

[Abstract]

The present invention relates to a multi-cancer simultaneous diagnosis system which is based on artificial intelligence and uses an exosome SERS signal and a method thereof.

According to the present invention, a multi-cancer simultaneous diagnosis system, which is based on artificial intelligence and uses an exosome SERS signals, includes a signal acquisition unit configured to drop exosomes acquired from a measurement target person on a chip to acquire a plurality of the exosome surface enhanced Raman spectroscopy (SERS) signals from the chip, a cancer diagnosis unit configured to acquire signal values of 0 or 1 for each of the plurality of exosome SERS signals by inputting the plurality of acquired exosome SERS signals to a trained cancer classification algorithm and configured to diagnose cancer or normality by using an average of the acquired signal values, and a cancer information providing unit configured to acquire the signal values of 0 or 1 for each of the plurality of exosome SERS signals by inputting the plurality of exosome SERS signals to a plurality of tissue of origin (TOO) determination algorithms when diagnosed as the cancer, configured to predict a cancer type by using the average of the acquired signal values, and configured to provides information on the predicted cancer type.

The present invention is a technology developed through "Commercialization of In Vitro Diagnostic Device for Simultaneous Screening of Multiple Cancers through Artificial Intelligence" that is Bio/Medical Technology Commercialization Support Project in 2021 (BT210040) of the Seoul Business Agency in Seoul.

[FIG. 2]