Summaries

Justitiële verkenningen (Judicial explorations) is published six times a year by the Research and Documentation Centre of the Dutch Ministry of Justice and Security in cooperation with Boom juridisch. Each issue focuses on a central theme related to judicial policy. The section Summaries contains abstracts of the internationally most relevant articles of each issue. The central theme of this issue (no. 1, 2021) is *The future of DNA analysis.*

The future of DNA analysis

Nico Kaptein and Marit Scheepmaker

This special issue of *Justitiële verkenningen* (Judicial Explorations) discusses three developments that have driven the use of DNA to grow: technological advances in DNA data sequencing, the booming market for commercial DNA testing, and the internationalization of the collection and sharing of DNA data. More and more DNA data is being distributed without any insight into what exactly happens to this data. While strict rules apply to the management and use of DNA data by the police and judicial authorities, this is not yet the case for data from commercial DNA tests. In this episode of *Justitiële verkenningen*, particular attention is paid to the rise of investigative genetic genealogy (IGG). This phenomenon means that the police and the judicial authorities use data from commercial DNA databases to track down suspects. The successes achieved in this way in deadlocked murder cases, including in the United States, are also discussed. It is clear that not everyone who sends DNA material to a DTC company foresees such an application, and this use is therefore controversial. Moreover, relatives of these customers are not systematically informed and they are usually not asked for permission. This special issue aims to contribute to the public debate on the consequences and risks of the dissemination of DNA data.

Commerciële DNA-databanken: een mixed blessing of een bedreiging voor de forensische praktijk?

Amade M'charek and Peter de Knijff

In April 2018, serial killer Joseph DeAngelo, also known as the Golden State Killer, was spectacularly tracked down. After 13 years of groping

in the dark, uploading his DNA profile to a commercial genetic genealogical DNA database helped to identify him within a few months. The use of such commercial DNA databases elicited both hope and dismay. In this contribution the authors address concerns about the use of this technology in the Dutch jurisdiction by situating it in the more than 25 years of careful legislation and forensic practice. They show that much care and attention has been given to the legal and societal aspects of forensic genetic technology and argue that the use of commercial DNA databases warrants a careful and thorough debate before it can be introduced in any sound way.

The use of DNA in the criminal investigation process

Christianne de Poot

This article describes why forensic DNA research is so interesting for criminal investigation processes, and why DNA does not yet play the role in these processes that could be expected given its unique properties. To this end, the bottlenecks that arise in the forensic investigation process are discussed as well as the opportunities to solve these bottlenecks in the coming years with new technologies and new scientific insights. The article focuses on (1) finding biological traces, (2) determining the relevance and the success rate of these traces, (3) the learning process of criminal investigators, (4) the importance of integrating processes that are currently performed in different places by different professionals, and (5) the promises of rapid mobile DNA technologies in this development.

A gold mine full of tips. The use of genealogical DNA databases in criminal investigation and identification

Lex Meulenbroek and Diederik Aben

The success of investigative genetic genealogy (IGG) in the US hasn't gone unnoticed in Europe. After US police announced worldwide that the Golden State Killer had been identified with the application of IGG, the Swedish police and judiciary applied the same method to solve a double murder that had remained unsolved for sixteen years. How did this method come about? A young woman unfamiliar with her real name, age, parents, and origins came up with the idea that private genealogical DNA databases that allow customers to trace their distant relatives could also be used to discover her identity. Since then, in the US many cold cases have been solved with the help of these

databases and also the identity of many unidentified human remains has been traced. Questions concerning this new method of investigation arise, to which the beginning of an answer is given here. What does the method entail? Is it allowed to use this method in the Netherlands as well?

Public values and the use of genetic data

Petra Verhoef, Yayouk Willems and Marc Groenen

Three developments – technological advances in sequencing DNA data, the booming market for commercial DNA tests, and internationalization of collecting and sharing DNA data – are accelerating the use of DNA data worldwide. The authors discuss the impact of the increase in international and commercial use of DNA data and the way it puts public values (like privacy, autonomy, fairness) under pressure. When collecting, analyzing, and translating DNA data, privacy should be guarded, genetic discrimination has to be prevented, digital citizenship could be strengthened, and responsibilities for those applying DNA data should be strongly defined. By doing so, we can thrive for a future in which we make valuable use of DNA data.

Direct-to-consumer (DTC) genetic testing: consequences of sharing our DNA

Nico Kaptein

This article aims to contribute to the public debate on the consequences and risks of the spreading of DNA data related to direct-to-consumer (DTC) genetic testing. Market developments drive DTC companies to find new business models. As a result of mergers and acquisitions and of the developments of new products and services, DNA data are often used differently than what they were originally collected for. Since DTC DNA data are not protected as well as health-related data generally are, it is hard to keep track of these data. This is partly due to legal and ethical issues such as unclarity of who owns DNA and problems with informed consent. Risks are identified with regards to privacy, information security, the right not to know, (un)equal opportunities, and national security. The author calls for an investment in knowledge and awareness in order to allow for a fair balance between opportunity and risk of DTC DNA products and services.