

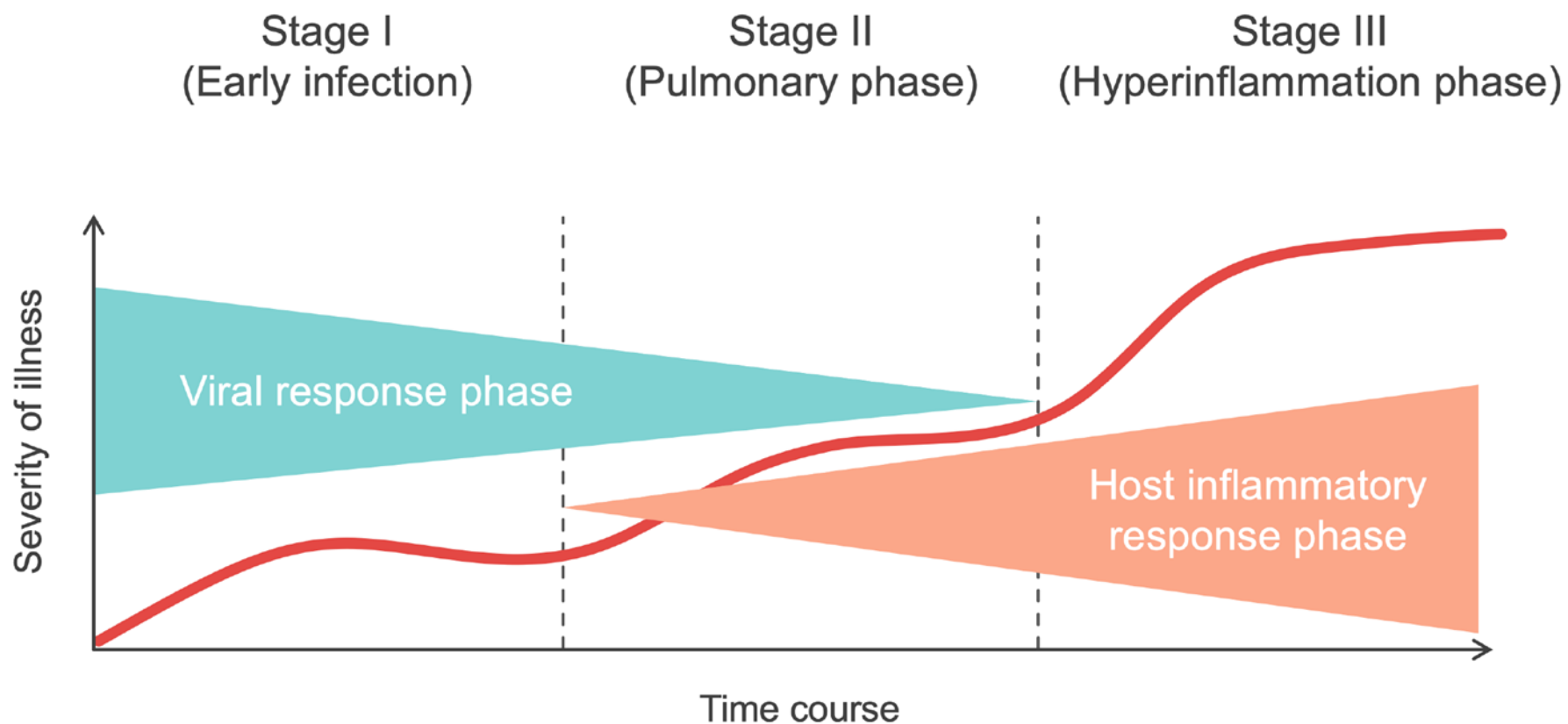
بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

درمان های اختصاصی کووید ۱۹

نخستین کنگره دیجیتال مدیریت و درمان COVID-19

دکتر حمید عمادی
متخصص بیماریهای عفونی
استاد دانشگاه علوم پزشکی تهران

Introduction



Antiviral Drugs

Remdesivir



Remdesivir

A novel nucleotide analogue that suggest **reduces time to recovery**



iences, Inc.,
Foster City, CA 94404
445 3235

Patient ID: _____

A
024

FP-13

GS16192

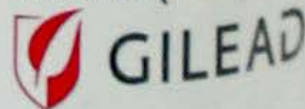
Sponsor: Gilead Sciences, Inc.
333 Lakeside Drive, Foster City, CA 94404
USA. Tel.: +1 800 445 3235

Site No.: _____ Patient ID: _____
Investigator: _____
Protocol: _____
Lot: EW2005A1-A
Expiry Date: 06/2024
90284604

For Clinical Trial Use Only
Remdesivir (GS-5734™) for Injection
100 mg Contents: Each Vial Contains 100 mg of Remdesivir (GS-5734™) Lyophilized Powder for Intravenous Use. Store below 30 °C (86 °F). Directions: See Clinical study protocol for dosage and administration. Keep out of reach of children.
Caution: New Drug - Limited by Federal (USA) law to investigational use only.



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GILEAD



注射用瑞德西韦

Remdesivir for Injection

(仅供临床研究使用)

(For Clinical Trial Use Only)

规格: Strength:	50mg (以 $C_{27}H_{35}N_6O_8P$ 计)
批号: Lot No.:	PRDA200203
生产日期: Date of Manufacture:	2020.02.22
有效期: Expiry Date:	2021.01
贮藏: 密闭, 在 30℃ 以下保存 Store: seal, store below 30℃	
数量:	11 瓶 11 vials

Remdesivir



Remdesivir

In the United States, the [Food and Drug Administration \(FDA\)](#) approved [remdesivir](#) for hospitalized children ≥ 12 years and adults with COVID-19, **regardless of disease severity**

The suggested adult dose is 200 mg intravenously on day 1 followed by 100 mg daily for 5 days total

The remdesivir is **not** recommended in patients with an estimated glomerular filtration rate (eGFR) < 30 mL/min per 1.73 m^2

Liver enzymes should be checked before and during remdesivir administration; alanine aminotransferase **elevations > 10 times** the upper limit of normal should prompt consideration of **remdesivir discontinuation**.

Remdesivir should not be used with [hydroxychloroquine](#) or [chloroquine](#) because of potential drug interactions.



Hydroxychloroquine/chloroquine

In June 2020, the US FDA revoked its emergency use authorization for these agents in patients with severe COVID-19



Hydroxychloroquine/chloroquine

Data from controlled trials suggest that they do **not** provide a clinical benefit for patients with COVID-19 **hospitalized patients**

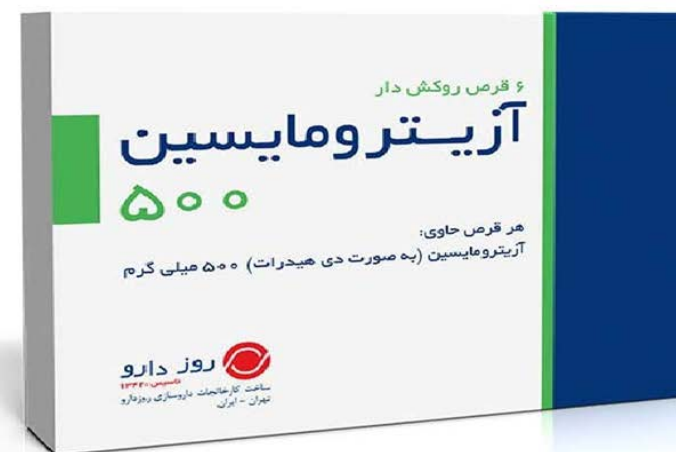
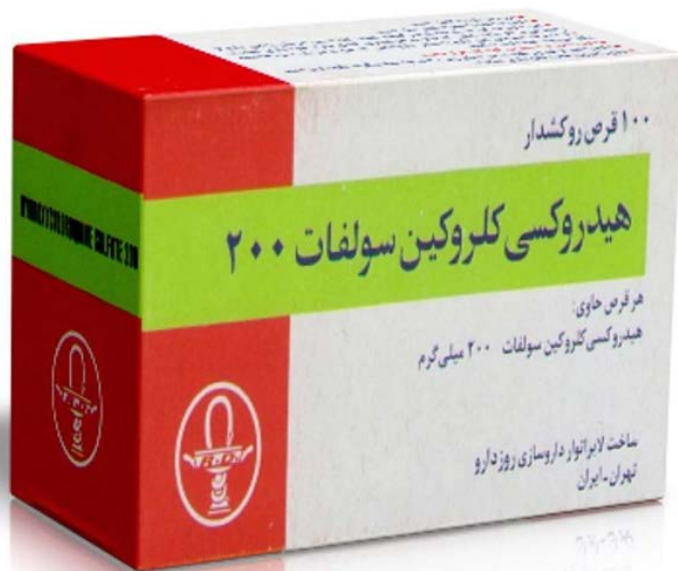


Hydroxychloroquine/chloroquine



Hydroxychloroquine/chloroquine

Azithromycina (with or without hydroxychloroquine)







Favipiravir

RNA polymerase inhibitor that is available for treatment of influenza





Favipiravir



Lopinavir-Ritonavir

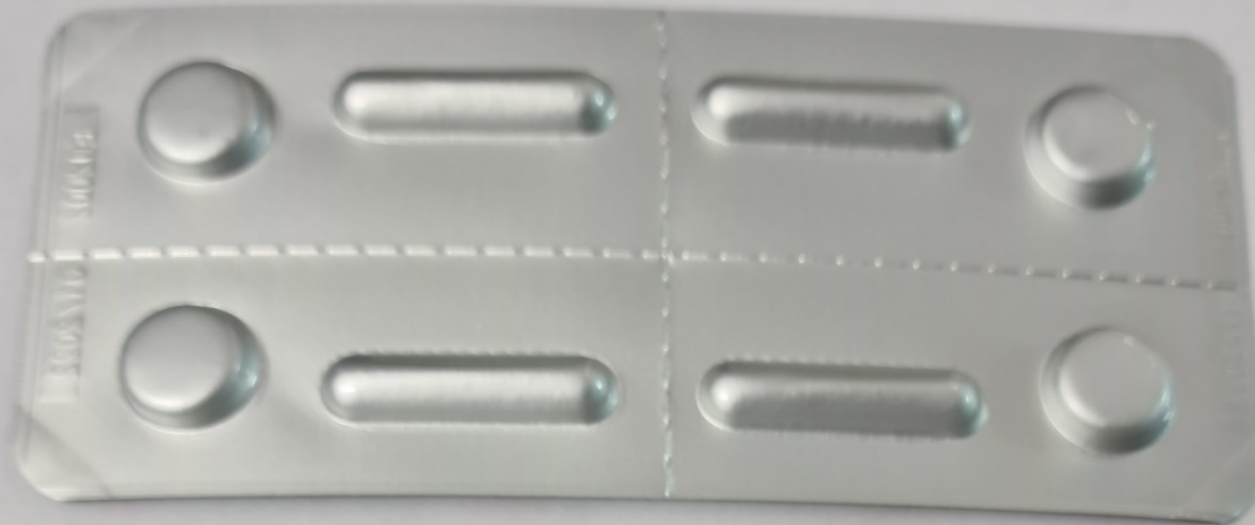


Other HIV Protease Inhibitors



Ivermectin







ایورمکتین ۳

هر قرص حاوی ایورمکتین ۳ میلی گرم



دارنده پروانه ساخت: تدبیر کالای جم / تهران، ایران | محل ساخت: یوروفارمک / فرانسه



Sofosbuvir plus Daclatasvir



Sofosbuvir plus Daclatasvir



Immune-Based Therapy

Dexamethasone and other Glucocorticoids



Dexamethasone and other Glucocorticoids

Dexamethasone reduced 28-day mortality



Dexamethasone

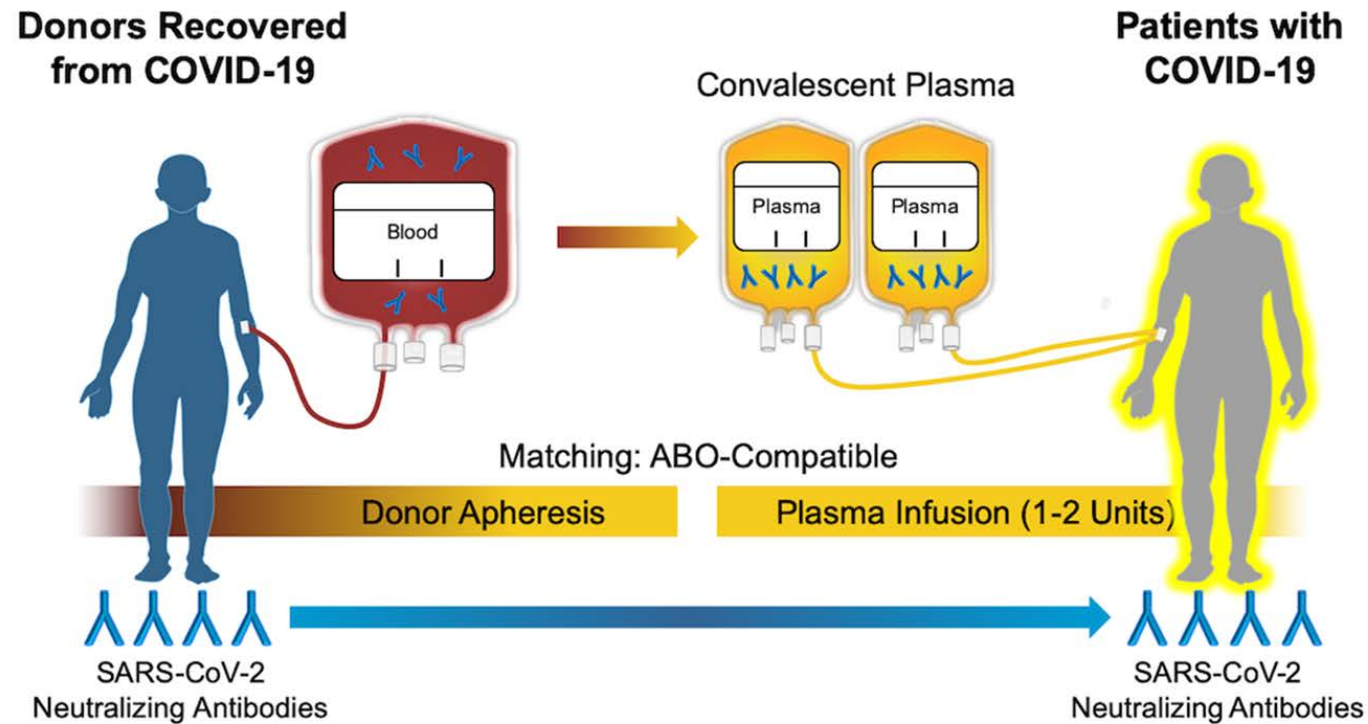
For **severely ill patients** with COVID-19 who are on supplemental oxygen or ventilatory support

Dexamethasone at a dose of **6 mg daily for 10 days** or **until discharge**

dexamethasone (or other glucocorticoids) **not** be used for either prevention or treatment of **mild to moderate** COVID-19 (patients not on oxygen).



Convalescent plasma



Convalescent plasma

Neutralizing antibodies passive antibody-based immunity



Convalescent plasma

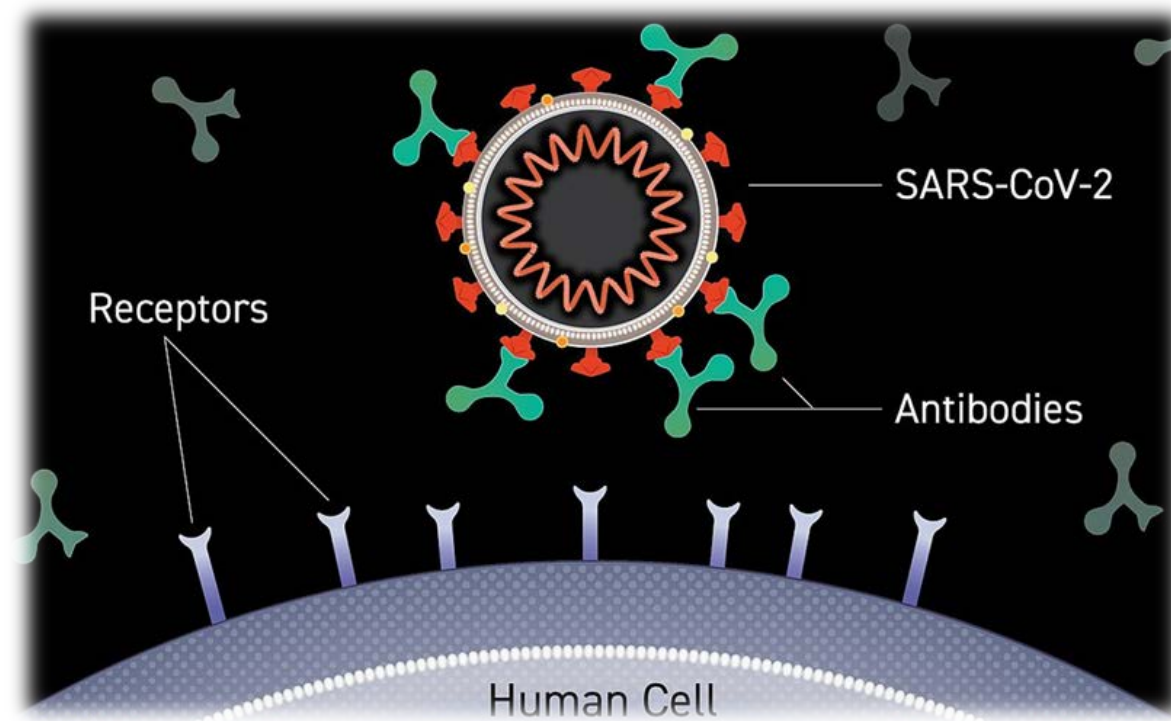
convalescent plasma provides clinical benefit when

- it **contains high neutralizing antibody** titers
- **given early in the course of disease** (in patients who do not require mechanical intubation)
- for individuals with deficits in antibody production (eg, those receiving anti-CD20 therapies)



Monoclonal antibody

Trials of monoclonal antibodies that have been developed to neutralize SARS-CoV-2 by targeting the **SARS-CoV-2 spike protein** and preventing viral cell entry



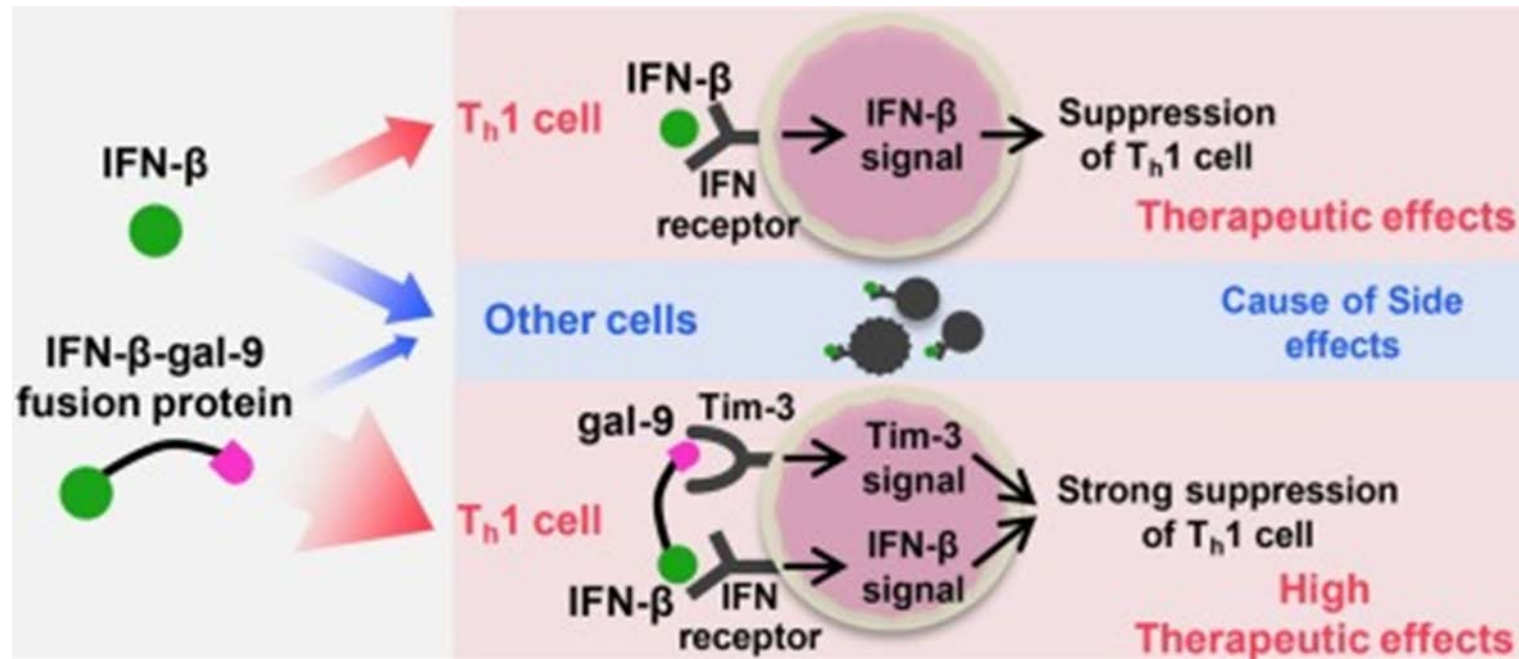
Bamlani--vi--mab

(denoting virus, or viral) (short for monoclonal antibody)



Interferons

Interferons are a **family of cytokines** with **antiviral properties**. They have been suggested as a potential treatment for COVID-19 because of their in vitro and in vivo antiviral properties.



Interferons

Rebif[®]
(interferon beta-1a)
subcutaneous injection



Interferons

Interferon β 1a



Interferons

Interferon β 1b



Interferons

Some trials have suggested a clinical benefit with interferon beta for patients with COVID-19



Interferons

Adverse Effects

- Flu-like symptoms
- Nausea
- Fatigue
- Weight loss
- Hematological toxicities
- Elevated transaminases
- Psychiatric problems (e.g., depression)



Inhaled interferon beta

Inhaled interferon beta, an investigational formulation of the drug delivered by nebulizer, is also being evaluated.



Other Immunomodulators

- ❑ interleukin (IL)-1 inhibitors such as anakinra
- ❑ Interleukin (IL)-6 inhibitors
 - ✓ anti-IL-6 **receptor** monoclonal antibodies (e.g., sarilumab, tocilizumab)
 - ✓ anti-IL-6 monoclonal antibodies (siltuximab)
- ❑ Bruton's tyrosine kinase (BTK) inhibitors, such as acalabrutinib, ibrutinib, and zanubrutinib
- ❑ Janus kinase (JAK) inhibitors, such as baricitinib, ruxolitinib, and tofacitinib

Tocilizumab

recombinant humanized anti-IL-6
receptor **monoclonal antibody**

Tocilizumab can be given with
glucocorticoids but **should not be
administered** if more than 24 hours
have elapsed since

- intensive care unit admission
- Initiation of respiratory support



Tocilizumab

IV

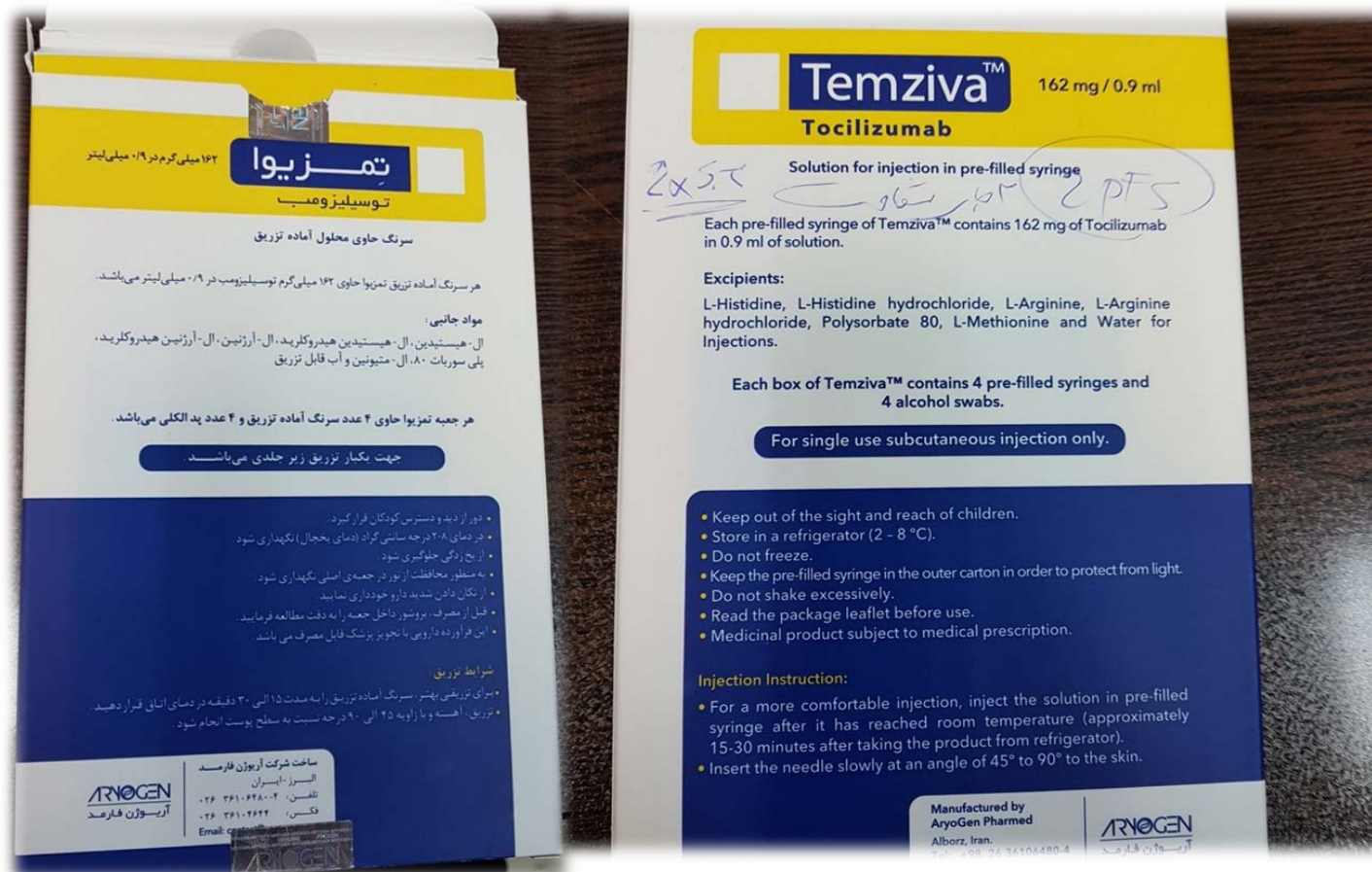


Tocilizumab

SC



Tocilizumab



Tocilizumab

The primary laboratory abnormalities reported with tocilizumab treatment are

- elevated liver enzyme levels (dose dependent)
- Neutropenia or thrombocytopenia
- Increased risk for serious infections (e.g., TB, bacterial or fungal infections)
- Bowel perforation

Baricitinib

Baricitinib is a **Janus kinase inhibitor** used for treatment of *rheumatoid arthritis*.

In addition to **immunomodulatory effects**, it is thought to have potential **antiviral effects** through **interference in viral entry**.



Baricitinib

In the United States, the FDA issued an EUA for baricitinib (4 mg orally once daily for up to 14 days) to be used in combination

with [remdesivir](#) in patients with COVID-19

reduced time to recovery (defined as hospital discharge or continued hospitalization without need for oxygen or medical care)



Adjunctive Therapy

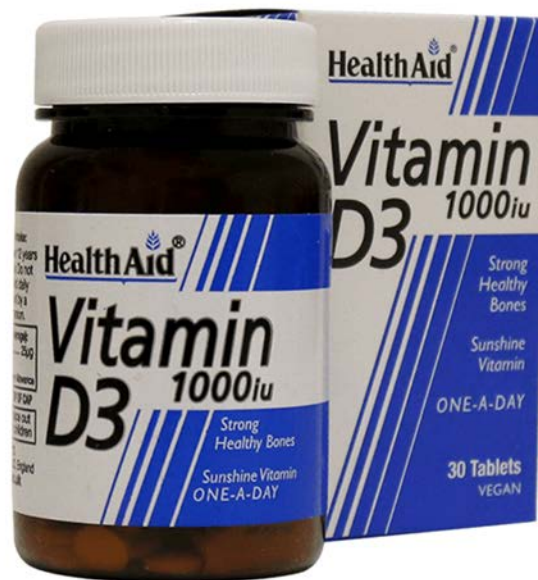
Famotidine



Colchicine



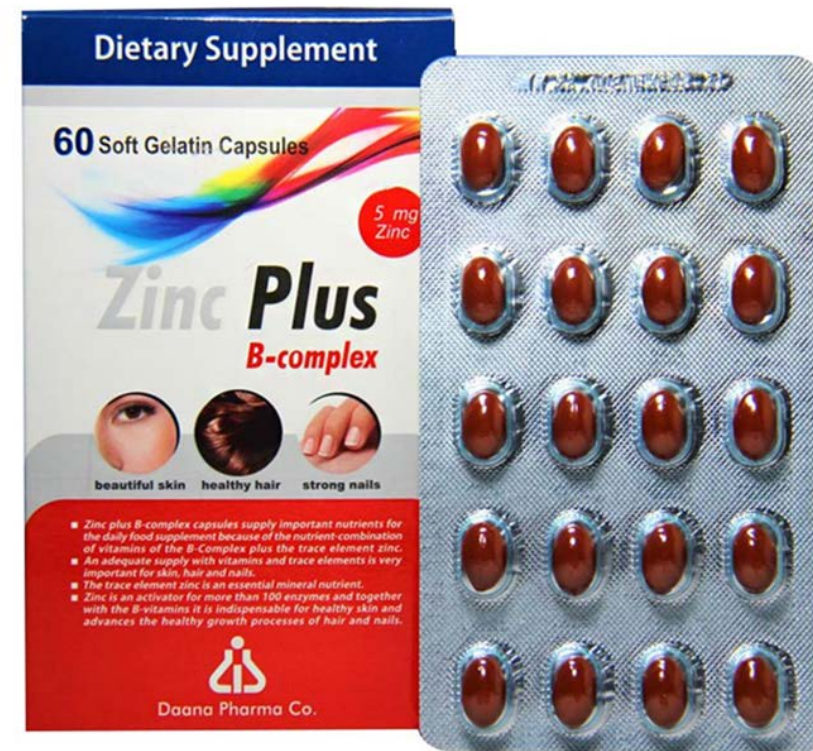
Vitamin D



Vitamin C



Zinc



Fluvoxamine



And to be continued ...

سپاس
از توجه شما