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BILL ANALYSIS

Senate Fiscal Agency

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Senate Bill 262 (Substitute S-3 as passed by the Senate)

Sponsor: Senator Connie Binsfeld

Committee: Human Resources and Senior Citizens

Date Completed: 10-31-90

RATIONALE

A recently developed procedure uses genetic information to identify people through the study of individual variations in their genetic material. Termed "DNA profiling" or "fingerprinting", the process involves a series of steps in which scientists extract a DNA sample from blood or other body tissue and produce a print that can be compared to other DNA prints. One of the many applications of DNA profiling is in the area of paternity determinations, although the use of DNA profiling is not specifically authorized in the Paternity Act. Some people believe, however, that DNA profiling is an accurate, scientifically sound tool for determining paternity and its use should be statutorily sanctioned.

requires blood and tissue typing tests to be done by a person the court determines is qualified as an examiner of blood or tissue types.

If the probability of paternity determined by a qualified person were 99% or higher, paternity would have to be presumed. If two or more persons were determined to have a probability of paternity of 99% or higher, paternity would have to be presumed for the person with the higher probability. The burden of proof would be upon the alleged father to rebut the presumption.

Finally, the bill would delete a provision that prohibits blood or tissue typing tests for a child under six months of age.

MCL 722.716

BACKGROUND

Human cells that contain a nucleus, such as those cells found in hair and skin, hold chromosomes that contain an essential component of all living matter known as deoxyribonucleic acid (DNA). DNA is the complex molecule that houses genetic instructions and transmits hereditary patterns. The genetic code, found in a DNA molecule, is made up of long strands that transmit instructions for general human characteristics such as arms and legs, and shorter sequences that give instructions for characteristics that distinguish individuals from each other. Each person has 46 chromosomes within each of his or her cells; 23 of the chromosomes are inherited from the person's mother, and 23 from the father. Each person's genetic code is unique to that individual, except for identical twins who

CONTENT

The bill would amend the Paternity Act to permit the use of DNA profile determinations to establish paternity. "DNA profile" would mean the patterns of fragments of deoxyribonucleic acid used both to identify individuals and to study the relatedness of individuals.

The results of a DNA profile determination and, if a determination of exclusion of paternity could not be made, a calculation of the probability of paternity would be admissible in the trial of a case brought under the Paternity Act.

The DNA profile determination, as well as any blood or tissue typing, would have to be conducted by a person accredited for paternity determinations by a nationally recognized scientific organization, such as the American Association of Blood Banks. Currently, the Act

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have the same DNA pattern.

The process of "DNA profiling" or "fingerprinting" involves a series of steps in which scientists extract a DNA sample from blood, hair, semen, or other body tissue and snip it into fragments with chemicals called restrictive enzymes. The fragments, which are negatively charged, are then suspended at one end of a slab of gelatin, and a positively charged electrode is placed at the other end. When the electrode is turned on, it attracts the charged fragments of DNA, causing them to drift through the gel. The lightest, smallest fragments travel farthest because they meet with only a small amount of resistance in the gel. The heavier fragments, or the longer sections of the DNA, are dragged more slowly through the gel and remain closer to their starting point. The unique pattern of lengths of DNA fragments is thereby captured in the gel as a kind of spectrum. To develop it into an image that can be seen and preserved, a nylon membrane is placed over the DNA fragments and then covered with paper towels (a procedure called "Southern blotting"). The towels sop the fragments directly upward into the nylon, where their distinctive pattern is preserved. The nylon then is rinsed with a solution of radioactive probes. When the nylon is exposed to x-ray film, the probes emit radiation that creates one or two dark, blurred bands on the film, representing one distinctive part of the person's DNA pattern. Additional probes are used to create more shadowy bands, until the DNA "fingerprint" is complete. The DNA print then can be compared to other DNA prints. Applications of this technique include establishing a child's paternity, determining certain genetic traits of a fetus, and identifying criminal suspects.

FISCAL IMPACT

The bill would have no fiscal impact on State or local government.

ARGUMENTS

Supporting Argument

By statutorily authorizing the use of DNA profile determinations to determine paternity and clearly establishing the basis for a presumption of paternity, the bill would help eliminate controversy over the admissibility of DNA testing results in paternity lawsuits.

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The bill would help in assessing financial responsibility for a child's support. Currently, mothers and taxpayers must bear a lot of the costs of supporting a child and proving paternity that should be borne by the child's father. The accuracy of DNA profile determinations would make it much more difficult for a father to refuse to acknowledge responsibility for a child and avoid the costs of child support.

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This analysis was prepared by nonpartisan Senate staff for use by the Senate in its deliberations and does not constitute an official statement of legislative intent.