Develop a new method for power-free, high-speed, high-sensitivity environmental DNA concentration, QuickConc®.

(International Collaborative Research Program : Science and Technology Research Partnership for Sustainable Development (SATREPS))

- Environmental DNA monitoring method is a powerful tool for monitoring transmission of infectious diseases including Schistosomiasis. However, existing methods have technical limitations for the volume of filtered water and the speed of filtration due to the low concentration of DNA in environmental samples such as water. AdvanSentinel Inc. and Prof. Minamoto, Kobe University developed QuickConc, a new method for high-speed, simplified and power-free concentration of nucleic acids in environmental water. After applying for a patent in January 2024, QuickConc confirmed the effectiveness of a concentration and obtained robust evidence with various environmental samples in Kenya by SATREPS FY2024 additional budget.
- The research article was published on September 25, 2025 *1 , the press release was issued on October 24, 2025 *2, and the product of QuickConc®, currently on sales *3, is expected to greatly accelerate the social implementation of environmental DNA analysis because of its speed, simplicity, and high-efficiency.

< Reference >

- Project title: Integrated Research and Development towards Control and Elimination of Schistosomiasis
- Research period: FY2022 – FY2027
- Principal Investigator :
  (Japan) HAMANO Shinjiro (Professor, Nagasaki University)
  (Kenya) NJENGA Sammy (Lead Scientilst, Kenya Medical Research Institute)
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  (Japan) IWAMOTO Ryo (General Manager of Research and Development, AdvanSentinel Inc.)
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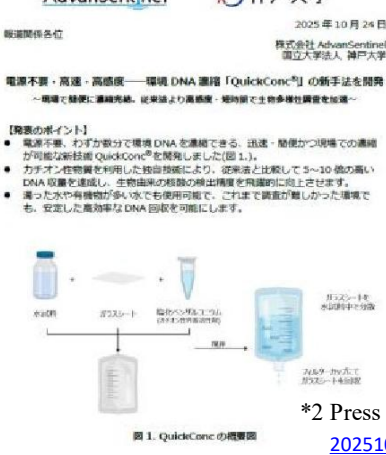
  MINAMOTO Toshifumi (Professor, Kobe University)

*1 The research information: QuickConc: A Rapid, Efficient, and Power-Free eDNA Concentration Method With Cationic-Assisted Capture - Kuroita - 2025 - Ecology and Evolution - Wiley Online Library

*3 Product information: AdvanSentinel


AdvanSentinel 神戸大学

2025年10月24日

報道関係各位

株式会社 AdvanSentinel
国立大学法人 神戸大学

電源不要・高速・高感度――環境 DNA 濃縮「QuickConc®」の新手法を開発
～現場で簡便に濃縮完結。従来法より高感度・短時間で生物多様性調査を加速～

【発表のポイント】
- 電源不要、わずか数分で環境 DNA を濃縮できる、迅速・簡便かつ現場での濃縮が可能な新技術 QuickConc® を開発しました(図 1.)。
- カチオン性物質を利用した独自技術により、従来法と比較して 5～10 倍の高い DNA 収量を達成し、生物由来の検出精度を飛躍的に向上させます。
- 濁った水や有機物が多い水でも使用可能で、これまで調査が難しかった環境でも、安定した高効率な DNA 回収を可能にします。

図 1. QuickConc の概要図

*2 Press release: 20251024_EN.pdf