Genome sequencing reveals mucosal melanoma's bullseye

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(Medical Xpress)—Scientists may have found a molecular 'bullseye' for a rare form of melanoma, opening up opportunities for new targeted treatment, according to new research being published in the *Journal of Pathology* today (Friday).

Genome sequencing carried out at Cancer Research UK's Paterson Institute for Cancer Research at the University of Manchester has revealed that the genetic fingerprint of mucosal melanoma is completely different from that of its more common counterpart – cutaneous or melanoma skin cancer.

The study has also revealed for the first time the genetic faults against which new treatments could be targeted for mucosal melanoma patients.

Unlike cutaneous melanoma, for which UV is a well-known risk-factor, little is known about the causes of mucosal melanoma. This means there are no treatments that can target the cancer, leading to starkly contrasting outlooks in these two forms of the disease. Five year survival rates for mucosal melanoma are around 40 per cent, compared to more than 90 per cent for cutaneous. There are around 120-130 cases of mucosal melanoma diagnosed each year in the UK.

Professor Richard Marais, director of the Paterson Institute for Cancer Research based at The University of Manchester, and lead author of the research, said: "We've seen a completely different gene profile in mucosal melanoma. There's no classic UV signature, which reinforces

our thoughts that this type of cancer isn't linked to the sun and sunbeds and suggests that these types of melanoma start in different ways.

"We can start to look at these newly discovered genetic faults and develop desperately needed targeted treatments for this type of melanoma. It's exactly this type of vital research that we and other Manchester scientists will be doing at the new Manchester Cancer Research Centre – bringing together a wide range of expertise to revolutionise cancer treatment."

This research was funded by The Catalyst Club, a pioneering venture that's raising £10 million towards personalised cancer treatment. The club is made up of philanthropists who have invested in a range of projects that will help to bring forward the day when all cancers are cured.

Nic Jones, Cancer Research UK's chief scientist, said: "In effect, these two sub-types of melanoma are more like different diseases that just happen to affect the same cells. Cutaneous melanoma is strongly linked to UV exposure, number of moles, family history and ethnicity, while mucosal melanoma doesn't seem to be linked to these factors. But it's usually more aggressive and more likely to spread to other parts of the body than cutaneous melanoma.

"Research like this is helping us to better understand how this disease works and is the first step towards developing more effective treatments. By recognising the differences between sub-types of melanoma, we will be able to tailor treatment for patients so they have the best chance of beating the disease."

More information: Furney, S. et al. Genome sequencing of mucosal melanomas reveals they are driven by distinct mechanisms for cutaneous melanoma, *The Journal of Pathology* DOI: 10.1002/path.4204