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DNA analysis in the pocket!

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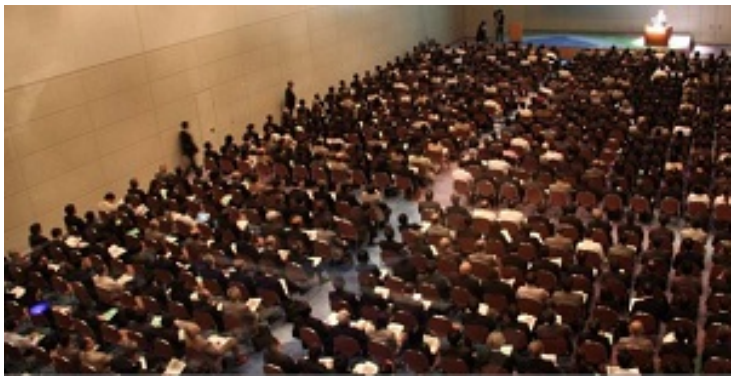

Dr Samuel KE Gan, molecular cell biologist and team leader of Antibody and Product Development (APD) Laboratory at Singapore's A*Star, always found it frustrating for not being able to access and analyse DNA sequencing files while travelling or when he was away from a computer. DNA sequencing is a commonly used technique which has advanced many areas of biological research, from the understanding of genetic information to the causes and treatment of human diseases.

Dr Gan was looking for a solution that would make access to his data handy when he was on the move and shared the challenge with his computer science research officer Mr Nguyen Phi Vu at the Bioinformatics Institute (BII). The exchange of ideas and the need for a mobile access point for DNA analysis led to the development of a mobile application for Android phones that could analyse DNA sequencing files, enabling science professionals and amateur enthusiasts to engage in scientific analysis anytime and anywhere.

Within three months of their first discussion, Dr Gan and Mr Phi Vu developed DNAApp that enabled researchers to read and analyse DNA sequencing files on the mobile phone. DNAApp enables visualisation and analysis of DNA sequencing files with the use of any iOS or Android mobile device. The application lets users assess the quality of DNA sequences and carries out commonly used functions of DNA sequencing analysis, such as reverse complementation, translation, and the ability to search for specific sequences. The latter function is important for researchers who want to locate specific segments in their sequences to identify regions of biological relevance, explain the developers.

Explaining the features of the app, Dr Gan mentioned that the DNAApp can work without internet access, and is designed to adapt to the smaller sizes and sensitivity of touch-screen devices with features like search, swipe or jump to a specific section of a sequence and the incorporation of fast and end-scrolling icons.

"We are excited to see that DNAApp has proven to be a useful tool for the busy scientist. As the use of mobile devices and their applications become increasingly widespread, we hope to continue to be at the forefront of technology, creating new bioinformatics tools for the advancement of scientific knowledge and making science accessible," said Dr Gan.

Besides the research on antibodies and viral mutations, the laboratory plans to continue developing mobile applications that aid analysis in molecular and microbiology to raise productivity in the laboratories, and have the added potential to be used as educational tools.

Dr Frank Eisenhaber, executive director at BII, said "Thanks to the initiative of Dr Samuel Gan, the new DNAApp software developed for smart-phones adds an exciting new dimension in the DNA sequence analysis software field. For the first time,

a mobile phone application is productive for certain aspects of sequencing data studies. At BII, we will continue to develop creative ideas for useful, efficient tools and techniques in computational biology for applications in the lifescience field."

Dr Gan's team published the app freely on Google Play store and Apple app store for scientists worldwide to improve their efficiency and productivity. The app has been downloaded by more than 300 times by users from more than 11 different countries.