostatitis

Serralase™ 4 tablets bid fasting x 30 days

Lactoferrin 500 mg bid x 30 days

Nattokinase 100 mg bid x 30 days

ProstaThera™ - saw palmetto, pygeum, stinging nettle, Cernitin® flower pollen extract,
lycopene, Zn, Cu, Se

Appropriate antimicrobials

Recurrent pneumonia/brochiectasis

Serralase™ 4 tablets bid fasting x 30 days

Lactoferrin 500 mg bid x 30 days

Nattokinase 100 mg bid x 30 days

Appropriate antimicrobials

Lyme disease (No data whatsoever. Borrelia probably makes biofilm and does hide out in the extracellular ground substance. Practitioners ask about this all the time. My suggestions won't do any harm. Some practitioners have found an antibiofilm approach is helpful.)

Serralase™ 4 tablets bid fasting x 30 days

Lactoferrin 500 mg bid x 30 days

Nattokinase 100 mg bid x 30 days

Protectagen™ AC-11® *Uncaria tomentosa* extract to reduce TNF- α levels

Appropriate antimicrobials

High potency, multispecies probiotic (Ther-Biotic® Complete) 200 billion CFU/d
to support GI microbiota