Mini Review Open Access

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### **Abstract**

Ninety percent of cancer deaths are the result of metastasis. The development of robust and sensitive technologies that capture metabolic processes in metastasizing cancer cells has hampered understanding of the role of metabolism during metastasis. We discuss the current technologies for studying I metabolism in primary and metastatic cancer cells, as well as metabolic interactions between cancer cells and the tumour microenvironment (TME) at various stages of the metastatic cascade. We discuss the benefts and drawbacks of each method, as well as how these tools and technologies will help us better understand metastasis [1-15]. Studies using cutting-edge metabolomic technologies to investigate the complex metabolic rewiring of different cells have the potential to reveal novel biological processes and therapeutic interventions for human cancers

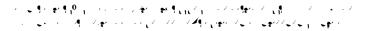
Metabolism is essential to all cellular functions because it ultimately drives the generation and utilisation of ATP required for cellular activity. Changes in metabolism can lead to a variety of diseases, including cancer. Cancer cells have the ability to activate and suppress various metabolic pathways. Furthermore, metabolic differences found in cancer cells versus non-cancer cells suggest potential metabolic vulnerabilities that could be therapeutically modulated to slow cancer progression. There has been remarkable progress in understanding the metabolic regulation of cancer cells in recent years, particularly in the context of primary tumour metabolism. However, a thorough understanding of the metabolic regulation of cancer cells during metastasis remains an active area of investigation.

Metastasis is a multifaceted process that includes I uncontrolled proliferation of cancer cells at the primary site, local invasion into surrounding tissue, intravasation into the bloodstream or lymphatics, transportation through circulation, extravasation into distant tissues, and colonisation of secondary organs Because most cancer cells do not survive in these harsh environments, metastasis via this metastatic cascade is a highly ine f cient process. However, some cancer cells undergo metabolic adaptations to maximise survival in these harsh environments.

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