

Cardea Bio Develops EV-Chip, an Exosome and Extracellular Vesicles (EV) Detection Technology with Cancer and Aging Diagnostic Applications

Atkinson Baker*

Department of Biotechnology, University of Greenwich, London, United Kingdom

*Corresponding author: Email: baker@atkin.ac.uk

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Commentary

SAN DIEGO- - (BUSINESS WIRE)- - Cardea Bio, a Tech+Bio organization incorporating sub-atomic science with semiconductor gadgets through graphene-based science gated "Cardean Transistors," has reported that its Chief Scientific Officer, Dr. Kiana Aran, and colleagues have distributed a paper named "Fast and Electronic Identification and Quantification of Age-Specific Circulating Exosomes by means of Biologically Activated Graphene Transistors" in the companion checked on diary Advanced Biology on April 30, 2021. The paper reports a novel biosensor called the EV-Chip, a model versatile, minimal expense peruser for the location and measurement of exosomes biomarkers of malignant growth and other maturing related infections. It shows the EV-Chip's clinical potential to assess human fluid biopsy tests through quick, name free distinguishing proof of known biomarkers, CD63 and CD151. The distribution was the consequence of a joint effort between Cardea Bio, Inc., the Keck Graduate Institute, the Keck Science Department, and the University of California, Berkeley [1].

"Recent clinical advances have expanded the boundaries of human life expectancy, revealing a new class of medical disorders associated with the growing system, such as cancerous growth as well as flaming and degenerative infections," Dr. Aran explained. "Researchers will want to use the EV-Chip for biomarker discovery, which will open up a new wellspring of analytic biomarkers and therapeutics to help fight these diseases more effectively." The EV-Chip is a Cardean Transistor chip with high-explicit antibodies that bind to at least one exosomes biomarker of interest. It has the potential to be functionalized to identify almost any exosome biomarker. When a plasma-inferred exosomes test is added, the one-particle thick, biocompatible graphene semiconductor recognises immune response limiting events and sends computerised feedback to a small device that can interface effectively with any PC and

return results in 60 minutes. The complete setup is compact and simple to use [2].

The EV-Chip stands to offer a level of accuracy and ongoing, direct measurement of exosomes biomarkers unrealistic with different innovations, which include enormous example sizes, extended hatching periods, and compound naming. These techniques additionally require huge aptitude to run exceptionally specialized instruments and complete complex methodology at a focal lab, which has made a bottleneck in the revelation of biomarkers of malignant growth and other maturing related illnesses. Dr. Paul Grint, Chairman of the Board of Directors of Cardea added, "Exosomes are promising biomarkers for maturing related infections, especially disease. They have dynamic arrangements of proteins inserted in their dividers that reflect cell exercises, for example, cell-cell correspondence, movement, and attachment – exercises that change because of malignant growth and maturing. Without a method for estimating exosomes at the mark of care, they stay an undiscovered analytic asset" [3].

In the paper, the creators showed the EV-Chip's abilities by utilizing it to dissect two exosomal surface markers, CD63 and CD151. CD63 is a biomarker for malignant growth and viral contamination, while CD151 is a disease biomarker with prognostic and demonstrative worth in cancer metastasis¹ that for the most part increments with age.² The EV-Chip evaluated CD63 with surprising affectability, four to five significant degrees more prominent than a financially accessible ELISA pack. Likewise, when used to quantify CD151 in youthful and old subjects, the innovation identified age-related changes as dependably as standard strategies. Generally, the outcomes exhibit the EV-Chip's capability to introduce another period of incredible, non-obtrusive, place-of-care diagnostics and prognostic devices for the administration of maturing related sicknesses [4].

"The skilled researchers who added to this chipset improvement and paper have given the world another

innovation with the possibility to profoundly speed up the disclosure and utilization of new exosomes biomarkers," said Michael Heltzen, CEO of Cardea Bio.

References

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