CCLG: The Children & Young People's Cancer Association research:

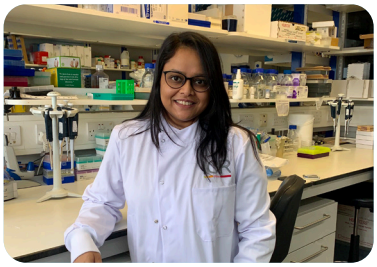
Establishing a new comprehensive blood test to monitor rhabdomyosarcomain children

Project title: Integrated genetic and epigenetic profiling of cell-free DNA for monitoring young people with rhabdomyosarcoma

Project stage: Just started (began March 2026)

Funded by: CCLG and CCLG Special Named Funds including Just George, Pass the Smile for Ben and Team Jake

Led by: Dr Supriti Ghosh, The Institute of Cancer Research



About the project

Rhabdomyosarcoma is the most common soft tissue cancer in children and young people. Although outcomes have improved for some patients, others still face poor survival rates – especially when the disease spreads or returns. To help these children, we need better ways of monitoring the disease, detecting relapse earlier, and personalising treatment strategies.

One promising approach is the use of circulating tumour DNA (ctDNA) – small fragments of genetic material released by cancer cells into the bloodstream. By analysing ctDNA from a blood test, called a 'liquid biopsy', doctors could potentially monitor how a tumour is behaving without needing repeated scans or biopsies. This could help identify early signs of relapse or resistance to treatment.

In this project, Dr Supriti Ghosh will use cutting edge techniques to examine ctDNA in blood samples from children with rhabdomyosarcoma. Her team at the Institute of Cancer Research will use a method called 6-letter sequencing from Biomodal to look at 'epigenetic' changes associated with cancer cell DNA. Epigenetic changes are chemical markers that build up on DNA and change how it is used, helping the cancer grow or survive. Looking at these markers will help the team identify the right pieces of DNA in the blood and potentially reveal new insights into how rhabdomyosarcoma DNA evolves over time.

The researchers will work on patient blood and tumour samples from VIVO biobank in their project. This will allow them to look for patterns of epigenetic markers that can help clearly identify rhabdomyosarcoma and to compare any ctDNA found in the blood with that of the original tumour. They will also be looking at whether any new changes appear in the blood as the disease progresses or relapses.

If successful, this early work could support introduction of this approach for rhabdomyosarcoma patients taking part in an existing international clinical trial (FaR-RMS). This could lead to better monitoring tools that are less invasive, more precise, and better able to reflect rhabdomyosarcoma as it changes throughout the course of the disease.

Team Jake

Just George

Pass The Smile

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