High-throughput science has gone to the worms

Caenorhabditis elegans has been a model animal for decades. It's a convenient little worm to study—easy to cultivate and manipulate in the lab, transparent and just a millimeter long, with a relatively small genome, simple anatomy, physiology, and nervous system, and just 959 somatic cells that can be tracked through each phase of the worm's rapid development—with big impact. Over the years, it has featured in many studies that have expanded our knowledge of basic biology and human disease. And its output might be poised to increase.

As simple as *C. elegans* and its behavioral repertoire might be, it can still be a complicated undertaking to try to tease apart the competing influences of genetics, environment, and random chance that drive phenotypic outcomes. But the worm lends itself well to high-throughput phenotyping studies, and improving technology is pushing how deep researchers can delve. In a new Review article, Dhaval Patel, Nan Xu, and Hang Lu from the Georgia Institute of Technology detail existing and new methodologies that enable deep phenotyping of *C. elegans*.

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Rodent hosts are expanding the possibilities of organoids

Organoids can be a powerful step up from simple, one-dimensional cell lines in basic and preclinical research. Derived from human cells, organoids are three-dimensional cultures of organoids or tumors that can capture important features of their original tissue, such as its structural complexity or nervous and circulatory needs. But an organoid grown on its own still can't entirely capture the complete biological picture found in the living body. To take their research further, many researchers are looking to transplant their organoids in vivo.

The July Technology Feature explores how such scientists are overcoming the challenges of transplanting human-derived organoids into rodent hosts and why that effort is worth it for their research.

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