

Lay Summary

BRAIN UK Ref: 16/001

Investigation of the role of the c-MET proto-oncogene and the PI3K/AKT/mTOR pathway in brain metastasis.

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Breast cancer (BC) is the second most common cancer diagnosed worldwide. The most severe form of BC occurs when it spreads (metastasis) from the breast tissue to other regions of the body such as liver, lung, bone and brain. Breast cancer brain metastasis (BCBM) is high despite the performance of current treatments and unfortunately, is incurable. Therefore, it is necessary to try and understand the metastatic machinery that directs breast cancer cells to the brain and helps them establish BCBM. The machinery (human genome) that controls our cells, is composed of different tools (known as genes and proteins) that communicate and regulate each other forming a pathway. Any changes on these tools can affect their interaction and alter their pathway leading to cancer development and metastasis. This project aims to investigate further how these changes lead to communication problems between genes and pathways in brain metastasis by using a large number of BCBM cases. This knowledge will help us to improve treatment selection and facilitate the development of new drugs.