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MEDIA RELEASE

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Cell colour in nose helps distinguish a genetic disease

A new study has found that the colour of neuronal cells found in the nose, can be used to diagnose for a rare genetic disorder called MELAS syndrome, which can result in stroke and dementia.

The study, published in the journal Biochimica et Biophysica Acta (BBA) - Molecular and Cell Biology, focussed on imaging of olfactory neurosphere cells, taken by biopsy out of the body. Subtle colour differentiations between healthy cells, and diseased cells indicating MELAS, could be seen in the resulting imagery.

Lead author on the paper, Ewa Goldys, Deputy Director of the Centre for Nanoscale BioPhotonics (CNBP) and Professor at Macquarie University, explains, "MELAS (Mitochondrial myopathy, encephalopathy, lactic acidosis, and stroke) syndrome is a progressive neurodegenerative disorder which to date, has been poorly understood and difficult to diagnose."

"What we've observed with our imaging is that individuals with MELAS syndrome will have nose cells that are subtly different in colour – a difference only in hue, such as that from a pea to a mint-green. The degeneration in brain tissue as a result of MELAS, is being reflected in the colour of the cells, within the nasal passage."

Professor Carolyn Sue, Director of Neurogenetics, Royal North Shore Hospital, also a senior author of the study, says, "Olfactory neurosphere cells are intrinsically linked to the brain and have been associated with other neuro related diseases including Rett syndrome, Alzheimer's and Parkinson's."

"By producing a new non-invasive, colour focused approach to identify MELAS syndrome and potentially other neuro related disorders, we can treat or manage these type of diseases far more effectively, where early diagnosis is important."

Goldys concluded, "Ultimately, we may see the development of new endoscopes with cameras that can be easily inserted into the nose to undertake this sort of analysis. This allowing for the immediate diagnosis of this type of neurodegeneration, doing away with the need for a biopsy and invasive testing."

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RESEARCH PAPER AVAILABE:

<http://www.sciencedirect.com/science/article/pii/S0167488915003420>

IMAGES AVAILABLE:

Olfactory neurosphere cells taken from the body, analysed for subtle differentiation of colour.

<https://flic.kr/p/A6XLns>

CNBP Deputy Director, Ewa Goldys. <https://flic.kr/p/z3XhD8>

ABOUT:

The Centre for Nanoscale BioPhotonics (CNBP) is an Australian Research Council Centre of Excellence, with research focussed nodes at the University of Adelaide, Macquarie University and RMIT University. A \$40m initiative, the CNBP is focused on developing new light-based imaging and sensing tools, that can measure the inner workings of cells, in the living body. <http://cnbp.org.au/>

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