

## Title

### **Case Report: Reduction of Persistent Spike Protein and Improvement in COVID-19 Symptoms Following Therapy with Vedicinals-9**

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Short title:

#### **Vedicinals-9 effectiveness in COVID-19 and Long COVID**

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## **Abstract**

This case report details the clinical course of a 43-year-old male, referred to as Patient X, and 41 year old female patient referred as patient Y, who developed COVID-19 infection in 2022. Despite undergoing multimodal treatments for two years, including therapeutic apheresis, Patient X and Y both experienced some improvement in symptoms but retained a high intracellular spike protein load. Remarkable clinical and laboratory improvements were observed following therapy with a natural product formulation in both of them. This report highlights the efficacy of natural compounds acting in synergism to resolve persistent microthrombi and reducing intracellular spike protein levels, resulting in improved neurological symptoms in COVID-19 and Long-COVID.

## **A- Introduction**

The SARS-CoV-2 virus, responsible for COVID-19, has brought about profound challenges to global health systems and economies. Central to the pathogenesis of this virus is the spike protein, a multifunctional protein that facilitates viral entry into host cells through its interaction with the angiotensin-converting enzyme 2 (ACE2) receptor (1). Beyond its role in viral entry, mounting evidence indicates that the spike protein itself exhibits pathogenic properties, which can persist even after the acute phase of infection, contributing to Long COVID syndrome (2). The spike protein's binding to ACE2 disrupts the physiological functions of this critical receptor, which plays a pivotal role in regulating vascular integrity, inflammation, and immune responses (3). By binding to ACE2, the spike protein can induce endothelial dysfunction, promoting pro-inflammatory states and microvascular damage (4). Such effects have been implicated in the development of multi-organ injuries observed in severe COVID-19 cases (5). Moreover, the spike protein has been found to trigger hyper activation of the immune system, leading to a cascade of cytokine release that can result in a hyperinflammatory state known as a "cytokine storm" (6). This phenomenon is closely associated with severe respiratory distress and systemic complications seen in critically ill patients (7). Persistent immune activation and dysregulation, even in individuals who recover from the acute illness, are thought to underlie the symptoms of Long COVID (8). In addition to its effects on the immune system, the spike protein exerts direct cytotoxic effects. Experimental studies have demonstrated that the spike protein alone can impair mitochondrial function, disrupt cellular signaling pathways, and induce apoptosis in various cell types (9). These cellular-level disruptions may help explain the lingering fatigue, cognitive dysfunction, and organ damage observed in many COVID-19 and Long COVID patients (10). Another concerning aspect of the spike protein is its ability to interact with platelet receptors, contributing to hypercoagulability and thrombotic complications (11). COVID-19-associated coagulopathy has been a significant cause of morbidity and mortality, with thromboembolic events frequently reported during acute infection and occasionally persisting in Long

COVID (12). The spike protein's role in dysregulating the coagulation system highlights its potential as a direct mediator of vascular pathologies (13). Persistent spike protein expression in tissues has been identified as a potential factor in the prolonged symptoms of Long COVID. Studies have shown that in some individuals, the spike protein may remain detectable in certain tissues long after the resolution of acute infection (14). This prolonged presence is hypothesized to sustain inflammation and immune activation, contributing to the chronic nature of Long COVID (15).

Furthermore, the spike protein's interaction with neuropilin-1 and other neural receptors has raised concerns about its neurotropic properties (16). Clinical manifestations such as anosmia, dysgeusia, and neurological dysfunctions observed in COVID-19 and Long COVID patients could be partly attributed to these interactions (17). Neuroinflammation and microvascular changes induced by the spike protein may also contribute to the cognitive impairments often referred to as "brain fog" in Long COVID (18). Understanding the injurious mechanisms of the spike protein is essential for devising targeted therapies and preventive measures. Current research efforts are focused on mitigating its pathogenic effects, such as the development of therapeutics that neutralize the spike protein or modulate its interactions with host receptors (19). Future studies should aim to elucidate the long-term implications of spike protein persistence and its role in chronic post-viral syndromes (20). Long COVID is a multifaceted condition characterized by persistent symptoms following acute COVID-19 infection. Patient X, unvaccinated against COVID-19, experienced mild neurological symptoms, particularly concentration difficulties, two years post-infection. Conventional multimodal therapies alleviate his symptoms but could not significantly reduce the level of the spike protein in his peripheral blood mononuclear cells (PBMCs). Vedicinals<sup>®</sup> was introduced as a novel therapeutic approach, and its impact on Patient X's condition is described below.

## **B- Cases Presented**

### **B1- Patient -X**

Patient X, a 43-year-old male, was diagnosed with COVID-19 in 2022. Despite recovering from the acute phase of the infection, he continued to experience persistent symptoms, including concentration difficulties. He remained unvaccinated and reported no history of severe re-infections. Laboratory evaluations revealed abnormally high levels of spike protein within peripheral blood mononuclear cells (PBMCs) (188 pg/ $2.5 \times 10^6$  cells). Despite undergoing various multimodal therapies, including therapeutic apheresis, no significant improvement in spike protein levels in PBMCs was observed.

In July 2024, Patient X began a treatment regimen with Vedicinals®9, a Liquid Spectrum formulation. The initial prescribed dosage was 25 ml, taken orally once daily. Over the course of seven weeks, substantial clinical and laboratory improvements were documented. By September 2024, after eight weeks of therapy, the intracellular spike protein levels in PBMCs had reduced by 90% to 17.28 pg/2.5 × 10<sup>6</sup> cells (Figure 1-A). After this blood sample was taken, the patient had another therapeutic apheresis and increased afterwards the dose of Vedicinals®9 to 25ml twice a day. The therapeutic effects continued, and by end of October 2024, the levels had further decreased to 5.18 p g/2.5 × 10<sup>6</sup> cells (Figure 1 -B).

<b>Patient -X</b>	
22.07.2024	
↓	
Spikeprotein in Plasma/Serum	NEGATIV
Spikeprotein in Exosomen	NEGATIV
Spikeprotein in Immunzellen (PBMC)	POSITIV 188,04 pg/2,5x10 <sup>6</sup> Zellen
LINE-1 in Immunzellen (PBMC)	NEGATIV
SARS-Cov-2 RNA in Immunzellen (PBMC) (Persistenz)	NEGATIV
A	24.09.2024
↓	
Spikeprotein in Plasma/Serum	NEGATIV
Spikeprotein in Exosomen	NEGATIV
Spikeprotein in Immunzellen (PBMC)	POSITIV 17,28 pg/2,5x10 <sup>6</sup> Zellen
B	30.10.2024
↓	
Spikeprotein in Plasma/Serum	NEGATIV
Spikeprotein in Exosomen	NEGATIV
Spikeprotein in Immunzellen (PBMC)	POSITIV 5,18 pg/2,5x10 <sup>6</sup> Zellen

**Figure 1** Shows values of Spike protein in PBMC in July 2024 (Top panel) compared to the reduced observed in subsequent months (A-September, B-October 2024) after treatment with a formulation composed of nutraceutical known as Vedicinals®9.

Notably, the patient's neurological symptoms, particularly his ability to concentrate, showed marked improvement. By November 2024, sustained benefits were observed with continued Vedicinals®9 therapy.

### **Timeline of Improvements:**

July 2024: Baseline spike protein level in PBMCs recorded as  $188 \text{ pg}/2.5 \times 10^6 \text{ cells}$ .

September 2024 (7 weeks post-therapy): Spike protein level reduced to  $17.28 \text{ pg}/2.5 \times 10^6 \text{ cells}$  (90% reduction). As expected, the parallel therapeutic apheresis showed no effect on PBMC spike protein levels.

October 2024 (12 weeks post-therapy): Spike protein level further reduced to  $5.18 \text{ pg}/2.5 \times 10^6 \text{ cells}$ . Neurological symptoms significantly improved, with restored concentration abilities.

November 2024: Continued Vedicinals®9 therapy led to sustained improvements in symptoms

### **B2- Case Report: Patient Y**

Patient Y, a 41-year-old female, presented with persistent symptoms of fatigue, exercise intolerance, and insomnia. Her physical capacity has been significantly diminished post-COVID-19, which she contracted despite being vaccinated twice. Her main symptoms include waking up at 2 a.m., exercise-induced fatigue, and a fluctuating condition despite various therapies such as hyperbaric oxygen therapy. She has been on antidepressants since 2017.

Prior to initiating therapy with Vedicinals-9, laboratory tests conducted in October 2024 revealed elevated levels of spike protein in exosomes ( $228.82 \text{ pg/ml}$ ) and elevated microthrombi (flow cytometry). However, spike protein levels in plasma and PBMCs were not detected at that time. She began taking Vedicinals-9 supplements on December 1, 2024, with a dosage of half a bottle a day and subsequently underwent her first therapeutic apheresis treatment on December 10, 2024. Despite work-related stress and frequent travel, slight improvements have been observed. Treatment with Vedicinals-9 is still ongoing.

### **Treatment and Laboratory Findings**

Patient Y began therapy with Vedicinals-9 (Liquid Spectrum formulation), taking the supplement daily starting on December 1, 2024. Prior to initiating therapeutic apheresis, another round of MMD tests was performed. These tests, conducted on December 10, 2024, demonstrated reduced spike protein levels in

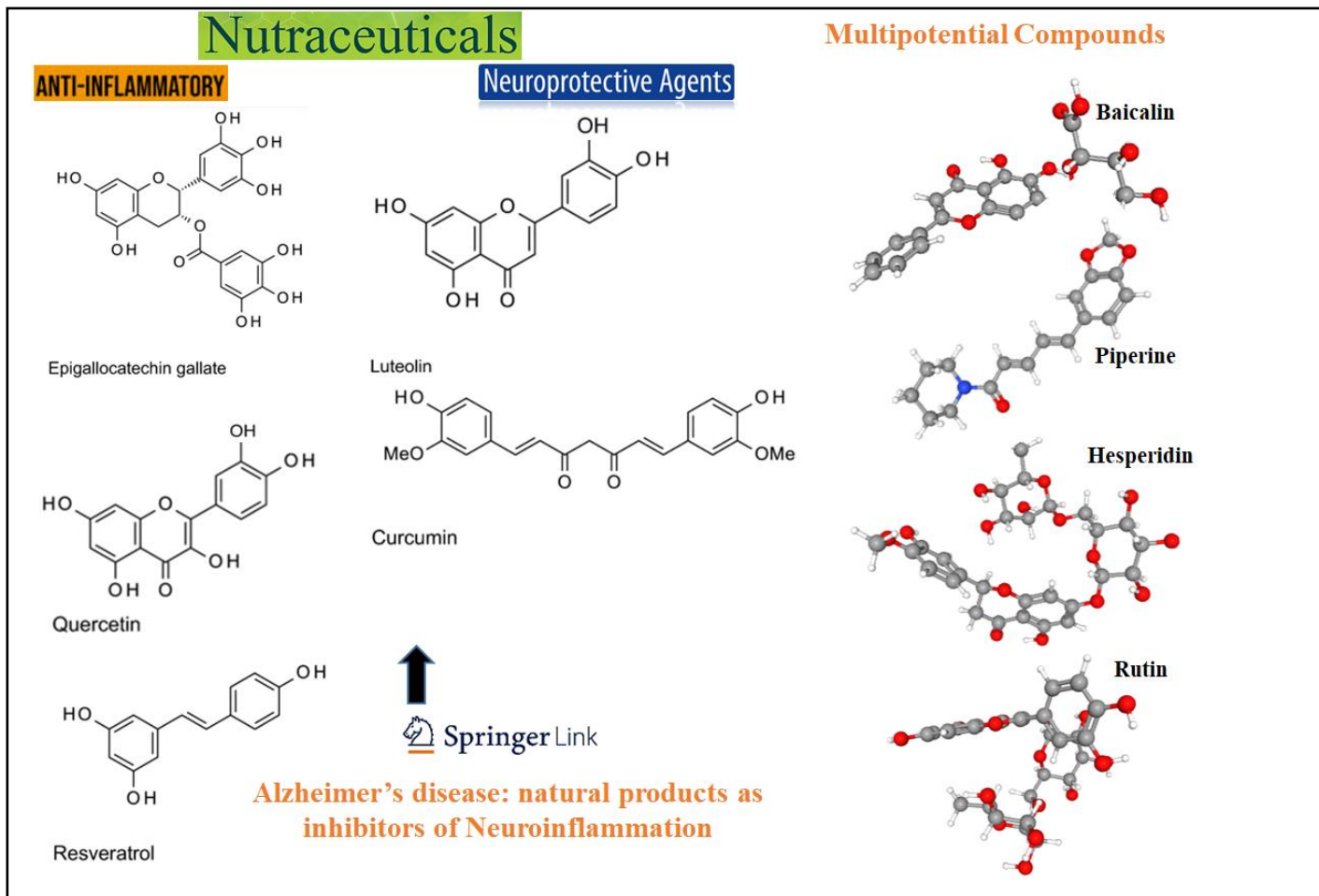
exosomes (14.25 pg/ml) and detectable spike protein levels in PBMCs (9.80 pg/2.5 × 10<sup>6</sup> cells). Plasma spike protein levels remained negative.

**Timeline of Findings and Interventions:**

October 2024 (Baseline): Spike protein levels in exosomes were 228.82 pg/ml. Spike protein was undetectable in plasma and PBMCs. Microthrombi were elevated. December 1, 2024: Initiation of Vedicinals-9 therapy. December 11, 2024: Spike protein levels in exosomes decreased (Figure-2) to 14.25 pg/ml (94% reduction). Spike protein levels in PBMCs were newly detected at 9.80 pg/2.5 × 10<sup>6</sup> cells.

<b>Patient -Y</b>	
Examination material: Blood	
Quantitative detection of spike protein in plasma/serum, quantitative detection of spike protein in exosomes, quantitative detection of spike protein in immune cells (PBMC)	
<b>A</b>	
30.10.2024	
Spikeprotein in Plasma/Serum	NEGATIV
Spikeprotein in Exosomen	POSITIV 228,82 pg/ml
Spikeprotein in Immunzellen (PBMC)	NEGATIV
Examination material: Blood	
<b>B</b>	
11.12.2024	
Spikeprotein in Plasma/Serum	NEGATIV
Spikeprotein in Exosomen	POSITIV 14,25 pg/ml
Spikeprotein in Immunzellen (PBMC)	POSITIV 9,80 pg/2,5x10 <sup>6</sup> Zellen
Quantitative detection of spike protein in plasma/serum, quantitative detection of spike protein in exosomes, quantitative detection of spike protein in immune cells (PBMC)	

**Figure 2** Shows values of Spike protein in PBMC in July 2024 (A) compared to the reduction observed in subsequent months (B) after treatment with a formulation composed of nutraceutical known as Vedicinals®9.



**Figure-3.** Shown are the names and structures of various natural products that constitute the formulation Vedicinals®9. It is comprised of a well-balanced and fine-tuned combination of above mentioned molecules in form of a oversaturated suspension which has undergone 4 years of constant improvement processes, especially regarding bioavailability and membrane penetration potential, due to which it has attained the potential to achieve these outstanding results in vivo.

### C- Discussion

The case of Patient X highlights the therapeutic potential of Vedicinals®9 in addressing persistent spike protein-associated pathologies observed in Long COVID. Persistent spike protein expression has been implicated in chronic inflammation, immune dysregulation, and endothelial damage, which are central to the pathology of Long COVID (11). Conventional therapeutic modalities have shown limited efficacy in reducing intracellular spike protein levels or resolving endothelial dysfunction in Long COVID patients (12). The diverse actions of the components present in Vedicinals®9 (Figure-3) appear to be the basis of its effects seen in the cases detailed here.

In this case of the Patient X, the introduction of Vedicinals®9 resulted in a remarkable reduction in intracellular spike protein levels within seven weeks, decreasing from 188 pg/ $2.5 \times 10^6$  cells to 17.28 pg/ $2.5 \times 10^6$  cells—a 90% reduction (13). This was accompanied by significant improvements in neurological symptoms, particularly concentration difficulties. These findings align with recent studies that have highlighted the potential of bioactive natural compounds in mitigating viral protein persistence and reducing inflammatory markers (14). The sustained reduction of intracellular spike protein levels to 5.18 pg/ $2.5 \times 10^6$  cells after 12 weeks suggests that Vedicinals®9 may provide further long-term benefits (8).

Improvement in both patients underscores the likely multifactorial mechanism of action of Vedicinals®9. One hypothesis is that the formulation facilitates intracellular degradation or clearance of the spike protein through enhanced autophagy or proteasomal pathways. Experimental models have previously demonstrated that enhancing these cellular clearance mechanisms can ameliorate spike protein-induced cytotoxicity and inflammation (16). Another plausible mechanism involves the attenuation of endothelial dysfunction. Vedicinals®9 appears to have resolved microthrombi, as evidenced by microscopic evaluations, without the use of conventional anticoagulants. This outcome may be related to the anti-inflammatory and anti-thrombotic properties of the natural compounds within the formulation (17).

Additionally, prior research has shown the links between spike protein persistence to sustained endothelial damage and platelet activation (18). By mitigating these vascular effects, the tested formulation not only improves laboratory parameters but also restored functional outcomes, such as cognitive performance, in Long COVID patients. This suggests that addressing endothelial and immune dysregulation through natural formulations could be a promising therapeutic strategy for post-viral syndromes (10).

The clinical relevance of these findings is further reinforced by symptomatic improvements observed in both patients. Within seven weeks of therapy, the patient X reported significantly improved concentration abilities, a common yet debilitating symptom of Long COVID. These improvements were maintained and even enhanced at 12 weeks, with continued use of Vedicinals®9 (20). Such outcomes highlight the potential of targeting intracellular spike protein as a cornerstone of Long COVID management.

The use of Vedicinals-9 demonstrated a remarkable reduction in spike protein levels in exosomes, with a 94% decrease within six weeks of treatment initiation. While spike protein levels in PBMCs were initially undetectable in October, they were observed in December 2024. This could indicate an intracellular response to ongoing treatment or an enhanced detection threshold post-therapy.

Patient Y continued to experience slight improvements in her symptoms, including reduced fatigue and insomnia. The fluctuating nature of her condition can be attributed to ongoing work-related stress and frequent travel, which complicates consistent treatment outcomes. The treatment with Vedicinals®9 is therefore continued.

Despite these challenges, the reduction in spike protein levels and improved symptomatology underscore the potential of Vedicinals-9 in managing post-COVID-19 complications. The resolution of elevated exosome spike protein levels aligns with findings from cases mentioned here, reinforcing the therapeutic efficacy of this natural product formulation.

Despite these promising results, there are limitations to this report. The findings are based on two patients and cannot be generalized to the broader Long COVID population without further clinical studies. Additionally, while the reduction in intracellular spike protein levels is encouraging, the precise mechanisms through which Vedicinals®9 achieves these effects remain to be elucidated. Future research should focus on controlled clinical trials to validate these findings and uncover the molecular pathways involved in the observed benefits as seen in therapeutic apheresis (21).

#### **D. Conclusion**

This case highlights the successful use of Vedicinals®9 composed of combination of natural compounds (Figure 3) in managing Long COVID. The synergistic actions of these compounds (22) acting in concert in appropriate doses is pivotal to the effects detailed above. The therapy effectively reduced spike protein levels in PBMCs (Table-1) and exosomes and resolved microthrombi, leading to marked symptomatic improvement. Future clinical trials are warranted to validate these findings and explore the broader applicability of nutraceuticals in COVID-19 and possibly Long-COVID.

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**Table 1:**

Improvements in Spike Protein Levels in PBMCs after Vedicinals® Treatment

Sample Date	Spike Protein (pg/ $2.5 \times 10^6$ cells)	Reduction (%)
○ July 2024	188.04	Baseline
○ September 2024	17.28	90%
○ October 2024	5.18	97%