

Court of Appeals No. 09CA0593  
Jefferson County District Court No. 07CR697  
Honorable Margie L. Enquist, Judge

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The People of the State of Colorado,

Plaintiff-Appellee,

v.

William Anthony Tunis,

Defendant-Appellant.

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JUDGMENT AND SENTENCE AFFIRMED

Division V  
Opinion by CHIEF JUDGE DAVIDSON  
Webb and Plank\*, JJ., concur

Announced August 2, 2012

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\*Sitting by assignment of the Chief Justice under provisions of Colo. Const. art. VI, § 5(3), and § 24-51-1105, C.R.S. 2011.

¶1 The victim in this criminal case was sexually assaulted in her home. Defendant, William Anthony Tunis, was charged with the offense and, at a subsequent jury trial, he was identified as the assailant based on the victim’s testimony and DNA evidence, including Y Chromosome-Short Tandem Repeat (Y-STR) evidence. Defendant was ultimately convicted of sexual assault and second degree burglary, both class three felonies, and sentenced to the Department of Corrections for an indeterminate term of twelve years to life. His sentence included a determination that he qualified as a sexually violent predator.

¶2 Defendant appeals from the judgment of conviction and sentence, challenging, as an issue of first impression, the reliability of the Y-STR evidence. We affirm.

### I. Y-STR Evidence

¶3 For three reasons, defendant contends that the Y-STR evidence, which was admitted through expert testimony, was unreliable and the trial court therefore erred by admitting it. “We review a trial court’s admission of expert testimony for an abuse of discretion and will reverse only when that decision is manifestly erroneous.” *People v. Rector*, 248 P.3d 1196, 1200 (Colo. 2011)

(citing *People v. Ramirez*, 155 P.3d 371, 380 (Colo. 2007)). We disagree with defendant and conclude that the trial court did not abuse its discretion.

#### A. Y-STR Analysis Generally

¶4 The following was not disputed at trial:

¶5 Every person has a unique genetic code. This code consists of a unique pattern of DNA on the twenty-three pairs of chromosomes that all humans have. Twenty-two of these pairs, called autosomes, are not sex-determinative. A mother and father contribute equally, and randomly, to the composition of their offspring's autosomes.

¶6 However, the last pair of chromosomes determines the offspring's sex, and are called sex chromosomes. In females, this pair consists of two X chromosomes, while in males, this pair consists of one X and one Y chromosome. Because females carry no Y chromosome, a male's entire Y chromosome comes from his father. Therefore, excluding consideration of very small changes due to random mutation, a male's Y chromosome contains the same DNA and genetic code as all members of his male lineage.

¶7 Traditional forensic DNA analysis identifies individuals by looking for specific types of DNA at specific locations across the

twenty-two pairs of autosomes. Analysts can compare a suspect's DNA type at a specific location on a chromosome to the DNA type at the same location on the same chromosome from a crime scene sample. If the types match, the DNA in the sample may have come from the suspect.

¶8 Analysts can obtain a more accurate match by executing this comparison for many different DNA types at different locations on different chromosomes. Because autosomes contain a random combination of DNA from an individual's mother and father, and discrete DNA types at different locations are inherited independently of one another, the accuracy of the identification increases exponentially when analysts find a DNA type match at more than one location. This statistical analysis is called the product rule because the probability of a match at one location is multiplied by the probability of a match at another location, and so on, resulting in an astronomically small probability that a random person's overall DNA profile would match the profile observed in the sample and the suspect.

¶9 The physical process and methodology of Y-STR analysis is the same as that of traditional forensic DNA analysis. In both cases,

the same techniques allow analysts, using one of several kits manufactured by private companies, to compare DNA types at specific locations. However, Y-STR analysis only examines DNA types on the Y chromosome. Because the Y chromosome passes from father to son largely unchanged, the DNA types at different locations on the Y chromosomes are not inherited independently of one another. Therefore, the product rule is inapplicable.

¶10 Instead of the product rule, analysts use what is known as the counting method in Y-STR analysis. Analysts assemble a Y chromosome profile from DNA found in a crime scene sample by identifying different DNA types at specific locations on the Y chromosome. If the profile from the sample matches the suspect's Y chromosome profile, he and his paternal relatives cannot be ruled out as the source of the sample. Analysts then search for the same DNA profile in a database of several thousand individuals' profiles. Based on the number of individuals in the database who share that profile, analysts can then calculate what portion of the general population shares that profile. In other words, if the matching profile occurs at a rate of 5% in the database, about 95% of the population represented by that database can be excluded as the

source of the sample.

### B. Governing Law

¶11 The admissibility of scientific evidence in Colorado is governed by CRE 702 and 403. *People v. Shreck*, 22 P.3d 68, 78 (Colo. 2001).

¶12 CRE 702 requires that the scientific evidence is both reliable and relevant. *See id.* at 77. “In determining whether the [scientific] evidence is reliable, a trial court should consider (1) whether the scientific principles as to which the witness is testifying are reasonably reliable, and (2) whether the witness is qualified to opine on such matters.” *Id.* (citing *Brooks v. People*, 975 P.2d 1105, 1114 (Colo. 1999)). This reliability inquiry “should be broad in nature and consider the totality of the circumstances of each specific case,” and need not turn on any particular factor or factors. *Id.* Also, a trial court must issue specific findings as it applies the CRE 702 analysis. *Id.* at 79.

¶13 Because defendant challenges only the reliability of the scientific principles underlying the Y-STR evidence, we need not address the additional criteria set forth in *Shreck* and CRE 403.

### C. Procedural History

¶14 The court conducted a pretrial *Shreck* hearing to determine

the admissibility of the Y-STR evidence offered by the prosecutor. The court qualified as an expert witness the analyst from the Colorado Bureau of Investigation (CBI) who conducted the Y-STR analysis. She testified about the methodology and reliability of Y-STR analysis generally, and in this case. At the conclusion of the hearing, the court ruled that the Y-STR evidence was admissible under CRE 702 and 403 because: (1) the basic science, methodology, and procedures were substantially similar to the traditional DNA analysis held to be reliable in *Shreck*; (2) there was no risk of affirmative misidentification because the Y-STR evidence was used only to show that defendant and his paternal male ancestors could not be excluded as the assailant; (3) the Y-STR evidence was relevant to the identification of the assailant; and (4) the probative value of the Y-STR evidence was not outweighed by the danger of unfair prejudice.

¶15 Later, at trial, the analyst testified to the following:

¶16 A DNA sample obtained from the victim's inner thigh shortly after the assault contained male and female DNA. To better analyze only the male DNA, the analyst conducted a Y-STR analysis on this sample. She sought to identify the DNA type at seventeen locations

on the Y chromosome and obtained interpretable results at seven of those locations, resulting in a partial profile. At one of the seven locations on the Y chromosome, she observed the presence of DNA from more than one male. She then identified the major male contributor and isolated it for further analysis. The major contributor partial profile matched defendant's profile. After comparing these results to the YFiler Y-STR database and conducting a statistical analysis using the counting method, the analyst testified that she could not exclude defendant and members of his male lineage as sources of the DNA in the inner thigh sample, but she could exclude 99.6% of African Americans, 99% of Caucasians, and 99.5% of Hispanics.

¶17 The Y-STR evidence from the victim's inner thigh is the only Y-STR evidence that suggested defendant was the assailant, and is the only Y-STR evidence at issue on appeal.

#### D. Reliability of Y-STR Analysis

¶18 We disagree with defendant's arguments that the scientific principles underlying the Y-STR evidence were unreliable.

¶19 The Y-STR evidence was admitted through the testimony of the analyst. Her background included extensive training and

experience with the types of partial mixture analyses at issue here, she had been qualified as an expert in forensic DNA analysis in several other cases, she had been conducting Y-STR analysis for approximately one year, and she previously had given expert testimony about Y-STR analysis. *See Golob v. People*, 180 P.3d 1006, 1012 (Colo. 2008) (expert qualification standard under CRE 702 is “liberal” and “expert may be qualified by any one of the five factors specified in the rule: knowledge, skill, experience, training, or education”) (citing *Huntoon v. TCI Cablevision of Colo., Inc.*, 969 P.2d 681, 690 (Colo. 1998)); *People v. Lehmkuhl*, 117 P.3d 98, 103-4 (Colo. App. 2004) (that witness previously qualified and testified as DNA expert was a fact supporting trial court’s ruling that witness was qualified to opine about DNA evidence); *see also Shreck*, 22 P.3d at 77 (scientific evidence is reliable if the scientific principles underlying the evidence are reliable and the expert testifying to the evidence is qualified to opine on the evidence).

### 1. Scientific Standard

¶20 Defendant challenges the Y-STR analysis as unreliable because, according to defendant, the analyst used her discretion instead of a scientific standard to determine major and minor

contributors to the inner thigh DNA sample that contained a mixture of DNA from two different males.

¶21 However, the record is to the contrary. The analyst testified that she used a generally accepted scientific metric. Specifically, she explained that when there is a mixture of two DNA types at a particular location, the presence of at least three times the amount of one type as the other type generally indicates that the type present in the larger amount is the major contributor, and that this three-to-one threshold for determining major and minor contributors to a mixture sample was “a general rule of thumb [that is] very commonly used across forensic labs.” *See Shreck*, 22 P.3d at 77 (non-exhaustive list of factors courts may consider when making reliability determinations under CRE 702 includes “whether the technique has been generally accepted”) (citing *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 593-94 (1993)).

## 2. Y-STR Database Size

¶22 We also disagree that the allegedly small size of the database used to generate the exclusion statistics rendered the statistics unreliable.

¶23 Even when the underlying scientific evidence is reliable under

CRE 702, a separate CRE 702 analysis “is independently necessary to show that statistical or numerical results are also . . . reliable.” *People v. Wilkerson*, 114 P.3d 874, 877 (Colo. 2005); see *Shreck*, 22 P.3d at 77. Our examination of the record reveals no abuse of discretion in the trial court’s determination that the exclusion statistics were reliable.

¶24 In her testimony, the analyst explained how she used the counting method to generate the Y-STR exclusion statistics. She testified that she first determined that defendant’s Y-STR profile matched the partial profile observed from the inner thigh sample. Next, she looked for that same partial profile in the YFiler database of 3,561 individuals’ Y-STR profiles. After determining how often that partial profile occurred in the database, she applied a 95% confidence value to the results and concluded that, while defendant could not be excluded as the source of the DNA in the inner thigh sample, 99.6% of African Americans, 99% of Caucasians, and 99.5% of Hispanics could be excluded. The analyst testified that the statistical methods she used were “general statistical methods that are used in several different fields,” that “[o]ther laboratories use the same methods,” and that “the size of the database, which at

this point is about 3,500 people . . . is commonly used.”

¶25 In addition, the trial court considered decisions from other jurisdictions that have upheld as reliable the counting method in general, as well as its use with the specific YFiler database at issue here. *See State v. Calleia*, 997 A.2d 1051, 1064 (N.J. Super. Ct. App. Div. 2010) (Y-STR testing, including use of same YFiler database at issue here, generally accepted in the scientific community and therefore admissible), *rev'd on other grounds*, 20 A.3d 402 (N.J. 2011); *State v. Bander*, 208 P.3d 1242, 1255 (Wash. Ct. App. 2009) (*Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923), hearing on use of counting method in Y-STR analysis unnecessary, in part, because it is generally accepted in scientific community).

¶26 Thus, we conclude that the court acted within its discretion by determining that the scientific principles underlying the use of the YFiler database with the counting method to generate the exclusion statistics were reliable. Specifically:

- There was testimony that the statistical methods used were generally accepted by other laboratories. *See Shreck*, 22 P.3d at 77 (courts may consider “whether the technique has been generally accepted” when making reliability determinations

under CRE 702) (citing *Daubert*, 509 U.S. at 593-94).

- There was testimony that similar statistical methods were used in several other fields. *See id.* at 77-78 (courts may consider “the non-judicial uses to which the technique are put” when making reliability determinations under CRE 702) (citing *United States v. Downing*, 753 F.2d 1224, 1238-39 (3d Cir. 1985)).
- Other jurisdictions have admitted similar evidence as reliable. *See id.* (courts may consider “whether such evidence has been offered in previous cases” when making reliability determinations under CRE 702) (citing *Downing*, 753 F.2d at 1238-39).

### 3. Amount of DNA

¶27 Defendant also challenges the Y-STR evidence as unreliable because it was obtained from an amount of DNA that, according to defendant, was too small. Again, we disagree.

¶28 The analyst testified that the Y-STR evidence from the inner thigh sample was generated from a DNA sample of .3 nanograms. The manufacturer of the kit used here recommended that analysts use between .5 and 1 nanogram of DNA. The analyst testified that

using less than .5 nanograms may preclude obtaining an interpretable profile. However, she also testified that, based on CBI's own validation studies, if an interpretable partial profile can be obtained from an amount of DNA less than .5 nanograms, as it was here, the reliability of the partial profile will not be affected.

¶29 At the *Shreck* hearing, defendant unsuccessfully attempted to qualify as an expert a witness who would have testified that using less than .5 nanograms of DNA diminishes the reliability of the resulting profile. Although defendant made an offer of proof in the trial court, he does not argue on appeal that the court erred by refusing to qualify his witness. Consequently, the court heard, and was entitled to rely on the unrefuted evidence that using less than .5 nanograms did not affect the reliability of the DNA analysis. See *Shreck*, 22 P.3d 68, 82 (once evidence deemed admissible, additional challenges to its reliability go to weight); see also *People v. Gillis*, 883 P.2d 554, 559 (Colo. App. 1994) (an offer of proof is not evidence but shows what counsel expects to prove by the excluded evidence); cf. *Hudson v. Park Development Co.*, 493 P.2d 379, 381 (Colo. App. 1972) (not published pursuant to C.A.R. 35(f)) (“The weight to be accorded expert testimony is within the sound

discretion of the trier of fact and will not be disturbed on review in the absence of an abuse of that discretion.”).

## II. Sleeping Juror

¶30 Defendant contends that the court erred by releasing a juror who repeatedly fell asleep, and replacing him with an alternate juror. We review for abuse of discretion, which, in this context, means a ruling that is “manifestly arbitrary, unreasonable, or unfair.” *People v. Lee*, 30 P.3d 686, 690-91 (Colo. App. 2000) (citing *Jurgevich v. Dist. Court*, 907 P.2d 565 (Colo. 1995)). We see no abuse of discretion here.

¶31 Although defendant is entitled to a trial by fair and impartial jurors, he is not entitled to any particular juror. *People v. Johnson*, 757 P.2d 1098, 1100 (Colo. App. 1988) (citing *People v. Tippett*, 733 P.2d 1183 (Colo. 1987)). Moreover, a trial court “shall replace jurors who, prior to the time the jury retires to consider its verdict, become unable or disqualified to perform their duties.” § 16-10-105, C.R.S. 2011. To obtain relief as the result of a court’s releasing and replacing a juror, the defendant must show that the remaining jurors were unfair or biased, or that he was actually prejudiced by the dismissal and replacement of the original juror.

*See Johnson*, 757 P.2d at 1100. An appellate court will not assume prejudice. *See id.*

¶32 During trial, the court noticed that one of the jurors seemed to be having trouble staying awake. The court stated, “[I]t is observable that his head falls. He appears not to be awake.” When the court indicated that it was inclined to release the sleeping juror, defense counsel requested that the court question the juror about whether he was sleeping. The court did so, and the juror indicated that he was having trouble staying awake and admitted to nodding off during the trial. The court then released the juror and replaced him with an alternate. Defendant moved for a mistrial based on being denied a jury of his choice, and the court denied the motion.

¶33 The court’s decision to replace the sleeping juror was not an abuse of discretion. *See Lee*, 30 P.3d at 691 (decision to dismiss juror who had been victim of juror intimidation not an abuse of discretion because the court gave valid reasons for dismissal); *compare People v. Evans*, 710 P.2d 1167, 1168 (Colo. App. 1985) (court abused its discretion by failing to replace juror with alternate where court knew that juror was sleeping during closing argument), *with People v. King*, 121 P.3d 234, 241-42 (Colo. App. 2005) (court

did not abuse its discretion by failing to replace juror with alternate because there was not sufficient evidence to show that he was sleeping during the trial).

¶34 Nonetheless, defendant contends that he was prejudiced because the alternate juror was biased in favor of DNA evidence. For support, defendant relies on an equivocal statement made by the alternate juror during voir dire that he may have “some sort of bias, either positively or negatively” about DNA evidence. However, the alternate juror went on to say that he “would make every effort to be fair and impartial.” Thus, in the absence of any other assertion of bias, the trial court was well within its discretion to dismiss the sleeping juror and to replace him with the alternate juror. *See People v. Woellhaf*, 87 P.3d 142, 151 (Colo. App. 2003) (court within its discretion to deny challenge for cause to juror who expressed doubt about the defendant’s innocence, but indicated “that she would try to put her biases aside,” would “want to listen to the evidence,” and “thought she could be fair”), *rev’d on other grounds*, 105 P.3d 209 (Colo. 2005); *People v. Griffin*, 985 P.2d 15, 20-21 (Colo. App. 1998) (court within its discretion to deny challenge for cause to juror who expressed concerns about ability to

be fair, but stated that “he would try his best and would be as fair as he could”).

### III. Sexually Violent Predator

¶35 Challenging a portion of his sentence, defendant contends that the court erred by determining that he is a sexually violent predator within the meaning of section 18-3-414.5(1)(a)(III), C.R.S. 2011. We review a court’s factual findings for clear error, but review de novo whether those findings are sufficient to support the legal conclusion that defendant is a sexually violent predator within the meaning of the statute. *See People v. Tuffo*, 209 P.3d 1226, 1230 (Colo. App. 2009). We agree with the determination of the trial court.

¶36 As relevant here, the sexually violent predator designation applies to an offender “[w]hose victim was . . . a person with whom the offender established or promoted a relationship primarily for the purpose of sexual victimization.” § 18-3-414.5(1)(a)(III). The sexually violent predator statute further states that when a defendant is convicted of an offense to which the designation potentially applies, the probation department shall complete the sexually violent predator risk assessment screening instrument. § 18-3-414.5(2), C.R.S. 2011. Based on the results of the screening

instrument, the trial court shall make specific findings of fact and enter an order concerning whether the defendant is a sexually violent predator. *Id.*

¶37 Here, the court found that defendant was a sexually violent predator because he promoted a relationship with the victim primarily for the purpose of sexual victimization. Specifically, the court found that defendant “meets the criteria of promoted a relationship . . . under the [screening instrument].”

¶38 The criteria for “promoted a relationship” according to the screening instrument involve a two-step inquiry. First, according to the screening instrument, the offender must have taken steps “to change the focus of the relationship to facilitate the commission of a sexual assault such as but not limited to planning, increased frequency of contact, introduction of inappropriate sexual contact, stalking, seduction or drugging of the victim.” Second, the offender’s conduct must fall into at least one of the following categories: (1) “[t]he offender engaged in contact with the victim that was progressively more sexually intrusive”; (2) “[t]he offender used or engaged in threat, intimidation, force or coercion in the relationship”; (3) “[t]he offender engaged in repetitive non-

consensual sexual contact”; or (4) “[t]he offender established control of the victim through means such as but not limited to emotional abuse, physical abuse, financial control or isolation of the victim in order to facilitate the sexual assault.” The completed screening instrument in defendant’s case indicated that his conduct satisfied the first step of the inquiry, and the first three categories of the second step of the inquiry.

¶39 The evidence at trial supports the conclusions in the screening instrument. Prior to the assault, defendant had become acquainted with the victim because he was dating her mother. Before going to the victim’s house on the night of the assault, defendant asked a local bartender whether the victim’s husband was home. Defendant’s query to the bartender and subsequent commission of the assault indicates that defendant had planned the assault for a time when the husband was away. Thus, this is evidence that defendant “took steps to change the focus of the relationship to facilitate the commission of a sexual assault such as but not limited to planning” in satisfaction of the first step of the “promoted a relationship” inquiry according to the screening instrument.

¶40 Additionally, the prosecution introduced evidence that

defendant threatened the victim in an effort to keep her quiet during the assault, pulled her hair, and repeatedly forced her head into a position from which she could not see him during the assault. This is evidence that defendant “used or engaged in threat, intimidation, force or coercion in the relationship,” thereby satisfying the second category of the second step of the “promoted a relationship” inquiry in the screening instrument.

¶41 Thus, the evidence at trial supports the conclusion that, based on the criteria in the screening instrument, defendant promoted a relationship with the victim primarily for the purpose of sexual victimization. Because section 18-3-414.5(2) directs the trial court to issue an order concerning whether the defendant is a sexually violent predator “[b]ased on the results of the [screening instrument],” we conclude that the court properly designated defendant a sexually violent predator. § 18-3-414.5(2); *see People v. Cook*, 197 P.3d 269, 281 (Colo. App. 2008) (affirming trial court’s designation of the defendant as sexually violent predator because the “evidence supports the screening [instrument] and, therefore, the findings and ruling by the trial court”).

¶42 The judgment and sentence are affirmed.

JUDGE WEBB and JUDGE PLANK concur.