Serology characteristics of SARS-CoV-2 infection after exposure and post-symptom onset

Bin Lou1,2,3, Ting-Dong Li4,5,7, Shu-Fa Zheng1,2,3,7, Ying-Ying Su4,5,7, Zhi-Yong Li5, Wei Liu4,5, Fei Yu1,2,3, Sheng-Xiang Ge4,5,8, Qian-Da Zou1,2,3, Quan Yuan4,5, Sha Lin1,2,3, Cong-Ming Hong4,5, Xiang-Yang Yao5, Xue-Jie Zhang4,5, Ding-Hui Wu5, Guo-Liang Zhou4,5, Wang-Heng Hou4,5, Ting-Ting Li4,5, Ya-Li Zhang4,5, Shi-Yin Zhang4,5, Jian Fan1,2,3,8, Jun Zhang4,5,8, Sheng-Xiang Ge4,5,8, Qian-Da Zou1,2,3, Yu Chen1,2,3,6,8

Affiliations: 1Dept of Laboratory Medicine, the First Affiliated Hospital, College of Medicine, Zhejiang University, Hangzhou, China. 2Key Laboratory of Clinical In Vitro Diagnostic Techniques of Zhejiang Province, Hangzhou, China. 3Institute of Laboratory Medicine, Zhejiang University, Hangzhou, China. 4The State Key Laboratory of Molecular Vaccinology and Molecular Diagnostics, National Institute of Diagnostics and Vaccine Development in Infectious Diseases, Collaborative Innovation Center of Biologic Products, School of Public Health and School of Life Science, Xiamen University, Xiamen, China. 5School of Public Health, Xiamen University, Xiamen, China. 6State Key Laboratory for Diagnosis and Treatment of Infectious Diseases, Collaborative Innovation Center for Diagnosis and Treatment of Infectious Diseases, First Affiliated Hospital, College of Medicine, Zhejiang University, Hangzhou, China. 7Bin Lou, Ting-Dong Li, Shu-Fa Zheng and Ying-Ying Su contributed equally to this article. 8Yu Chen, Jian Fan, Sheng-Xiang Ge and Jun Zhang contributed equally to this article as lead authors and jointly supervised the work.

Correspondence: Yu Chen, Dept of Laboratory Medicine, First Affiliated Hospital, College of Medicine, Zhejiang University, Hangzhou, China. E-mail: chenyuzy@zju.edu.cn, 1200011@zju.edu.cn

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Antibody responses were induced after SARS-CoV-2 infection, and the complementary diagnostic value of the antibody test to the RNA test was observed. Antibody tests are critical to the clinical management and control of SARS-CoV-2 infection and COVID-19. https://bit.ly/3fQZwZp

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ABSTRACT

Background: Timely diagnosis of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection is a prerequisite for treatment and prevention. The serology characteristics and complement diagnosis value of the antibody test to RNA test need to be demonstrated.

Method: Serial sera of 80 patients with PCR-confirmed coronavirus disease 2019 (COVID-19) were collected at the First Affiliated Hospital of Zhejiang University, Hangzhou, China. Total antibody (Ab), IgM and IgG antibodies against SARS-CoV-2 were detected, and the antibody dynamics during the infection were described.

Results: The seroconversion rates for Ab, IgM and IgG were 98.8%, 93.8% and 93.8%, respectively. The first detectable serology marker was Ab, followed by IgM and IgG, with a median seroconversion time of 15, 18 and 20 days post exposure (d.p.e.) or 9, 10 and 12 days post onset (d.p.o.), respectively. The antibody levels increased rapidly beginning at 6 d.p.o. and were accompanied by a decline in viral load. For patients in the early stage of illness (0–7 d.p.o), Ab showed the highest sensitivity (64.1%) compared with IgM and IgG (33.3% for both; p<0.001). The sensitivities of Ab, IgM and IgG increased to 100%, 96.7% and 93.3%, respectively, 2 weeks after onset.

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later. When the same antibody type was detected, no significant difference was observed between enzyme-linked immunosorbent assays and other forms of immunoassays.

**Conclusions:** A typical acute antibody response is induced during SARS-CoV-2 infection. Serology testing provides an important complement to RNA testing in the later stages of illness for pathogenic-specific diagnosis and helpful information to evaluate the adapted immunity status of patients.