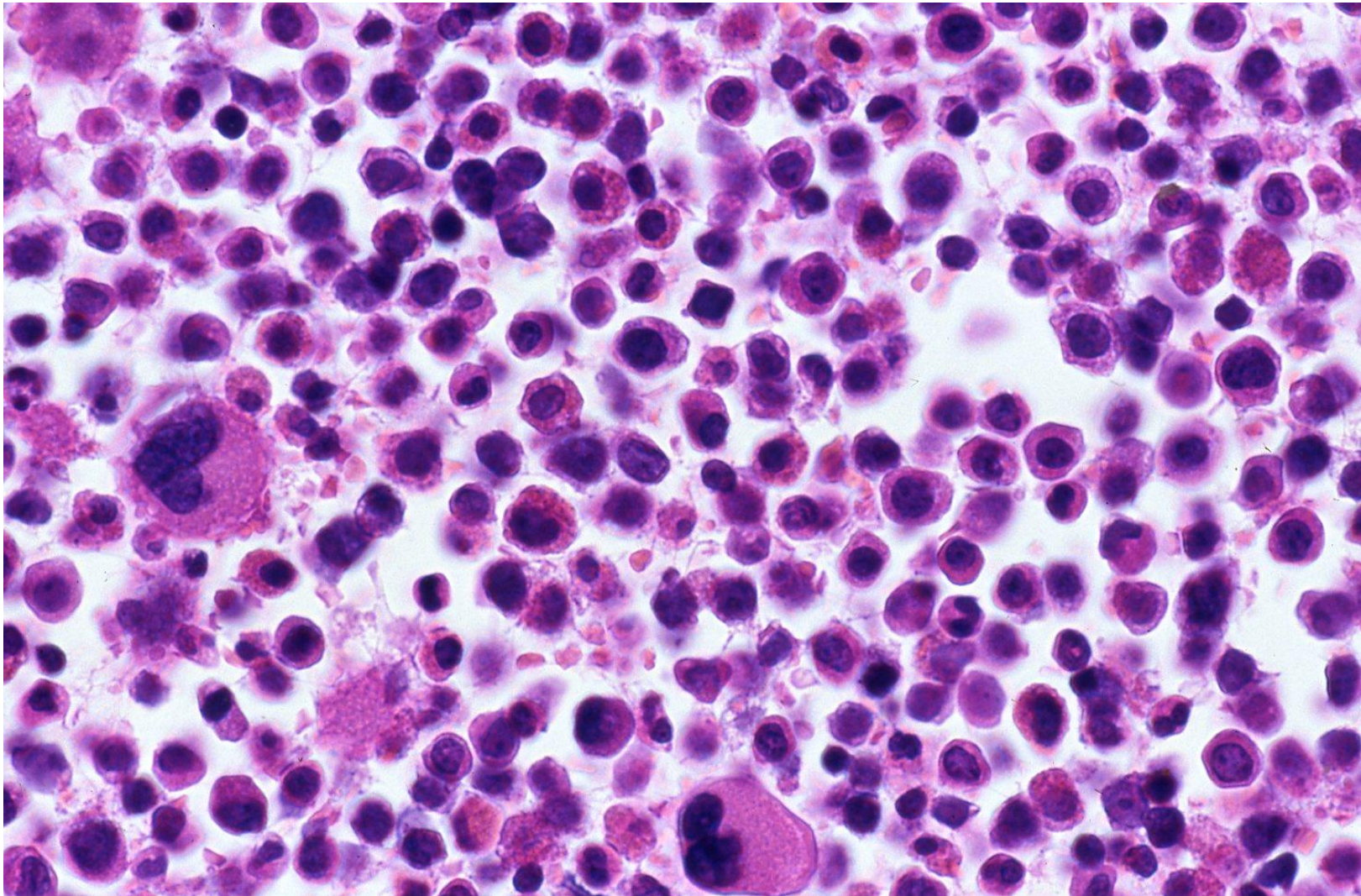


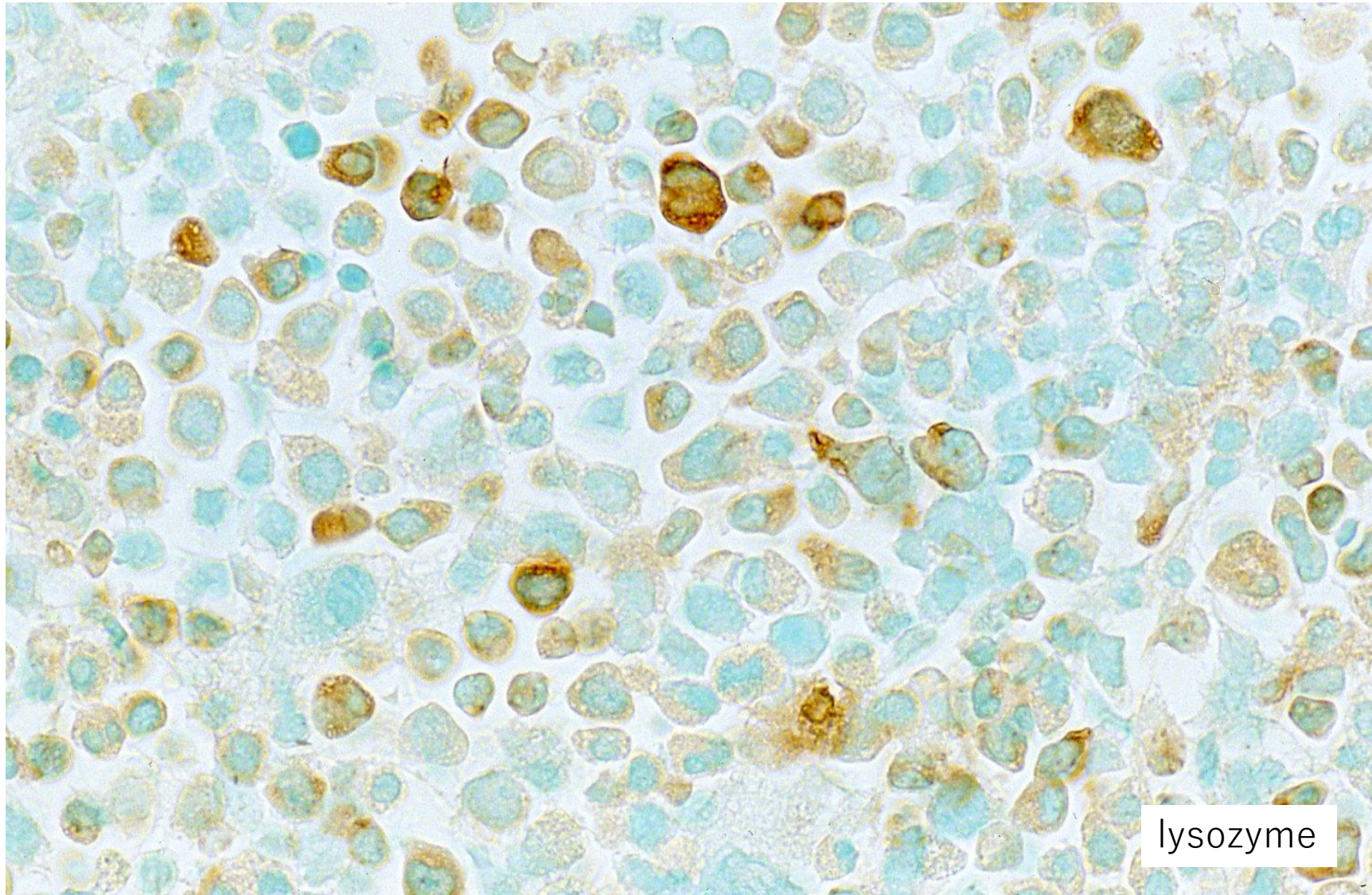
Chronic myeloid leukemia, myeloid crisis

Blast crisis remains a major therapeutic challenge in chronic myeloid leukemia (CML). Blast crisis can be myeloid, lymphoid, or mixed lineage, with myeloid crisis being the most common type sharing 70-80%. Blast crisis in CML is mediated by aberrant tyrosine kinase activity of the BCR::ABL fusion protein. The introduction of BCR::ABL tyrosine kinase inhibitor (TKI), Imatinib, has been utilized for the treatment of CML, and there has been a significant reduction in the incidence of blast crisis. Mutations in TP53 and isochromosome i(17q) may be seen in myeloid blast crisis.

Ref.: Yohanan B, George B. Current management of chronic myeloid leukemia myeloid blast phase. Clin Med Insights Oncol 2022; 16: 11795549221139357. doi: 10.1177/11795549221139357

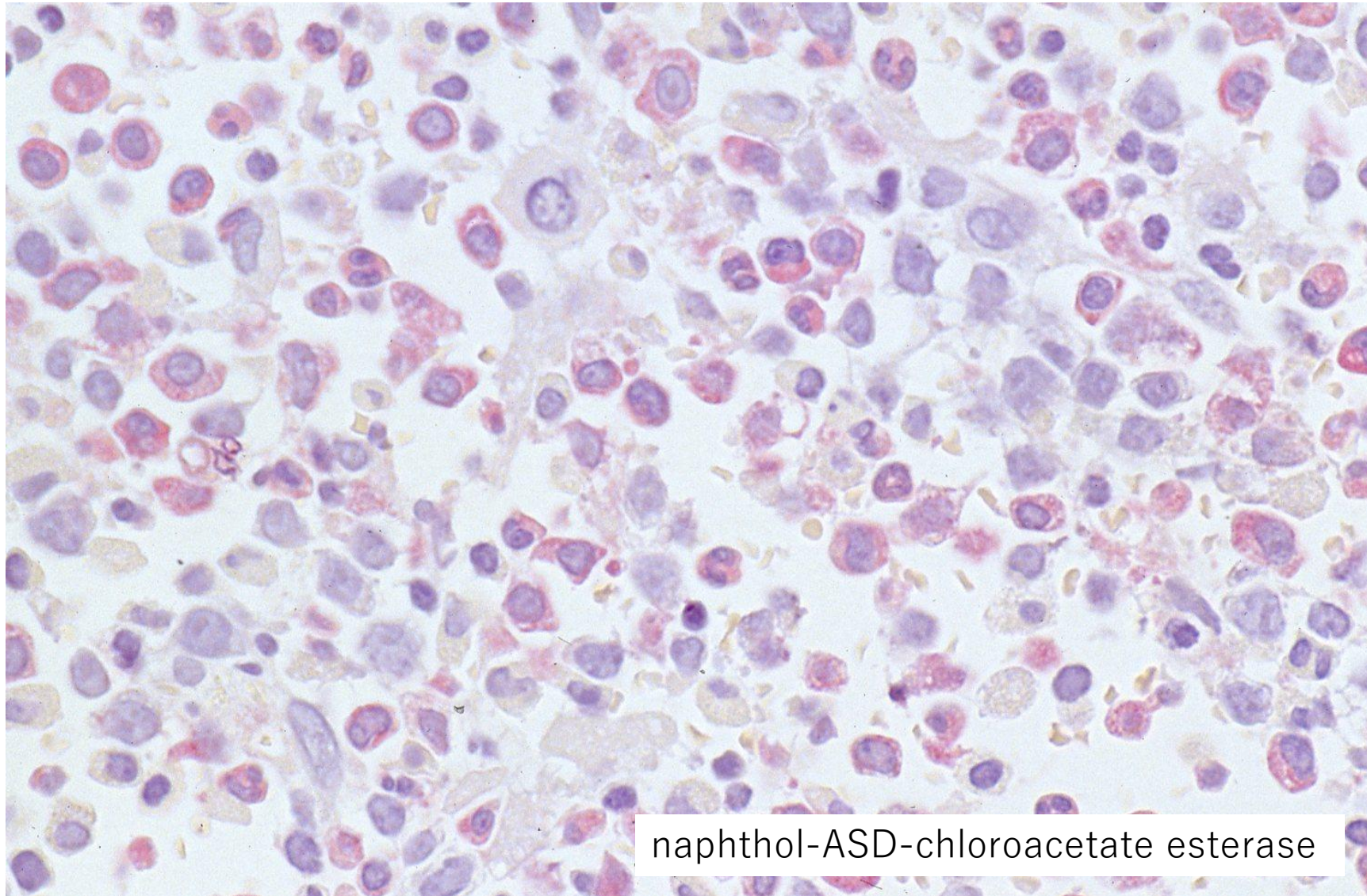


CML, myeloid blast crisis, seen in a male patient aged 50's. The bone marrow is replaced by blastic cells with fine granular cytoplasm. A few megakaryocytes remain in the marrow space (H&E).



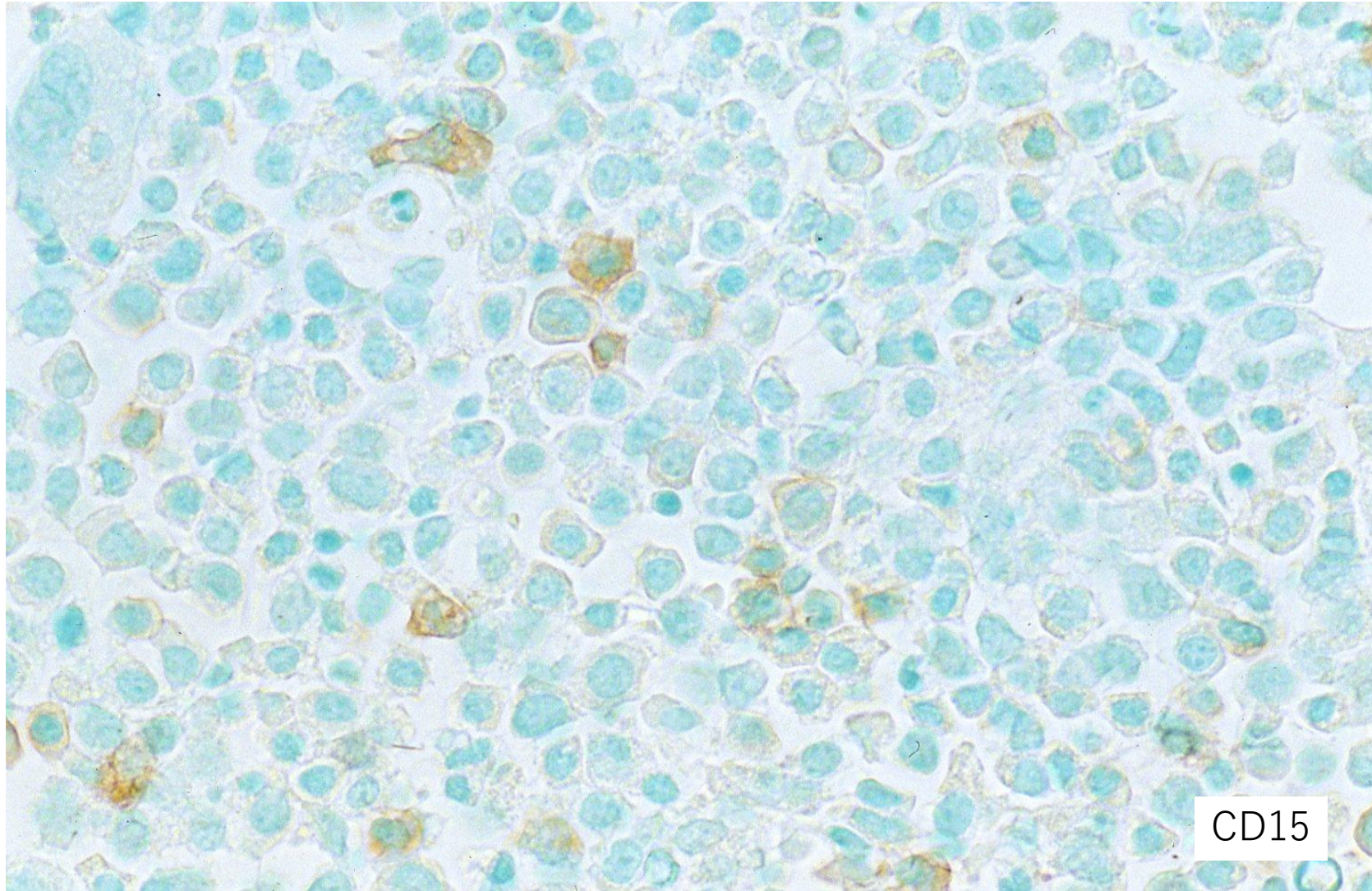
lysozyme

CML, myeloid blast crisis, seen in a male patient aged 50's. Blastic cells express lysozyme in the cytoplasm (immunostaining for lysozyme).

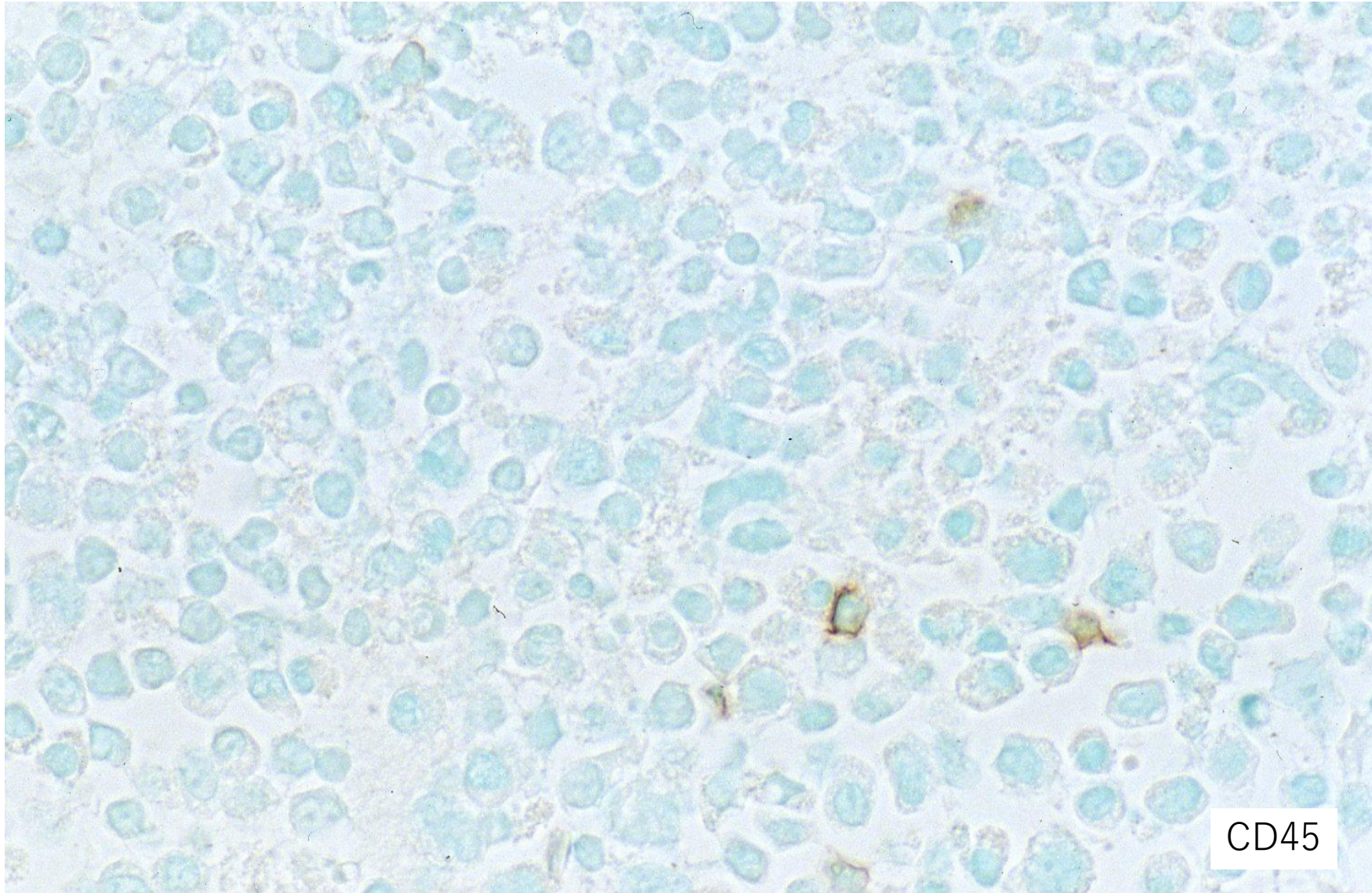


naphthol-ASD-chloroacetate esterase

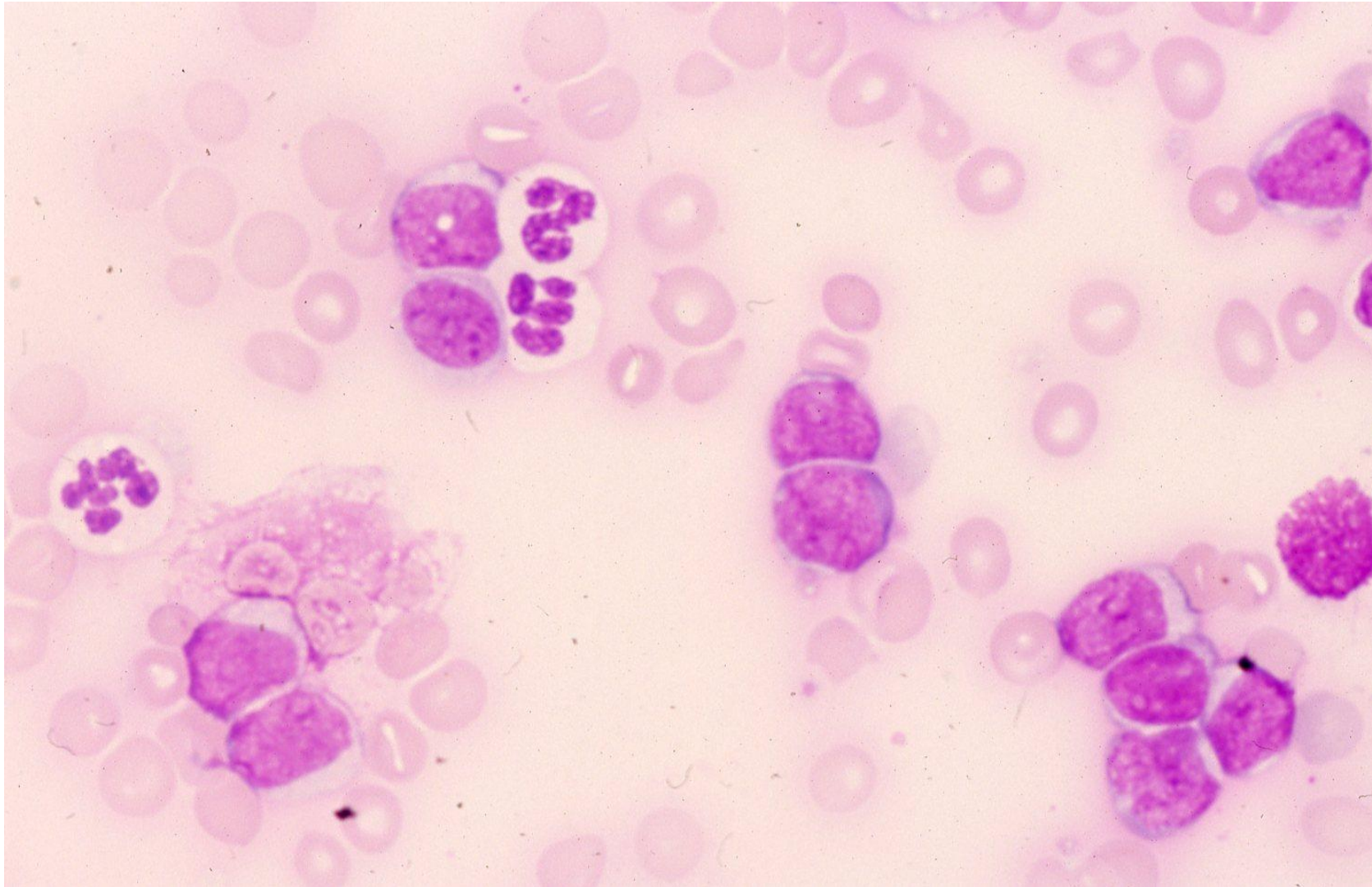
CML, myeloid blast crisis, seen in a male patient aged 50's. Blastic cells express naphthol ASD-chloroacetate esterase activity in the granular cytoplasm (enzyme histochemistry).



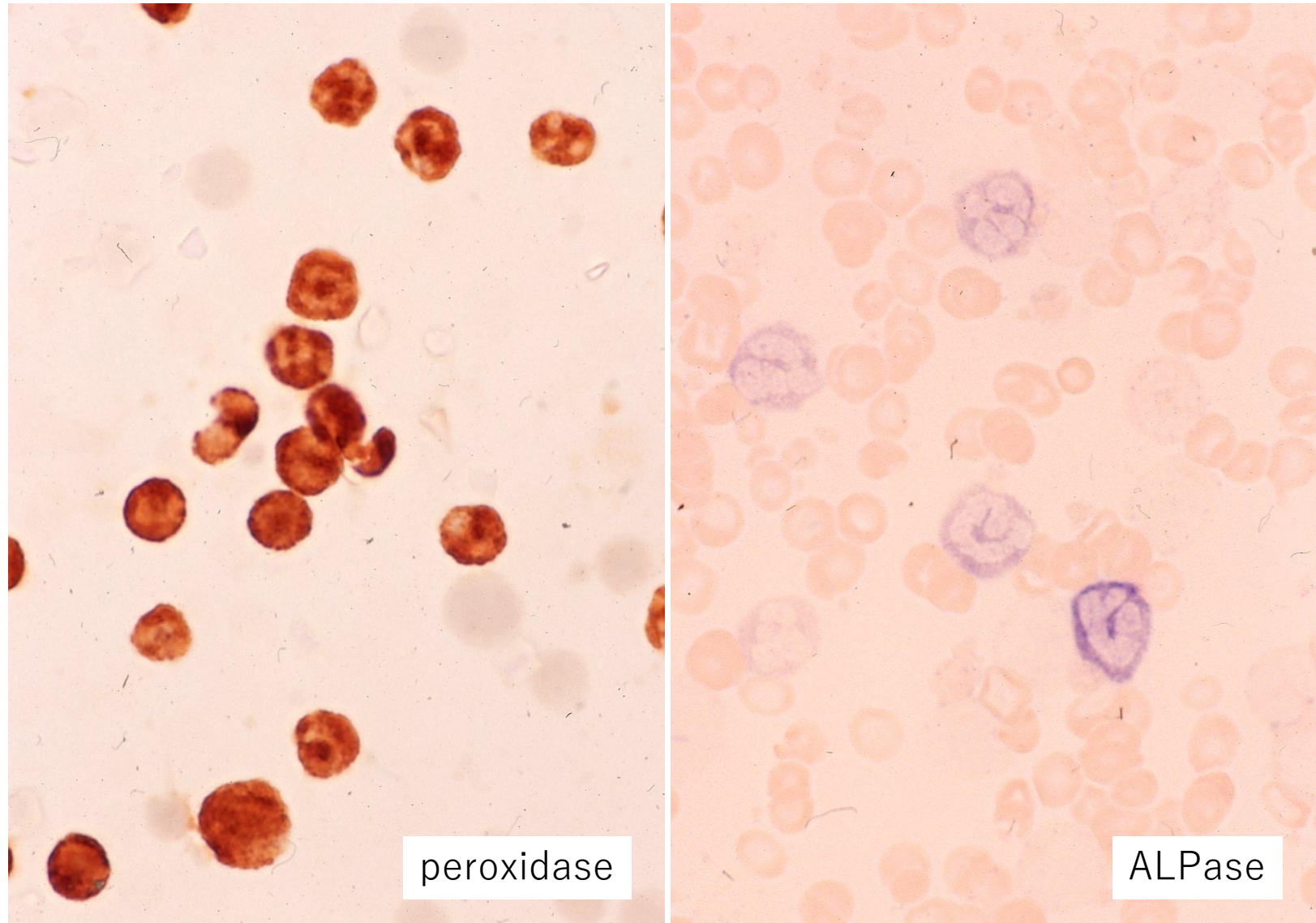
CML, myeloid blast crisis, seen in a male patient aged 50's. Blastic cells are negative or only faintly positive for CD15. Mature and maturing granulocytes express CD15 (immunostaining for CD15).



CML, myeloid blast crisis, seen in a male patient aged 50's. Blastic cells are negative for CD45 (leukocyte common antigen). A few lymphocytes express CD45 (immunostaining for CD45=LCA).



CML, myeloid blast crisis, seen in a male patient aged 50's. The peripheral blood smear shows a good number of blasts. Hypersegmentation is seen in mature neutrophils (May-Giemsa).



CML, myeloid blast crisis, seen in a male patient aged 50's. The blastic cells in the peripheral blood show strong peroxidase activity, being consistent with myeloid blast crisis (left). ALPase activity is observed only in mature neutrophils (right: ALPase activity).