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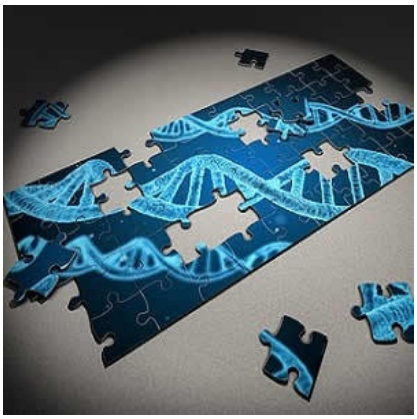
'Genome Cloaking' Protects Patient Data



A new technique known as "genome cloaking", developed by Stanford University researchers, ensures only patients have access to their complete genomic sequence, according to a study published in the journal Science. Using cryptography to hide almost 99 percent of genetic information, the cloaking technique keeps a patient's private genomic data protected when doctors analyse complete human genomes.

Although data-sharing is crucial for making the best use of genetic data in diagnosing disease, many individuals are hesitant to donate data due to privacy concerns, the study says. The new technique could alleviate privacy and potential discrimination concerns when it comes to genomic sequencing.

"We now have the tools in hand to make certain that genomic discrimination doesn't happen," Gill Bejerano associate professor of developmental biology, of paediatrics and of computer science at Stanford said in a statement.

"There are ways to simultaneously share and protect this information," he added. "Now we can perform powerful genetic analyses while also completely protecting our participants' privacy."

The genome cloaking method lets patients encrypt their genetic data using an algorithm on their computer or smart device. The information is uploaded into the cloud, where researchers use a multiparty computation to analyse the data and reveal only the necessary gene variants relevant to the investigation.

This means that no one has access to the complete set of genetic data other than the patient, Bejerano explained.

Many patients are concerned about how their genomic sequence could be used against them – like in obtaining insurance.

"Often people who have diseases, or those who know that a particular genetic disease runs in their family, are the most reluctant to share their genomic information because they know it could potentially be used against them in some way," Bejerano said.

"They are missing out on helping themselves and others by allowing researchers and clinicians to learn from their DNA sequences."

The cloaking method, if routinely implemented, could help patients overcome access concerns that may be

preventing them from sharing their genomic data, according to the Stanford team.

Source: Healthcare IT News
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