The Parentage Testing Proficiency Survey Program of the College of American Pathologists

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External proficiency testing is a requirement for accreditation of parentage testing laboratories by the American Association of Blood Banks (AABB). In 1993 the College of American Pathologists (CAP), in collaboration with the AABB, created a joint parentage testing proficiency survey program, PI, to replace the PSP program of the AABB.

This program consists of three yearly mailings of three ACD whole blood samples from a mother, child and alleged father trio. Participants report their results and information on the methodology used. The results are collated and summarized anonymously and a summary of responses is returned to the participants. This program allows for testing and reporting of genetic systems in red cell antigens, red cell enzymes, serum proteins and DNA polymorphisms by RFLP or PCR. HLA testing by serological methods cannot be performed on the samples.

The enrollment and rate of response for each survey mailing is depicted in Table 1.

	1993			1994			1995
	A	B	C	A	B	C	A
Enrolled	62	77	79	105	110	113	125
Responses	51	58	60	85	89	93	91
% Response	82	75	76	81	81	82	73

Of the laboratories responding, an average of 81.5% perform parentage testing. The remaining laboratories report performing either forensic testing or monitoring for engraftment of bone marrow transplantation.

All the trios tested so far included the biological father of the child except for one (PI-A 1994) where the alleged father was unrelated to the mother and child. In this latter case none of the red cell antigen systems tested and only three (PLG, PGMi, ACP) of the serum protein and red cell enzyme systems tested excluded the man. Of the 26 DNA-RFLP loci tested, five did not demonstrate an exclusion and only 9 out of 18 DNA-PCR loci tested revealed an exclusion. Of the 80 laboratories reporting an overall interpretation, 61 excluded the tested man, 10 did not exclude, 6 requested additional testing, and three reported an indeterminate result. It is likely that many of the laboratories unable to exclude the tested man would normally perform HLA typing by serological methods as part of their routine group of tests.

This survey program provides participating laboratories with a mean to compare their testing results with those of others in the field and to assess current techniques and methodologies used in parentage testing. It is anticipated that in the future grading criteria will be instituted in order for participants to receive individual evaluation for all systems where a consensus result can be established.