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| **Biomarker** | **Function** | **Reference** |
| ICAM1 | Its ligand role allows the binding stabilization between leukocytes and endothelial cells, facilitating leukocyte endothelial transmigration, serving as a mortality predictor for COVID-19 sepsis. | Pingatelli *et* al, 1994Kaur *et* al, 2021 |
| LIPO | Sequestrates iron and prevent it to be used by bacteria for their growth. Also functions as a growth factor, stimulating immune cells proliferation. Its expression was found to be higher during sepsis onsets. | Yang *et* al, 2002Vazquez *et* al, 2014 |
| MPO | Peroxidase is an enzyme that is expressed in neutrophil granulocytes. It produces hypohalous acid to be used in antimicrobial activities. Therefore, its upregulation is positively associated with cytokine storms and consequently, being a predictor of death. | Nichols and Hazen, 2005 |
| VCAM | Promotes the adhesion of immune cells to vascular endothelium. It was found to be elevated in COVID-19 patients (mild) and drastically elevated in severe manifestations. | Kong *et* al, 2018Tong *et* al, 2020 |
| D-Dimer | It is a small product found in blood after the dissolution of blood clots. Elevated levels of it have been associated to predicting severity in COVID-19 infections. | Asakura and Ogawa, 2021Lehmann *et* al, 2021 |
| E-selectin | Expressed by endothelial cells, this glycoprotein slows down leukocytes rolling, promoting the recruitment of immune cells to the endothelium. This protein was found to be a predictor of ICU admission in COVID-19 patients. | Timmerman *et* al, 2016Oliva *et* al, 2021 |
| Ferritin | Increased ferritin levels represent a host immune mechanism that deprives iron-based bacterial growth. Critical COVID patients showed higher levels of it compared to mild, granting the predictive characteristic to the biomarker. | Kernan and Carcillo, 2017Kaushal *et* al, 2022 |
| SPD | It is predominantly found in the lung surfactant. It promotes the aggregation of inhaled microorganisms, protecting the lung. Higher concentrations of it were suggested to be associated with severe lung injuries. | Sorensen, 2018Tong *et* al, 2021 |
| PDL1 | It supresses the immune system by a binding interaction (with PD1), transmitting an inhibitory signal. It is upregulated in critical manifestations of COVID. | Ahmadzadeh *et* al, 2009Sabbatino *et* al, 2021 |
| GCSF | Causes cells (mainly neutrophils) found in the bone marrow to become mature and activated, ready to circulate in the blood stream.  | Brender *et* al, 2006 |
| IL1β | It is a cytokine that marks several cellular activities, such as cell proliferation, differentiation, and apoptosis. It also has a pro-inflammatory role. The suppression of IL1b in inflammatory states was potentially identified as having therapeutic effects in preventing respiratory failures caused by COVID-19. | Andenæs *et* al, 2018Conti *et* al, 2020Van de Veerdonk *et* al, 2020 |
| IL1ra | Inhibits the activities of IL1β. | Patterson *et* al, 2003 |
| VEGFC | Promotes the growth of new blood vessels, being involved in migration, growth, and differentiation of endothelial cells. Apart from angiogenesis, it also induces vascular leakiness and permeability, therefore, anti-VEGFC therapeutics are potential candidates for treatment in ICU patients. | Rauniyar *et* al, 2018Sahebnasagh *et* al, 2021Turkia 2020 |
| ANG2 | Promotes angiogenesis. In a context-dependent scenario, acts alongside with VEGFC to form new blood vessels. | Fangiani and Christofori, 2013 |
| CXCL10 | Chemoattractant for immune cells. Promotes the adhesion of T cells to endothelial cells. High levels of it were associated with predicting severity of COVID. | Lee *et* al, 2009Lore *et* al, 2021 |
| GMCSF | It stimulates stem cells to produce granulocytes and monocytes. Increased concentrations of GMCSF were reported in COVID-19 patients compared to healthy controls. | Francisco-Cruz *et* al, 2014Leavis *et* al, 2022 |
| IL10 | Downregulates the expression of cytokines, antigens, and stimulant factors, limiting the host immune response. It was found to drastically rise in severe cases of COVID-19. | Iyer and Cheng, 2012Islam *et* al, 2021 |
| IL17a | Allows the maturation of non-mature immune cells. It also links activation of T cells to neutrophil mobilization. Interestingly, it was linked as a marker of disease progression as it activates inflammatory pathways, resulting in cytokine storms. | Zenobia and Hajishengallis, 2015Maione *et* al, 2021 |
| IL6 | IL-6 maintain both pro- and anti-inflammatory cascade by binding with its soluble and cognate receptor respectively. Its upregulation marks the progression of severity in COVID-19 patients. | Scheller *et* al, 2011Cruz *et* al, 2021 |
| IL7 | Stimulates cellular differentiation of hematopoietic stem cells into lymphoid progenitor cells. Therapies based on it were associated with restoration of lymphocytes, enhancing the antiviral activity. | Laterre *et* al, 2020Chen *et* al, 2021 |
| CCL2 | Promotes the recruitment of monocytes, T cells, and dendritic cells to sites of inflammation. High levels of it correlates with activation of coagulation and respiratory impairment, related to pathology of COVID-19. | Carr *et* al, 1994Nieri *et* al, 2021 |
| GRANB | It is found in the granules of immune cells. This enzyme is secreted to mediate apoptosis. GRANB inhibitors are potential targets for therapeutics, aiming to regulate the pro-inflammatory activity of the biomarker. | Velotti *et* al, 2020 |
| IFNɣ | Primary activator of macrophages and stimulant of natural killer cells and neutrophils. Its expression was found to be higher in immune cells of critically ill patients. | Schoenborn and Wilson, 2007Gadotti *et* al, 2020 |
| IL12 | It activates T cells and natural killers; it also increases their toxicity. High levels of it were associated with severe progression of COVID-19. | Kaliński *et* al, 1997Moll-Bernardes *et* al, 2021 |
| IL15 | It regulates the activation and proliferation of T cells and natural killers. It has a role in viral clearance and has been suggested as a potential immunotherapy. | Perera *et* al, 2012Kandikattu *et* al, 2020 |
| IL2 | It is a T-cell growth factor. Its levels were found elevated in critical COVID-19 patients. | Jian *et* al, 2016Shi *et* al, 2020 |
| IL4 | It induces the differentiation of naïve T cells into Th2 cells. It also regulates antibody production. When compared to H1N1 patients, higher levels of IL4 were found in COVID-19 induced lung injuries. | Gadani *et* al, 2013Vaz de Paula *et* al, 2020 |
| TNF-ɑ | It mediates inflammatory responses by regulating growth and differentiation of several immune cells. Inhibitors of this protein were linked to a lower probability of hospitalization. | Idriss and Naismith, 2000.Guo *et* al, 2022 |

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