

# New way of improving survival in aggressive blood cancer disease?

**The aggressive blood cancer, called acute myeloid leukemia (AML), has an extremely low survival in the majority of patients. Comparing cell samples between patients could be a new way of improving treatment.**

Cancer is a devastating disease that can occur in different places in our body, for example in the lungs, brain, or skin. Cancer can also develop in our blood, which is called leukemia. There are different types of blood cancers, or leukemia, one of which is called acute myeloid leukemia (AML). The standard treatment of AML is to give chemotherapy, which is a drug that kills the cancer. However, the drug is so aggressive that it also kills the healthy cells that we need to survive. The majority of patients suffering from AML are elderly. These patients cannot make new cells fast enough to survive this aggressive treatment. Recently, there has been new milder drugs approved for AML in Europe. The cancer looks different between patients and therefore the treatment option should be personalized, which is referred to as precision medicine. To dictate on the precision medicine for AML patients, new characteristics of the patients need to be found.

By comparing patient characteristics and drug response, possibilities of precision medicine can be examined. The patient characteristics investigated were the different bone marrow cell types. It is in the cells of the bone marrow that AML arises, and the cells can be looked at individually in a flow cytometer, which enables comparison of the cells. How well these cells are killed by 40 different drugs, or drug combinations, were also examined. The patients were then compared based on their cell type composition and drug response. This was compared using an unpublished data analysis tool, called "Flowty". Similar cell types showed similar drug response across patients, indicating that this approach shows promise. However, to further investigate this, more patient cell samples are needed. The results of this project also include the methodologies and data analysis approaches used to examine this. Further investigation in this field, using "Flowty", could hopefully benefit the future of precision medicine for AML, increasing the survival of patients.