

Biofilm Disruptors

What Are Biofilms?

Many bacteria form a protective layer around themselves known as a biofilm — a slimy, structured matrix made of polysaccharides, proteins, and extracellular DNA. This shield makes them significantly more resistant to antibiotics, antimicrobials, and even your immune system. If previous antibiotic treatment only partially worked (e.g. breath test results halved but not normalised), biofilms are a likely reason — the antibiotics killed exposed bacteria but couldn't penetrate the shielded ones.

How Biofilm Disruptors Work

Biofilm disruptors don't kill bacteria. They strip the protective shield, exposing the bacteria underneath. Once exposed, the bacteria become vulnerable to:

- Bacteriocins from SIBO yogurt strains
- Herbal antimicrobials (berberine, allicin, etc.)
- Your own immune system

Biofilm disruptors taken before or alongside antimicrobial treatment make that treatment far more effective. A retrospective chart review found that adding biofilm disruptors to antimicrobials enhanced SIBO eradication rates compared to antimicrobials alone.

The Supplements

Supplement	Mechanism	Dose	When
NAC (N-Acetylcysteine)	Dissolves biofilm mucopolysaccharide matrix via disulfide bond disruption	600mg 2x daily	Empty stomach, 30 min before food/antimicrobials
Serrapeptase	Proteolytic enzyme — breaks down the protein components of biofilm matrix	120,000 SPU 2x daily	Empty stomach

Supplement	Mechanism	Dose	When
Nattokinase	Fibrinolytic enzyme — breaks down biofilm fibrin	Per label	Empty stomach
EDTA	Chelates minerals (Ca, Zn, Fe, Mg) that reinforce biofilm structure	Per label	Empty stomach

NAC handles the mucopolysaccharide components of biofilm. Serrapeptase handles the protein components. They're complementary — different mechanisms targeting different structural elements of the same biofilm. Together they're more effective than either alone.

Critical Rules

- **Always take on empty stomach** — 30 min before food or 2+ hours after. With food, serrapeptase digests dietary protein instead of biofilm protein. NAC gets diluted and diverted.
- **Do NOT take calcium, zinc, iron, or magnesium supplements within 3 hours** — these minerals reinforce biofilms. Bacteria use them to strengthen their protective matrix.
- **Trace calcium in capsule filler is fine** — tricalcium phosphate and calcium stearate in serrapeptase capsules are ~20-30mg, negligible compared to supplemental doses of 500-1000mg.
- **Stay well hydrated** — biofilm disruption releases toxins trapped under the biofilm. Water helps kidneys flush them.
- **Die-off symptoms are possible** — fatigue, headache, brain fog may occur in first 3-5 days as previously-shielded bacteria are exposed and killed.

When to Use Them

Phase 1 (from week 2): NAC + serrapeptase alongside SIBO yogurt. Biofilm disruptors are safe with yogurt — they strip shields off SIBO bacteria, giving the yogurt's bacteriocins better access. They don't harm the yogurt strains. *B. subtilis* HU58 in the yogurt already produces nattokinase (a natural biofilm disruptor), so NAC and serrapeptase amplify what the yogurt is already doing.

Phase 2 (weeks 7-8): Continue NAC + serrapeptase as pre-load for herbal antimicrobials. By this point you have 4+ weeks of biofilm disruption done.

Phase 3 (weeks 9-14): Continue NAC + serrapeptase alongside herbal antimicrobials. Exposed bacteria getting hit by berberine + allicin — this is the intended combination.

Note on B. subtilis HU58 as a Natural Biofilm Disruptor

B. subtilis HU58 (one of the yogurt strains) naturally produces nattokinase, which is itself a biofilm disruptor. So the SIBO yogurt is already doing some biofilm disruption on its own from the inside. Adding NAC and serrapeptase from the outside amplifies this effect.

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