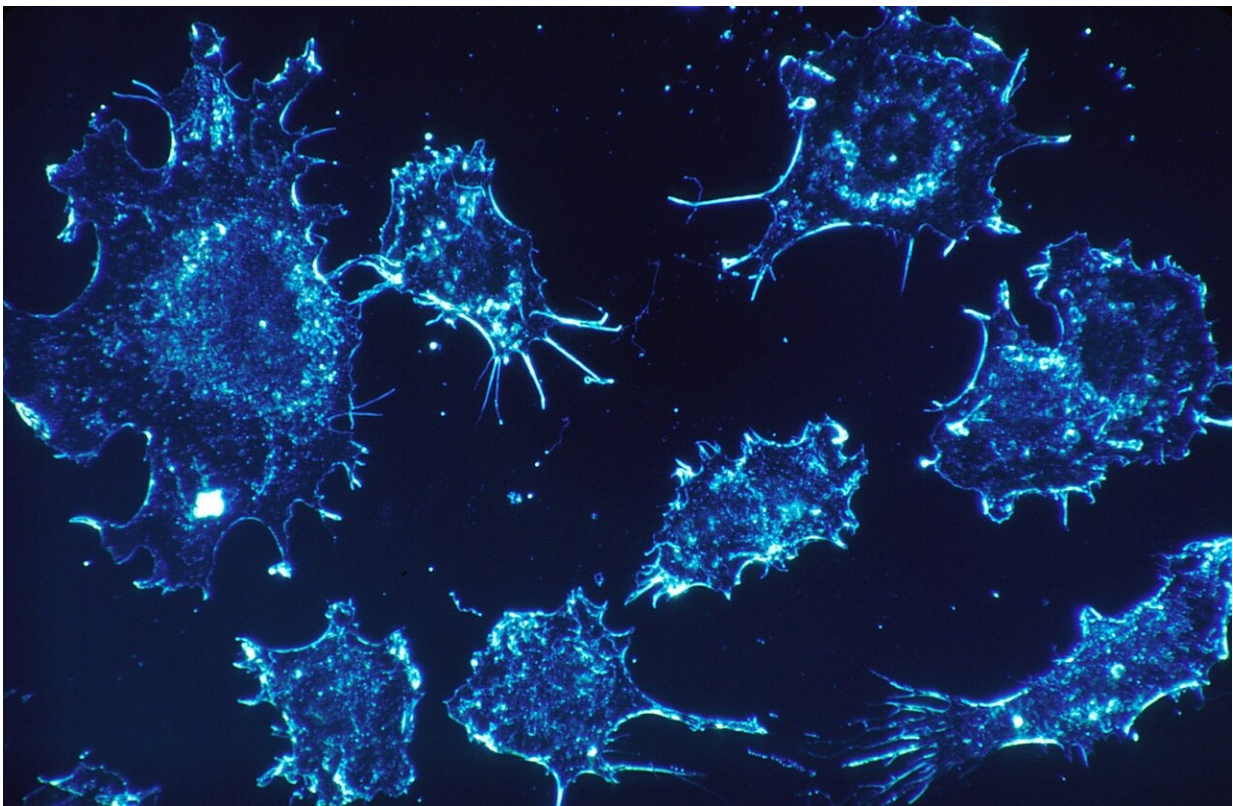


Anaplastic large-cell lymphoma: Combination therapy recommended to prevent treatment resistance

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A general problem encountered in cancer therapy is that many patients develop resistance to a drug over the course of treatment. In the case of

the blood cancer anaplastic large cell lymphoma (ALCL), an international team of researchers led by molecular biologist Suzanne Turner from the University of Cambridge/Masaryk University Brno (CZ) and involving molecular pathologist Lukas Kenner from the MedUni Vienna, has now discovered a specific defense mechanism against certain drugs (ALK inhibitors), which promotes cancer growth. The study has been published as the cover story in the leading journal *Blood*.

Lymphoma is the most common form of blood cancer and occurs when the lymphocytes of the immune system divide uncontrolled. A distinction is made between Hodgkin lymphoma (HL) and Non-Hodgkin lymphoma, the latter of which also includes [anaplastic large cell lymphoma](#) (ALCL), a malignant T-cell lymphoma. ALCL predominantly affects children and adolescents who express the oncogene, anaplastic lymphoma kinase (ALK) in an abnormal way.

For the present study, Kenner's team, who are experts in the molecular processes in ALCL, worked with Suzanne Turner and other scientists and clinicians from England, France, Italy, Germany, the U.S., Vienna University of Veterinary Medicine and St. Anna Children's Hospital to analyze cell cultures in order to identify the processes involved in drug resistance. The majority of ALCL patients respond to standard chemotherapy, although around 50% of patients with ALCL relapse. ALK inhibitors are then given as the next step but some patients develop resistance to ALK blockade, and the cancer starts to spread again.

The researchers have now discovered that increased expression of a protein called IL-1ORA, which sits on the surface of cancer cells can protect them from a form of personalized medicine, ALK inhibitors. They also demonstrated that this IL-1ORA expression does not correlate with the response to standard chemotherapy. According to Kenner, this observation could lead to a modified form of treatment.

Kenner says: "It would be sensible to use a combination of chemotherapy and ALK inhibitors right from the outset, to safeguard patients from relapse to the greatest possible extent."

More information: Nina Prokoph et al. IL10RA Modulates Crizotinib Sensitivity in NPM1-ALK-positive Anaplastic Large Cell Lymphoma, *Blood* (2020). [DOI: 10.1182/blood.2019003793](https://doi.org/10.1182/blood.2019003793)

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