Medical Xpress

Scientists grew cancers to develop a melanoma research tool

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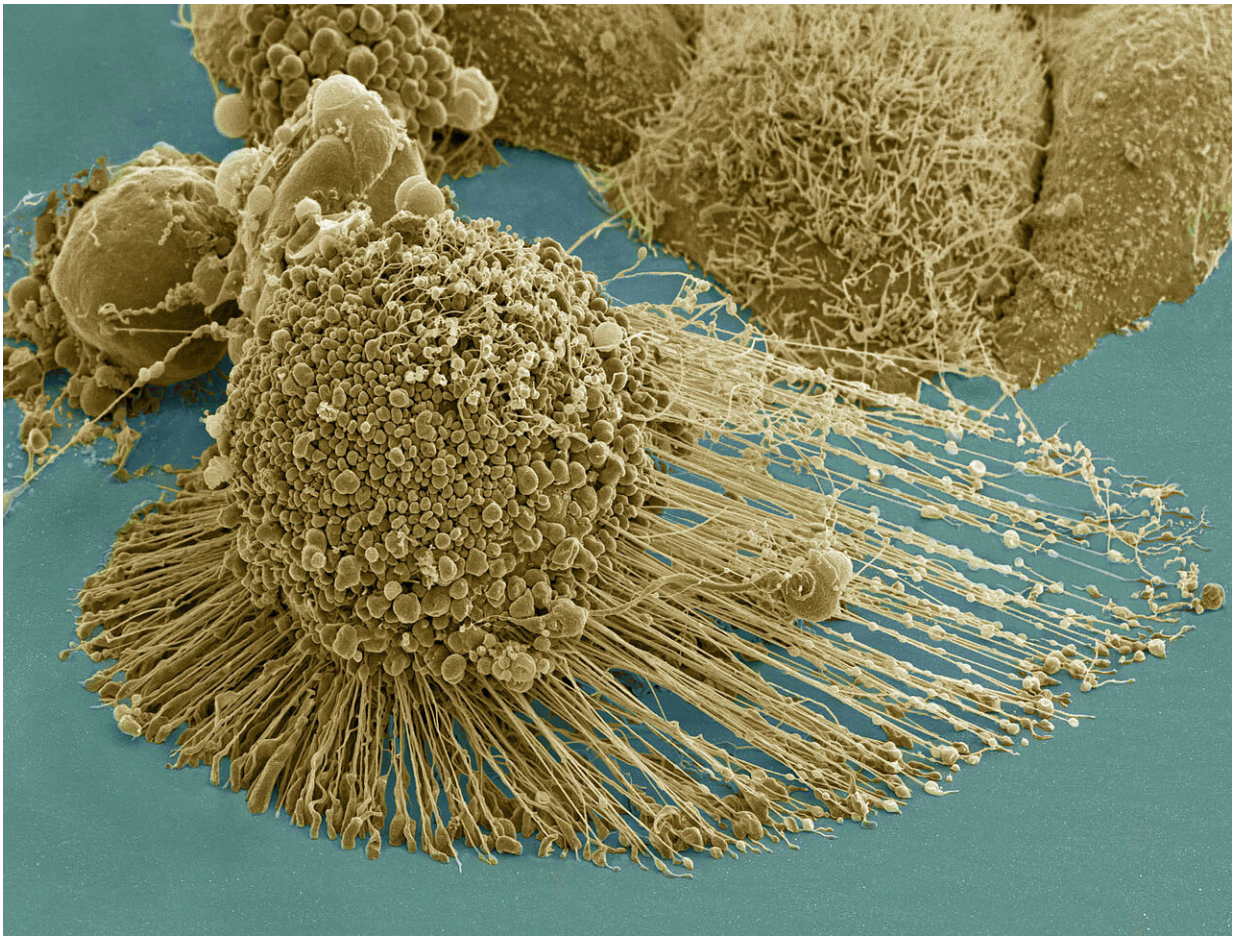

Credit: National Institutes of Health (NIH) on Wikimedia Commons

A nationwide group of researchers from the Maurice Wilkins Center

(MWC) have recently reported a detailed characterisation of one of the largest melanoma cell line panels ever developed that makes this a resource for research of international importance.

Their paper, published in *Pigment Cell and Melanoma Research*, provides an in-depth characterisation of a panel of 102 cell lines from metastatic melanomas.

MWC investigator Professor Bruce Baguley and colleagues at Auckland Cancer Society Research Center, with support from clinicians and permission of cancer patients, have been studying the responses to therapy of tumor material obtained during routine surgery. The development of cell lines was an important spin-off from 20 years of such studies.

The new work on these cell lines combined studies in the labs of MWC investigators Professor Peter Shepherd and Professor Cris Print at the University of Auckland, and Professor Mike Eccles at the University of Otago.

"The work shows that the panel contains cell lines representative of the high degree of genetic diversity seen in melanoma, as well as examples of all the major genotypes known to contribute to the development of melanoma," says Prof Eccles.

"The analysis also shows that the lines have a range of genetic features that will be important for ongoing drug discovery studies and to understanding how melanomas interact with the immune system and new immune therapies," says Prof Print. "Through this research, patients who originally donated the tumor cells are making a long-term contribution to the development of better ways to treat the disease."

Prof Shepherd, who is deputy director of the MWC, says: "It is exciting

that the key resources provided by the MWC and the collaborative approach across New Zealand has built an internationally important resource for studying melanoma biology." Cell lines are the most important disease modeling tools in cancer research, and it is vital they model the disease as accurately as possible and these will now be available to the wider research community.

Analyzing large cell line panels in depth is costly and challenging, but research networks built up by the MWC over the past six years—together with targeted funding provided by the center—have allowed a multidisciplinary nationwide effort by researchers to undertake detailed cellular and molecular characterisations on these lines. This includes applying techniques such as whole exome DNA sequencing as well as expression profiling using RNA sequencing.

More information: Khanh B. Tran et al. Genomic and signaling pathway characterization of the NZM panel of melanoma cell lines: A valuable model for studying the impact of genetic diversity in melanoma, *Pigment Cell & Melanoma Research* (2020). DOI: 10.1111/pcmr.12908

Provided by Maurice Wilkins Centre