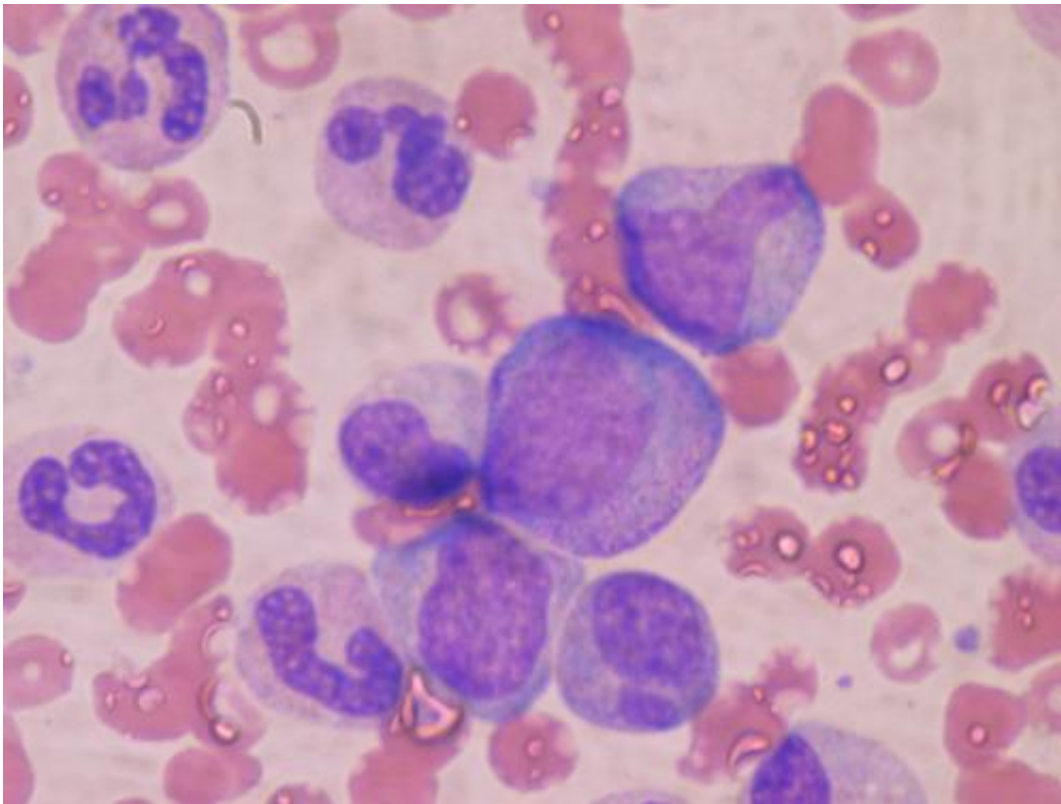


# Role of bone marrow immune cells in COVID-19 revealed

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Hematopoietic precursor cells: promyelocyte in the center, two metamyelocytes next to it and band cells from a bone marrow aspirate. Credit: Bobjgalindo/Wikipedia

White blood cells called monocytes released into the blood from bone marrow have abnormal features in people who have COVID-19, according to a new study by University of Manchester immunologists at

the Lydia Becker Institute.

And the team from the Coronavirus Immune Response and Clinical Outcome (CIRCO) consortium say the abnormalities are greater in patients with severe infection.

By spotting the abnormal monocytes early, doctors may be able to predict which patients are more likely to develop severe disease.

The study provides the strongest evidence yet that monocytes may be an important therapeutic target for a COVID-19 treatment.

It is not yet clear, say the team, if abnormal monocytes are released from the bone marrow or if the changes happen after they enter the blood.

However, treatments preventing their release from [bone marrow](#) may help reduce the exaggerated [immune response](#) that contributes to poor outcomes in patients with severe COVID-19.

The paper in *Science Immunology* is the first to be published by the consortium, based at The University of Manchester.

Scientists already know that monocytes—the largest type of white [blood](#) cell—are an important component in the lung during infection and play roles in protection and repair.

The team analyzed over a hundred [blood samples](#) from COVID-19 patients admitted to four hospitals across Greater Manchester to search for biomarkers that signal progression to severe disease at various points in their hospital stay.

Dr. John Grainger, deputy director of the Lydia Becker Institute and a senior author on the study, said, "Our work once again highlights the

importance of the innate immune system in COVID-19, we're excited to be able to finally share the results of our study and hope that it can better inform treatments for this devastating disease".

The CIRCO consortium draws together immunological expertise from the Lydia Becker Institute with clinicians and research nurses at Salford Royal, Wythenshawe, North Manchester and Manchester Royal NHS Trusts.

It was set up during the first wave of the pandemic to collect longitudinal samples from patients with diagnosed COVID-19, studying their immune response from hospital admission through to outcome.

**More information:** Elizabeth R. Mann et al. Longitudinal immune profiling reveals key myeloid signatures associated with COVID-19, *Science Immunology* (2020). [DOI: 10.1126/sciimmunol.abd6197](https://doi.org/10.1126/sciimmunol.abd6197)

Provided by University of Manchester

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