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Researchers develop powerful cloning technique

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The new technology speeds up the creation of proteins, the final products of genes, and is likely to lead to far more rapid discovery of new medicines and biomarkers for scores of diseases.



Scientists at Johns Hopkins, Rutgers, the University of Trento in Italy, and Harvard Medical School report they have developed a new molecular technique called LASSO cloning, which can be used to isolate thousands of long DNA sequences at the same time, more than ever before possible.

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The study describes a new type of captured DNA strand, a tool the authors refer to as a LASSO probe, for long adapter single-stranded oligonucleotide. Collections of these LASSO probes can be used to grab desired DNA sequences, thousands at a time in a single effort.

In a proof-of-concept study, LASSO probes were used to simultaneously capture more than 3,000 DNA fragments from the E. coli bacterial genome. The team successfully captured at least 75 percent of the gene targets. Importantly, these sequences are captured in a way that permits scientists to analyze what the genes' proteins do, as demonstrated by conferring antibiotic resistance to an otherwise susceptible cell.

The hope is that by greatly expanding the number of proteins that can be expressed and screened in parallel, the road to interesting biology and new therapeutic biomolecules will be dramatically shortened for many researchers.