



Forensic Swab and Kit *High sensitivity crime scene swab and kit for maximal recovery of trace forensic DNA*

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Inventors

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Field

Forensic science

Technology

Forensic swab and kit

Key Features

- Enhanced recovery of trace amounts of DNA
- Less DNA needed for effective swabbing
- Improved absorbency and DNA release

Stage of Development

Prototypes developed

Status

Seeking licensing partner and supply relationship

Patent Status

U.S. and International
Patent Pending

The Invention

The Invention is an improved forensic DNA swab and kit which yields a fourfold absorption, release and recovery rate of trace amounts of DNA compared to state of the art alternatives. This improved forensic swab is the result of development and testing of a variety of materials and configurations by the Office of the Chief Medical Examiner of the City of New York (OCME), the largest public DNA forensics laboratory in the United States. The unique substrate composition and configuration of the Invention provide superior results, and is now the swab of choice for OCME.

The swab of the Invention is designed to recover an analyzable amount of DNA from samples containing as little as 1-2 cells. The swabs are provided in a kit which includes a container designed to prevent contamination of the swab, and optionally, a swabbing solution. Alternatively, the swabs could be premoistened with a variety of swabbing solutions. The swabbing kit preserves and contains the sample following collection.

Market Opportunity

As the science of crime and national security forensics advances, our reliance on forensics analysis increases. Forensic laboratories have witnessed an exponential growth in the demand on their services – for example, New York City’s Forensic Biology Laboratory (located at the OCME) examined nearly 40,000 DNA samples in 2008, representing a 62% increase in the number of samples requiring examination in 2007. This sample volume correlates with nearly a quadrupling of case assignments, from 3000 to 11,000.

Growing need for forensic DNA analysis requires that the methods used to capture DNA are highly sensitive. Historically, forensic DNA analysis could only be performed on items containing large amounts of DNA such as those stained with blood, saliva or semen. Recent advances in DNA technology have enabled the testing of increasingly smaller amounts of DNA, such as those recovered from a fingerprint or the small skin cell fragments deposited on touched items like a doorknob or car handle. The ability to test smaller and smaller amounts of DNA requires that the maximum amount of DNA is absorbed and subsequently released from a sampling device. OCME’s forensic swab and kit was developed specifically for this purpose and offers a highly efficient and reliable swabbing tool.

As touched items can be found in almost any crime scene, the number of items requiring swabbing by crime scene investigators has increased exponentially in the past several years. In addition to these growing national and international needs, the Invention has applications in growing awareness of global health, food and water safety and biohazards demands increased forensics diagnostics, including superior sample collection and containment from field sampling to laboratory.

Forensic products and service market

The United States market for forensic products and services increased from \$9.5 billion in 2007 to an estimated \$10.3 billion by the end of 2008. It should reach \$17.5 billion by 2013, a compound annual growth rate of 11 percent. DNA testing has become the definitive forensic technology with other technologies becoming obsolete. In the last year, the United States government initiated plans to collect DNA samples from anyone arrested by a federal law enforcement agency, a move intended to prevent violent crime. Justice officials estimate the new collecting requirements would add DNA from an additional 1.2 million people to the Combined DNA Index System (CODIS) database each year. By 2011, the estimated international market will be \$1.8 billion dollars.

Unique licensing opportunity

The OCME is seeking a licensing partner for the forensic swab and kit. Additionally, OCME is interested in securing a supply relationship from the potential licensee to procure a significant volume of the described forensic swabs and kits. Since the OCME has the responsibility to perform DNA analysis on evidence from all crimes in New York City, and is the pre-eminent forensic laboratory in the country, the supply relationship presents a significant business opportunity to a potential licensee.