**Nucleic acid-based cancer and virus diagnosis**

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**ABSTRACT**

Currently, many people suffer from cancer or viruses, and even die of them. However, if a diagnosis can be made more quickly and accurately, the probability of avoiding such a tragedy increases. Therefore, many scientists have researched a lot on disease diagnosis, especially by directly analyzing specific mutations and nucleotide sequences of cancer and viruses. Cancer diagnosis is a precision medicine diagnosis, and as it is possible to diagnose cancer only when even single nucleotide sequence mutations at various locations are clearly distinguished, diagnosis is mainly made through next generation sequencing (NGS) and droplet digital PCR (ddPCR). However, since NGS and ddPCR have disadvantages of high price and relatively high error rate and low throughput respectively, improvement methods are being proposed in many aspects to overcome them. On the other hand, virus diagnosis belongs to point-of-care testing (POCT) and places more importance on qualitative aspect than quantitative aspect. The key to this diagnosis is to quickly determine the presence or absence of isolation through on-off screening in the field. Therefore, the most ideal virus diagnosis is to make an accurate diagnosis within an hour without complicated devices in the field. But, since there are no diagnostic methods applied to the actual field yet, researchers are making many realistic suggestions. In the future, early diagnosis will be possible only when high-performance diagnostic methods are developed for each disease, so that treatment can be carried out at an appropriate time.