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**Now available at ArminLabs:**

**SARS-CoV-2 Antibody Testing**

* ELISA IgG & IgA (available now)
* IgG & IgM Quick Test (available from April 7th)
* RT-PCR (available from April 14th)

The emerging Coronavirus (SARS-CoV-2 – Severe Acute Respiratory Syndrome Coronavirus 2) led to an outbreak of the respiratory disease "COVID-19" (coronavirus disease 19) in Wuhan, China, in December 2019. Similar to previous outbreaks of human coronavirus infection, SARS-CoV in 20031,2 and MERS-CoV in 20123, the new SARS-CoV-2 infection causes clinical symptoms such as **fever, dry cough, myalgia** and/or **fatigue**. Some patients may suffer from pain or symptoms like a stuffy or runny nose, sore throat, loss of smell (anosmia)/taste (ageusia) or diarrhoea. COVID-19 developed into a **pandemic** that spread rapidly in China and later worldwide.

The outbreak of this disease has forced state authorities to take drastic steps to contain the situation, including the quarantine of many millions of people across the world. However, these efforts are limited by a serious problem - the **differentiation** of those who are/have been infected with **COVID-19** from **those who do not have the infection**. The clinical symptoms present in confirmed COVID-19 cases are **not unique** to COVID-19 since they are similar to those of other infectious viral diseases such as influenza4. The viral nucleic acid real-time polymerase chain reaction test is currently the standard tool for supporting clinical diagnosis of the infection5 despite long turnaround times, the expensive equipment required and reports of false negative results for the COVID-19 RT-PCR6. It seems important to use various tests to ensure a **substantiated, comprehensive diagnosis**:

* **Screening tests** (these can be used broadly and are **highly sensitive**, though at the expense of lower specificity as the need to detect positive cases supersedes the risk of false-negative cases): **RT-PCR direct detection of the pathogen**
* **Quick diagnostic tests** (a **swift diagnosis** should be ensured based on clinical symptoms; this may impair sensitivity) – **SARS-CoV-2 IgG & IgM Quick Test**
* **Confirmation tests** (used to confirm previous screening or diagnostic tests such as the RT-PCR; confirmation tests are recommended to gain additional information to support the clinical diagnosis; they have **high sensitivity** and **specificity**): **SARS-CoV-2 ELISA IgG & IgA**

To support efforts to contain the further spread there is an urgent need to use different test methods to swiftly **identify** and **classify** **patients** **infected** **with SARS-CoV-2**. This will help **prevent further transmission** of the virus and **ensure early treatment** of patients.

**SARS-CoV-2 ELISA IgG & IgA Antibody Testing (available now)**

The human organism needs some time (usually around 2 - 3 weeks) to produce antibodies against SARS-CoV-27. Antibody tests are intended to **support the diagnosis** of a SARS-CoV-2 infection and **complement direct detection of the pathogen** (PCR). Serology can also be used to collect epidemiological data, which is especially important in the case of this largely unexplored new infection.

* Median seroconversion is 13 days after the onset of symptoms – half of the patients have no detectable antibodies within the first 12 days
* The seroconversion rate is almost 100% 20 days after the onset of symptoms

The SARS-CoV-2-ELISA used by ArminLabs is highly sensitive and specific. IgA and IgG antibodies have a **sensitivity** of **89 - 100%**. **Specificity** of the **IgA antibodies** is **87.5 - 100%**, and **83.5 - 97.5%**8 for **IgG antibodies.** The antigen (S1 domain) used in the test is particularly appropriate for the serological detection of SARS-CoV-2 antibodies as it is more specific than the N or full-length S. The test is **CE certified**, **IVD registered** **and validated**. The SARS-CoV-2 ELISA is therefore suited both to **supporting** the **diagnosis of SARS-CoV-2** **infections** as well as **distinguishing** these **from infections with other pathogens** that cause similar symptoms.

* Differentiates SARS-CoV-2 from other acute pulmonary infections such as the influenza virus
* Provides diagnostic assistance in the event of a fresh infection
* Can document a current or previous infection approx. 2-3 weeks after the onset of symptoms
* Documents potential immunity if an IgG antibody is detected, without the presence of IgA
* The IgA antibody test in particular is not recommended for screening asymptomatic individuals

**SARS-CoV-2 IgG & IgM Quick Test (available from April 7th)**

The Antibody Quick Test for COVID-19 used by ArminLabs is a rapid test for the qualitative detection of IgG and IgM antibodies against the emerging Coronavirus in human serum, plasma or whole blood in vitro:

* Accurate
* Can be performed using whole blood, serum or plasma
* Tests for IgM and IgG antibodies
* Validation via PCR has already been performed

**SARS-CoV-2 RT-PCR (available from April 14th)**

**Further testing recommendations**

Elderly people and patients with underlying medical conditions such as hypertension, cardiac issues or diabetes, cancer, another active infection and/or those suffering from immunosuppression are more likely to experience more severe symptoms of COVID-198, 9, 10. We therefore additionally recommend checking

**innate (CD3+) and natural killer cell (CD56+/CD57+) immune status**, as well as other **parameters** **related** **to current immune status**:

* [**CD3+/CD56+/CD57+ Cell Count**](https://www.arminlabs.com/de/tests/nk-cells-cd) **(heparin & EDTA blood tubes additionally required)**
* [**Zonulin**](https://www.arminlabs.com/de/services/tick-borne-diseases/complementary-tests)
* [**Vitamin D3**](https://www.arminlabs.com/de/services/tick-borne-diseases/complementary-tests)

**Please check the information about these parameters provided on our website** [**www.arminlabs.com**](http://www.arminlabs.com) **.**

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