

Supplementary methods:

Participants:

Patients were included prospectively in this multicenter study from June 2017 to June 2019 (NCT03163628). The ANTOINE study was registered to the French National Data Protection Agency under the number 17-168 and was approved by an ethics committee for biomedical research in May 2017 (Comité de Protection des Personnes Sud Méditerranée II) under the number 217 R18. For each participant, written informed consent was obtained from parents or legal guardians for participation of the febrile children in the ANTOINE study. Febrile children aged from 7 days to 36 months attending a pediatric emergency department for a suspicion of infection were recruited prospectively in three different hospitals based in Lyon, Villefranche sur Saone, and Colombes in France. Inclusion criteria were fever for more than 6 h (temperature 38 °C between 7 days and 3 months and 38.5 °C between 3 months and 36 months) for which the physician prescribed venipuncture for suspected severe bacterial infection before any antibiotic treatment. For this study, Paxgene® tubes and serum were collected together with clinical blood tests.

All critically ill patients, admitted to intensive care unit, were included in the MIR-COVID study. This study was registered to the French National Data Protection Agency under the number 20-097 and was approved by an ethical committee for biomedical research (Comité de Protection des Personnes HCL) under the number N°20-41. In agreement with the General Data Protection Regulation (Regulation (EU) 2016/679 and Directive 95/46/EC) and the French data protection law (Law n°78-17 on 06/01/1978 and Décret n°2019-536 on 29/05/2019), we obtained consent from each patient or his next of kin.

Healthcare workers were included prospectively in the multi-center COVID-SER study conducted in three Hospitals in Lyon, France: Hospital Lyon Sud, Hospital Edouard Herriot and Hospital Croix-Rousse. Written consent was obtained for all participants. Ethical approval has been obtained from the national review board for biomedical research in April 2020 (Comité de Protection des

Personnes Sud Méditerranée I, Marseille, France) under the number ID RCB 2020-A00932-37. The international trial registration number in ClinicalTrial.gov is NCT04341142.

Healthy volunteers were recruited from Etablissement Français du Sang (EFS). We used the Etablissement Français du Sang standardized procedures for blood donation and followed provisions of articles R.1243–49 and the French public health code to obtain written non-opposition to the use of donated blood for research purposes from healthy volunteers. The blood donors' personal data were deidentified before transfer to our research laboratory. We obtained the favorable notice of the local ethics committee (Comité de Protection des Personnes Sud-Est II, Bâtiment Pinel, 59 Boulevard Pinel, 69500 Bron) and acceptance from the French ministry of research (Ministère de l'Enseignement supérieur, de la Recherche et de l'Innovation, DC-2008-64) for the handling and conservation of these samples.