

Mr N Phillips
Cancer Research and Genetics UK
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21st March 2019

Dear Mr Phillips,

One year after your generous grant I wanted to take this opportunity to thank you for the donation of £10,000 from Cancer Research and Genetics UK and to update you with some of the research which is ongoing in prostate cancer at the CRUK Manchester Institute within The University of Manchester.

As you know, the donation was used to fund a gentleMACS Dissociator – a machine which is used to process patient tumour samples, very quickly analysing the stem-like cancer cells which are of most interest to our research group as they are cells which are thought to drive the growth and treatment resistance of tumours. This research is led at Manchester by Dr Esther Baena – an expert in the genetics of prostate cancer.

In cancer, each tumour can be thought of as a group of individual cells which have undergone genetic mutation. But amongst these cells there is a great degree of genetic variation, or heterogeneity and it is this variation which allows the tumour to develop so effectively, and in many cases, to overcome treatments. One of the challenging aspects of treating prostate cancer is that the tumours exhibit an extremely high level of heterogeneity. Dr Baena's research explores the role and importance of genetic variation within the tumour itself, specifically identifying which types of cell might be responsible for driving tumour growth, metastasis and resistance to treatment which can ultimately be lethal. By understanding more about the varied genetics of a given tumour, her laboratory aims to give patients of the future a much more accurate picture of how their disease may progress, which treatments may be most effective and even give rise to new treatments.

Vital to this work is the availability of high quality patient samples on which genetic analysis can be conducted. Dr Baena's laboratory couldn't be better placed for this as it is only a stone's throw from Europe's largest cancer hospital, The Christie NHS Foundation Trust. Previously such samples needed to be digested for an extended amount of time (>3hours) before they could then be analysed but the gentleMACS dissociator removes that incubation time as it can process samples in a fraction of the time that it would previously take a technician (30 min). Not only does the new machine save time but shortening the process increases the number and the quality of the cells which are left

meaning that they are suitable for additional experimentation. Since the gentleMACS dissociator arrived, the team has processed 97 samples with >90% cells in optimal conditions for their subsequent characterisation, such as the growth of the stem-like prostate cancer cells in organoids or so-called mini-organs in a dish.



Dr Baena (left, with the machine) wanted to pass on these words:

“We are delighted that Cancer Research Genetics were able to donate the necessary funds to allow us to process patient samples faster than ever before. This gives us a greatly increased capacity to conduct our research which will address the challenges posed by prostate cancer and to make a positive change to treatments of future patients”

All of Dr Baena’s research sits within the Prostate Cancer UK Centre of Excellence, an activity which is conducted jointly with Belfast and is one of only two in the country (the other being in London). This is a very exciting time for all those who work in prostate cancer in Manchester as in the summer of 2017 the Manchester Cancer Research Centre appointed a new Director in Professor Rob Bristow - a world leader in prostate cancer with a particular interest in developing new therapies to target cancers which show aggressive genetic changes. Professor Bristow has further strengthened our capabilities in prostate cancer by recruiting Prof Silke Gillessen, a renowned clinician for leading state of the art clinical trials. Together with our existing leading research programmes in radiotherapy, pathology and imaging, this puts Manchester at the forefront of the fight against the disease.

We would like to thank you once again for the donation towards this vital piece of equipment and extend to you an invitation to visit us here in Manchester where you can meet our scientists who conduct the research. Of if you would like to discuss future funding needs then please don’t hesitate to get in touch as your support is hugely valued as I hope is evident from this report

With renewed thanks and best wishes

Paul Winter
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