FOR IMMEDIATE RELEASE

Yissum Introduces a Novel Method for Forensic DNA Profiling

- ***Method enables accurate identification of a suspect's DNA in crime scenes even when DNA evidence comprises a mixture from multiple individuals*** -

- ***Finding published in Forensic Science International: Genetics*** -

Jerusalem, Israel, November 30, 2010 – Forensic DNA science has advanced significantly in the latest decade, and constitutes today the mainstay of forensic science. All serious crime scenes are routinely inspected for DNA evidence and many cases are solved by matching the DNA in the crime scene to that of a suspect. But often a crime scene will contain complex DNA mixtures (usually more than two individuals), and the detection of a particular DNA profile in such mixtures is challenging. Consequently, in such cases current police practices overlook valuable information that may aid in solving serious crimes.

Now, Yissum Research Development Company Ltd., the Technology Transfer Company of the Hebrew University of Jerusalem, introduces a novel method for identifying a suspect's DNA even in complex DNA mixtures. The novel strategy, developed by Prof. Ariel Darvasi from Department of Genetics of the Hebrew University in collaborations with Lev Voskoboinik from the Forensic Biology Laboratory of the Israeli Police, as part of his MSc thesis, consists of checking the DNA mixture and the suspected individual's DNA for 1000-3000 single letter changes (polymorphisms) which are relatively rare in a relevant population. Their work was recently published in Forensic Science International: Genetics.

"DNA profiling has become an indispensable tool in crime investigations, and is used both to convict and acquit suspects. It is therefore of great importance that crime investigators will be able to determine with accuracy whether a suspect is indeed connected to the crime scene," said Yaacov Michlin, CEO of Yissum. "The novel DNA profiling method developed by Prof. Darvasi will enable the police to investigate even complex crime scenes containing DNA from multiple individuals and discern with high reliability the presence or absence of DNA from a specific suspect."

Our DNA consists of long chains comprising various combinations of 4 small molecules, referred to as A, G, C and T. Forensic DNA analysis is based on the fact that the exact DNA "script" of each individual on the planet is unique. The human genome, our DNA, comprises 3 billion letters, 99.9% of which are identical in any two random individuals. Yet the remaining 0.1% letters, corresponding to about 30

million possible changes arranged in various combinations, enabling each and every one of us to carry our own individual DNA "barcode". Thus, in a particular position along the DNA chain, one individual will have the letter "A", whereas another will carry the letter "G". These particular DNA letters are termed "polymorphisms".

Current DNA profiling methods check a few such "polymorphic" sites and if they all match exactly to the suspect's DNA, one can establish with extremely high certainty that the DNA found in the crime scene belongs to the suspect. But if the DNA found in the crime scene is a mixture from more than 2 individuals, which is often the case, current DNA analysis methods are inefficient. Prof. Darvasi's invention enables one to establish with a very high level of certainty if a suspect's DNA is present in a mixture of DNA that comprise even up to 10 individuals. The procedure involves analyzing the DNA mixture for 1000-3000 polymorphic sites where DNA letter changes are rare in the population (found only in about 5% to 10% of the population). Thus, a suspect will carry about 100-200 of these rare letter changes. If the DNA mixture collected in the crime scene does not include the suspect's DNA, there is almost no chance that all of his/her 100-200 specific and rare letters will be present. On the other hand, if all these rare polymorphisms are present, then the only logical explanation is that the mixture included the suspect's DNA. Consequently, the method presented can establish with high certainty whether the suspect's DNA was present or absent in the DNA mixture collected from the scene of the crime.

About Yissum

Yissum Research Development Company of the Hebrew University of Jerusalem Ltd. was founded in 1964 to protect and commercialize the Hebrew University's intellectual property. Ranked among the top technology transfer companies in the world, Yissum has registered over 6,100 patents covering 1,750 inventions; has licensed out 480 technologies and has spun-off 65 companies. Yissum's business partners span the globe and include companies such as Novartis, Johnson & Johnson, Roche, Merck, Teva, Intel, IBM, Phillips, Syngenta, Vilmorin, Monsanto and many more. For further information please visit www.yissum.co.il.

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