

COVID-19 mRNA Vaccine Injury Treatment: Bromelain - Breaks Down Spike Protein

(Especially When Combined with NAC or Curcumin), Also Has Anti-coagulant, Anti-inflammatory & Anti-cancer Properties

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Theme: [Science and Medicine](#)

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[COVID Intel](#)

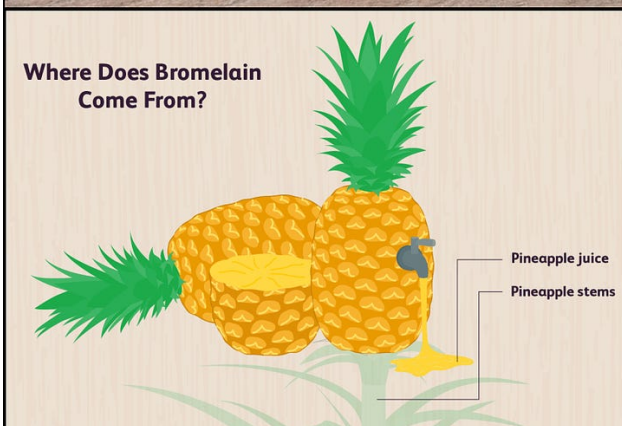
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I have written about mRNA vaccine treatments: [NATTOKINASE](#), [QUERCETIN](#), [N-Acetyl CYSTINE \(NAC\)](#), [OLIVE LEAF](#), [BLACK SEED/NIGELLA](#) and [3-DAY FASTING](#).

What Is Bromelain Enzyme?



BROMELAIN - enzymes derived from Pineapple stems and fruit

Ananas comosus is one of the most popular, edible tropical fruits, and a member of the family Bromeliaceae, grown in several tropical and subtropical countries, including **Thailand, Indonesia, Malaysia, India, Kenya, China, and the Philippines.**

For many years, the pineapple has been valued because of its pleasant, sweet taste, in addition to a **wealth of nutrients such as fiber, numerous vitamins, manganese, and copper.**

Due to its low calorific value, and enormous wealth of nutrients, it has become a **frequent component of diets in people who are concerned with their weight.** However, it is worth noting that pineapple and its compounds were successfully used in folk medicine in the past, for various health problems.

Bromelain is a key enzyme found in pineapple and has been known since 1876. Bromelain is typically **extracted from the stems but can also be extracted from the fruit. Stems have higher concentration of Bromelain than the fruit.**

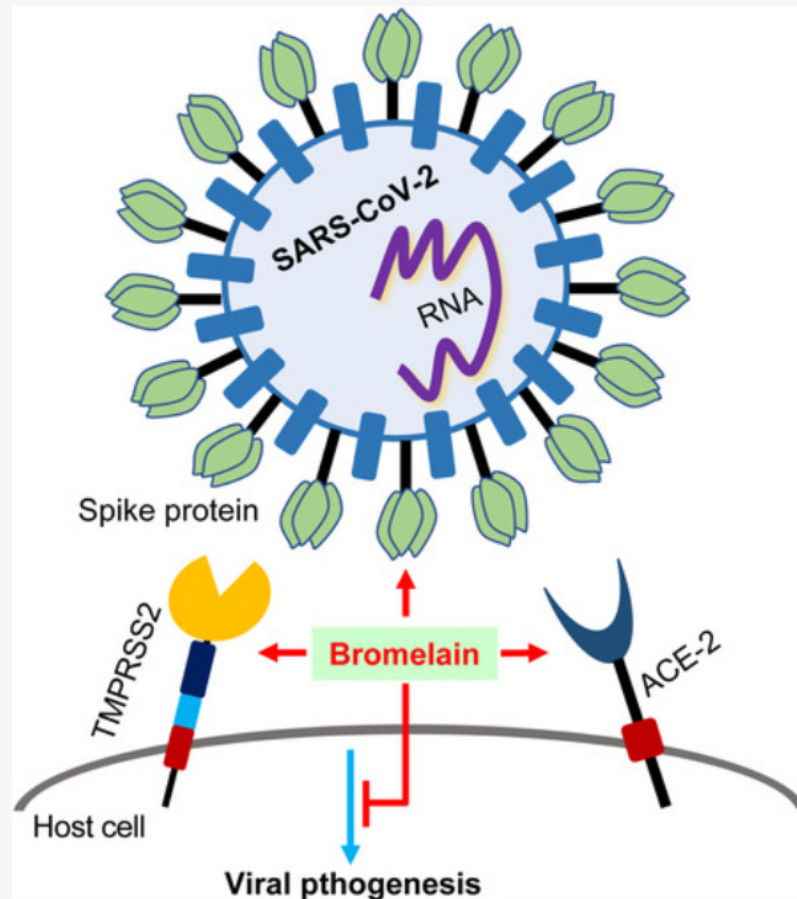
Bromelain is made up of a variety of proteases, as well as phosphatase, glucosidase, peroxidase, cellulases, and glycoprotein ([Bhattacharyya, 2008](#)). Minor thiol endopeptidase,

ananain, comosain, protease inhibitors, and organically bound calcium are all present in pineapple Bromelain ([Gautam et al., 2010](#); [Bala et al., 2013](#)).

BROMELAIN and COVID-19 Vaccine Spike Protein

[Sagar et al](#) showed in Sep.2020 that Bromelain can break down spike protein (and clear it from the virus surface), also blocks spike protein binding to ACE-2 and TMPRSS2.

Highlights:



- Bromelain inhibits / cleaves the expression of ACE-2 and TMPRSS2
- Bromelain cleaves / degrades SARS-CoV-2 spike protein
- Bromelain inhibits S-Ectodomain binding and SARS-CoV-2 infection

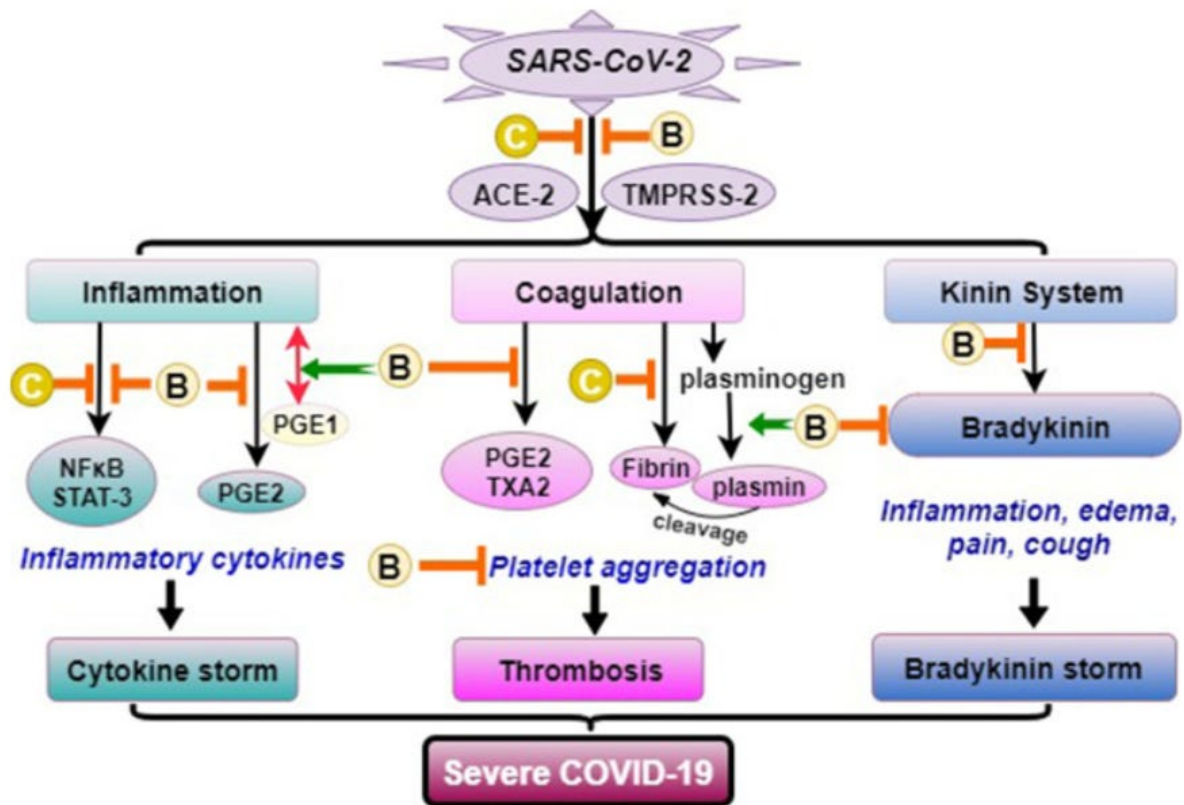
[Akhter et al](#) showed in Feb. 2021 that Bromelain combined with NAC (N-acetyl Cysteine) completely break down spike protein:

- Bromelain alone altered structure of spike protein and broke down most of it
- **Bromelain combined with NAC broke down all of the spike protein**
- “Bromelain-NAC acts as a biochemical agent to destroy complex glycoproteins. Bromelain’s multipotent enzymatic competencies, dominated by the ability to disrupt glycosidic linkages, usefully complement N-Acetylcysteine’s strong power to reduce disulfide bonds”
- Conclusion: “The potential of Bromelain-NAC on SARS-CoV-2 spike protein stabilized by disulfide bonds was examined and found to induce the **unfolding of spike protein** by reducing disulfide stabilizer bridges. Bromelain-NAC also

showed an inhibitory effect on wild-type and spike mutant SARS-CoV-2 by inactivation of its replication capacity”

[Greek researchers Kritis et al](#) showed in Dec.2020 that Bromelain combined with Curcumin has a major impact on stopping severe COVID-19!

- **Curcumin is a natural phenol found in Turmeric** (member of ginger family)
- Severe COVID-19 involves 3 pathways: inflammatory (cytokine storm), coagulation (thrombosis) and bradykinin cascades
- **Both Bromelain and Curcumin inhibit two of these (inflammation and coagulation) and Bromelain inhibits bradykinin as well.**
- **Both Bromelain and Curcumin block binding of spike protein to ACE-2 and TMPRSS-2**
- **Bromelain also increases absorption of curcumin after oral intake which is very important because curcumin on its own has very little absorption after oral intake**
- Conclusion: “Bromelain is absorbed directly when administered orally, while it **substantially promotes the absorption of curcumin enhancing its bioavailability,**and making this a perfect combination of **immune-boosting nutraceuticals with synergistic anti-inflammatory and anticoagulant actions**”



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Fig. 1. Bromelain (B) and curcumin (C) exert multiple immunomodulatory actions interfering in the crucial steps of COVID-19 pathophysiology. ACE-2, angiotensin-converting enzyme 2 receptor; COVID-19, coronavirus disease 2019; NF- κ B, nuclear factor kappa B; PG; prostaglandin; SARS-CoV-2; severe acute respiratory syndrome coronavirus 2; STAT-3, signal transducer and activator of transcription 3; TMPRSS-2, trans-membrane serine protease 2; TXA2, thromboxane A2.

BROMELAIN's Other Benefits:

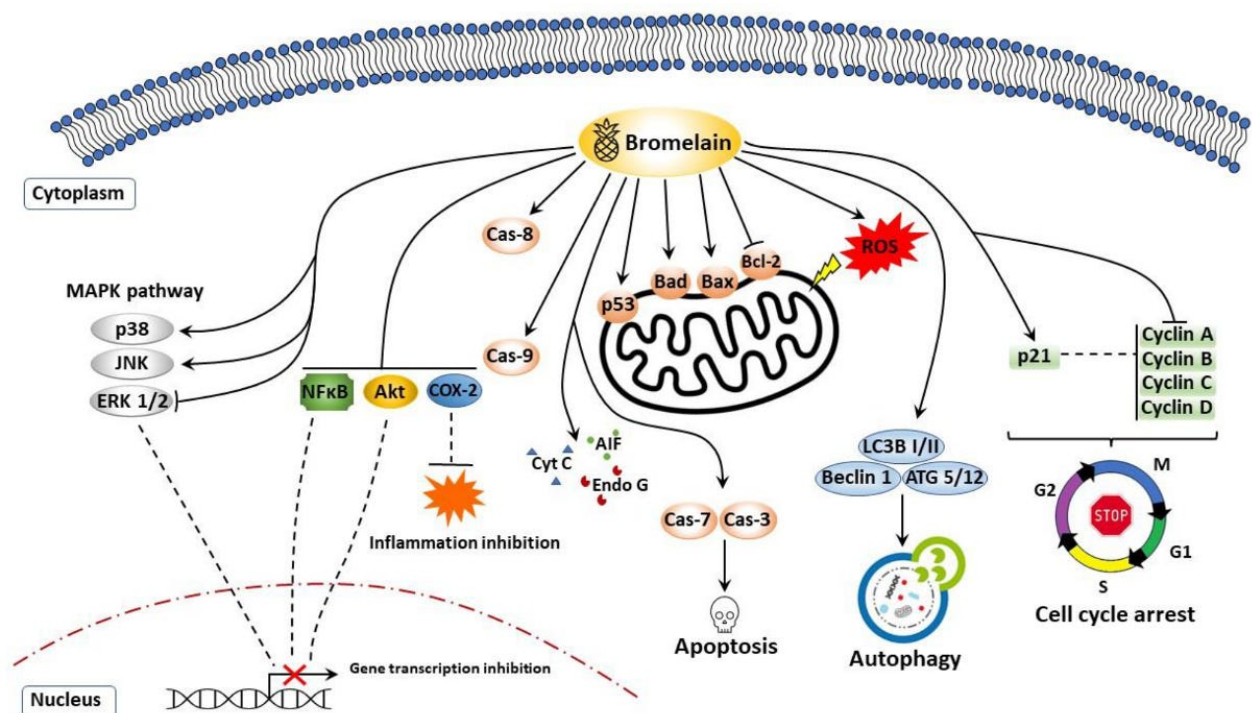
[Jagadeesan et al.](#) (Oct.2021) summarizes Bromelain's benefits through the various mechanisms and pathways it uses:

- anti-inflammatory properties as Bromelain **inhibits prostaglandins** that assist in inflammation
- anti-inflammatory, anti-edematous, analgesic, anti-thrombotic activities by influencing the **arachidonic acid and kallikrein-kinin pathways** leading to cerebrovascular and cardiovascular effects
- Anti-cancer applications...Bromelain suspends cell proliferation through activation of **apoptosis**
- immunomodulatory activity due to anti-oxidant abilities and protease activity.

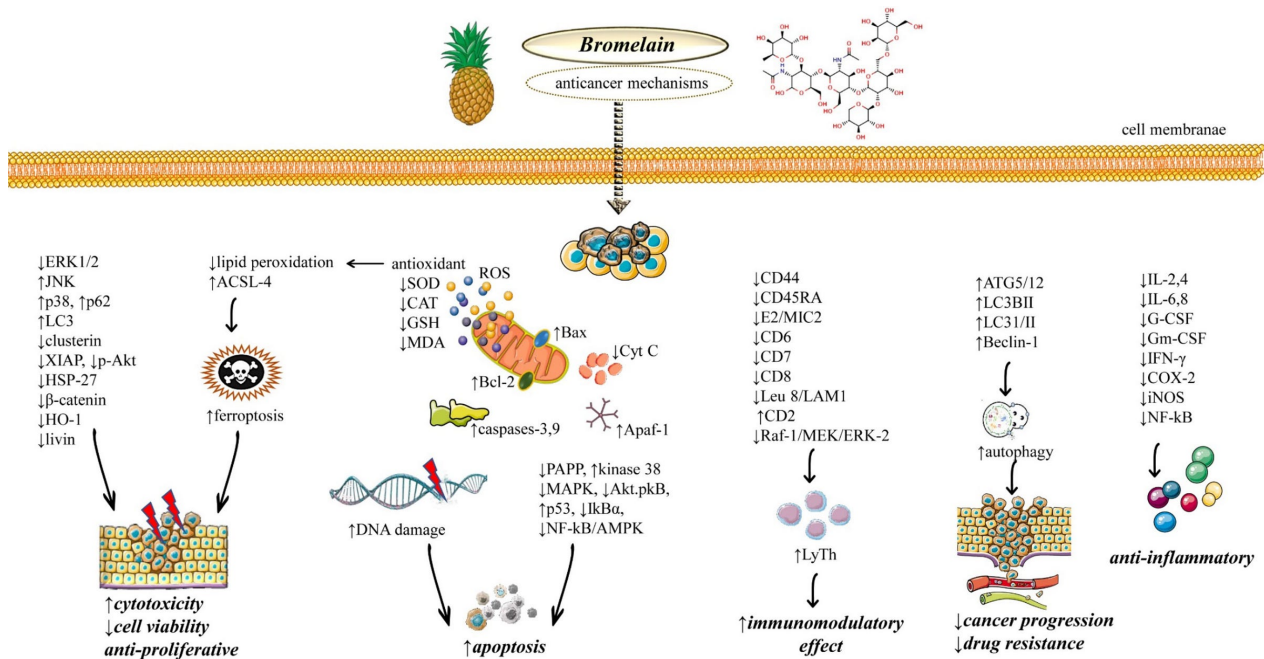
[Polish researchers Hikiş et al.](#) (Nov.2021) go into depth on Bromelain's clinical benefits:

- **ANTI-MICROBIAL** - **inhibits bacterial toxin secretion** by E.Coli, V.cholerae, **increases the effectiveness of antibiotics**, effective bactericidal
- **ANTI-PARASITIC & ANTI-FUNGAL** - due to its enzyme activity

- **CARDIOPROTECTIVE** - due to anticoagulant and fibrinolytic properties, **dissolves atherosclerotic plaque with high efficiency** and reduces risk of atherosclerotic disease, also improves cardiac function during ischemia/reperfusion
- **BLOOD CLOTS** - prevents and breaks down blood clots by numerous pathways, potent fibrinolytic agent
- **IMMUNOMODULATORY** - used in treating **inflammatory bowel disease (IBD)**, ulcerative colitis and Crohn's Disease. Also treats **chronic sinusitis, osteoarthritis.**
- **WOUND HEALING** - it is an efficient enzymatic **debridement agent for wounds**, used in the treatment of burns.
- **ANALGESIC** - potent analgesic, also reduces swelling.
- **ANTI-CANCER** - exact mechanism unknown, theorized to inhibit tumor cell proliferation & metastasis, triggers apoptosis and triggers **AUTOPHAGY**. Also **upregulates p53**. Shown to be effective against breast cancer, melanoma, leukemias & lymphomas, GI, Colon, pancreatic and liver cancers.



[Italian researchers Pezzani et al \(Jan.2023\)](#) take a deeper dive into anti-cancer properties of Bromelain:



Safety

Due to its wide application in the food, pharmaceutical, biotechnology, and medical industries, Bromelain should be characterized by low systemic toxicity and good absorption in the body while maintaining sufficiently high biological activity.

Animal experiments have shown that bromelain has very low toxicity with a lethal dose (LD) greater than 10 g/kg body weight. In dogs and rats treated with the extract, its cytotoxic or carcinogenic effects have not been demonstrated. Clinical tests on patients also showed no undesirable side effects of Bromelain.

Research suggests that some people may experience **allergic reactions** when using Bromelain. People who are allergic to pineapple are particularly vulnerable.

My Take...

You probably know about these nutraceuticals in the management of **SPIKE PROTEIN TOXICITY, whether due to COVID-19 vaccine injury, Long COVID or vaccine shedding:**

- **Nattokinase** - breaks down spike protein
- **Quercetin, Olive Leaf, Black Seed/Nigella Sativa, Dandelion extract, Green Tea Extract (EGCG)** - block spike protein from binding and doing damage
- **NAC, Selenium, Vitamin C, Quercetin, Green Tea Extract** - powerful antioxidants that treat spike protein damage to organs and tissues

It is worth adding these to a SPIKE PROTEIN DETOX arsenal:

- **Bromelain or (Bromelain + NAC)** - break down spike protein
- **Bromelain or (Bromelain + Curcumin)** - block spike protein

Bromelain has additional benefits for the COVID-19 vaccine injured with the main ones being:

- **anti-coagulant** properties
- **anti-cancer properties (upregulation of p53 may be KEY** here as COVID-19 mRNA vaccines interfere with p53 which can lead to many types of cancer)

If your concern or focus is on Spike protein detox AND:

- **Blood clots** - consider Nattokinase, Bromelain
 - **Cancer** - Quercetin, Olive Leaf, Bromelain, Black seed, Vitamin D & C
 - **Heart disease** - Quercetin, Olive Leaf, Bromelain, Taurine (see [TWC Heart formula](#) for other helpful nutraceuticals)
 - **Diabetes** - Quercetin, Olive Leaf, Black Seed
 - **Neurological injury** - NAC, Olive Leaf (see [TWC Mito formula](#))
 - **asthma, skin rashes, allergies** - Black seed
 - **Liver or kidney toxicity** - NAC, Black Seed
 - **Inflammatory bowel disease** - NAC, Black seed
 - **Gut microbiome repair** - Quercetin, fermented foods, probiotics
 - **Mitochondrial repair** - Quercetin, CoQ, PQQ see [TWC Mito formula](#)
 - **Fertility problems** - NAC, Selenium, CoQ, Vit.D
-
- **Heavy metals and nanoparticles** - NAC

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Dr. William Makis is a Canadian physician with expertise in Radiology, Oncology and Immunology. Governor General's Medal, University of Toronto Scholar. Author of 100+ peer-reviewed medical publications.

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by Michel Chossudovsky

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