infectiocura AG

COVID-19 Impfung

Nutzen-Risiko Abwägung für MPN- und andere Patienten mit hämato-onkologischen Erkrankungen

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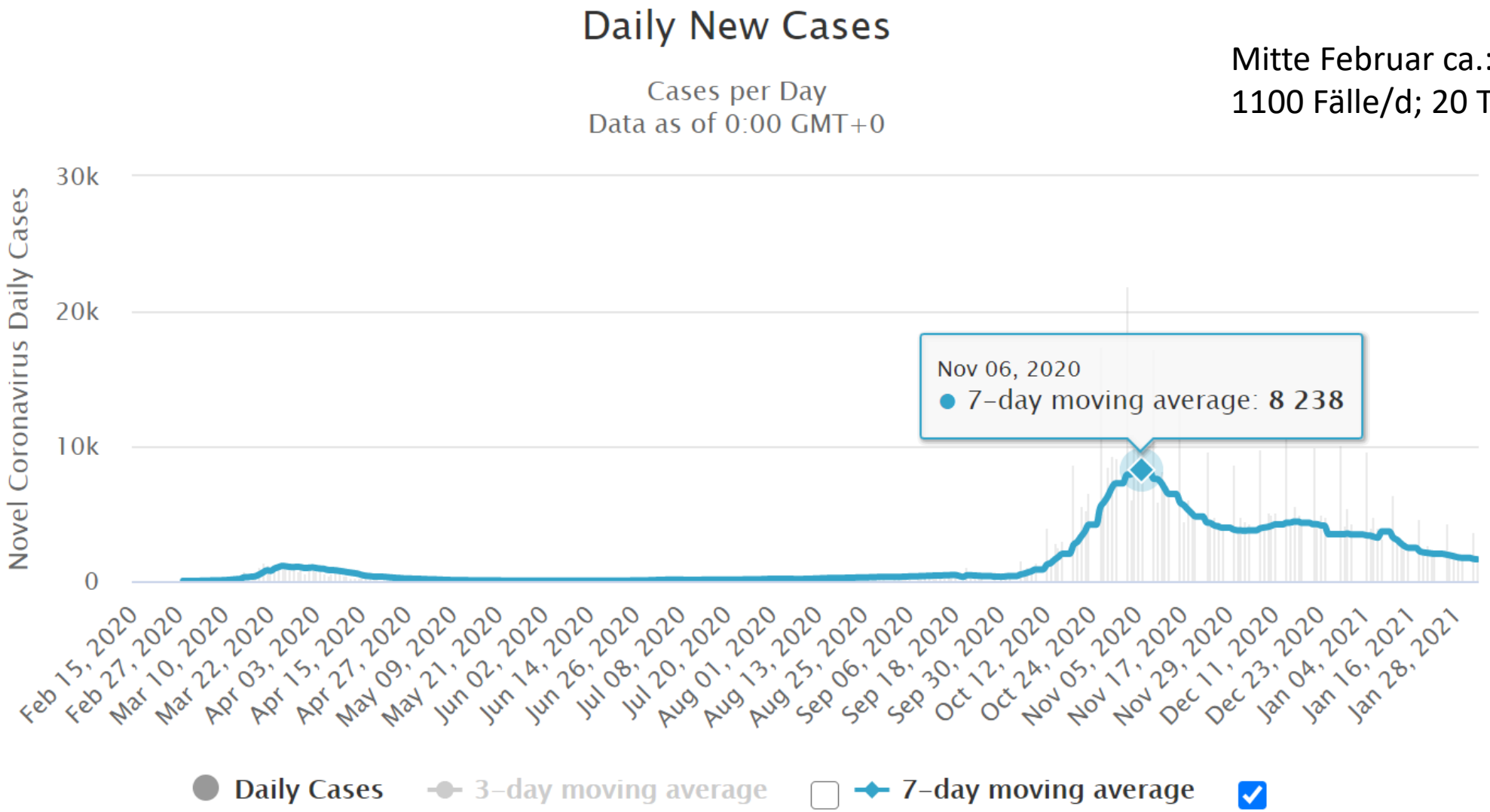
COVID 19 y sus vacunas

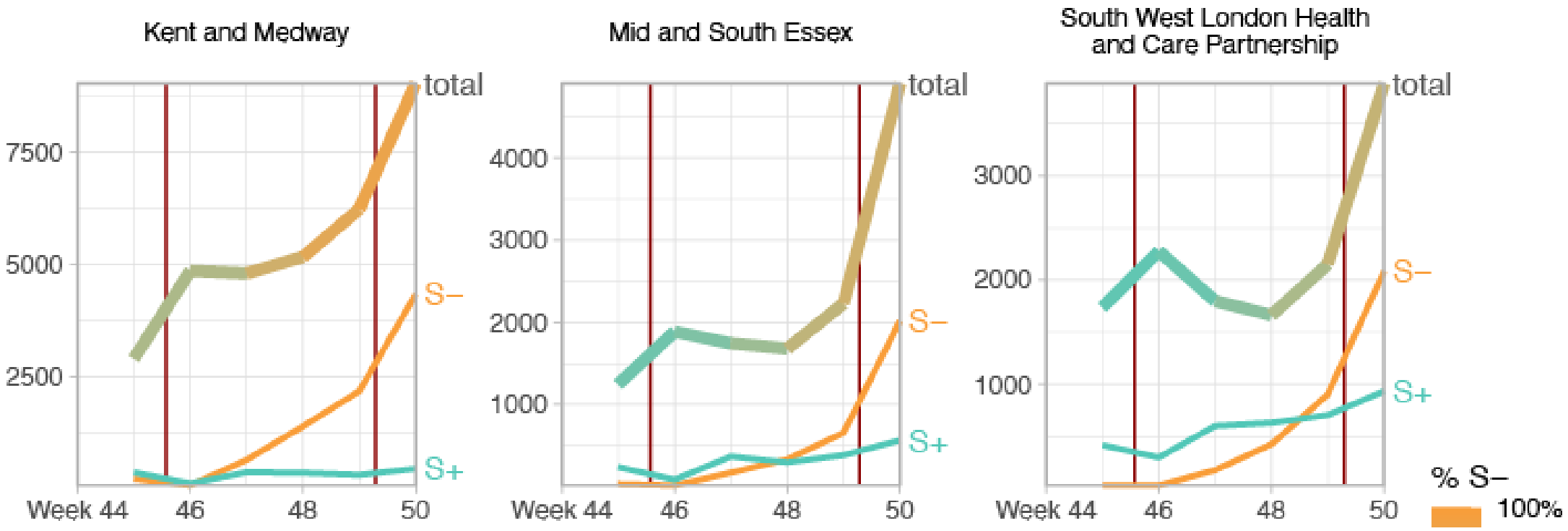
Dra. I Ruiz Camps
Servicio de Enfermedades Infecciosas
Hospital Universitario Vall d'Hebron. Barcelona.

Daily New Cases in Switzerland

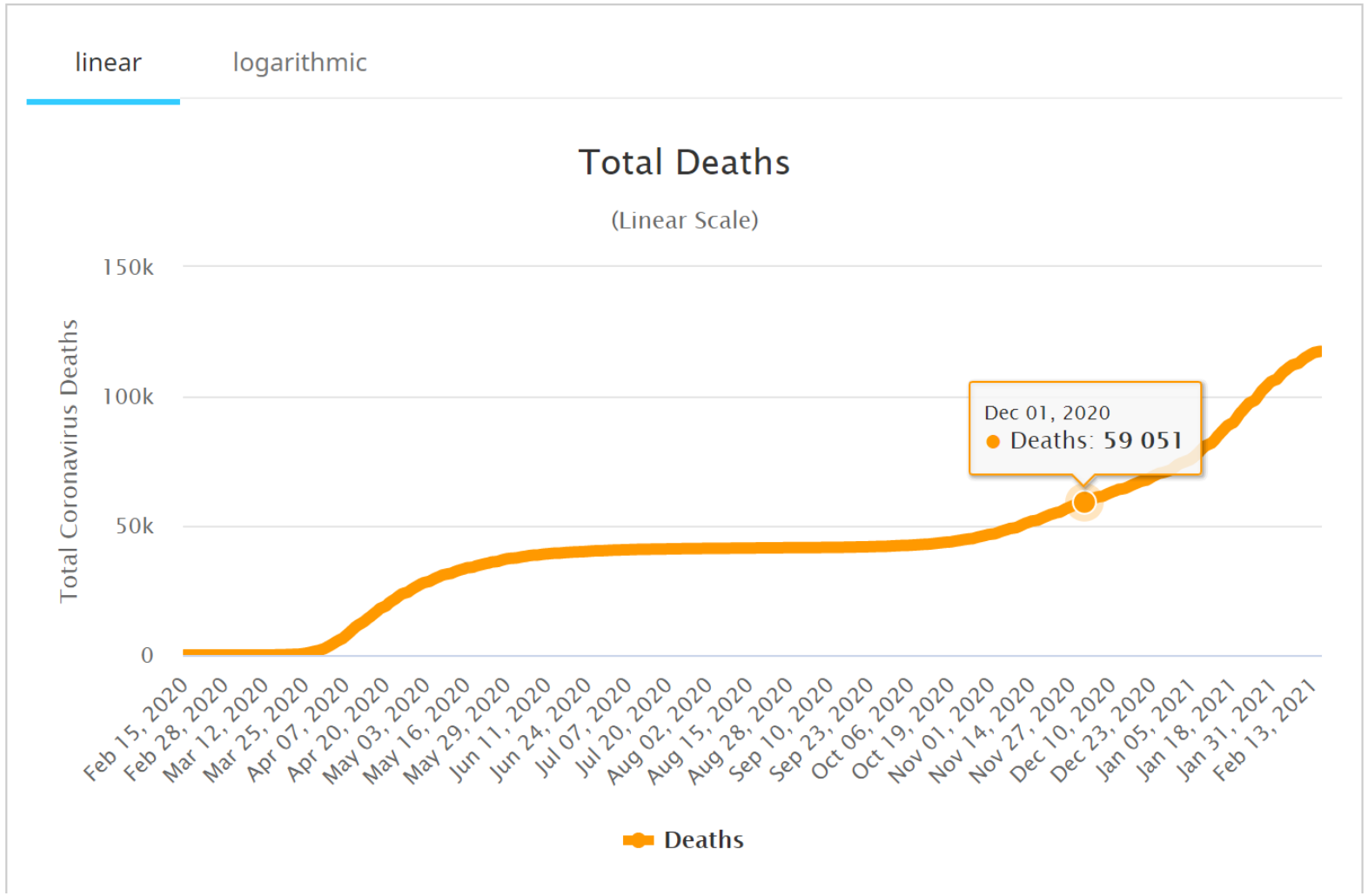
Quelle: worldometers.info



Mitte Februar ca.:
1100 Fälle/d; 20 Todesfälle/d

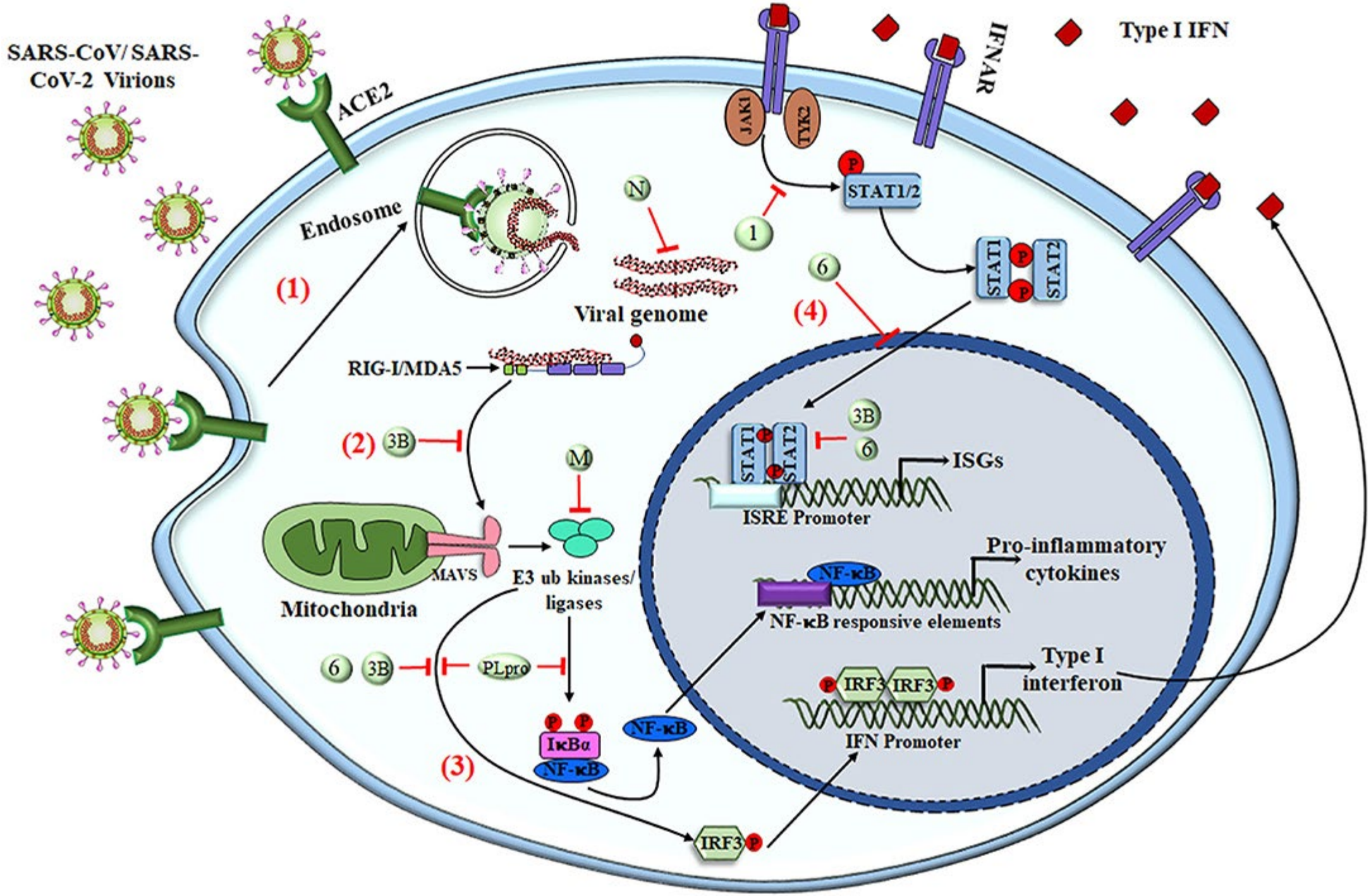

Kent and Medway
Mid and South Essex
South West London Health and Care Partnership
total
S−
S+
7500
5000
2500
4000
3000
2000
1000
Week 44
46
48
50
% S−
100%

Coronatodesfälle in UK bis 15.2.21: 118’000



Selbst wenn die Fälle wieder sinken (seit 8. Januar), geht das Sterben noch Mehrere Wochen weiter.

Quelle: worldometers.info


SARS-CoV/ SARS-CoV-2 Virions
ACE2
Endosome
(1)
Viral genome
N
RIG-I/MDA5
(2)
3B
M
MAVS
Mitochondria
E3 ub kinases/ ligases
6
3B
PLpro
(3)
IκBα
NF-κB
IRF3
JAK1
TYK2
IFNAR
Type I IFN
1
STAT1/2
STAT1
STAT2
6
(4)
3B
6
ISGs
ISRE Promoter
Pro-inflammatory cytokines
NF-κB responsive elements
Type I interferon
IRF3
IRF3
IFN Promoter

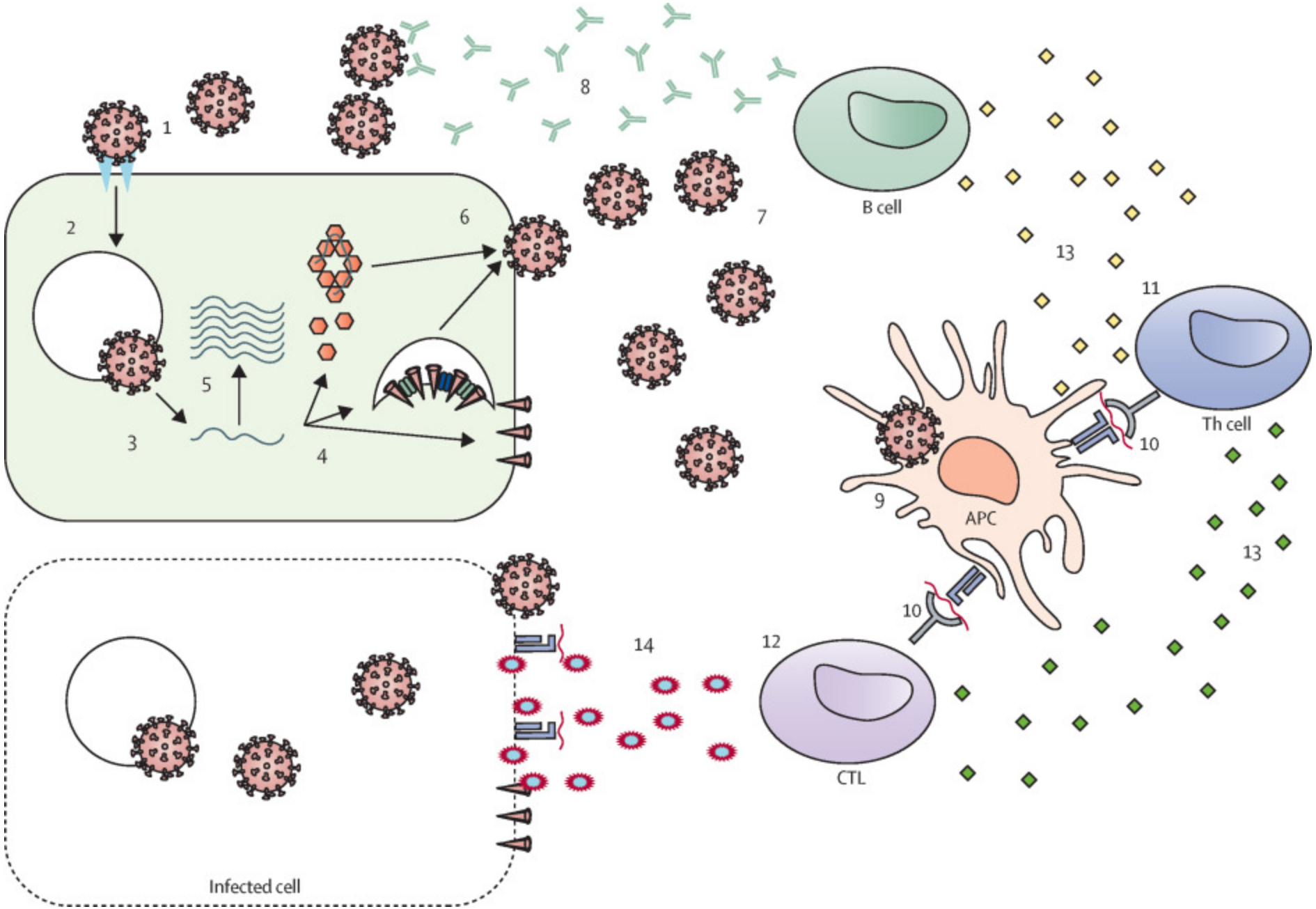
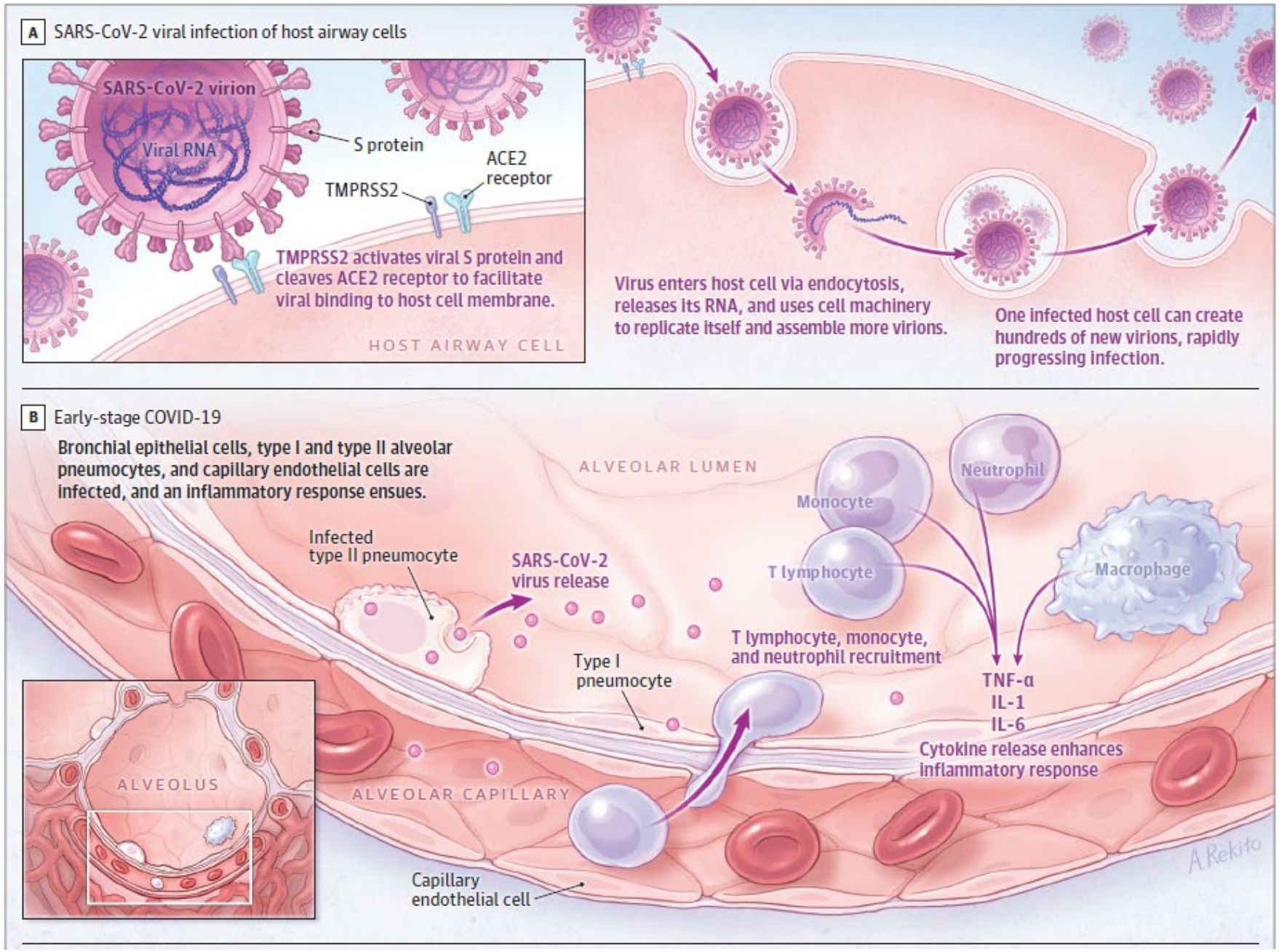
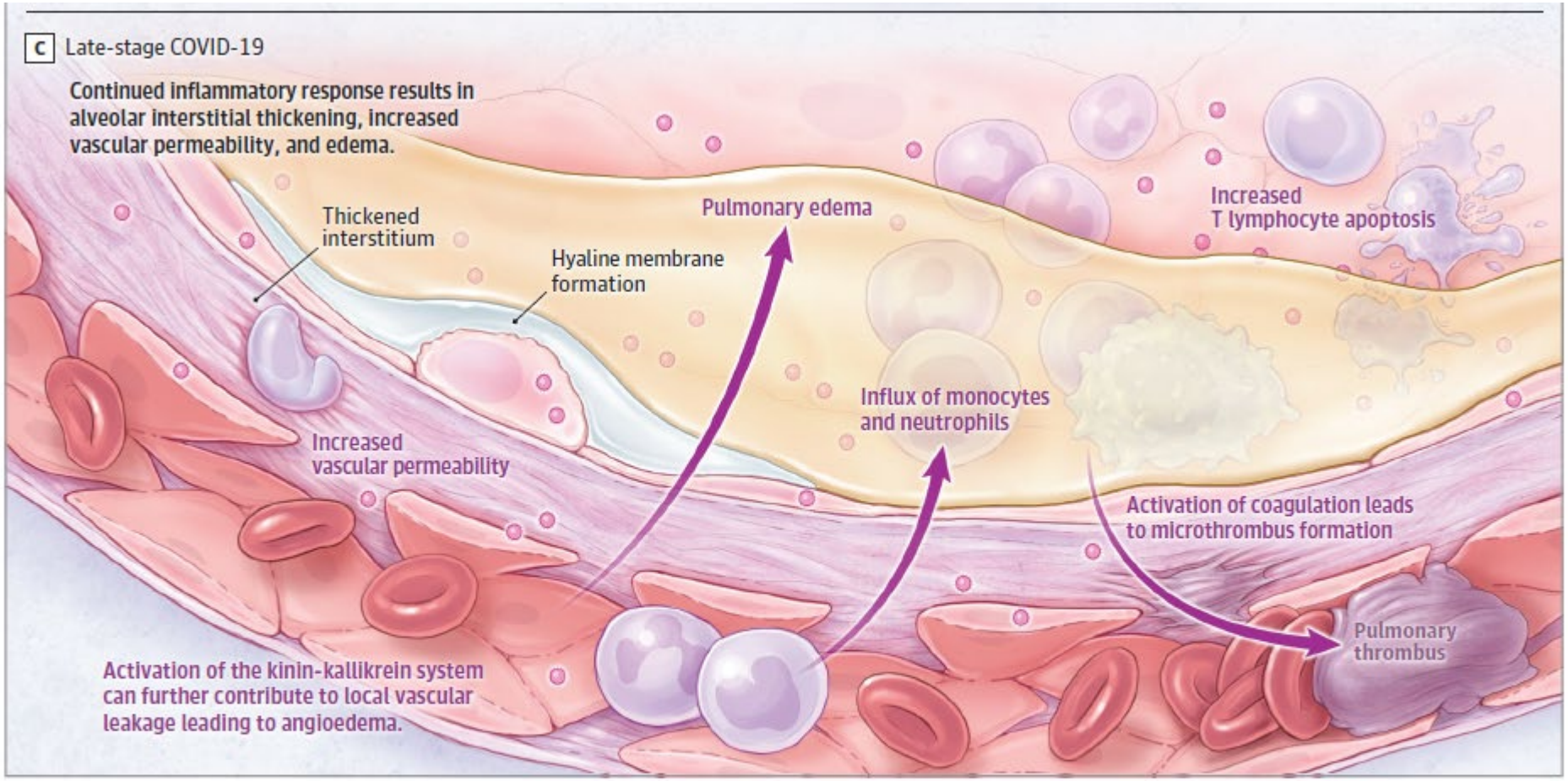

1
2
3
4
5
6
7
8
B cell
13
11
Th cell
10
9
APC
10
13
12
CTL
14
Infected cell

Figure 2. Immunopathogenesis of Coronavirus Disease 2019 (COVID-19)





Current understanding of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)–induced host immune response. SARS-CoV-2 targets cells through the viral structural spike (S) protein that binds to the angiotensin-converting enzyme 2 (ACE2) receptor. The serine protease type 2 transmembrane serine proteas (TMPRSS2) in the host cell further promotes viral uptake by cleaving ACE2 and activating the SARS-CoV-2 S protein. In the early stage, viral copy numbers can be high in the lower respiratory tract. Inflammatory signaling molecules are released by infected cells and alveolar macrophages in addition to recruited T lymphocytes, monocytes, and neutrophils. In the late stage, pulmonary edema can fill the alveolar spaces with hyaline membrane formation, compatible with early-phase acute respiratory distress syndrome.

COVID-19 illness in native and immunosuppressed states: A clinical–therapeutic staging proposal

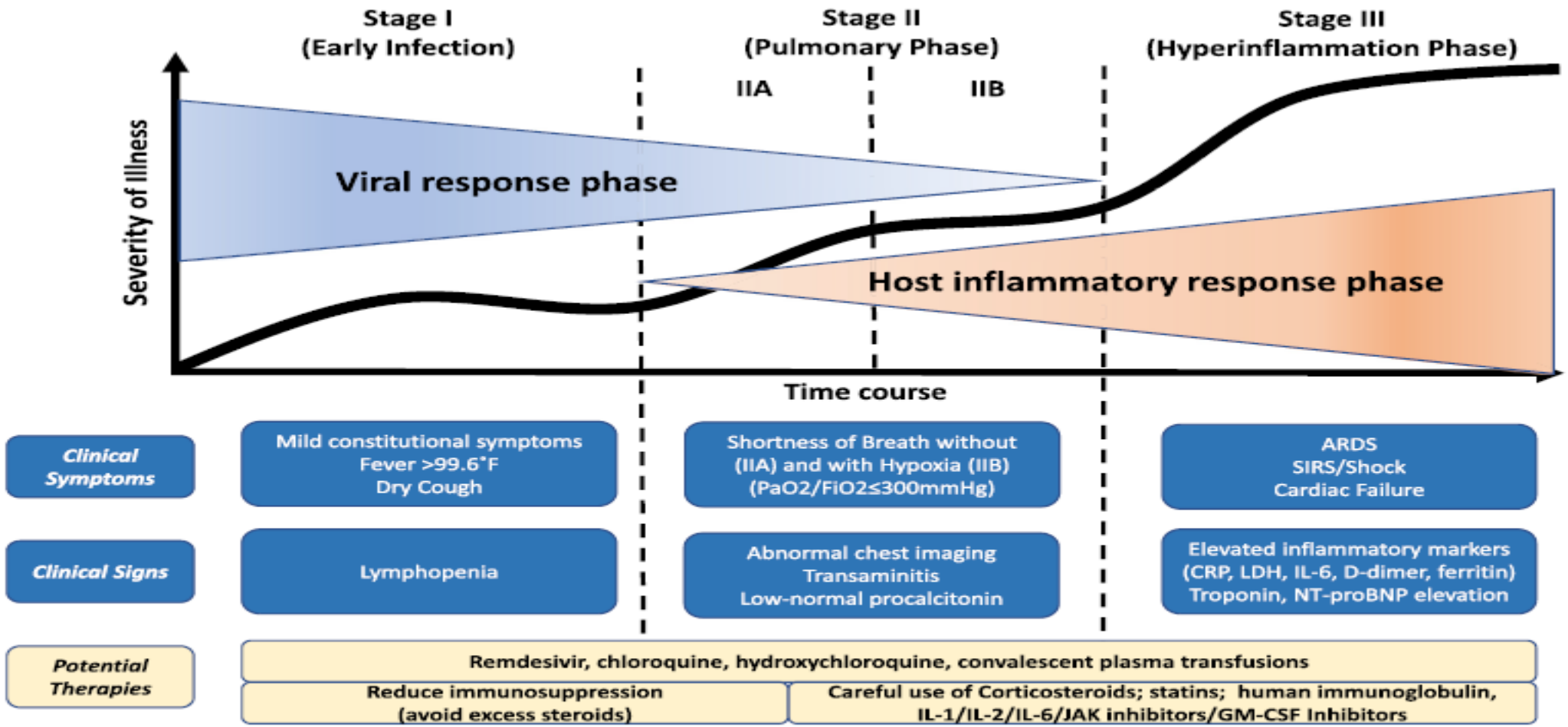


Figure 1 Classification of COVID-19 disease states and potential therapeutic targets. The figure illustrates 3 escalating phases of COVID-19 disease progression, with associated signs, symptoms, and potential phase-specific therapies. ARDS, acute respiratory distress syndrome; CRP, C-reactive protein; JAK, janus kinase; LDH, lactate dehydrogenase; NT-proBNP, N-terminal pro B-type natriuretic peptide; SIRS, systemic inflammatory response syndrome; GM-CSF, Granulocyte Macrophage Colony Stimulating Factor.

The Journal of Heart and Lung Transplantation, Vol 39, No 5, May 2020

New

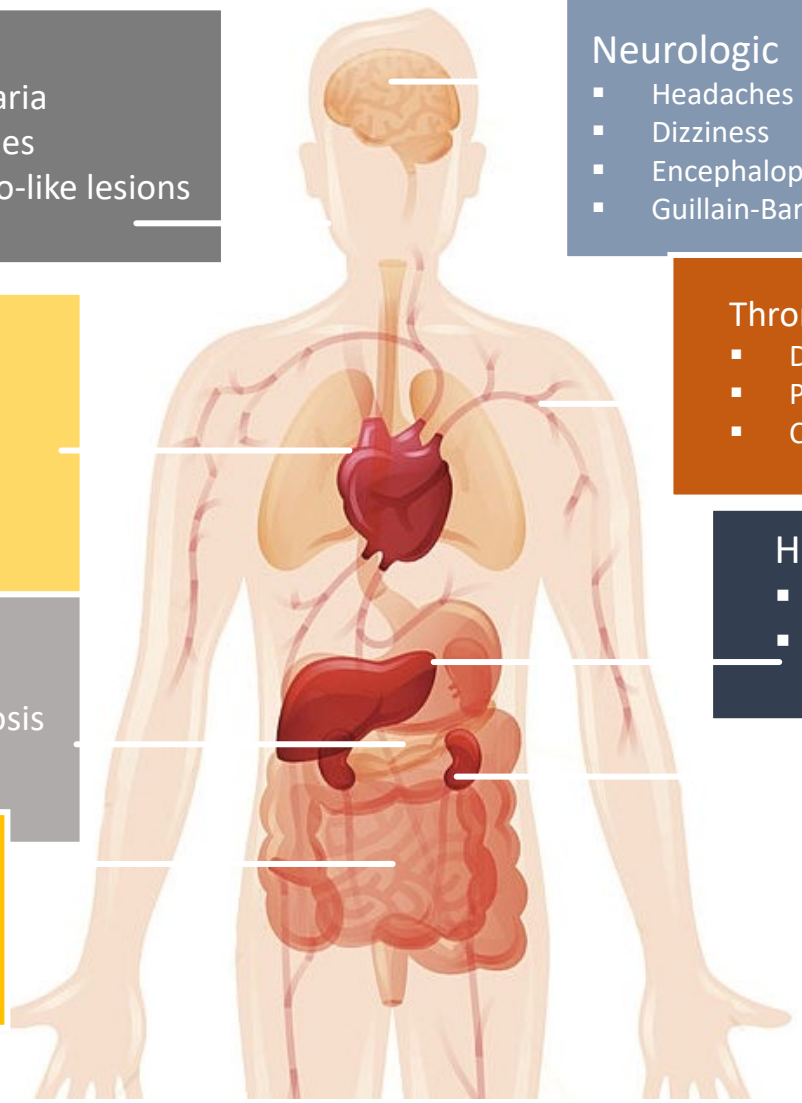
Extrapulmonary Manifestations

Dermatologic
- Petechaie
- Livedo reticularis
- Erythematous rash
- Urticaria
- Vesicles
- Pernio-like lesions

Neurologic
- Headaches
- Dizziness
- Encephalopathy
- Guillain-Barré
- Ageusia
- Myalgia
- Anosmia
- Stroke

Cardiac
- Takotsubo cardiomyopathy
- Myocardial injury/myocarditis
- Cardiac arrhythmias
- Cardiogenic shock
- Myocardial ischemia
- Acute cor pulmonale

Thromboembolism
- Deep vein thrombosis
- Pulmonary embolism
- Catheter-related thrombosis



Endocrine
- Hyperglycemia
- Diabetic ketoacidosis

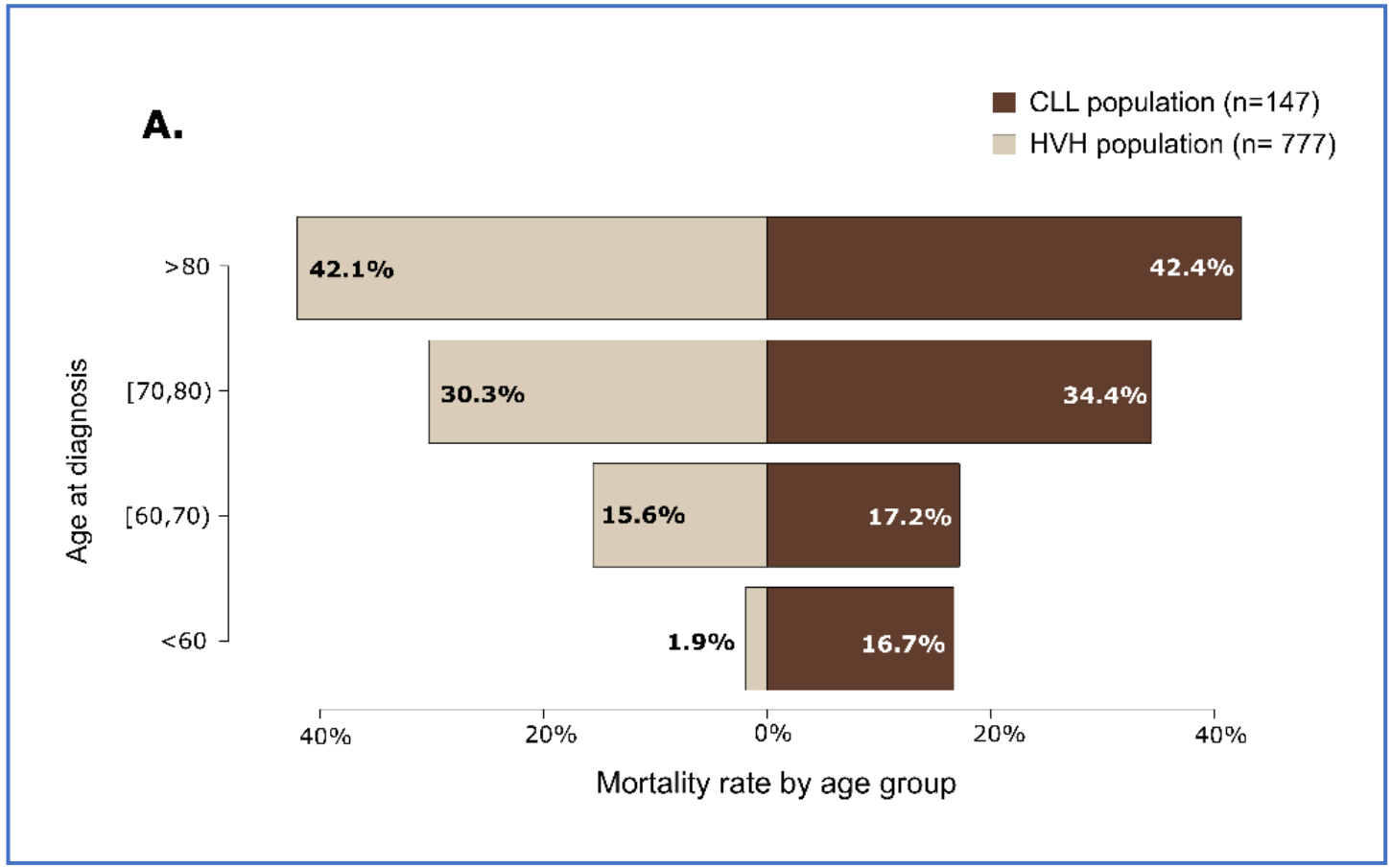
Hepatic
- Elevated ALT/AST
- Elevated bilirubin

Gastrointestinal
- Diarrhea
- Nausea/vomiting
- Abdominal pain
- Anorexia

Renal
- Acute kidney injury
- Proteinuria
- Hematuria

Gupta. Nat Med. 2020;26:1017.

Mortality of admitted COVID-19 patients (HUVH)



Risk factors for survival and role of Ruxolitinib in patients with Myeloproliferative Neoplasms and COVID-19 (175 MPN/38 centros)

Mortalidad 40%
FR: >70a (70%), comorbilidades, IOT, varón, MF, STOP ruxo (68% vs11%)

Funcionamiento de las vacunas

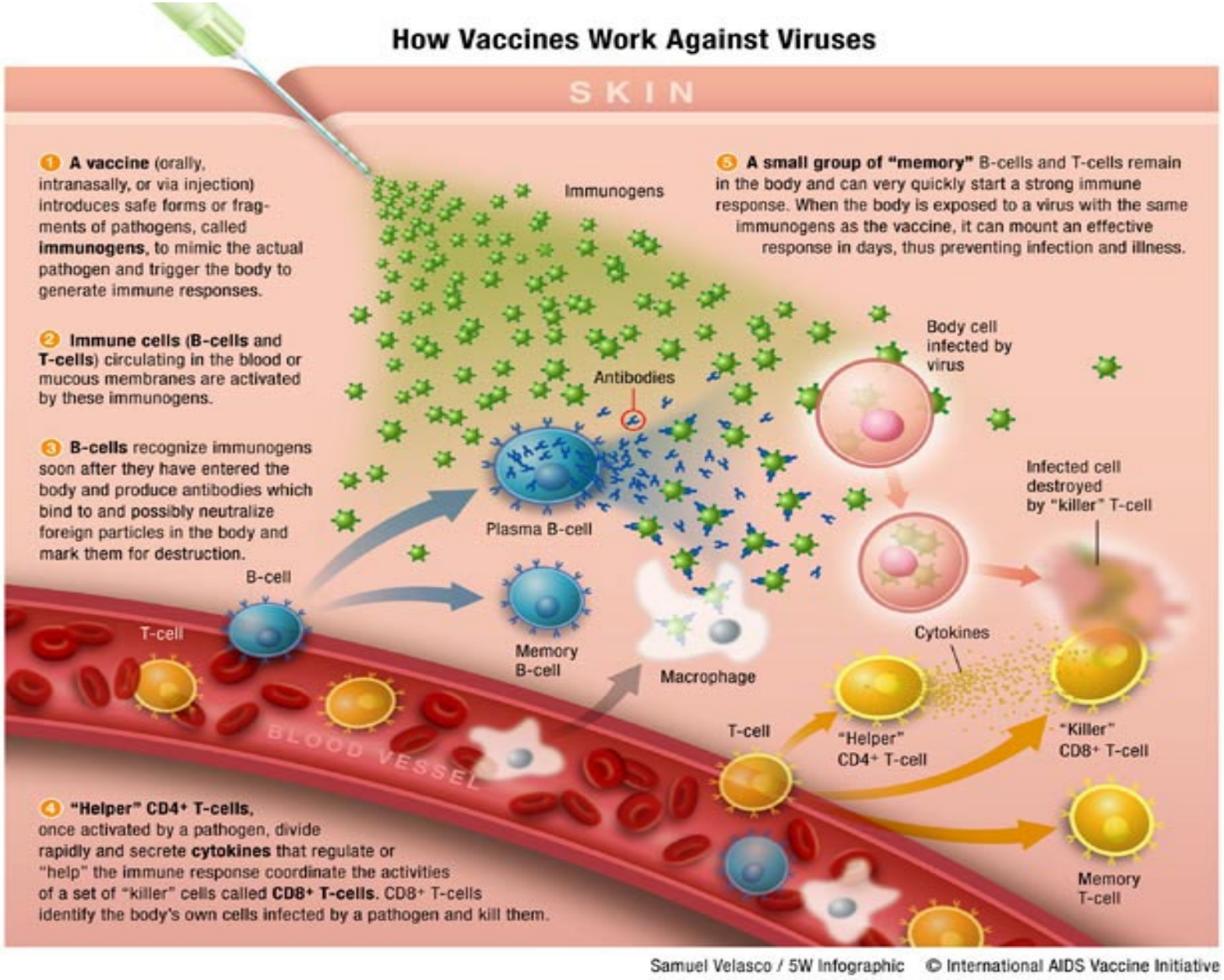


Figure 1: RNA Vaccine Technology

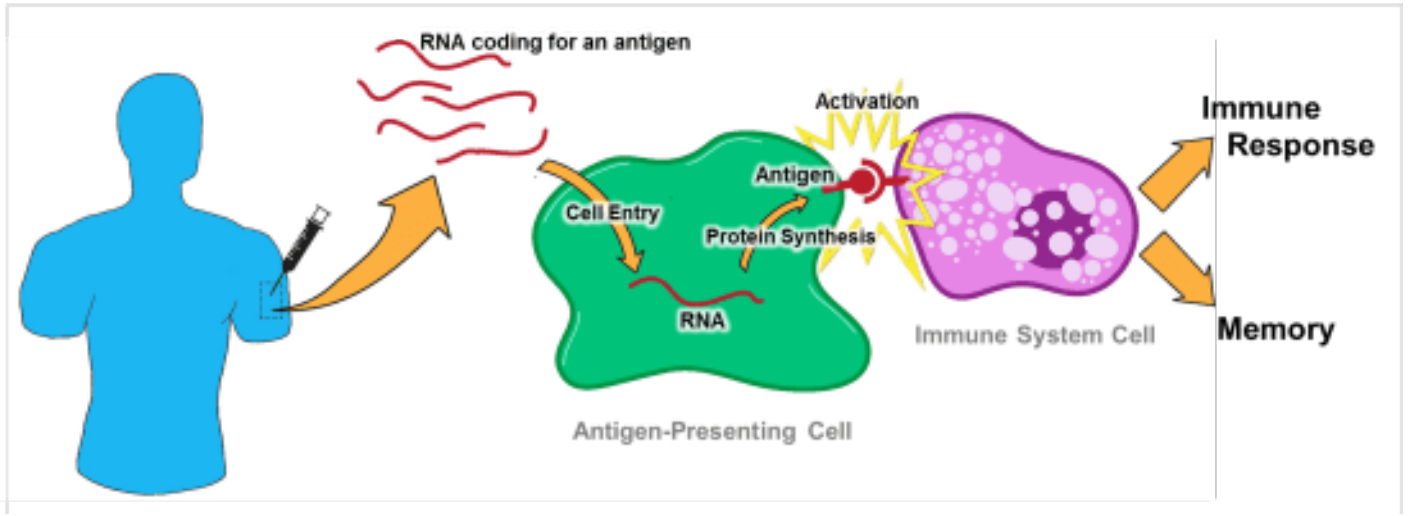


Figure 1: RNA vaccine technology. *An RNA is injected in the body (left). This RNA encodes the information to produce the antigen, which is a protein from a pathogen, that will stimulate the immune system. Inside the cells, the RNA is used to synthesize the antigen, which is exposed to the cell surface (middle). Then, a subset of immune system cells recognizes the antigen and trigger an immune response (direct response and long-term memory) (right).*

One is that RNA-based vaccines appear to perform better than DNA-based vaccines. Another is that they are also safer, as injection of RNA presents no risk of disrupting the cell's natural DNA sequence.

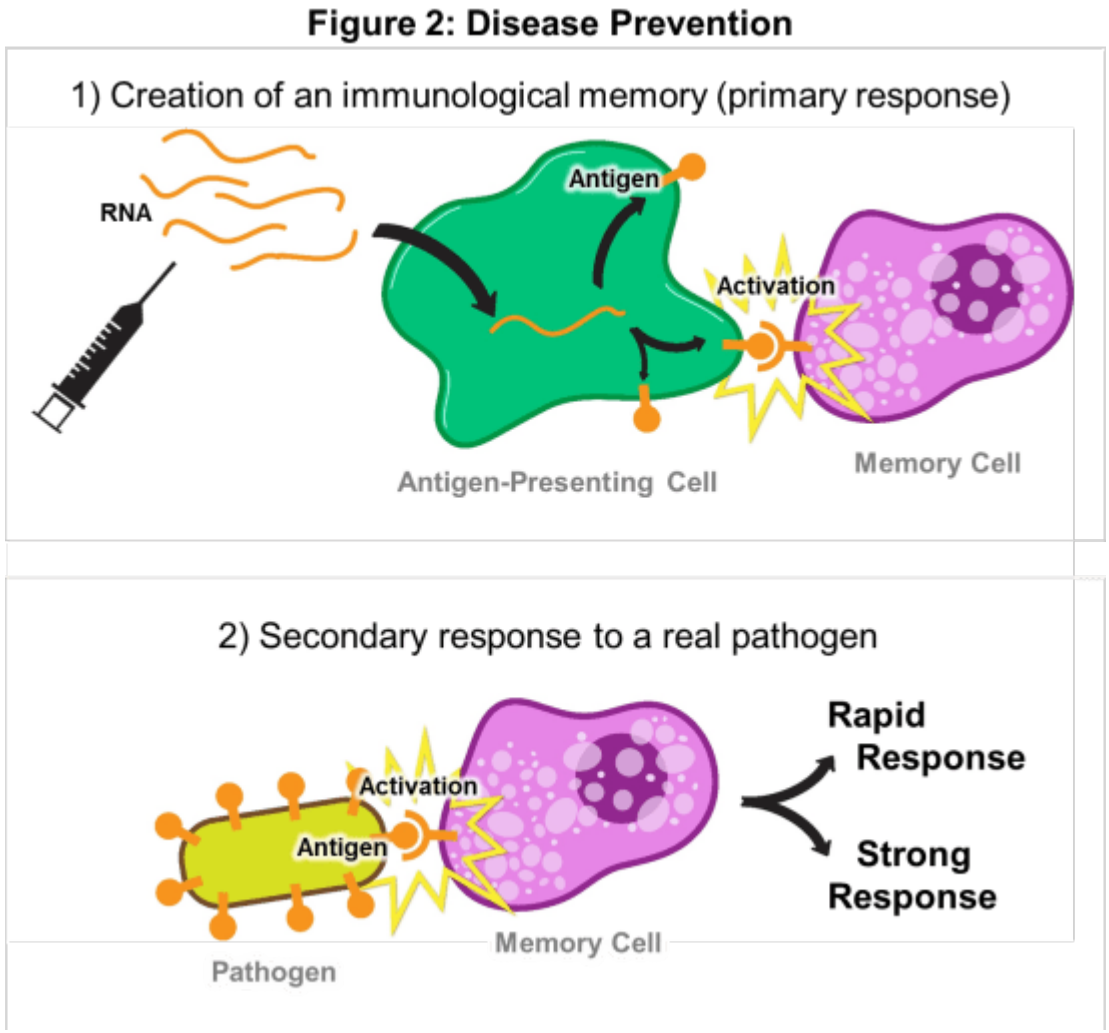


Figure 2: Disease prevention. *Vaccination with RNA induces a primary response (top) by instructing the body's cells to produce an antigen that is presented to the immune system. This activates specific cells, which create a memory for this antigen. Later, when the real pathogen is present (bottom), those cells recognize the same antigen and react rapidly and strongly against the infectious agent (secondary response).*

How are they produced?

- **RNA can be produced *in vitro*,** i.e. outside the cells, using a DNA template containing the sequence of a specific antigen.
- This is a **much simpler process** than the culture of virus in eggs. Egg cultures, the more common way of producing vaccines, can provoke **allergic reactions**; the *in vitro* production of RNA avoids this possibility. Producing RNA vaccines is also **less expensive** than producing the full antigen protein
- RNA-based vaccines is more **rapid** compared to production of traditional vaccines.
- While injection of simple RNA can elicit an immune response, RNAs in this form are prone to a **rapid degradation**. (1 año?)
- Current vaccines are fragile and **can lose their efficiency when exposed at freezing or high temperatures**, and must be stored at 35-45°F (2-8°C)

Was ist wahr und was falsch: 11 Mythen zu Folgen, Risiken und Nebenwirkungen der Coronavirus-Impfung

Es kursieren viele Behauptungen rund ums Impfen allgemein und um die Covid-19-Impfung. Wir klären auf, was dahintersteckt.

Alexandra Kohler, Lena Stallmach, Anja Lemcke

28.01.2021, 12.00 Uhr

Leading vaccines

Developer	Type	Phase	Status
Pfizer-BioNTech	mRNA	2 3	Approved in Canada and other countries. Emergency use in U.S. and other countries.
Moderna	mRNA	3	Under F.D.A. review.
CanSino	Adenovirus	3	Limited use in China.
Gamaleya	Adenovirus	3	Early use in Russia.
Johnson & Johnson	Adenovirus	3	
Oxford-AstraZeneca	Adenovirus	2 3	
Novavax	Protein	3	
Vector Institute	Protein	1 2	Early use in Russia.
Sinopharm-Beijing	Inactivated	3	Approved in U.A.E., Bahrain. Limited use in China.
Sinopharm-Wuhan	Inactivated	3	Limited use in China, U.A.E.
Sinovac	Inactivated	3	Limited use in China.

Efficacy of Johnson & Johnson Single-Shot Janssen COVID-19 Vaccine
Phase 3 ENSEMBLE Trial

	Moderate & Severe (28 days)	Severe (28 days)	Severe (>49 days)
US	72% ⬇️	85% ⬇️ (100% ⬇️ death)	100% ⬇️
Latin America	66% ⬇️		
South Africa (95% B.1.351 variant)	57% ⬇️		

Quelle: **Prof. Akiko Iwasaki**

Allergic Reactions Including Anaphylaxis After Receipt of the First Dose of Moderna COVID-19 Vaccine — United States, December 21, 2020–January 10, 2021

Weekly / January 29, 2021 / 70(4);125–129

On January 22, 2021, this report was posted online as an MMWR *Early Release.*

CDC COVID-19 Response Team; Food and Drug Administration (View author affiliations)

View suggested citation

Summary

What is already known about this topic?

Anaphylaxis is a severe, life-threatening allergic reaction that occurs rarely after vaccination.

What is added by this report?

During December 21, 2020–January 10, 2021, monitoring by the Vaccine Adverse Event Reporting System detected 10 cases of anaphylaxis after administration of a reported 4,041,396 first doses of Moderna COVID-19 vaccine (2.5 cases per million doses administered). In nine cases, onset occurred within 15 minutes of vaccination. No anaphylaxis-related deaths were reported.

Tabelle 2 – Krankheitsdefinitionen für Personen mit chronischen Krankheiten mit dem höchsten Risiko

Erkrankungsgruppe / Chronische Krankheiten	
Herzerkrankung	- chronische Herzinsuffizienz ab NYHA II - Symptomatische chron. ischämische Herzkrankheit trotz medizinischer Therapie
Arterielle Hypertonie	- Therapieresistente (> 160 mmHg) Hypertonie oder Hypertonie mit kardialen Komplikationen oder anderen Endorgan-Schäden
Atemwegs-Erkrankung	- chronisch obstruktive Lungenerkrankung (COPD) ab GOLD II - Emphysem/schwere Bronchiektasen - interstitielle Pneumopathie / Lungenfibrose - Krankheiten mit einer schwer verminderten Lungenkapazität
Nierenerkrankung	- Schwere, chronische Niereninsuffizienz ab GFR <30ml/min
Diabetes mellitus	- Diabetes mellitus (Typ 1 oder 2) mit relevanten Organschäden; oder schlecht eingestellt (HbA1c ≥8%)
Adipositas	- Erwachsene mit einem BMI von ≥35 kg/m².
Immundefizienz*, angeborenen oder erworben durch Erkrankung* oder Immunsuppressive Therapie*	Relevante Immundefizienz bei - malignen hämatologische Erkrankungen - Neoplasien/Krebserkrankungen unter aktiver Therapie - immun-vermittelten entzündlichen Erkrankungen (z.B. systemischer Lupus erythematodes, rheumatoide Arthritis, Psoriasis, chronisch entzündliche Darmerkrankungen), welche eine immunsuppressive Therapie erhalten (inkl. Prednisolon-Äquivalent >20 mg/Tag, steroidsparende Therapien und Biologika). - HIV-Infektion- ab CD4⁺ T Zellzahl < 200 / µL. - Organtransplantierte, Knochenmark- oder Stammzell-Transplantierte sowie Personen auf einer Warteliste für Transplantationen

* *Die Impfindikation muss nach sorgfältiger Nutzen-Risiko-Abwägung durch die betreuende Spezialärztin/den betreuenden Spezialarzt getätigt werden.*

Zusammenfassung

- Bedrohung ist für alle real
- Teilweise Abhilfe ist mit Impfung in Griffweite
- Gefährlich ist die Impfung für praktisch niemanden, ausser er hat eine Allergie gegen Inhaltsstoffe (sehr sehr selten)
- Je nach Art der hämatologischen oder anderen Grunderkrankung ist der Schutz der Impfung nicht für alle optimal
- Vielleicht kommen später noch passive Impfungen (Antikörper), die auch stark immungeschwächte schützen
- Der optimale Zeitpunkt der Impfung muss mit dem behandelnden Arzt besprochen werden
- Schutzmassnahmen so lange wie möglich weiterführen
- Herdenimmunität schützt später potentiell auch die Schwächeren!