

RELATIONSHIP TESTING NEWS

AABB Accredited

APRIL 2022 | VOLUME 17, NUMBER 1

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Erratum

In the December 2021 issue of the RT Newsletter, the author of the article “A Brief History of Biological Relationship Testing” was not given. The author was Charles M. Kelly, PhD.

Non-Parentage Relationship Testing

Charles M. Kelly, PhD
Vice President, IntelliGenetics

In the late 1900s to the early 2000s, genetic testing for the establishment of biological relationships played its predominant role in the establishment of parentage, especially of paternity. In the United States, a greater portion of those tests were used for establishing child support through state social services agencies. Support for a claim of parentage is fairly straightforward in that a match between the child and the alleged parent on all of the tests conducted is considered evidence of the relationship. Multiple non-matches would exclude it in most instances. Those are clear-cut results which are normally accepted with

little argument in a court of law. Matches between the alleged parent on all performed tests allowed reporting of parentage to a high probability of certainty, although never to 100%.

The interpretation is not as straightforward when the question to be answered is whether the people being tested are related in a way other than as parent/child. A human has two alleles (forms of any genetic marker) at each genetic location being tested but will pass only one of those at a time to offspring. If the two alleles are different from one another in each of the parents, there are four possible combinations for each offspring to inherit. With some of those combinations, a pair of true siblings might not share any alleles in common and that doesn't exclude the claimed relationship at all. Unlike a parent-child relationship, failure of siblings to share genetic markers does not indicate a lack of relatedness. One sibling may just have inherited the opposite pair of alleles from his or her parents from what the other one did. Such relationships are reported only to a likelihood of being so, but are never impossible. On a complete test report, true siblings may share alleles on many or few loci, from all to, at least in principle, none.

Alongside the genetic results, other information has to be weighed when deciding whether the relationship is likely or not. Cultural definitions of family relationships can confuse matters further. United States immigration rules exist regarding what family members may be the beneficiaries in a visa request and there is usually a hierarchy. A large number of different categories is covered under the [immigration laws](#) (partial compilation). The clearest relationships are those involving a parent and his or her child, just as in any parentage case. There are cultural definitions of a parental relationship, however, that may differ from those commonly understood elsewhere. If the biological mother dies early in the child's life, for example, and the child is raised by another family member (maternal aunt, grandparent, or other female relative), a DNA parentage test between that woman and the child will exclude the woman as the child's mother. Some cultures prescribe that when a man's wife dies, he will marry her sister. In others, if the man dies, his wife has to marry his brother. Subsequent children after the spousal death would be half siblings, but it is a half sibling relationship complicated by the genetic relatedness of the new spouse to the old one. The parental differences should show up in a DNA test but in unusual instances they also may not. The testing lab should be alert to alternative explanations other than fraud for odd results.

Even when the biological parent is still alive, sisters of the mother or brothers of the father may be considered in the culture to have a defined parental role. When presenting a "mother" for relatedness testing, a finding of non-parentage may need a re-interpretation.

Consular staff at U.S. embassies and consulates are usually cognizant of local interpretations of relationships and marriage customs, and are respectful of applicants while they still adjudicate citizenship and visa applications in accordance with U.S. law. But if the child itself is unaware of their own history, for whatever reason, an immigration test result years later could be mis-interpreted as a possible attempt at fraud. Some laboratories, having obtained test results showing non-relatedness, may make tactful inquiries to inquire about details and avert an awkward situation. That isn't required, however, and may even be inadvisable under standard practice.

Self-Assessment for Quality Improvement

Liz Kopitke, MS
Quality Manager, Independent Forensics

Standard 8.0 of the AABB Standards for Relationship Testing Laboratories (15th edition) requires each accredited facility to conduct an annual internal assessment of its operations and quality system using the currently effective RT Standards. To that end, the Accreditation Portal (APEX) Self-Assessment tool includes all the accreditation requirements and sample assessment questions used by AABB assessors and the capability to save internal assessment records to the facility's Document Repository. Our laboratory has found success in demonstrating an ongoing commitment to quality and laying the groundwork for successful external assessments by dividing the process into the following three broad

categories.

PLAN:

- What will be assessed: One facility's systems and needs may be amenable to assessment of all RT standards and activities at once, while another's may be better suited to evaluating subsets of standards, activities, or departments at different times throughout the year.
- When the assessment(s) will take place: Consider staff availability, other scheduled laboratory activities, adoption of new editions of standards, problem areas or critical activities to be evaluated more often, the facility's external assessment schedule, etc.
- Who will perform the assessment: Ideally, assigned staff are independent of the activities being evaluated and have training in quality auditing. Minimally, assessors must be familiar with and have access to facility documents, records, and processes, and have the freedom and ability to evaluate them objectively against the RT standards

EXECUTE:

- Honestly assess facility quality documents, records, and practices as they are, not as they should be. For each standard, document: 1) objective evidence of compliance including citations of relevant quality system documents or records and a brief description of how the facility meets the standard, 2) a statement of nonconformance, or 3) that the standard is not applicable. Be specific—include policy or procedure title, document number, version number, etc. If a standard is not applicable, briefly record why it is N/A (e.g., "the laboratory does not test mitochondrial DNA").
- Utilize the RT Standards and available Guidance to clarify questions regarding the RT tool and to incorporate the intent and expectations of the Standards Committee into the assessment.
- Know standard terminology and symbols: requirements including "define", "plan", "policy", and "procedure" generally demand written documents for compliance. For standards requiring the keeping and retention of records, look for the pen symbol in the RT Standards and/or consult Reference Standard 6.2.1A.

FOLLOW UP:

- Communicate results of internal assessments to management and personnel responsible for RT activities. Document any nonconformances identified.
- Systematically address nonconformances and opportunities for improvement via the laboratory's corrective action and preventive action procedures.

Beyond a requirement for initial accreditation and a platform for annual internal assessment, the APEX RT Self-Assessment tool can be useful for staff training and engagement in the quality system, monitoring of any previous nonconformances, evaluation of process changes and revised documents, and other quality management activities. By prioritizing thorough and objective self-assessment as a structured activity performed by competent personnel, the facility's commitment to quality in relationship testing is made clear to its staff, management, and accrediting body.

Relationship Testing Technical Report

The 2019 and 2020 RT Technical Reports have been published and are available at aabb.org/DNA. The form for accredited facilities to enter 2021 data for the RT Technical Report is now live and available in APEX under Document Library/Questionnaires. The deadline for data upload is May 30. If you have any questions, please contact accreditation@aabb.org.

AABB at International Meetings

AABB will be exhibiting at the [International Society for Forensic Genetics](#) (ISFG 2022) in Washington D.C., Aug. 29 - Sept. 2. Visit us in booth #202!

AABB will host a workshop at the [International Symposium on Human Identification](#) (ISHI33) in Washington, D.C., on Sunday, Oct. 30 from 9 a.m. – noon. AABB will also be in the exhibit hall at booth #306!

Did You Know?

The list of AABB-accredited relationship testing laboratories may be accessed quickly and easily on the AABB website by typing www.aabb.org/dna into any search engine.

Do you have a suggestion for a relevant topic, article, or announcement to be included in the next edition of the Relationship Testing Newsletter? If so, please contact Nikki Bass-Jeffrey at nikkib@aabb.org or Charles M. Kelly at ckelly@intelligenetics.com.

DNA Test Requirements for Immigration, Visa, Passport or Citizenship Cases

The Standards for Relationship Testing Laboratories, 15th Edition, 5.2.3.5 specifies that accredited facilities may only accept cases that have been initiated at the accredited facility by the petitioner. A change to the 15th Edition now requires the accredited facility to also maintain records of this case initiation.

The change to standard 5.2.3.5 was made to strengthen the alignment of the AABB standards to the requirements of the U.S. Department on State; "...it is up to the petitioner to contact an approved AABB-accredited lab and arrange for his/her own testing and for the lab to send a kit to the appropriate embassy or consulate."

For further information on immigration requirements, see the United States Department of State [website](#).

Interested in becoming a Relationship Testing facility assessor? If so, AABB may be interested in talking with you. Check the qualifications given in the documents [Assessor Qualifications, Requirements, Responsibilities](#) to determine if you qualify. You may also view the [financial and time commitment information](#). If you have the necessary work experience please submit an [Assessor Application to AABB](#).



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watch as we evolve throughout 2022.

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