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Innovative Automated Algorithm Improves Detection of Neuronal Fitness in Synucleinopathy

A developmental method for small molecule screening of neurodegenerative diseases is featured in Volume 28, Issue 2 of SLAS Technology.

Oak Brook, IL – The April 2023 issue of *SLAS Technology* contains four original research articles and one technical brief covering the development of robotic systems, ultrasound frequency sonification, automated algorithm development and other laboratory automation technology.

Featured in this issue is the article "Automated algorithm development to assess survival of human neurons using longitudinal single-cell tracking: Application to synucleinopathy," by Choi, et al, which focuses on the use of longitudinal single-cell tracking to evaluate induced pluripotent stem cell (iPSC)-derived human neurons to study Parkinson's disease, dementia with Lewy bodies and other synucleinopathies.

Previous drug discovery assays in this area have required manual cell counting to track cell death and markers of neuronal fitness, which are historically time-consuming, tedious and prone to error. To overcome these challenges, the researchers developed an algorithm capable of measuring these parameters with accuracy comparable to manual counting with better consistency, demonstrated through an evaluation of the neuroprotective effects of brain-derived neurotrophic factor (BDNF) on neurons overexpressing α-synuclein (A53T).

Access the April issue of *SLAS Technology* to learn more about the future applications of this automated algorithm and other laboratory automation technology research articles.

The April issue of *SLAS Technology* includes these additional articles:

- Automation of yeast spot assays using an affordable liquid handling robot
- Automated algorithm development to assess survival of human neurons using longitudinal single-cell tracking: Application to synucleinopathy
- Ultrasound frequency sonication facilitates high-throughput and uniform dissociation of cellular aggregates and tissues
- Towards robotic laboratory automation plug & play: Survey and concept proposal on teaching-free robot integration with the LAPP digital twin
- Development of a novel, automated, robotic system for rapid, high-throughput, parallel, solid-phase peptide synthesis

- [Life sciences discovery and technology highlights](#)

Access to the April issue of *SLAS Technology* is available at https://slas-technology.org/issue/S2472-6303(23)X0003-X

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SLAS Technology reveals how scientists adapt technological advancements for life sciences exploration and experimentation in biomedical research and development. The journal emphasizes scientific and technical advances that enable and improve:

- Life sciences research and development
- Drug delivery
- Diagnostics
- Biomedical and molecular imaging
- Personalized and precision medicine

SLAS (Society for Laboratory Automation and Screening) is an international professional society of academic, industry and government life sciences researchers and the developers and providers of laboratory automation technology. The SLAS mission is to bring together researchers in academia, industry and government to advance life sciences discovery and technology via education, knowledge exchange and global community building.

SLAS Technology: Translating Life Sciences Innovation, 2021 Impact Factor 2.813. Editor-in-Chief Edward Kai-Hua Chow, Ph.D., National University of Singapore (Singapore).

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