

New approach to bowel cancer analysis could lead to better prognosis for patients

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Cancer cell during cell division. Credit: National Institutes of Health

Bowel (colorectal) cancer is the third most commonly occurring cancer in men and the second most commonly occurring cancer in women worldwide. The global burden is expected to increase by 60 per cent to

more than 2.2 million new cases and 1.1 million deaths by 2030.

The research, which has been published in the *Journal of Pathology*, shows how a precise integration of the results of both pathological and molecular analysis of tumour and normal tissue can ensure a correct interpretation of the data, providing a more accurate result that can underpin better treatment options for patients.

This cross-disciplinary approach by Queen's experts, brings together laboratory science and comprehensive data analytics to reveal a truer picture of the cancer patient's condition.

The study was led by Dr. Philip Dunne, newly appointed Lecturer in Early Cancer Detection at the Centre for Cancer Research and Cell Biology (CCRCB) at Queen's University, in collaboration with Dr. Maurice Loughrey, Consultant Gastrointestinal Pathologist at the Royal Victoria Hospital, Belfast and Honorary Senior Lecturer at Queen's.

Dr. Dunne commented: "This research shows the need for the modern cancer researcher to have an interdisciplinary skillset in order to fully and most accurately interpret data and its implications. To develop better treatments for individual patients, we must first understand the biology of that person's tumour; this is the basis of personalised medicine in cancer."

The findings are particularly relevant as clinicians are increasingly using molecular analysis to better understand the biology of cancer. This approach means that more precise treatment can be selected to treat a patient's tumour.

The recent advances in personalised cancer medicine have been accelerated by the increased availability of molecular data. The data are analysed by clinicians and cancer researchers to improve the prognosis

and quality of life for patients with [bowel cancer](#).

Amy McCorry, Ph.D. student from CCRCB at Queen's and first author on the study, explains: "Our aim was to show that without a comprehensive understanding of what is happening in normal and tumour cells, we risk misinterpreting the results of molecular analysis. As a cancer researcher, working alongside expert pathologists, like Dr. Loughrey, is essential to ensure robust and unequivocal results."

Dr. Loughrey commented: "This new study shows how a 'joined up' approach to classifying tumour type can improve how we view this disease, potentially give better information on likely outcome and help decide most appropriate treatment."

Professor Mark Lawler, Chair in Translational Cancer Genomics, Dean of Education for the Faculty of Medicine, Dentistry and Biomedical Sciences at Queen's, Health Data Research UK Lead for Northern Ireland and co-author on the study, said: "This work demonstrates the cutting edge scientific research which is taking place at Queen's. It is fantastic to see how this research now has the potential to be translated into improvements in patient care for people with [cancer](#)."

"The approach taken by the research team improves our understanding of tumour biology and shows the need for interdisciplinary skills including big data analysis in this era of precision medicine. The training programmes at Queen's provide the opportunity for young researchers to develop these unique skills. Amy is an example of the new generation of hybrid researcher, who can combine molecular data analysis with pathological information, to deliver a new biological understanding of disease."

More information: Amy MB McCorry et al. Epithelial-to-mesenchymal transition signature assessment in colorectal cancer

quantifies tumour stromal content rather than true transition, *The Journal of Pathology* (2018). [DOI: 10.1002/path.5155](https://doi.org/10.1002/path.5155)

Provided by Queen's University

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