MEDIA RELEASE

2nd October 2018

Explosion in knowledge about a potential pathway for cancer therapies

Centenary Institute scientists have discovered dozens of new likely targets for a particular enzyme that is within most tumours; paving the way for the future development of safer and more effective cancer therapies, including liver, lung, skin, colorectal and pancreatic cancers.

The enzyme, known as FAP, is hard to find in a healthy human body. However, where there is a tumour, FAP is abundant within the stroma – the cells which surround and support the tumour, and enable it to grow and spread.

Research to date has shown FAP has a single core purpose: to regulate the amount of type 1 collagen. In cancer, this collagen within the stroma helps tumours grow and metastasize.

However, in a paper published in the highly-regarded scientific journal Molecular and Cellular Proteomics, a group of researchers from the Centenary Institute in Sydney and the University of Freiburg in Germany, have dramatically expanded our understanding of what this particular enzyme does.

Instead of affecting and interacting with just collagen, the researchers have used new technologies to identify 37 molecules which FAP likely modifies.

Co-lead author, Dr Hui Emma Zhang from the Centenary Institute, says this study not only reaffirms the value of FAP in cancer research, but it also provides new avenues through which scientists can target tumour growth.

“Given FAP is fairly unique to damaged cells when compared to healthy cells, the findings from our research will enhance the initial identification and imaging of tumours, as well as provide a safer and more targeted pathway through which anti-cancer therapies can be delivered,” says Dr Zhang.

“In addition to this, having an improved understanding of how FAP works and interacts with molecules improves our chance of potentially being able to directly destroy the stroma (the cells supporting the tumour), thereby reducing the likelihood the tumour will be able to grow and spread.”

Identification of Novel Natural Substrates of Fibroblast Activation Protein-alpha by Differential Degradomics and Proteomics has been published in Molecular and Cellular Proteomics.

To arrange an interview, please contact: Centenary Institute Media and Communications Manager, Laura Parr, l.parr@centenary.org.au, 0435 530 537

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