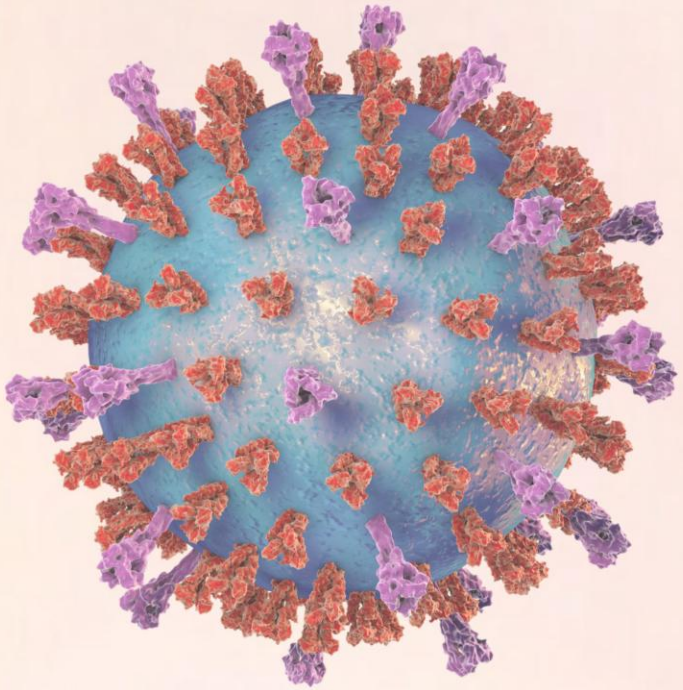
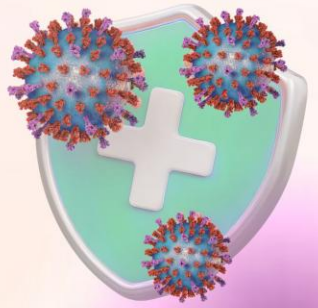


Understanding the Impact of SARS-CoV-2 Spike Protein



Spike Persistence & its Ongoing Impacts

Joachim Gerlach is a leading figure in natural medicine, dedicated to developing innovative, research-driven products that enhance immune health and overall well-being.

Chanté Senatre is the Chief Science Officer at Vedicinals, where she plays a key role in guiding the strategic direction and development of innovative health solutions.

health care channel

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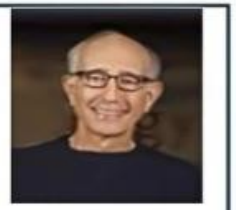
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FLORIAN SCHILLING ND


RACHEL JESSEY MSc


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DR.ROBIN ROSE


DR.URSULA EHRHORN


CHANTE SENATRE


JOACHIM GERLACH

The Problem

We are seeing a significant increase in health issues and a significant decrease in healthy immune systems

Review Article | Published: 09 August 2024

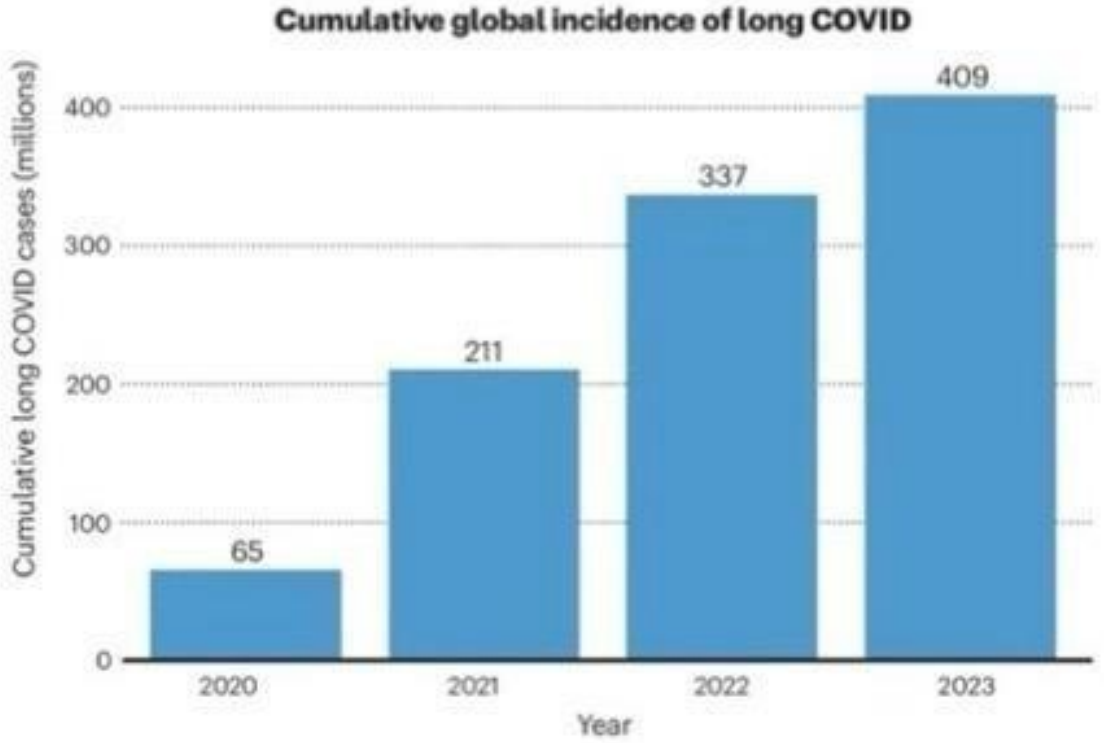
Long COVID science, research and policy

Ziyad Al-Aly, Hannah Davis, ... Eric J. Topol

The cumulative global incidence of long COVID is around 400 million individuals, which is estimated to have an annual economic impact of approximately $1 trillion—equivalent to about 1% of the global economy. Several mechanistic pathways are implicated in long COVID, including viral persistence, immune dysregulation, mitochondrial dysfunction, complement dysregulation, endothelial inflammation and microbiome dysbiosis.

https://www.nature.com/articles/s41591-024-03173-6

Fig. 2: Estimated global cumulative incidence of long COVID.

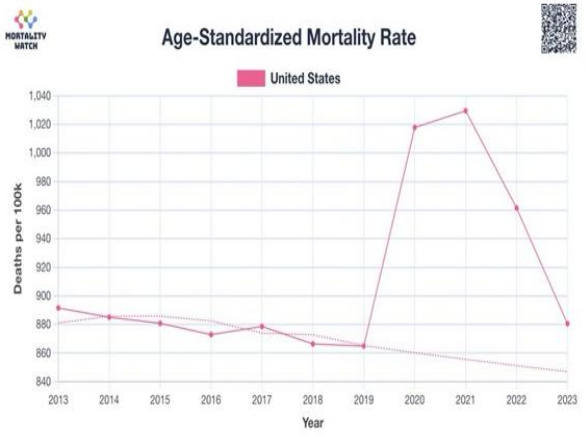


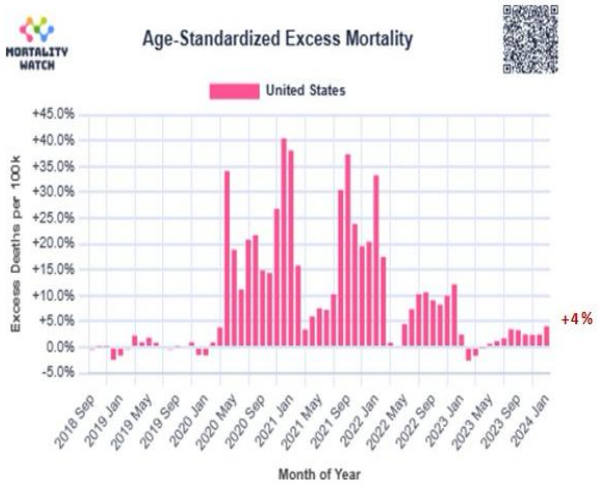
The Surge in Catastrophic Mortality: Alarming Trends

What does the FDA see? Post-COVID excess mortality

U.S. mortality remained elevated in 2023

With 2024 still running above pre-COVID levels



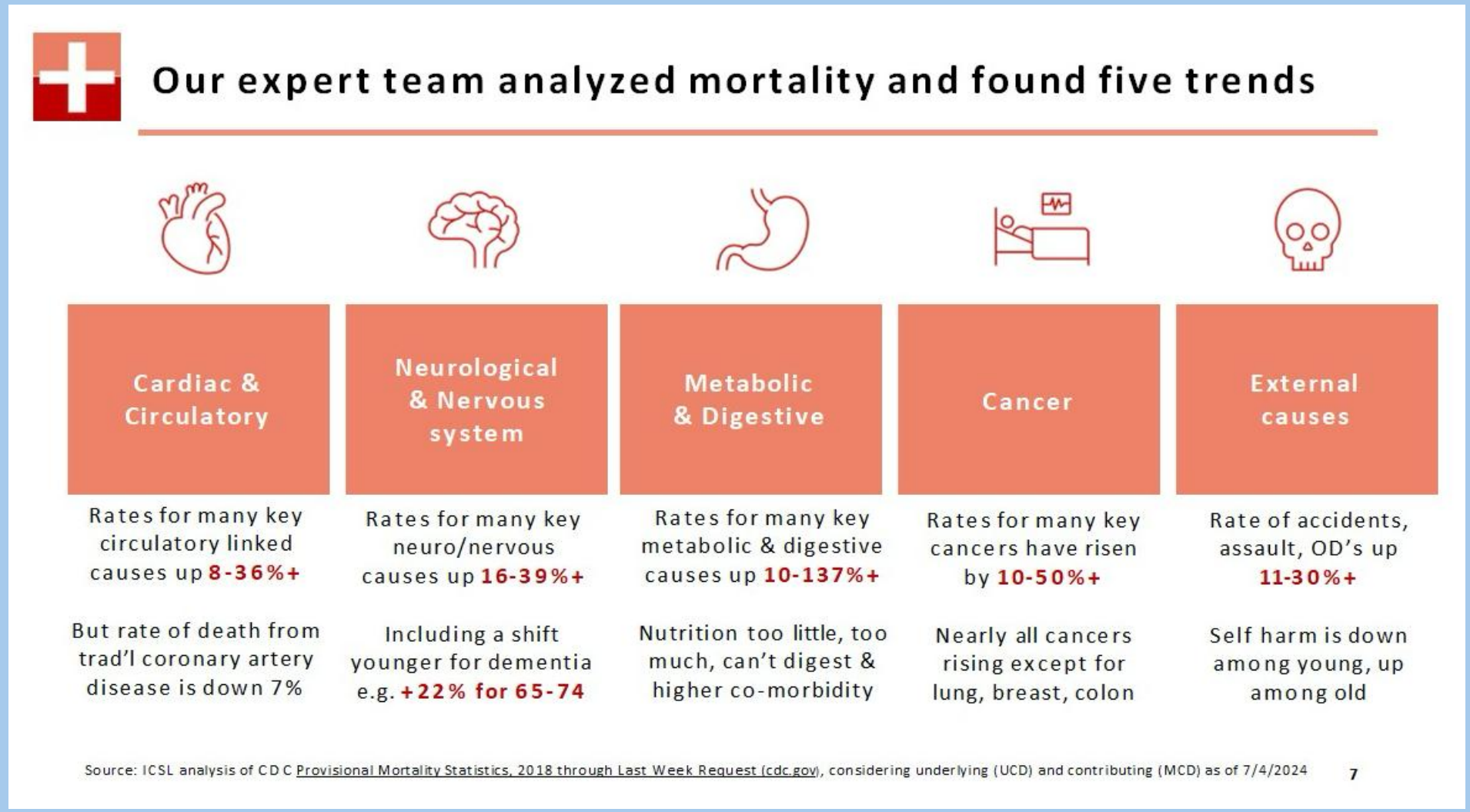


Source: CDC Data, Human Mortality Database, charts from https://www.usmortality.com/

The FDA has sounded an alarm on "catastrophic" mortality

Dr. Robert M. Califf is the Commissioner of the U.S. Food and Drug Administration

Rising Health Issues Across Age Groups



We're observing an increase in circulatory issues, a rise in early-onset dementia among younger individuals, growing digestive problems, a surge in cancer cases, and a concerning rise in self-harm among older adults.

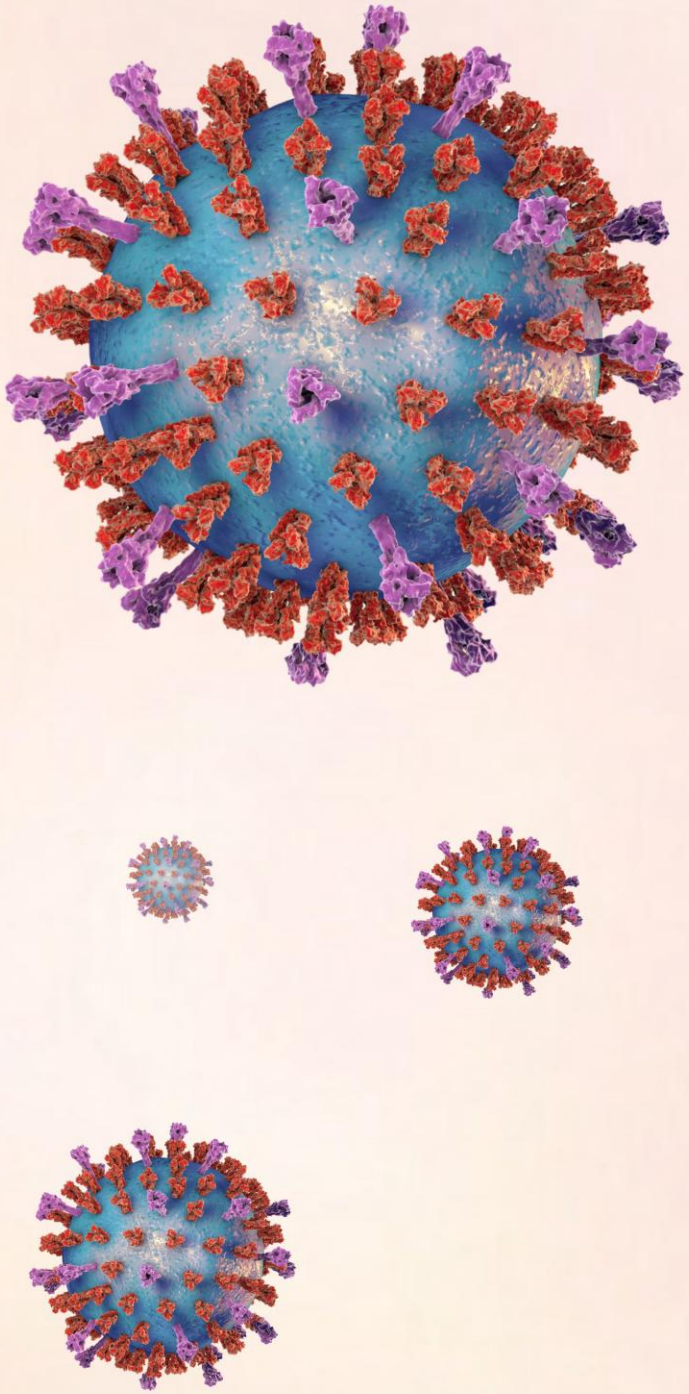
The Cause...

Spike Infiltration

&

Spike Persistence

1. Neurological: Cognitive issues and fatigue
2. Cancer: Potential risk of tumor growth
3. Cardiac: Damage to heart muscle
4. Metabolic: Disruption of glucose levels
5. Autoimmune: Triggering of harmful immune reactions

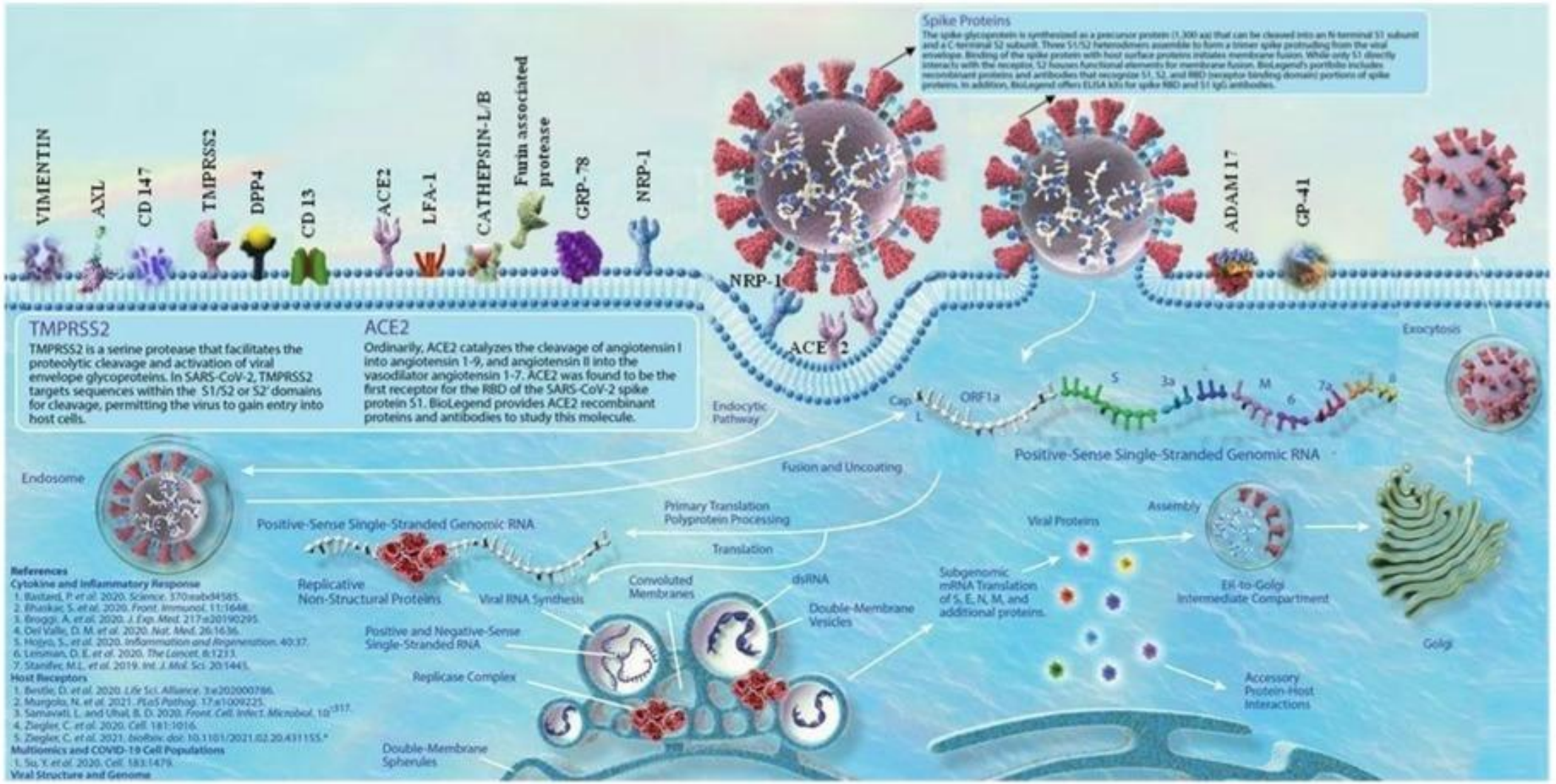


Let’s start with…

What is Spike?

- The Spike Protein is a structure on the surface of the SARS-CoV-2 virus, which causes COVID-19. It is a key component that allows the virus to enter and infect human cells. The Spike Protein binds to the angiotensin-converting enzyme 2 (ACE2) receptor and many others on the surface of a cell, facilitating the virus’s entry. The persistence of the Spike Protein in the body has been associated with Long COVID, with individuals experiencing ongoing symptoms well after the acute phase of the infection.
- The Spike protein, especially from viruses like SARS-CoV-2, affects the body by binding to ACE2 receptors, allowing viral entry and triggering immune responses. This can lead to **inflammation**, **blood clotting**, and **vascular damage**. It impacts multiple systems, including the **cardiovascular system** (causing heart issues and blood vessel problems) and the **nervous system** (leading to **neurological symptoms** like brain fog and cognitive impairments).

Host cell receptors for Sars-CoV-2



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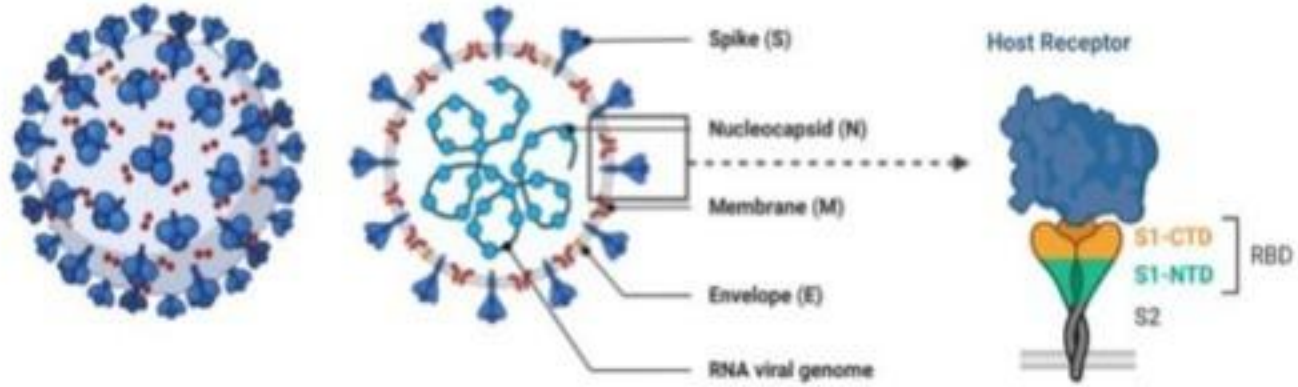
5. Ziegler, C. *et al.* 2021. *bioRxiv.* doi: 10.1101/2021.02.20.431155.*
Multiomics and COVID-19 Cell Populations
1. Su, Y. *et al.* 2020. *Cell.* 183:1479.
Viral Structure and Genome

health care channel

The misconception of „ FREE FLOATING VIRUS OR SPIKE“

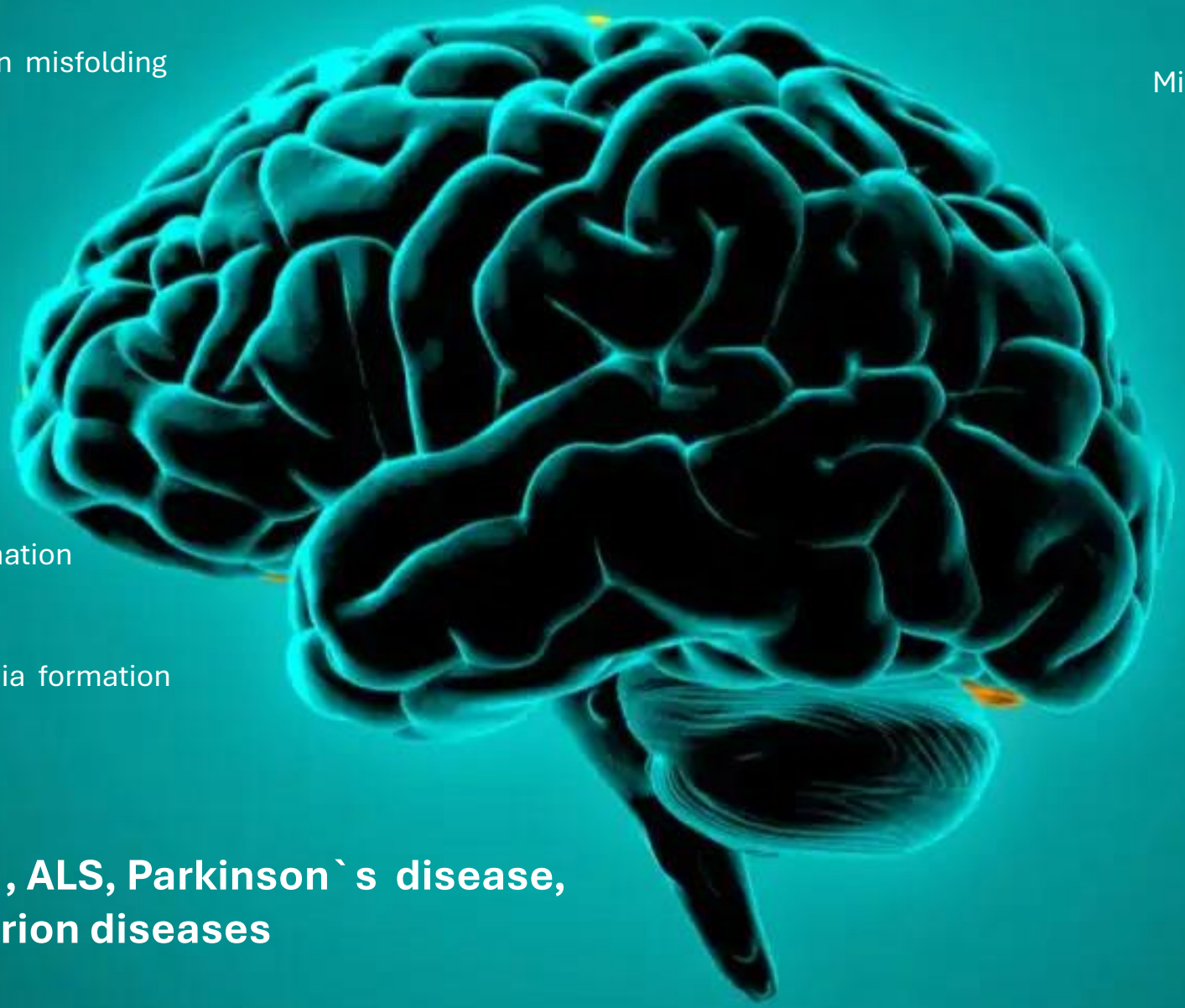


BURDOCK

„SPIKES“

1. Neurological: Cognitive Issues and Fatigue

Inside the “pressure cooker”



Prionprotein misfolding

Amyloid-beta

Tau proteins

α-Synuclein

TDP 43

Lewy-Body Formation

Filopodia formation

Microgliosis

Astrogliosis

Syncytia formation

Senescence

Demyelination

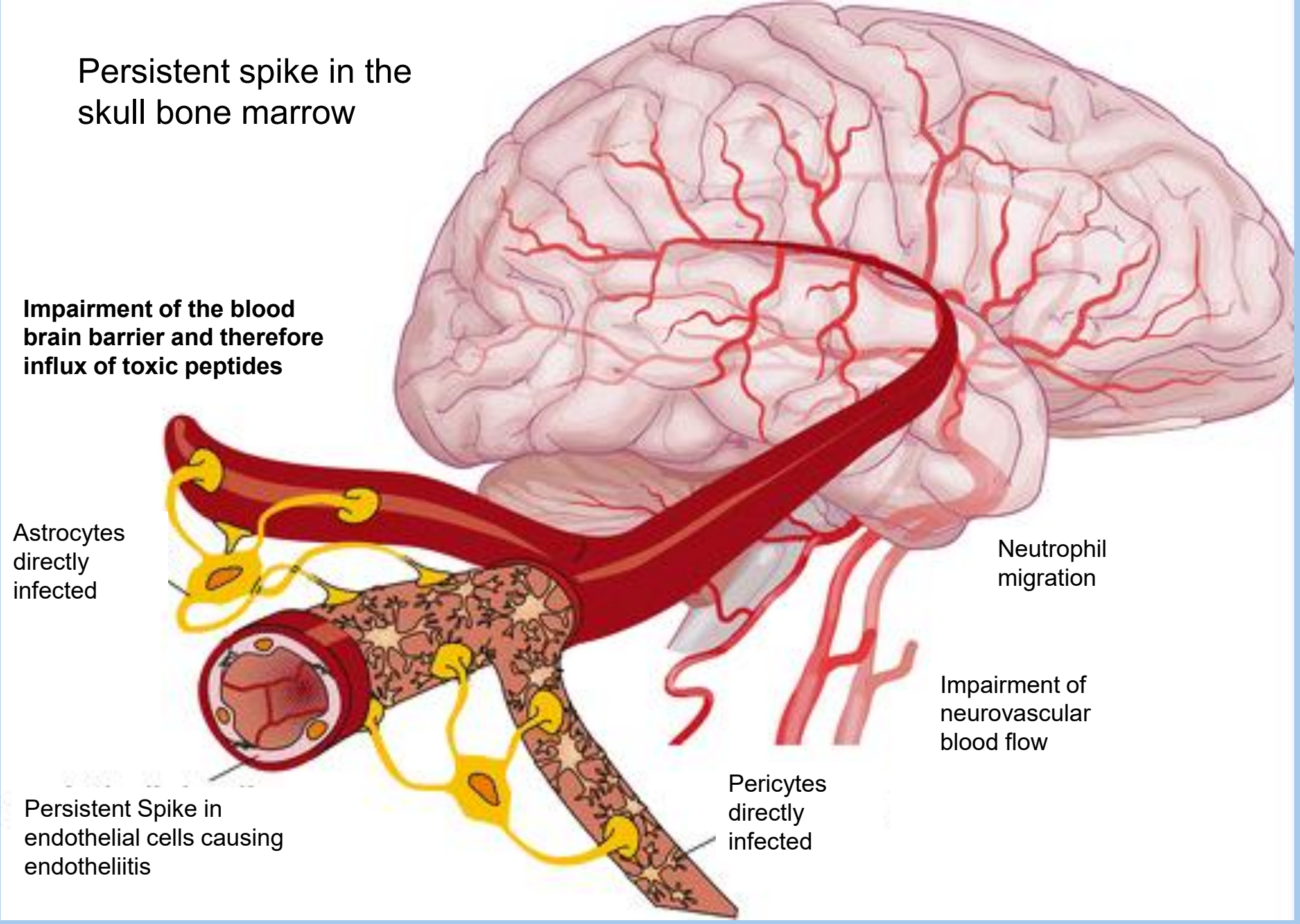
Ferroptosis

Dopaminergic Neurons

Mitochondrial dysfunction

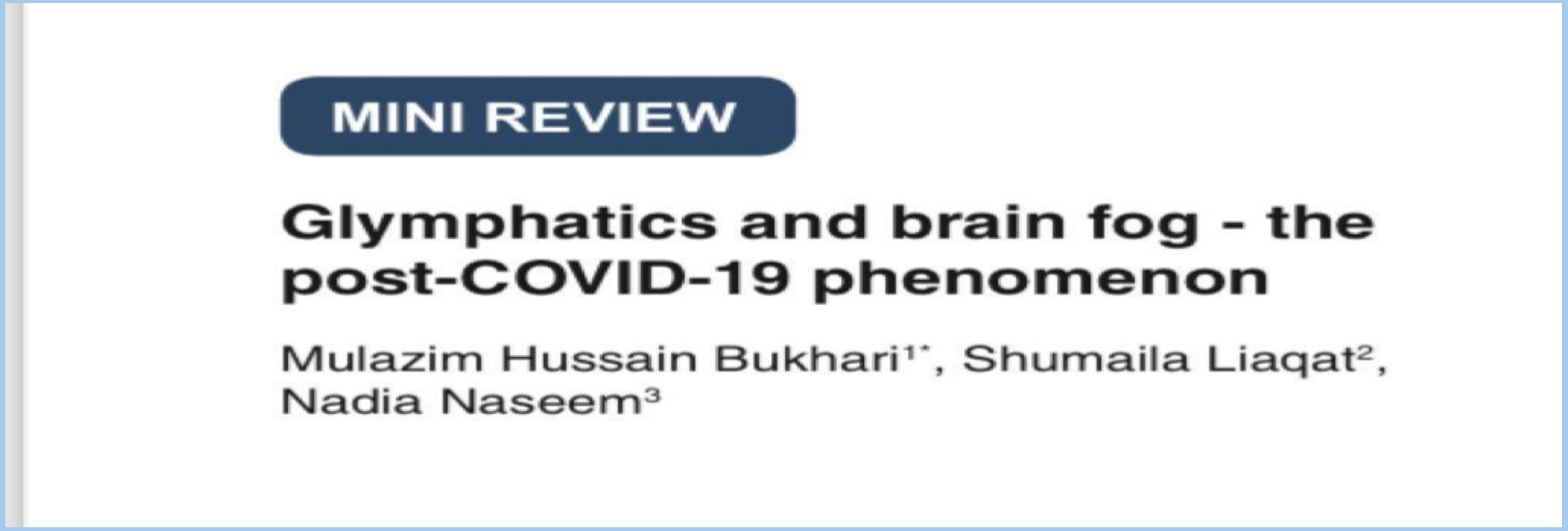
Alzheimer‘s disease , ALS, Parkinson`s disease, Multiple Sklerosis , Prion diseases

Persistent spike in the skull bone marrow



Brain periphery forming a “pressure cooker” by blocking glymphatic cleansing

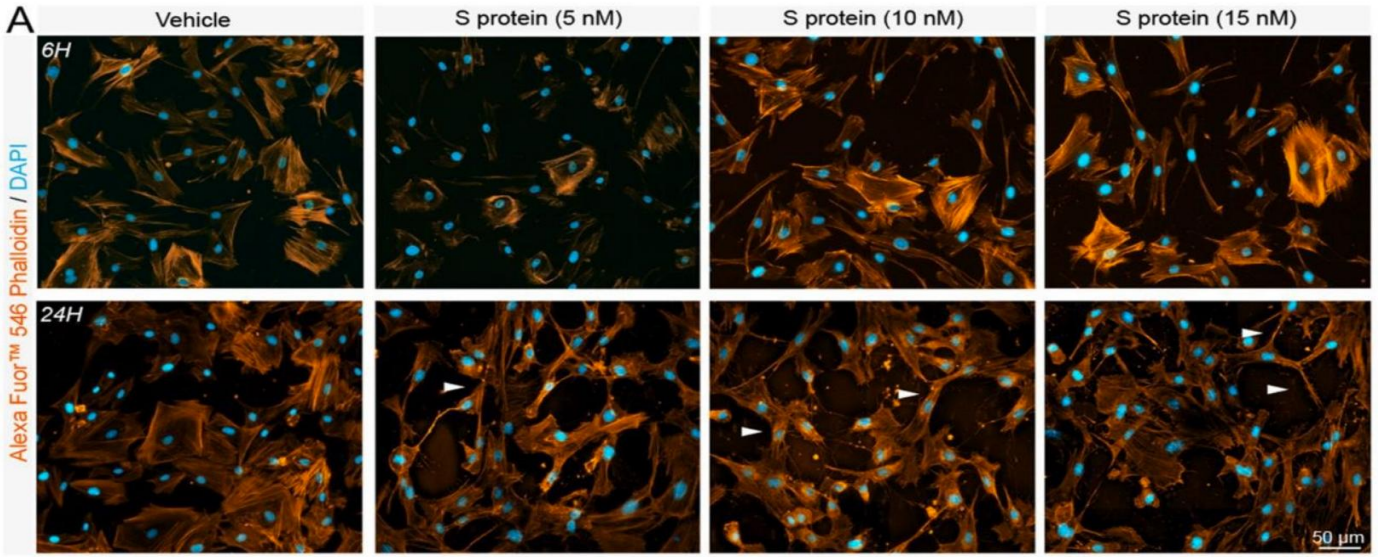
Malfunctioning of glymphatic drainage; a network of lymphatic vessels that clear waste from the central nervous system (CNS), mostly during sleep. This results in the abnormal accumulation of fluid, waste products, and inflammatory cytokines in the brain parenchyma, leading to nervous system symptoms like fatigue, depression, myalgias, anosmia, and in particular, brain fog.2


MINI REVIEW

Glymphatics and brain fog - the post-COVID-19 phenomenon

Mulazim Hussain Bukhari[1*], Shumaila Liaqat[2], Nadia Naseem[3]

Neurological Decline: Rising Disorders and Cognitive Impairments



Pericytes exhibit contractile phenotype upon S protein exposure. A) Representative images of F-actin staining using Alexa Fluor®546 phalloidin shows that the morphology of human brain vascular pericytes is disrupted (white arrowheads) upon exposure to S protein for 6 h and 24 h.

https://www.sciencedirect.com/science/article/pii/S0969961121003107

SARS-CoV-2 deregulates the vascular and immune functions of brain pericytes via Spike protein

Rayan Khaddaj-Mallat [a c], Natija Aldib [a b c], Maxime Bernard [a c], Anne-Sophie Paquette [a c], Aymeric Ferreira [b d], Sarah Lecordier [a c], Armen Saghatelyan [b c], Louis Flamand [a e], Ayman ElAli [a c]

TMPRSS2, transmembrane protease serine 2 enzyme; VWF, von Willebrand factor; WBC, white blood cell.

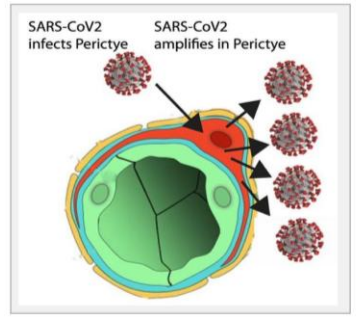
Figure depicts SARS-CoV-2 spreading through blood vessels (green) to infect pericytes (red), which amplify infection and can spread infection to other cell types in the brain.

3D "assembloid" shows how SARS-CoV-2 infects brain cells

Peer-Reviewed Publication

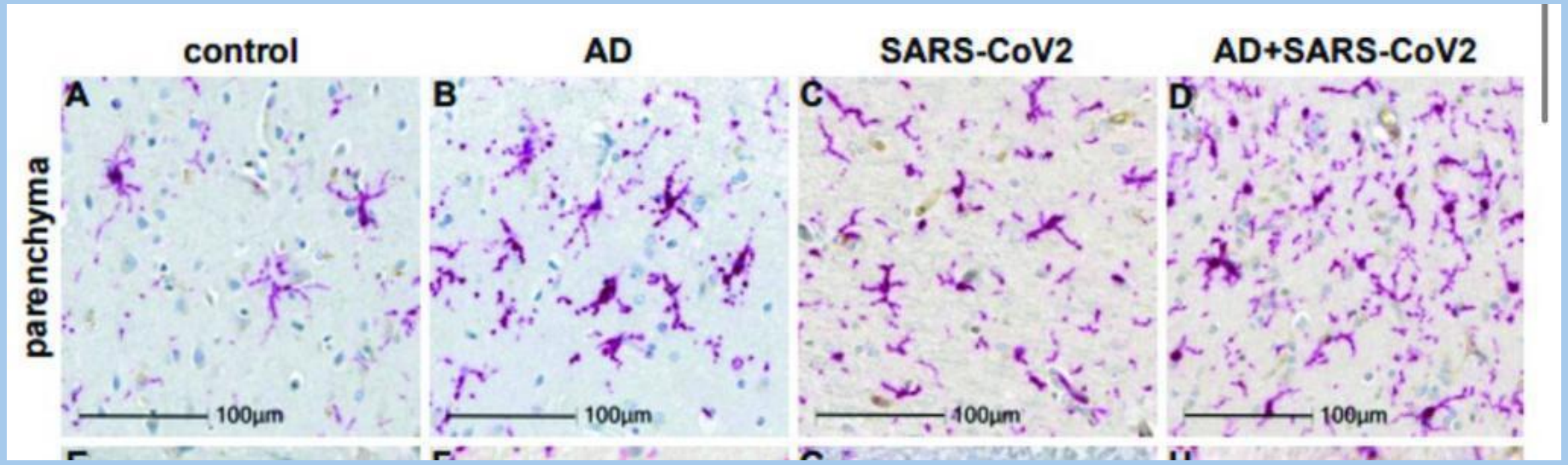
UNIVERSITY OF CALIFORNIA - SAN DIEGO

2. ***Viral Replication***: Studies indicate that pericytes can sustain viral replication, peaking around 2 to 3 days post-inoculation. Approximately 40% of pericytes were found to be infected within the first day[1].



SARS-CoV-2 deregulates the vascular and immune

SARS-CoV-2 generates a similar neuroinflammatory environment in neurodegenerative disorders like AD.



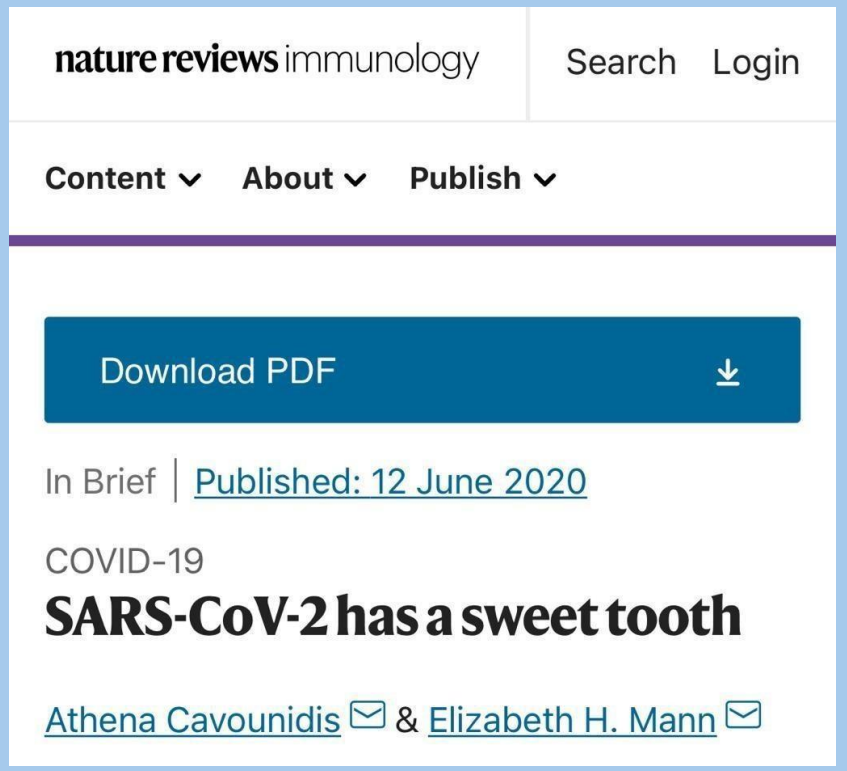
Microgliosis and nodular lesions in neurological controls, SARS-CoV-2, Alzheimer's disease (AD), and SARS-CoV-2-infected AD individuals. Level of microglial activation.

2. Cancer: Potential Risk of Tumor Growth

Connecting p53, Sars-CoV-2 and Glycolysis (Warburg effect)

- The Warburg effect (or aerobic glycolysis) is the best-characterized metabolic change in tumour cells
- The transition to aerobic glycolysis in

SARS-CoV-2-infected monocytes facilitated viral replication….



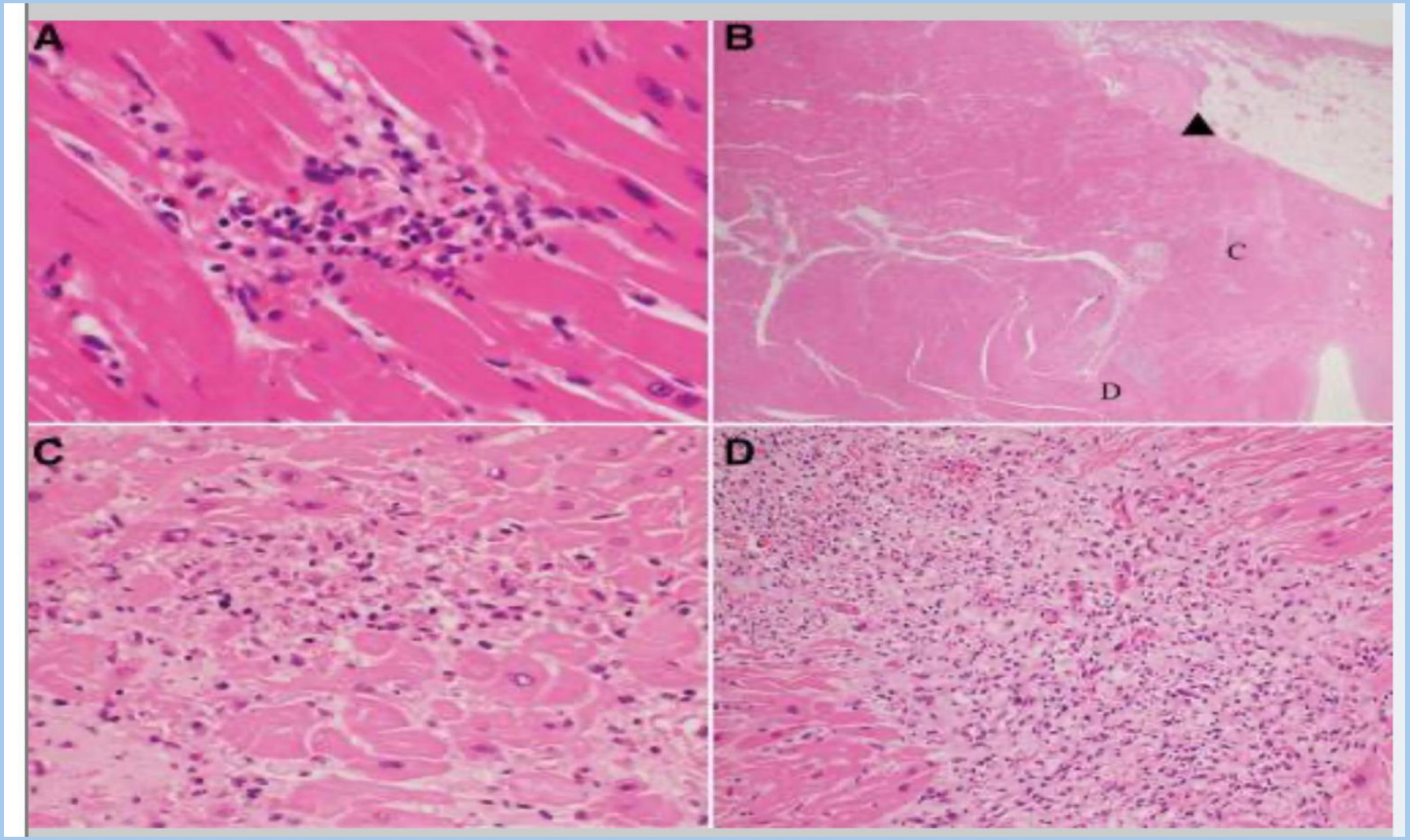
https://www.nature.com/articles/ncomms3935

https://www.nature.com/articles/s41577-020-0368-4

3. Cardiac: Damage to Heart Muscle

Myocarditis and Myocardial arrest after exposure to Spike proteins is one of the most prevalently reported disease expression.

Histology of myocardial inflammation

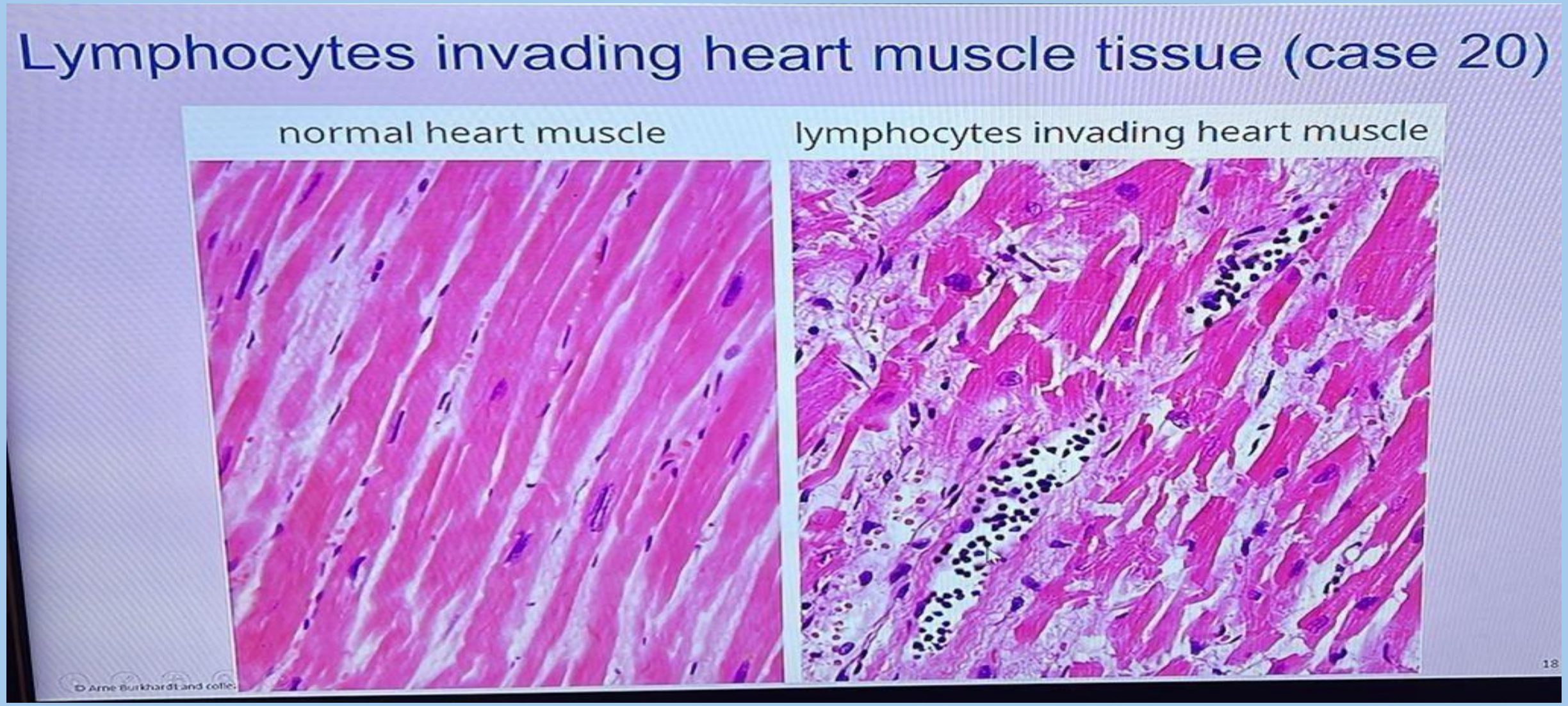


https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10843519/

the most common vaccination associated with myocarditis is COVID-19, which accounts for 87% of the top 10 vaccinations related to postvaccination myocarditis

Laboratory data showed increased white blood cell count 11.9 × 103/μL (reference range, 3.3–8.6), troponin T 1.9 ng/mL (0–0.029), C-reactive protein 1.38 mg/dL (0–0.14), creatinine kinase 692 U/L (59–248), CK-MB 38 ng/mL (0–5), lactate dehydrogenase 1143 U/L (124–222),

Histopathology Results



PROF DR ARNE Burkhard (autopsy report presented at World Council for Health)

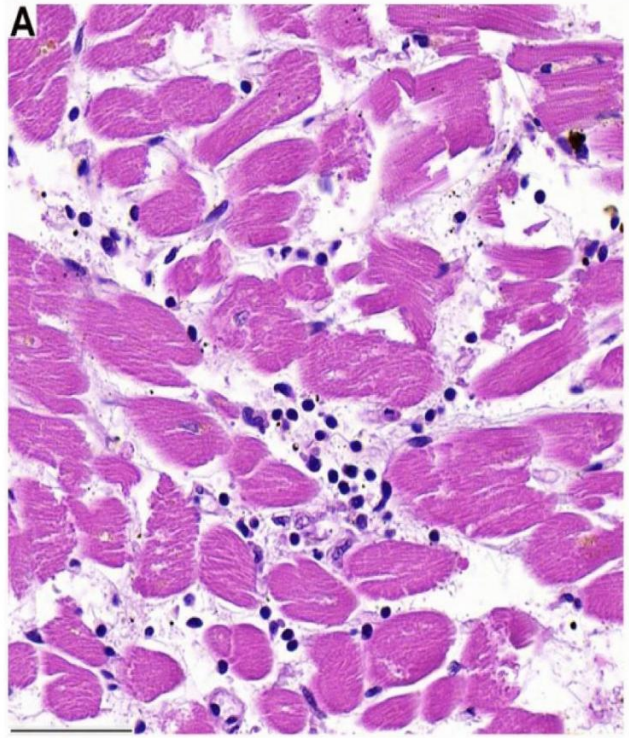
Direct Effects on the Heart: Growing Cardiovascular Concerns

CARDIOVASCULAR & MYOCARDIAL DISEASE Thrombosis, Micro clotting, Endothelialitis, Myocarditis, Myocardial fibrosis, Heart attacks, Strokes, Lung embolism and similar conditions

A) Lymphocytic aggregates in the interventricular septum of case 1 with associated myocardiocyte destruction.

Autopsy-based histopathological characterization of myocarditis after anti-SARS-CoV-2-vaccination

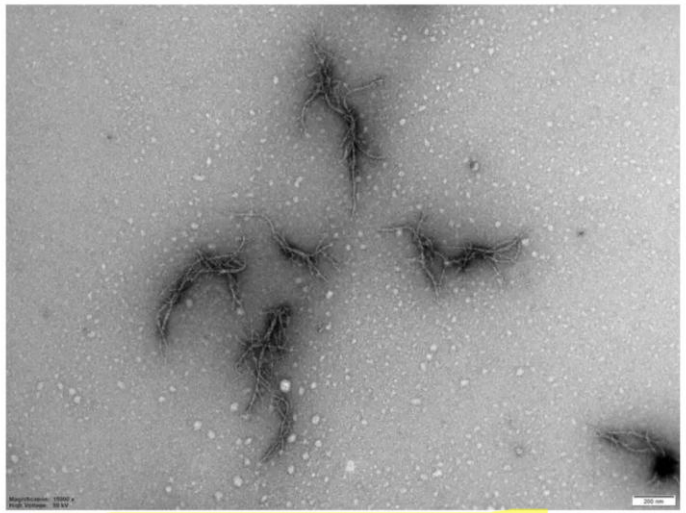
Original Paper | Open Access | Published: 27 November 2022 | 112, 431–440 (2023)



Can AMYLOID FIBERS form MICROCLOTS and RUBBER LIKE CLOTS ?

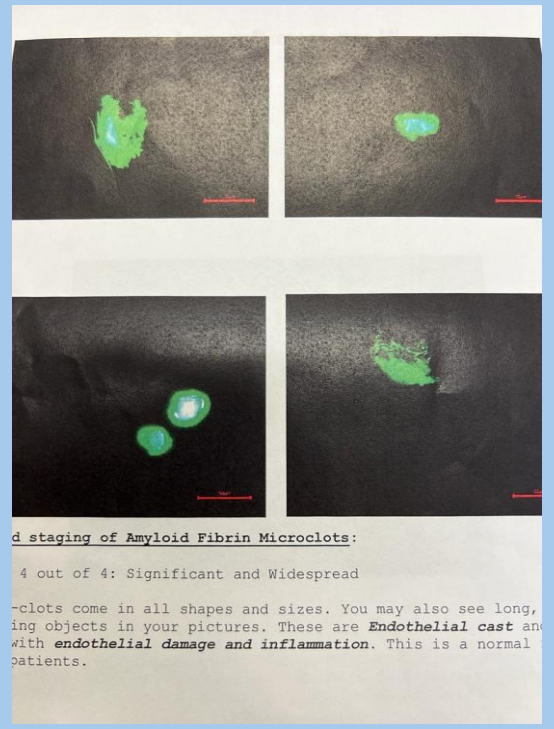
Possible discovery of mechanism behind mysterious COVID-19 symptoms

by Karin Söderlund Leifler , Linköping University



Picture of amyloid from the SARS-CoV-2 virus' spike protein, seen using an electron microscope. When the spike protein is mixed with the enzyme neutrophil elastase in test tubes, branched protein fibrils are created, which potentially can cause disturbed blood coagulation in patients with COVID-19. Credit: Sofie Nyström and Per Hammarström

https://medicalxpress.com/news/2022-05-discovery-mechanism-mysterious-covid-symptoms.html



d staging of Amyloid Fibrin Microclots:

4 out of 4: Significant and Widespread

-clots come in all shapes and sizes. You may also see long, ing objects in your pictures. These are ***Endothelial cast*** an with ***endothelial damage and inflammation***. This is a normal patients.

Blood diagnostics - Fluorescent microscopy

Elevated presence in the majority of patients (severity scale 1-4

in this case: 4 out of 4)

Richard Hirschman

Clot formation in blood sample of a live vaccinated patient with disrupted perfusion

Professor Dr. Arne Burckhardt

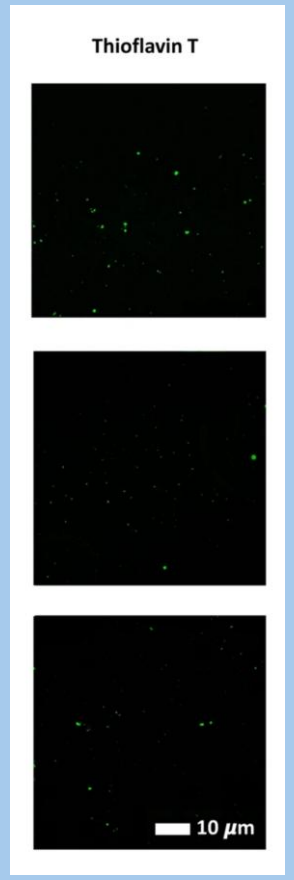
Article | Open access | Published: 28 February 2019

Serum amyloid A binds to fibrin(ogen), promoting fibrin amyloid formation

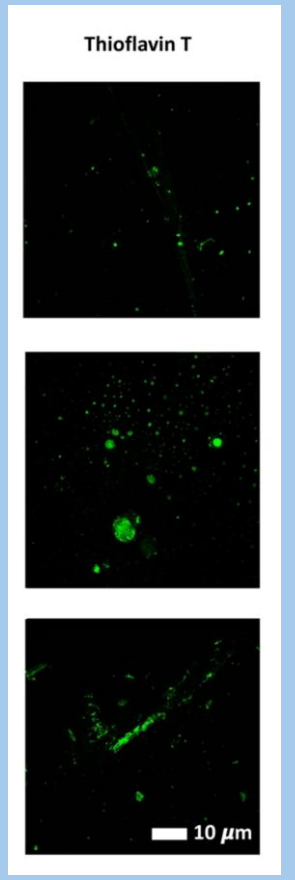
Martin J. Page, Greig J. A. Thomson, ... Etheresia Pretorius + Show authors

THE CALAMARI PROJECT

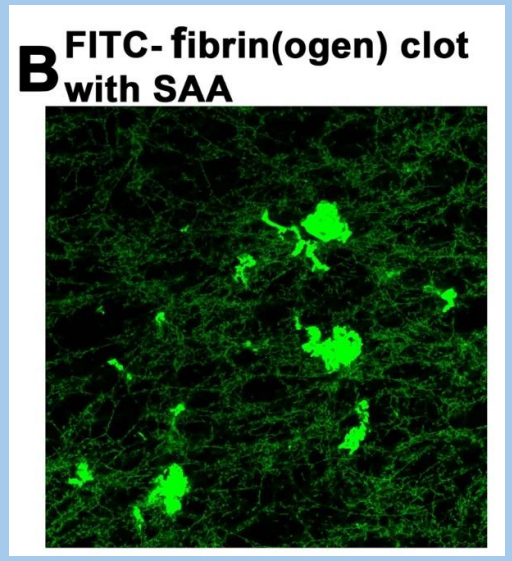
The presence of SAA increased amyloid formation of fibrin(ogen) as determined both with auto-fluorescence and with fluorogenic amyloid markers, under confocal microcopy. SAA also binds to fibrinogen, as determined with a fluorescent-labelled SAA antibody and correlative light electron microscopy (CLEM).

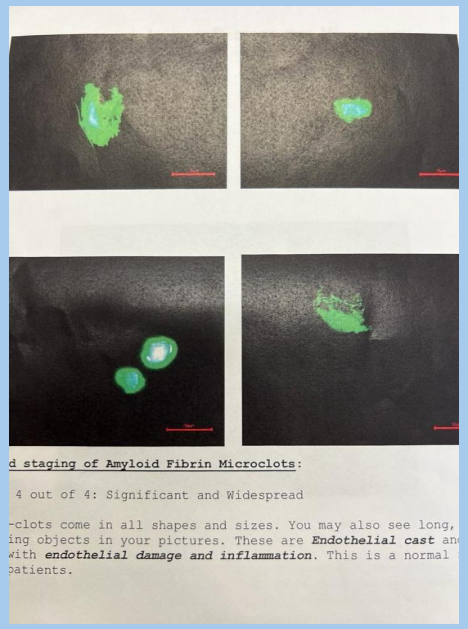


Without SAA



With SAA





These results therefore suggest that circulating SAA might bind to soluble and circulating plasma molecules, such as fibrinogen, and cause structural (amyloidogenic) changes.

https://www.nature.com/articles/s41598-019-39056-x

5. Autoimmune: Triggering of Harmful Immune Reactions

IMMUNODEFICIENCY

Widespread opportunistic infections
and reactivation of retroviruses,
bacterial and fungal infections,
widespread damages to the biome by
Sars-cov2 bacteriophage behavior

Direct Infection of T-Lymphocytes by Sars-CoV-2

This will result in Immunodeficiency

AA nature.com

Signal Transduction and Targeted Therapy | Search | Log in

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Article | Open access | Published: 11 March 2022

ACE2-independent infection of T lymphocytes by SARS-CoV-2

Xu-Rui Shen, Rong Geng, Qian Li, Ying Chen, Shu-Fen Li, Qi Wang, Juan Min, Yong Yang, Bei Li, Ren-Di Jiang, Xi Wang, Xiao-Shuang Zheng, Yan Zhu, Jing-Kun Jia, Xing-Lou Yang, Mei-Qin Liu, Qian-Chun Gong, Yu-Lan Zhang, Zhen-Qiong Guan, Hui-Ling Li, Zhen-Hua Zheng, Zheng-Li Shi, Hui-Lan Zhang, Ke Peng & Peng Zhou — Show fewer authors

A Top Virologist in China, at Center of a Pandemic Storm, Speaks Out

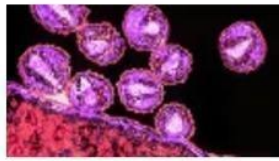
The virologist, Shi Zhengli, said in a rare interview that speculation about her lab in Wuhan was baseless. But China's habitual secrecy makes her claims hard to validate.

Share full article | 118 | Read in app

Shi Zhengli inside a laboratory at the Wuhan Institute of Virology in 2017. Chinatopix, via Associated Press

This paper attempts to unravel the aforesaid immune paradox ef- fects of SARS-CoV-2 on the lymphocytes and discusses appropriate treatment modalities with antiviral drugs and nutraceuticals which could prove virucidal in SARS-CoV-2 seeding monocytes and lymphocytes in patients w

Wiley Online Library



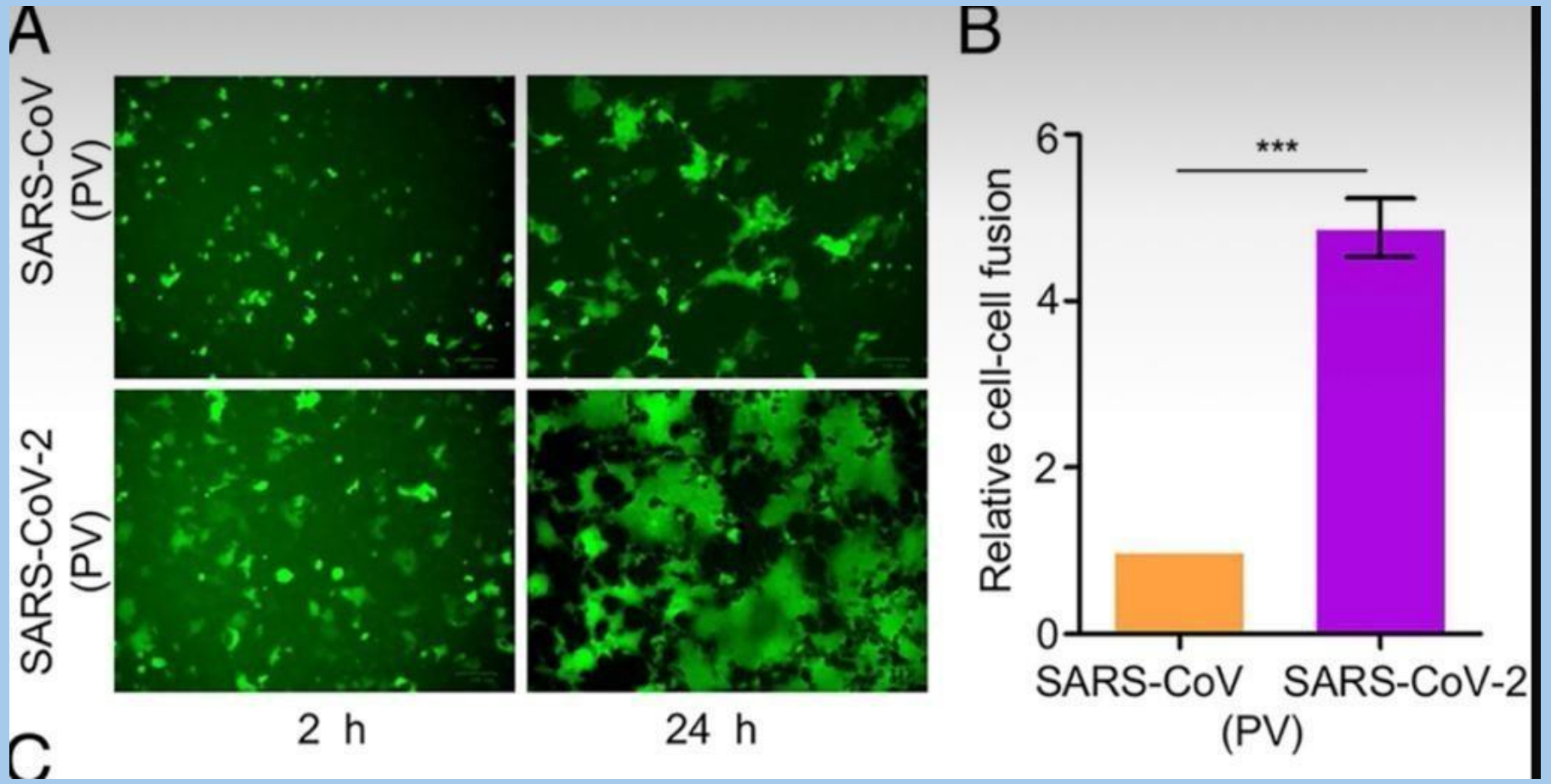
Reviews in Medical Virology

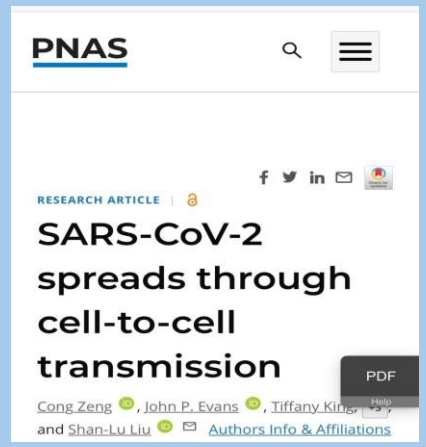
REVIEW

The immune paradox of SARS-CoV-2: Lymphocytopenia and autoimmunity evoking features in COVID-19 and possible treatment modalities

Joachim Gerlach, Abdul Mannan Baig ✉, Mark Fabrowski, Valentina Viduto

Syncytia formation mediated by the spike of SARS- CoV-2 or SARS-CoV




PNAS

RESEARCH ARTICLE

SARS-CoV-2 spreads through cell-to-cell transmission

PDF

Cong Zeng, John P. Evans, Tiffany King, and Shan-Lu Liu Authors Info & Affiliations

Significant Increase in Health Challenges, Decrease in Immune Health

1: Direct Infection of T-Lymphocytes by Sars-CoV-2

This will result in IMMUNODEFICIENCY!

Immunosenescence and COVID-19

Jacek M. Witkowski,[a,*,1] Tamas Fulop,[b] and Ewa Bryl[c]

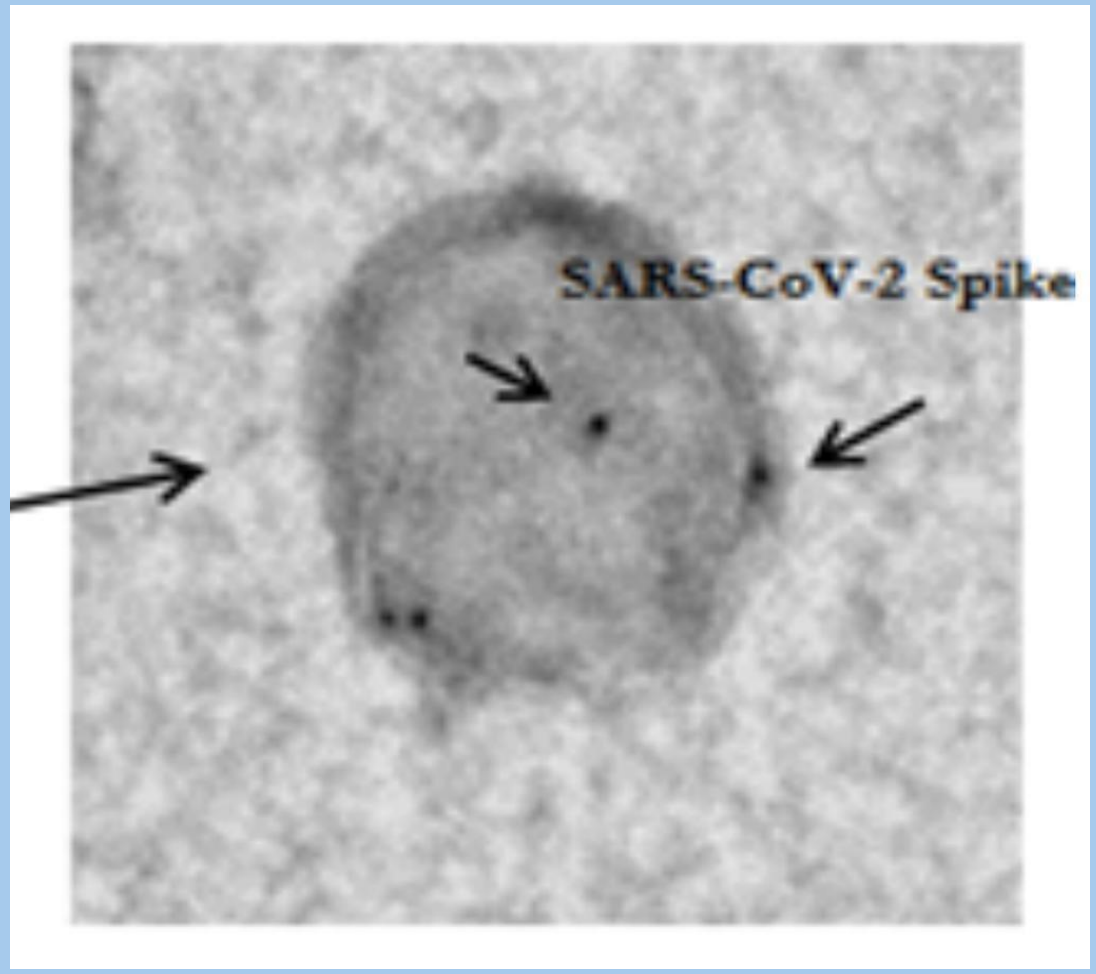
The phenomena describing changes in the aging immune system are immunosenescence and inflammageing

The solid line indicates SARS-CoV-2 infection-free trajectory, dotted and dashed lines show the **earlier acquisition of high levels of immunosenescence and inflammaging** and of high probability of aging-related diseases (ARDs) when contact with SARS-CoV-2 was late in life, at middle age, or in childhood respectively.

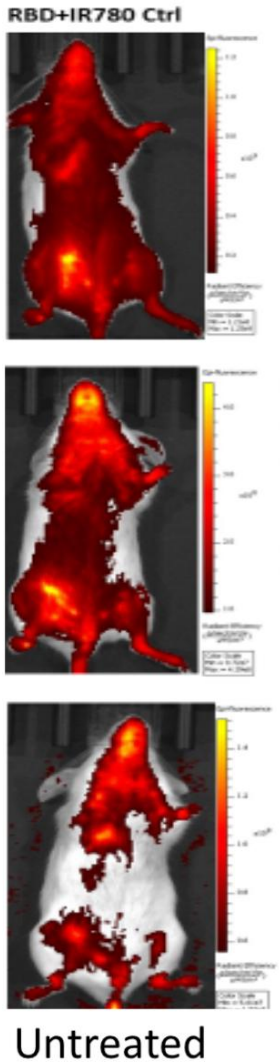
RESEARCH ARTICLE | NOVEMBER 15 2021

Cutting Edge: Circulating Exosomes with COVID Spike Protein Are Induced by BNT162b2 (Pfizer–BioNTech) Vaccination prior to Development of Antibodies: A Novel Mechanism for Immune Activation by mRNA Vaccines

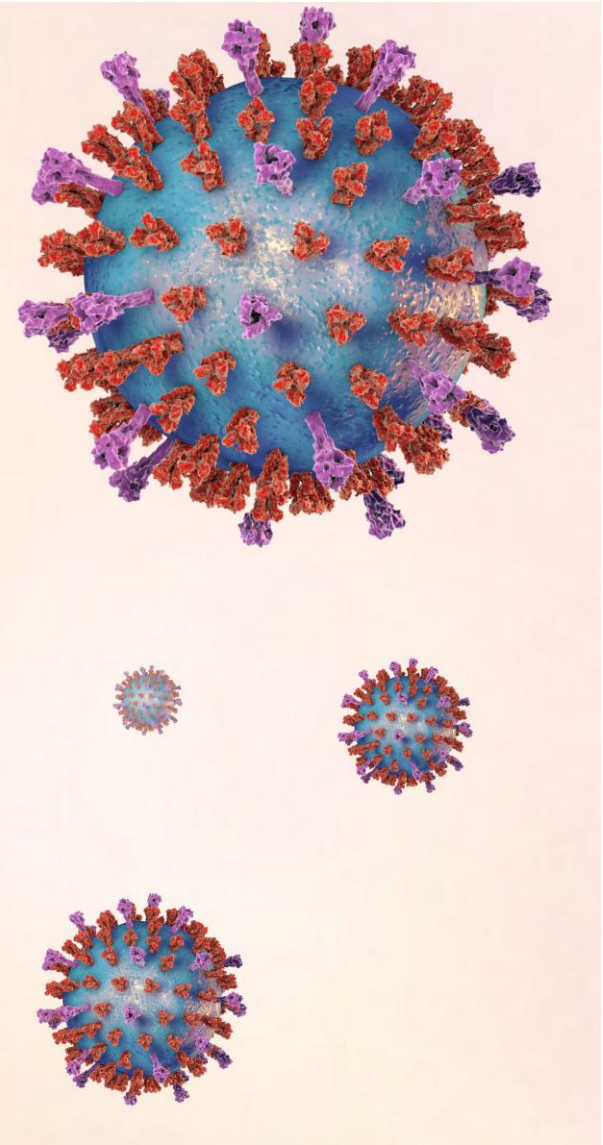
Sandhya Bansal ; Sudhir Perincheri; Timothy Fleming ; Christin Poulson ; Brian Tiffany ; Ross M. Bremner; Thalachallour Mohanakumar



Transmission electron microscopy images of SARS-CoV-2 spike Ag on exosomes from control exosomes from control and vaccinated individuals. Arrows indicate SARS-CoV-2 spike-positive exosomes.



SARS-CoV-2 Spike Persistence

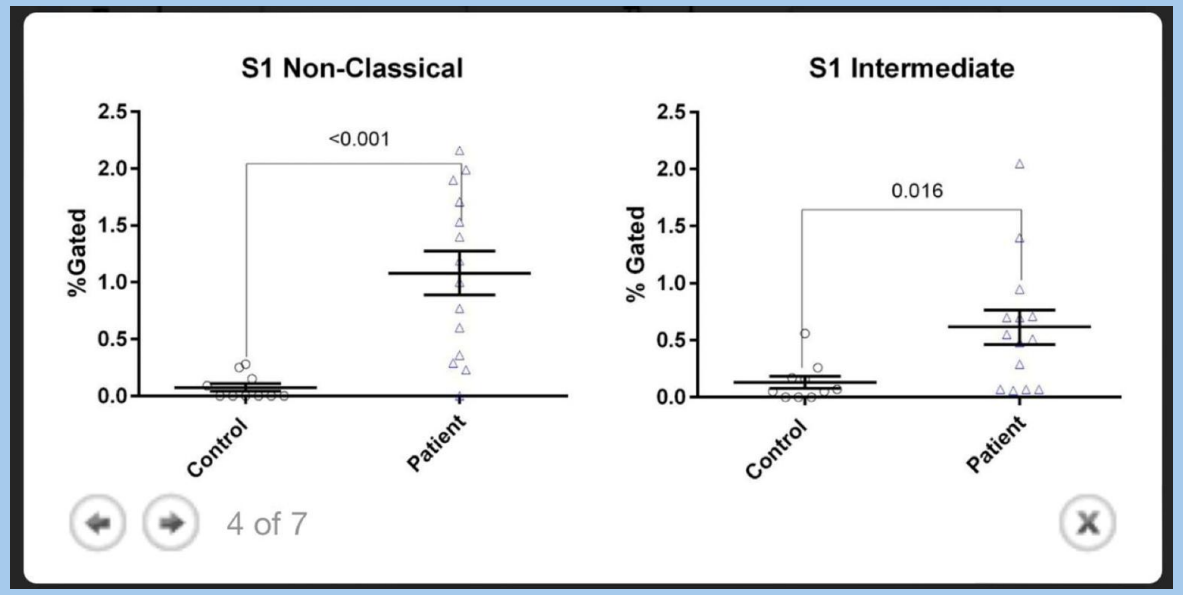


Persistence of S1 Spike Protein in CD16+ Monocytes up to 245 Days in SARS-CoV-2 Negative Post COVID-19 Vaccination Individuals with Post-Acute Sequalae of COVID-19 (PASC)-Like Symptoms

Bruce K. Patterson, Ram Yogendra, Edgar B. Francisco, Emily Long, Amruta Pise, Eric Osgood, John Bream, Mark Kreimer, Devon Jeffers, Christopher Beaty, Richard Vander Heide, Jose Guevara-Coto, Rodrigo A Mora-Rodríguez

Spike can persist up to 245 says in monocytes

https://www.medrxiv.org/content/10.1101/2024.03.24.24304286v1



Flow cytometric quantification of S1-containing monocyte subsets as previously performed. Increased S1- conatining intermediate and non-classical monocytes was statistically significant compared to healthy controls.

The Path Forward

Lead with Education

Buy-in starts with Understanding the Threat

Solution is multi-faceted (just like the Threat!)

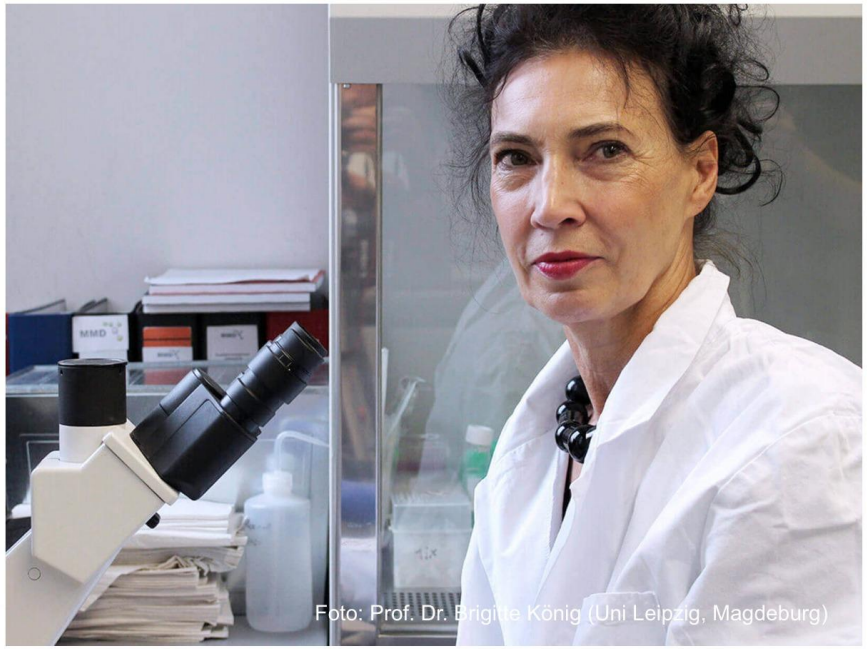
Key Steps:

1. Avoid exposure (this is not going away)
2. Prepare the body in advance
3. Aggressively manage active infection
4. Manage chronic long covid by clearing spike

A World’s First

We said we would do it… and we did

Ongoing Project with Prof & Dr. Brigitte Koenig : Quantification of Spike in PBMC‘s



The MMD laboratory Magdeburg now offers for the first time a variety of detection methods for Long-Covid & Post-Vac:

Quantitative Bestimmung des freien SARS-CoV-2 Spikeproteins in Plasma/Serum In Eluat Quantitative Bestimmung des freien SARS-CoV-2 Nukleokapsid in Plasma/Serum In Eluat
Quantitative Bestimmung des SARS-CoV-2 Spikeproteins in Exosomen Quantitative Bestimmung des SARS-CoV-2 Nukleokapsid in Exosomen
Quantitative Bestimmung des SARS-CoV-2 Spikeproteins in Immunzellen (PBMC) Quantitative Bestimmung des SARS-CoV-2 Nukleokapsid in Immunzellen (PBMC)
Differenzierung des SARS-CoV-2 Spikeproteins (Infektion/Impfung) Nur in Verbindung mit 1.1 – 1.3. • In Plasma/Serum/Eluat - noch nicht verfügbar • In Exosomen - noch nicht verfügbar • In Immunzellen 8PBMC) - noch nicht verfügbar
Nachweis von Impf-mRNA (Pfizer, Moderna) in Exosomen
Nachweis von Impf-mRNA (Pfizer, Moderna) in Immunzellen (PBMC)
Nachweis von Impf-mRNA (Pfizer, Moderna) in Muttermilch
Nachweis von SARS-CoV-2 RNA im Serum/Plasma (Persistenz), hoch sensitiv
Nachweis von SARS-CoV-2 RNA in Immunzellen (PBMC) (Persistenz)
Nachweis von SARS-CoV-2 RNA im Stuhl (Persistenz)
Nachweis von SARS-CoV-2 RNA in Samenzellen (Persistenz)
Nachweis der SARS-CoV-2 mRNA Expressionsvektoren (Pfizer, Moderna, Janssen) • In Immunzellen (PBMC) • In Samenzellen • In Mundschleimhautzellen
Nachweis von LINE-1 (dieses Enzym ist die Voraussetzung für den Einbau von Impf-mRNA in das menschliche Genom) Nachweis der Integration der Impf-mRNA in den Zellkern
Nachweis der Expressionsvektoren (Plasmide) von Pfizer/Moderna in Darmbakterien

1.2 Quantitative determination of the SARS-CoV-2 spike protein in exosomes

Quantitative determination of the SARS-CoV-2 nucleocapsid in exosomes

and:

1.3 Quantitative determination of the SARS-CoV-2 spike protein in immune cells (PBMC)

Quantitative determination of the SARS-CoV-2 nucleocapsid in immune cells (PBMC)

and:

3.3 Detection of SARS-CoV-2 RNA in stool (persistence)

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DR PHILIP MAVBERG FROM SWITZERLAND

Dr.med. Phillip Mavberg

In 2017, Dr. Mavberg took over as Medical Director of the rehabilitation clinic, a position he held until 2023 with great commitment and a holistic approach to patient care.

He became acquainted with the INUS concept back in 2016. Fascinated by the advanced possibilities offered by INUSpheresis® as environmental apheresis, Dr. Mavberg was delighted to take over the medical management of the Ayus practice in Basel in September 2023.

Dr. Mavberg has the first patient results on reduction of Spike proteins in PBMC,s

Clinical case description:

Patient (43 years old, male) is fit for work, continues to have mild neurological complaints (concentration deficits) after Covid in 2022.

The patient has been undergoing multimodal treatment for 2 years.

The intracellular load of spike proteins in the PBMCs (immune cells) is still unusually high after 2 years of treatment.
No recalled severe re-infection

MIKROBIOLOGISCHER B E F U N D

Untersuchungsmaterial: Heparin-Blut

Auftrag: Quantitative Nachweis von Spike-Protein in Plasma/Serum, Quantitative Nachweis von Spike-Protein in Exosomen, Quantitative Nachweis von Spike-Protein in Immunzellen (PBMC), Nachweis von LINE-1 Aktivität (Einbau von Impf-mRNA in das menschliche Genom) in Immunzellen (PBMC), Nachweis von SARS-Cov-2 RNA in Immunzellen (PBMC) (Persistenz)

Spikeprotein in Plasma/Serum	**NEGATIV**
Spikeprotein in Exosomen	**NEGATIV**
Spikeprotein in Immunzellen (PBMC)	**POSITIV 188,04 pg/2,5x10^6 Zellen**
LINE-1 in Immunzellen (PBMC)	**NEGATIV**
SARS-Cov-2 RNA in Immunzellen (PBMC) (Persistenz)	**NEGATIV**

Interpretation:

07/24

Clinical case description:

Continuation of therapy (without apharesis)

8 weeks of intake of supporting dietary supplements.

The second check-up in September after 8 weeks shows a 90% reduction in intracellular spike proteins in the immune cells

MIKROBIOLOGISCHER B E F U N D

Untersuchungsmaterial: Heparin-Blut

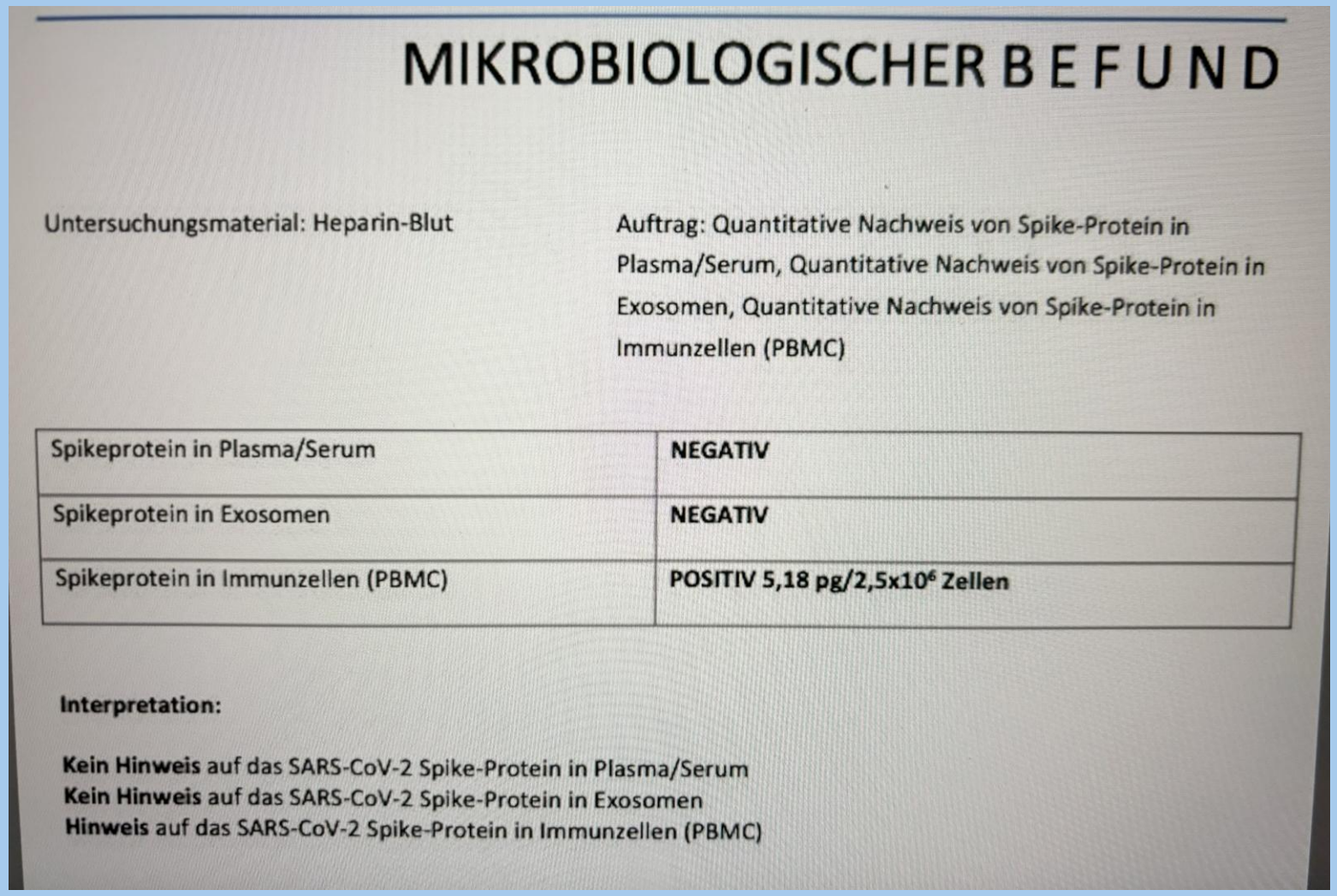
Auftrag: Quantitative Nachweis von Spike-Protein in Plasma/Serum, Quantitative Nachweis von Spike-Protein in Exosomen, Quantitative Nachweis von Spike-Protein in Immunzellen (PBMC)

Spikeprotein in Plasma/Serum	**NEGATIV**
Spikeprotein in Exosomen	**NEGATIV**
Spikeprotein in Immunzellen (PBMC)	**POSITIV 17,28 pg/2,5x10^6 Zellen**

09/24

To clear more Spike from the immune cells
the patient increased the dosage and this reduced the spike persistence further.

Supplementation will continue.



MIKROBIOLOGISCHER BEFUND

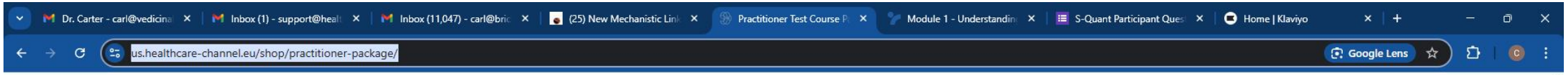
Untersuchungsmaterial: Heparin-Blut

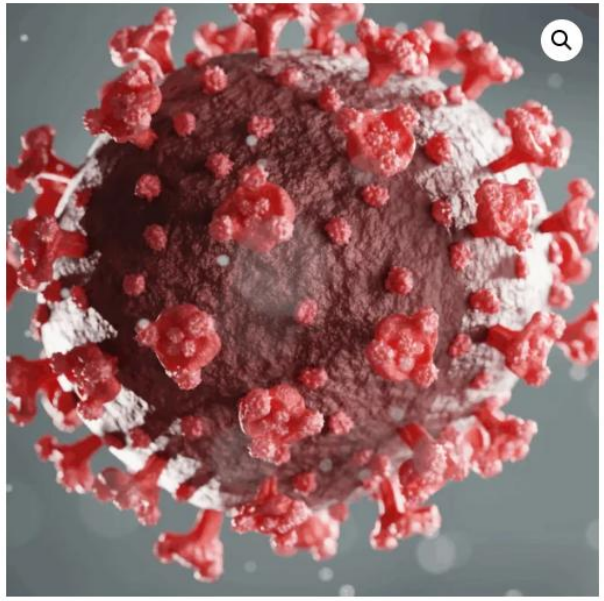
Auftrag: Quantitative Nachweis von Spike-Protein in Plasma/Serum, Quantitative Nachweis von Spike-Protein in Exosomen, Quantitative Nachweis von Spike-Protein in Immunzellen (PBMC)

Spikeprotein in Plasma/Serum	**NEGATIV**
Spikeprotein in Exosomen	**NEGATIV**
Spikeprotein in Immunzellen (PBMC)	**POSITIV 5,18 pg/2,5x10^6 Zellen**

Interpretation:

Kein Hinweis auf das SARS-CoV-2 Spike-Protein in Plasma/Serum
Kein Hinweis auf das SARS-CoV-2 Spike-Protein in Exosomen
Hinweis auf das SARS-CoV-2 Spike-Protein in Immunzellen (PBMC)





Practitioner Test Course Package

This all-in-one practitioner package offers advanced educational training and hands-on insight into spike protein persistence and recovery support. It combines a 8-week online course, live webinars, a personalized blood blot spike test, and a therapeutic supplement included as part of the test protocol, allowing practitioners to observe its effects alongside real-time data collection.

Category: Professional Education & Research
Includes: Online Course, Spike Test, 2 boxes of Vedicinals®9 Advanced, Expert Insights

$474.00

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