

Monitoring mice in motion for cancer research

In preclinical studies, researchers must monitor their animals to follow disease progression, assess the efficacy of an experimental treatment, and determine terminal endpoints. Different measures are available to do so are available, but some can be more subjective, and invasive to the animals, than others.

Physical activity is one such measure; as animals decline or recover, their behavior may change in notable ways. Digital vivariums can capture these changes, and such set ups can potentially offer more objective assessments of disease progression and treatment responses. In a new research article, Chibueze Nwagwu and colleagues use an automated monitoring platform to continuously and non-invasively monitor mice xenografted with an ovarian cancer cell line to correlate motion with terminal endpoint thresholds, disease burden, and therapeutic efficacy.

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Following cell lineage...and identity...and...

Cell lineage tracing technologies have revealed much about the fate of cells as organisms develops from embryos. The lineage of worm cells has been fully worked out, but figuring out the origins of the billions of different cells in more complex organisms is still no easy feat. But, researchers are making progress.

The August Technology Feature explores lineage tracing in different animals, including flies, zebrafish, and mice, and how labs are pushing capabilities forward for studying cell fates. Advances in CRISPR-Cas9 and other genome editing methods is increasing the memory of the 'barcodes' that allow researchers to track which cell divided from which, while combining lineage tracing with other methods, such as transcriptomics and spatial techniques, increasingly allows the identification of cell identity and where those cells are in the animal.

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