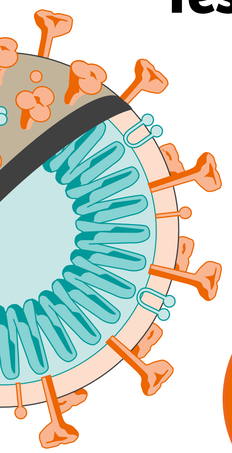
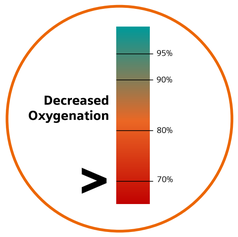
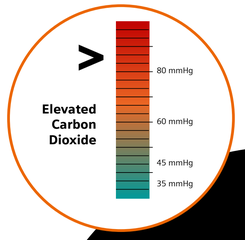
Staying ahead of cytokine storm

Testing for key inflammation markers



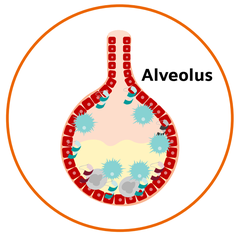
1 of 5 COVID-19 patients develop severe pneumonia[1]



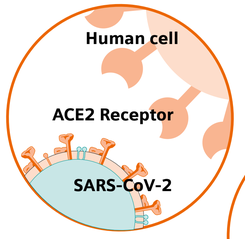


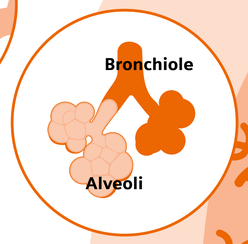
As fluid and damage accumulate in the lungs, it becomes more and more **difficult for the lungs to absorb oxygen and exchange it for carbon dioxide.**

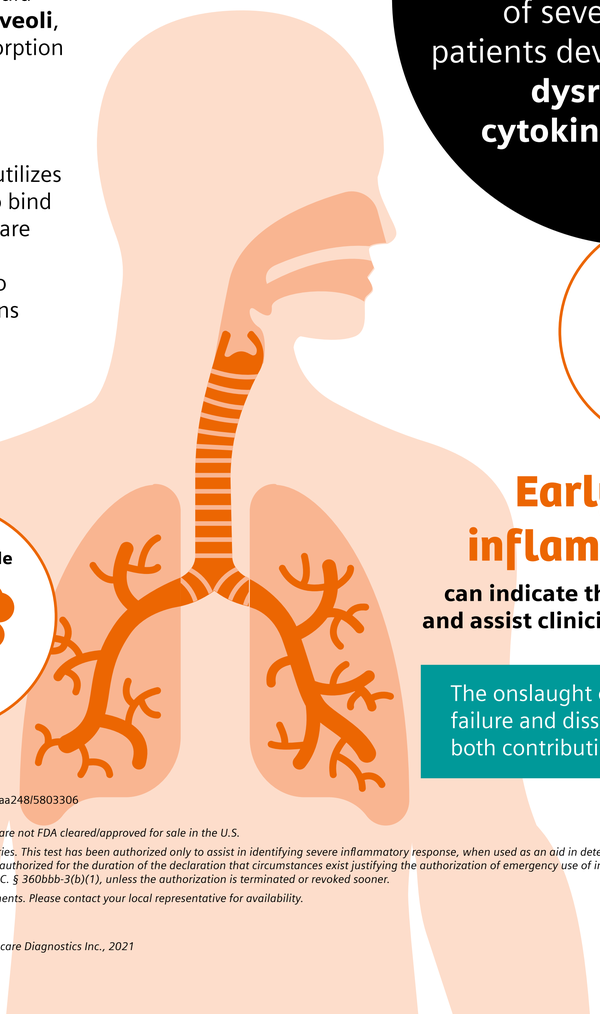
COVID-19 pneumonia is caused by inflammation and fluid accumulation in the **alveoli**, the site of oxygen absorption and diffusion into the blood stream.



The SARS-CoV-2 virus utilizes the **ACE 2 receptor** to bind to alveolar cells which are rich in ACE2 receptors. ACE2 receptors are also found in multiple organs and blood vessels.

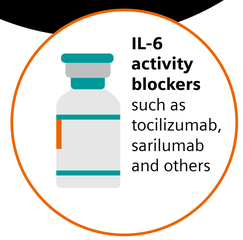




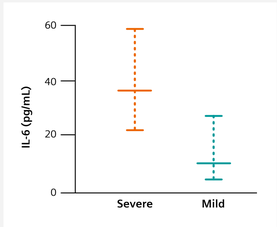


~5% of severe COVID-19 patients develop a **systemic dysregulated cytokine response**[1,2]

Extreme immune response that can cause wide-scale cellular and organ tissue damage



IL-6 levels were higher in COVID-19 patients with severe disease.[3]



High serum levels of **pro- and anti-inflammatory cytokines** were found in patients with severe COVID-19.[4,5]

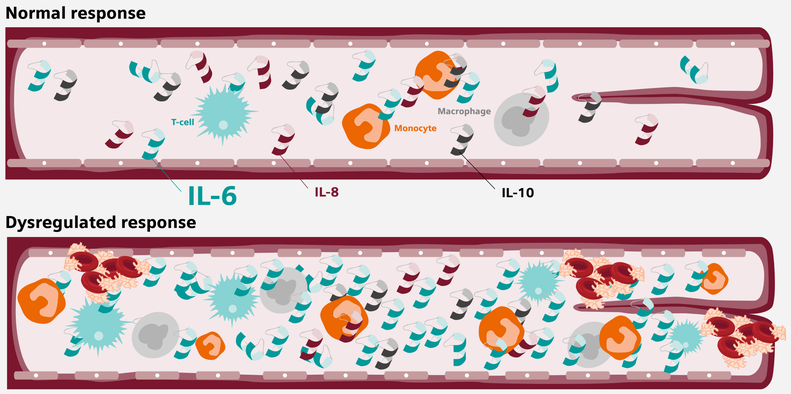
Key Marker IL-6

IL-1ß | TNF-α | IL-8 | IL-2 R | IL-10

Other useful lab tests for cytokine storm patients:

ALT	AST	BIL	LDH	CREKIN
PT/INR	D-DIMER	PCT	CREA	CYS C
SAA	CTNI	CRP	FERR	

Dysregulated cytokines can cause fluid leakage from capillaries generating the formation of multiple blood clots.



Early detection of inflammation markers

can indicate the onset of a cytokine storm and assist clinicians with timely interventions

The onslaught of cytokines can cause multi-organ failure and disseminated intravascular coagulation, both contributing to death.

1. Siddiqi HK, et al. *J Heart Lung Transplant*. 2020. https://doi.org/10.1016/j.healun.2020.03.012
2. Zhou Y, et al. *National Science Review*. 2020. DOI: 10.1093/nsr/nwaa041
3. Gao Y, et al. J Med Virol 2020. https://doi.org/10.1002/jmv.25770
4. Qin C, et al. 2020 *Clin Infect Dis*. https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciaa248/5803306
5. Del Valle, Kim-Schulze, Huang, et al. https://doi.org/10.1101/2020.05.28.20115758

IMMULITE TNFα, IL-1ß, IL2R, IL-6, IL-8, and IL-10, Atellica IM IL- 6, BN and Atellica NEPH SAA assays are not FDA cleared/approved for sale in the U.S.

ADVIA Centaur IL6 assay has been authorized by FDA under an EUA for use by authorized laboratories. This test has been authorized only to assist in identifying severe inflammatory response, when used as an aid in determining the risk of intubation with mechanical ventilation in confirmed COVID-19 patients. This test is only authorized for the duration of the declaration that circumstances exist justifying the authorization of emergency use of in vitro diagnostics for detection and/or diagnosis of COVID-19 under Section 564(b)(1) of the Act, 21. U.S.C. § 360bbb-3(b)(1), unless the authorization is terminated or revoked sooner.

Product availability may vary from country to country and is subject to varying regulatory requirements. Please contact your local representative for availability.

Some or all uses of the analytes described have not been approved or cleared by the FDA.

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