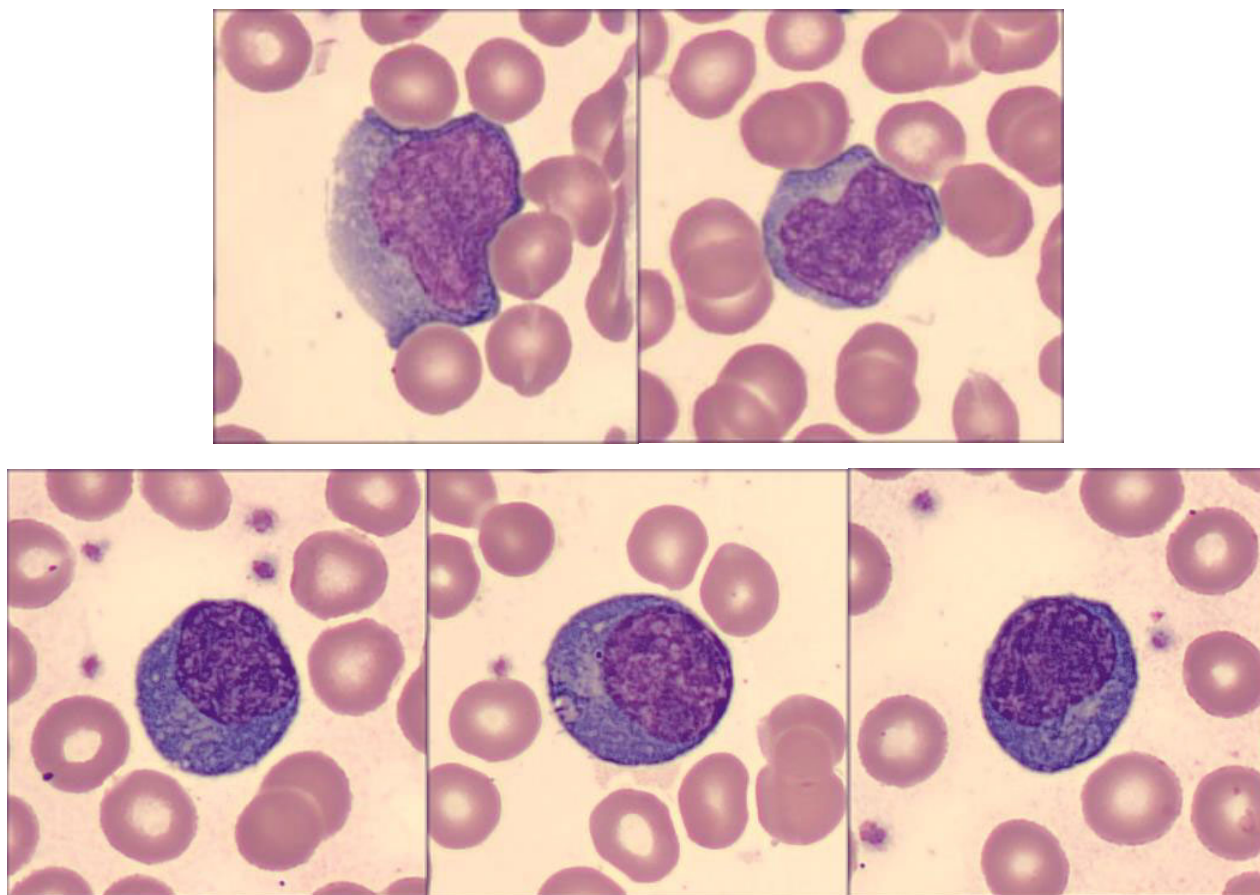


## Reactive lymphocytes in patients with COVID-19



From 23 January to 27 February 2020, Singapore had 96 COVID-19 cases confirmed by real time reverse transcriptase-polymerase chain reaction (RT-PCR) for SARS-CoV-2. We examined the peripheral blood films of 32 patients and found reactive lymphocytes as shown in the top images in 23 cases (72%). This is in stark contrast to the pattern with coronavirus responsible for the 2003 SARS outbreak where reactive lymphocytes of this type were not present in a review of 185 SARS cases in Singapore and were present in only 15.2% of 138 cases in Hong Kong.<sup>1,2</sup> Reactive lymphocytes are commonly seen in other viral diseases such as dengue fever and infectious mononucleosis. They have varied morphological features. The most common subtype seen in our COVID-19 patients displayed a distinctive abundant pale blue cytoplasm that often abuts adjacent red blood cells (top left and right). Strikingly, lymphoplasmacytoid lymphocytes were present in 16 out of 23 patients (bottom images: left, right and centre). These are small mature lymphocytes with

condensed chromatin and an eccentric nucleus, occasionally with a paranuclear hof. Lymphoplasmacytoid lymphocytes are also seen in dengue fever and in several B-cell non-Hodgkin lymphomas. Reactive lymphocytes of both types can coexist in a single peripheral blood film in COVID-19 patients.

**Vanessa C. L. Chong, Kian Guan Eric Lim, Bingwen Eugene Fan, Stephrene S. W. Chan, Kiat H. Ong and Ponnudurai Kuperan**

*Tan Tock Seng Hospital, Singapore. E-mail: vanessa.chong@mohh.com.sg*

### References

1. Chng WJ, Lai HC, Earnest A, Kuperan P. Haematological parameters in severe acute respiratory syndrome. *Clin Lab Haematol.* 2005;27:15–20.
2. Lee N, Hui D, Wu A, Chan P, Cameron P, Joynt GM, et al. A major outbreak of severe acute respiratory syndrome in Hong Kong. *N Engl J Med.* 2003;348:1986–94.