NEC plans DNA analyzer for nearly-instant results

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(Phys.org)—NEC is working on a DNA analyzer that is the size of a suitcase, portable enough to be taken to crime scenes. The NEC analyzer integrates all steps required in DNA analysis. By 2014, NEC intends to

issue a model that will be able to process samples at the scene of a crime or at disaster sites in as little as 25 minutes. The current version of the analyzer takes about an hour for all DNA-determining tasks, but NEC intends to bring the time down to 25 minutes. The new analyzer's ability to output samples quickly for use with DNA databases can have a significant effect on crime-solving and helping people who are victims of natural disasters.

With a global launch date of 2014, NEC is testing its DNA analysis device with the National Research Institute of Police Science, affiliated with the National Police Agency, in Japan. The price for the analyzer is US$120,000. The 2014 model will weigh around 32 kg, measuring 850(W) by 470(D) by 250 (H) mm, which has earned it the reference of being suitcase-sized, though a heavy suitcase at that.

An NEC spokesperson said the company's initial user target will be investigative organizations such as police. The DNA analyzer will also be targeted to help during natural disaster crises, "for use on victims of natural disasters, to quickly match samples from siblings and parents."

NEC's technology that is making this type of portable analyzer possible is essentially a "lab on a chip." This chip is disposable, which avoids DNA mistyping. The NEC team behind this device has put the full DNA extraction, PCR (polymerase chain reaction) amplification and Electrophoresis stages on a chip. In so doing they have been able to recreate the lab processes. NEC said that the device will not require anything beyond minimal training; the capsule has a suite of reagents that eliminates the need to use pipettes. NEC said that "laymen" can inject extracted DNA in the well on the chip. After analysis, the chip can be safely disposed of. The waste area in the chip will free operators from the task of tedious cleaning, added NEC.

Development of the analyzer by NEC is being carried out with partners

including Promega, a U.S. biotechnology firm.

More information: www.nec.com/en/global/solution … ct/pdf/catalogue.pdf