

# New target for potential blood cancer treatment

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Mutations present in a blood cancer known as follicular lymphoma have revealed new molecular targets for potential treatments, according to researchers at Queen Mary University of London (QMUL) together with collaborators at the Whitehead Institute for Biomedical Research and Massachusetts Institute of Technology.

Follicular lymphoma is a common type of [blood cancer](#) and one of the most common non-Hodgkin lymphomas, with more than 2,500 people diagnosed in the UK every year. Whilst the condition is normally responsive to existing therapies, the [cancer](#) often returns frequently and eventually develops resistance and, for some, their cancer becomes more aggressive and difficult to treat.

Dr Jessica Okosun from QMUL's Barts Cancer Institute said: "One of the [mutations](#) that we have identified allows follicular lymphoma tumours to turn on growth signals regardless of whether nutrients are available, thereby evading normal restrictions on its growth.

"Remarkably, the mutations we have discovered have not been seen in other cancer types. However, drugs that directly target this nutrient-sensing mechanism are currently used to treat other types of cancer, and may benefit [patients](#) with follicular lymphoma."

The research, published in *Nature Genetics*, identified mutations in several components of the body's nutrient sensing pathway, called mTOR, occurring in 30% of follicular lymphoma patients. This pathway is switched on when there is sufficient 'food' available for a cell to grow and survive. While more research is needed, the team have shown that mutations in one of the genes called RRAGC is central to keeping this growth signal on regardless of the nutrient conditions.

Inhibitors that directly target the MTOR pathway are currently used to treat other types of cancer. The researchers say these drugs may benefit patients with follicular lymphoma, particularly those who harbour mutations in that pathway, and may allow them to select subsets of patients that they believe may respond best to these therapies.

The original mTOR inhibitor called rapamycin was discovered in the 1960s in the soils of Easter Island, when it was found to be an effective

anti-fungal agent. Newer mTOR inhibitors have more recently been shown to be able to treat some forms of cancer, and could be a candidate for further testing against [follicular lymphoma](#).

**More information:** Recurrent mTORC1-activating RRAGC mutations in follicular lymphoma, [dx.doi.org/10.1038/ng.3473](https://doi.org/10.1038/ng.3473)

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