Il caso Gambirasio e la tecnica del «dragnet»

Gianfranco Bangone

Yara Gambirasio viene ritrovata il 26 febbraio del 2011 a Chignolo

Le indagini sulle tracce biologiche

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Solo il 3% del Dna è umano, il resto sono contaminazioni murine, di muffe e batteri

Il Ris preleva comunque 294 campioni sugli indumenti

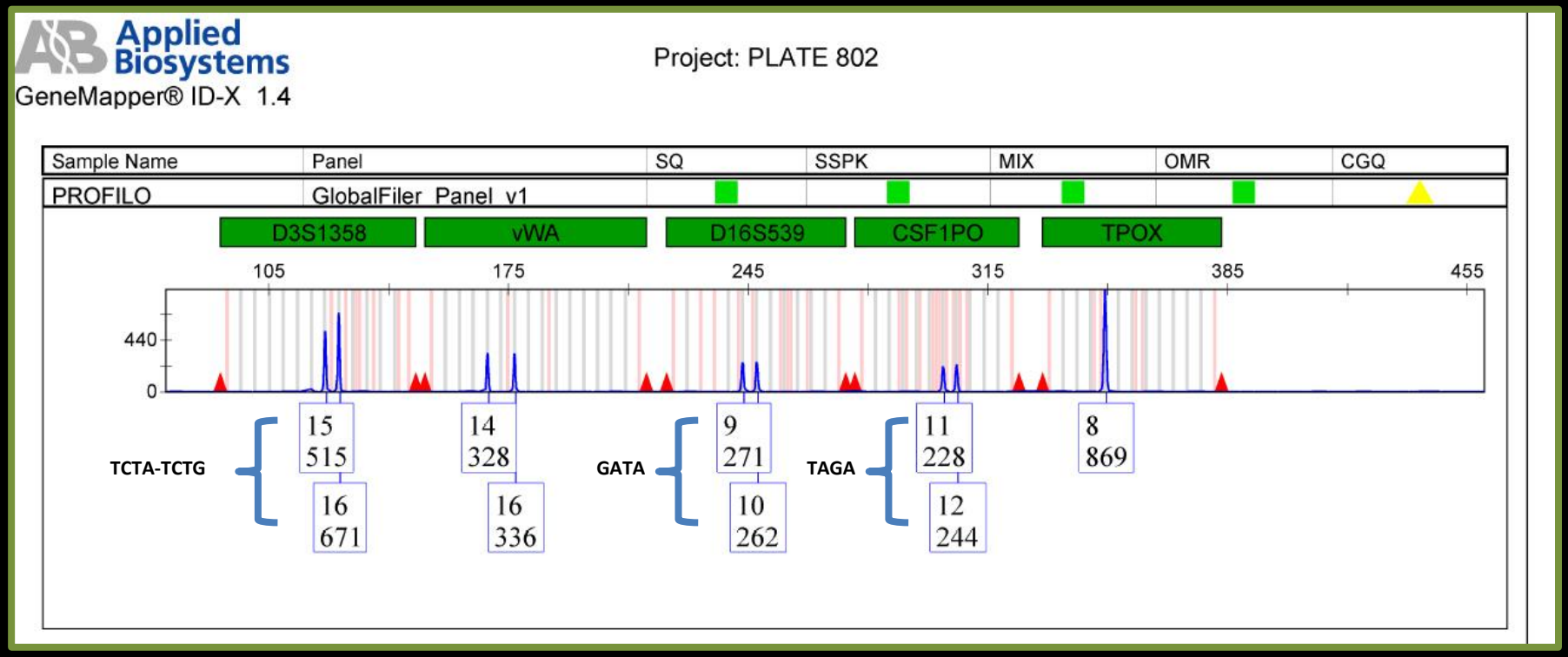
16 sono sugli slip e 2 sui leggins

Su 104 campioni replicati con la PCR 71 sono riconducibili a «Ignoto 1»

Si utilizzano 51 marcatori, di cui 23 autosomici, 12 sul cromosoma X e 16 sull'Y

La RMP è di $2{,}33 \times 10^{-27}$

Interpretazione di un elettroferogramma



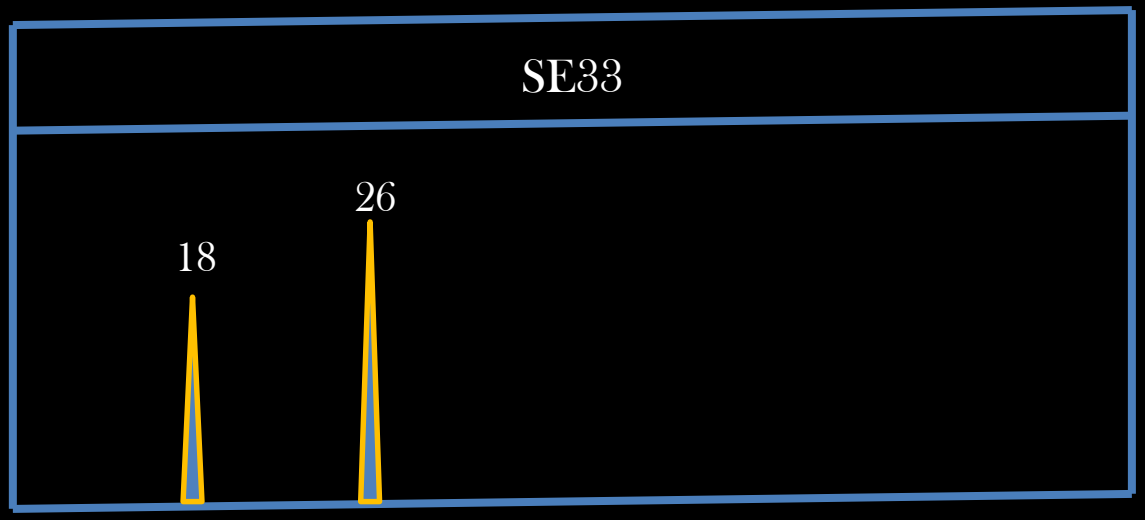
*RFU – Unità di fluorescenza relativa. Per convenzione non deve essere inferiore a 50

Le indagini sulle tracce biologiche

E' sicuramente il «dragnet» più esteso che si conosca: almeno 23.000 prelievi (per qualcuno sono 30.000). C'è un caso in Polonia (12.000) e uno in Germania (18.000)

Si arriva a Damiano Guerinoni che sul cromosoma Y ha un profilo molto simile a quello di Ignoto 1. Attraverso un'indagine familiare si arriva a uno zio, Giuseppe Guerinoni, che al 99,87% viene considerato padre di Ignoto 1. Tra figli e nipoti non si trova il matching, ma solo compatibilità

Profilo «Ignoto 1»



Le indagini sulle tracce biologiche

Emiliano Giradina, direttore del laboratorio di Dna forense di Tor Vergata

La condanna è interamente basata sul profilo genetico

1)Tutto il processo si regge sul Dna nucleare trovato fra i leggins e gli slip della vittima

2)Sul cadavere c'è il Dna mitocondriale di Yara, ma manca quello di Bossetti anche se c'è abbondanza di Dna nucleare

3)I dati del traffico telefonico dei cellulari di Yara e di Bossetti indicano soltanto la presenza dei due nella cella di Brembate più o meno all'ora della scomparsa di Yara

4)Le perizie sul furgone di Bossetti non trovano tracce biologiche attribuibili alla vittima (sono passati 4 anni dall'omicidio)

5)La presenza di microparticelle ferrose e di calce sui vestiti di Yara e nei polmoni è un indizio debole, anche se sono compatibili con la professione dell'imputato

Qualche domanda sul dragnet

a)La «volontarietà» dei prelievi

b)Chi si offre per il prelievo di un campione non risponde solo per sé, ma per tutta la sua famiglia allargata

c)Sulla «ricerca familiare» c'è un forte dibattito di cui non c'è eco nel nostro paese

d)In almeno 4 stati americani il dragnet non è consentito, in altri 4 richiede l'autorizzazione di un'authority

e)Come si concilia questa pratica con la Direttiva Europea sulla privacy?

f)La raccolta di questi campioni non è menzionata sulla legge italiana sulla Banca Dati del Dna

POLICYFORUM

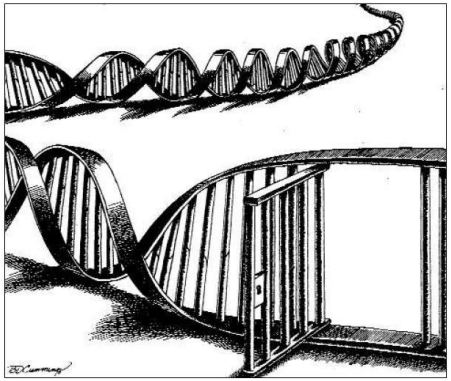
HUMAN GENETICS

Finding Criminals Through DNA of Their Relatives

Analyses of the DNA databases maintained by criminal justice systems might enable criminals to be caught by recognizing their kin, but this raises civil liberties issues.

Frederick R. Bieber,[1]* Charles H. Brenner,[2] David Lazer[3]

DNA methods are now widely used for many forensic purposes, including routine investigation of serious crimes and for identification of persons killed in mass disasters or wars (*1*–*4*). DNA databases of convicted offenders are maintained by every U.S. state and nearly every industrialized country, allowing comparison of crime scene DNA profiles to one another and to known offenders (*5*). The policy in the United Kingdom stipulates that almost any collision with law enforcement results in the collection of DNA (*6*). Following the U.K. lead, the United States has shifted steadily toward inclusion of all felons, and federal and six U.S. state laws now include some provision for those arrested or indicted. At present, there are over 3 million samples in the U.S. offender/arrestee state and



times to dramatic effect. For example, the brutal at a crime scene, and a search. The search compares the crime sample with each catalogued offender in turn by computing likelihood ratios (LRs) that assess the likelihood of parent-child or of sibling relationships (*1*, *16*). We used published data on allele frequencies of the 13 short tandem repeat (STR) loci on which U.S. offender databases are based and basic genetic principles (*17*–*19*). A high LR is characteristic of related individuals and is an unusual but possible coincidence for unrelated individuals. The analysis of each simulation therefore assumes that investigators would follow these leads in priority order, starting with those in the offender database with the highest LR for being closely related to the owner of the crime scene DNA sample.

Familial DNA Searching

A Proponent's Perspective

BY MICHAEL CHAMBERLAIN

It is easy—but important—to imagine how government could run amok with technology at the expense of civil liberties. State-sanctioned use of genetic information has provided particularly fertile

Familial DNA Searching in a Nutshell

Familial searching involves use of a DNA database to generate a lead for detectives investigating an unsolved crime. In this general sense, it is no different than any other use of a CODIS (Combined DNA Index System) DNA

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Policy implications for familial searching

Joyce Kim, Danny Mammo, Marni B Siegel and Sara H Katsanis*

Abstract

In the United States, several states have made policy decisions regarding whether and how to use familial searching of the Combined DNA Index System (CODIS) database in criminal investigations. Familial searching pushes DNA typing beyond merely identifying individuals to detecting genetic relatedness, an application previously reserved for missing persons identifications and custody battles. The intentional search of CODIS for partial matches to an item of evidence offers law enforcement agencies a powerful tool for developing investigative leads, apprehending criminals, revitalizing cold cases and exonerating wrongfully convicted individuals. As familial searching involves a range of logistical, social, ethical and legal considerations, states are now grappling with policy options for implementing familial searching to balance crime fighting with its potential impact on society. When developing policies for familial searching, legislators should take into account the impact of familial searching on select populations and the need to minimize personal intrusion on relatives of individuals in the DNA database. This review describes the approaches used to narrow a suspect pool from a partial match search of CODIS and summarizes the economic, ethical, logistical and political challenges of implementing familial searching. We examine particular US state policies and the policy options adopted to address these issues. The aim of this review is to provide objective background information on the controversial approach of familial searching to inform policy decisions in this area. Herein we highlight key policy options and recommendations regarding effective utilization of familial searching that minimize harm to and afford maximum protection of US citizens.

Keywords: genetic identity, forensic genetics, DNA typing, DNA data bank, likelihood functions

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Genetic privacy

The ability to identify an individual from their anonymous genome sequence, using a clever algorithm and data from public databases, threatens the principle of subject confidentiality.

How private is private? A study published on 17 January reveals vulnerabilities in the security of public databases that contain genetic data, the latest in a series of similar revelations. So far, research funders that host the databases have responded to such problems on a case-by-case basis, but it is now clear that the research community as a whole must devise a more comprehensive approach.

In the latest study, led by Yaniv Erlich at the Whitehead Institute for Biomedical Research in Cambridge, Massachusetts (M. Gymrek *et al.* be revealed would seem a remote risk to them, as that has only recently become possible. It is now imperative that participants fully understand that it is unlikely that their identities can be kept hidden if their genetic data are revealed. Some participants might welcome this, such as those with an interest in genealogy. Others — perhaps those with stigmatized diseases, for instance — might not.

Moving data behind a controlled-access barrier lessens their utility to science and to society at large. But researchers need to show the

Il prossimo passo sarà il DNA Phenotyping?

Verrà praticato in regime di deregulation oppure si arriverà a un nuovo quadro normativo? Farà testo la legislazione olandese del 2001?

DNA justice

Germany is considering proposals to extend the use of DNA evidence in criminal cases.

Behind closed doors this week, the German federal justice ministry has been discussing whether to hand police a powerful new tool involving the analysis of DNA samples. The debate is a direct consequence of the rape and murder of a medical student in Freiburg last October.

Two months later the crime became a cause célèbre: the police arrested and charged a young refugee from Afghanistan — and public fears over the million or so refugees who have arrived in Germany in the past few years erupted. Among the political responses, Freiburg's home state of Baden-Württemberg proposed new legislation to the federal parliament to extend the ways in which police can use genetic analysis.

Wider use of genetic analysis is something that German police and forensic scientists have long wanted. Yet it is unfortunate that in a country with some 1,600 murders every year, it had to be one involving a refugee that finally sparked the proposal. And it would be more

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