



ASHI Proficiency Testing Program
2026 EMO-2 Survey Instructions

Ship date: **October 7, 2026**

Result Submission due date: **November 13, 2026**

(Significant changes since 2025 EMO-1 instructions are highlighted.)

Note: Additional information pertaining to grading of this survey is available in the current [ASHI PT Operations Manual](#).

Survey Description: The ASHI Engraftment Monitoring (EMO) Survey is designed to evaluate a laboratory's ability to determine the proportion of DNA in blood from two individuals in a mixture of their blood samples, as a model of testing for hematopoietic chimerism. The survey consists of two annual shipments of seven samples each; the samples are in CPDA-1 anticoagulant. Specimens EMO-R (R) and EMO-D (D) are unmixed samples from two different individuals and serve as references for the other five specimens. The other five specimens are mixtures of R and D. Note: to mimic complete engraftment or complete failure to engraft, some EMO "mixtures" may be either entirely R or entirely D.

Participants should evaluate R and D for markers that distinguish the two samples from each other and use these markers to determine the percentages of the other five specimens that are derived from R and D.

Sample Handling: Maintain the PT samples as you would patient specimens.

Addressing CMS Regulations: Laboratories that are subject to Centers for Medicare and Medicaid Services (CMS) regulation must refer to the most recent guidance document release by the ARB in regard to testing for proficiency samples and analytes for multiple methods. Laboratories are encouraged to contact their ARB commissioners or CMS with questions regarding adherence to CMS proficiency testing regulations.

Deadline: For the **2026 EMO-2** survey, the deadline for submitting results is **November 13, 2026** at 11:59 PM Pacific Time, 30+ days after the shipment date. The specific due date for each event can be found within each survey entry tab in the ASHI PT Data Center. Late submission of results will not be accepted.

Online Entry of Results: All ASHI proficiency testing results must be entered online at <https://ashi-pt.learningbuilder.com/>. A pre-registered user ID and password are required. (If you have forgotten your password, follow the on-screen instructions to have it sent to your e-mail address.) To enter EMO Survey results, select the "PT Results" tab, find the correct year and EMO shipment (Spring shipment: EMO-1 or Fall shipment: EMO-2) and click the orange "Begin" button to begin entering results.

Specimen Quality: The quality of each specimen defaults to "Good". If you wish to submit a different answer for specimen quality, click the "Enter Quality" button aligned with each specimen number. Then, select the specimen quality from the drop-down menu, according to the descriptions below and click Save. If either "Acceptable" or "Unacceptable" is selected, please describe the nature of the specimen problem in the "Comment" field. Please note, all samples reported as "Unacceptable" will automatically be assigned as NT1 (not tested due to sample quality), and you will not be able to enter results for these samples.

- **Good** - is appropriate for specimens that produced reliable results with no sample processing or testing problems.
- **Acceptable** - is appropriate for specimens that presented difficulties in processing or testing, but from which reliable results could still be obtained.

- **Unacceptable** - is reserved for specimens whose condition was too poor for testing and for specimens that were tested, but specimen problems appear to be the cause of invalid or unreliable results. All samples reported as "Unacceptable" will automatically be assigned as NT1 (not tested due to sample quality).

EMO Test Results Entry: Please note, the sample quality for all specimens must be saved before you can input EMO test results. Once quality results have been saved, scroll down to the EMO results entry section, and click the "Enter Results" button for the first EMO specimen. Select the method/ manufacturer used for testing from the drop-down menu. If the method and/or manufacturer used for testing is not listed, please select "Other" and describe it in the comment field.

- If the sample was not tested for a reason other than sample quality, select either NT2 (not tested due to a reagent problem or technical failure) or NT6 (not tested for other reasons) from the drop-down menu. Please describe the testing issue in the comment field. If you selected an NT reason in-error, please click the "x" on the drop-down to exit the menu.
- If both R and D are detected - If you detected both R and D in the specimen, enter the percentage of the specimen derived from R and the percentage of the specimen derived from D in the designated fields. Percentages may include one decimal place and must be between 0.1 – 99.9%. The two numbers must add up to 100%. It is recommended to report PT results to the same level used on your clinical laboratory reports. If you detect a mixture where the amount of R or D is below the sensitivity limit of your assay, please enter 0 for %R or %D, respectively. If %D = 100 reaches consensus for a sample, all participants that reported any amount of D other than 100% will be graded as Discrepant. Similarly, if %D = 0 reaches consensus for a sample, all participants that reported any amount of D other than 0% will be graded as Discrepant. Please note that the software will show percentages at 2 decimal places, however, only one decimal place can be entered by participants.
- If only R is detected - If you detected only R in the specimen or a "trace" amount of D below the sensitivity limit of your assay, enter %D = 0 and %R = 100. If "trace" D DNA was detected below the sensitivity limit of the assay, you may enter the trace D DNA % detected in the comment field along with the % sensitivity limit of detection for your assay method, however, sensitivity limits will not be considered when grading results. For example, if >80% of labs detect a low level of D (e.g. 5%), a laboratory reporting %D = 0 with a sensitivity limit of 10% will still receive a grade of 'Discrepant'. If %D = 0 reaches consensus for a sample, all participants that reported any amount of D other than 0% will be graded as Discrepant.
- If only D is detected - If you detected only D in the specimen or a "trace" amount of R below the sensitivity limit of your assay, enter %D = 100 and %R = 0. If "trace" R DNA was detected below the sensitivity limit of the assay, you may enter the trace R DNA % detected in the comment field along with the % sensitivity limit of detection for your assay method, however, sensitivity limits will not be considered when grading results. For example, if >80% of labs detect a low level of R (e.g. 5%), a laboratory reporting %D = 100 with a sensitivity limit of 10% will still receive a grade of 'Discrepant'. If %D = 100 reaches consensus for a sample, all participants that reported any value of D other than 100% will be graded as Discrepant.

Comments: Enter any relevant comments related to the test results (such as those that might be included in a clinical report with similar results), specimen/testing issues, or details for "Other" methods used for testing in the comment field. *Comments will not be considered as part of the results and will not be used in determining gradable proficiency testing results.*

Saving Entry Results: Once method/manufacturer information and EMO results have been successfully entered, click the "Save" button on the bottom right of the window. After saving, you will be returned to the Data Results Entry Screen, the "%D" entered for the specimen should be visible next to the specimen number and "Saved" should be visible on the right-hand side of the row. If results need to be edited, click the three dots [...] on the right-hand side of the desired specimen and select "Edit" from the drop-down menu. If no changes are required, proceed to the next specimen and enter results as described above.

Printing: Entered results can be printed by clicking the "...Submitted Results" file link next to Download Reports near the top of the page.

Laboratories are strongly encouraged to print out results IMMEDIATELY PRIOR TO SUBMISSION and review them for accuracy and completeness of the entered and saved data.

Submitting Results: Please note, results for ALL specimens must be entered and saved before the survey results can be submitted. Once all sample results have been entered and saved, submit the results by clicking on the orange **“Submit Results”** button either at the top or bottom right of the page. You will be able to review your results entry before finalizing the submission. Once results are reviewed, acknowledge the data review by selecting “yes” from the drop-down menu, then click the orange “Submit” button in the bottom right corner of the window. Saved entries that have not been submitted will not automatically be submitted once the submission deadline has passed. Results can be edited and re-submitted up until the deadline for result submission. **If your results are saved but not submitted ASHI will not be able to grade and score your results.** Following submission “SUBMISSION SUCCESSFUL” will be visible next to the Survey name on the initial Application screen and at the top and bottom of the Results Entry Screen. The orange “Submit data” button should no longer be visible. Cycle start and end date as well as the date and time of submission can be viewed by clicking the “open book” icon at the top of the page.

Editing Submitted Results: Submitted results can be edited up until the survey submission deadline. To edit results for a specimen, click on the three dots [...] to the right of the desired specimen on the Data Results Entry Screen and select “Edit” from the drop-down menu. After editing, results must be **saved and RE-SUBMITTED** by clicking the orange “Submit Results” button either at the top or bottom of the screen. If results are not re-submitted following the edits ASHI will not be able to grade and score any of your results. Mistakes reported to the ASHI Proficiency Testing Program after the deadline has passed cannot be corrected.

Problems: If you experience problems entering or submitting your ASHI proficiency testing results, please contact ASHI Headquarters.

Replacement Materials: Upon receipt of any sample, it is the responsibility of the receiving laboratory to inspect the shipment for any damage. If a sample is received broken or in otherwise unsuitable condition, it is the responsibility of the receiving laboratory to notify ASHI Headquarters by phone or email within 24 hours of sample receipt. Documentation of the time of receipt of samples in the laboratory may be required.

For further details about replacement samples, please refer to the PT Operations Manual.

EMO GRADING CRITERIA

Grading Criteria: For an EMO survey specimen to be graded, consensus for %D = 0, %D = 0.1-99.9, or %D = 100 must be at least 80%, and at least 10 participants must have submitted results.

- **When at least 80% consensus exists for %D = 0.1-99.9:** After first removing outlier values using a two-pass outlier screen based on mean +/- 3 SD, the mean and SD for %D is recalculated. Upper and lower limits of ranges are rounded to the nearest tenth decimal place. Participant results for %D that are within 2 SD of the mean of reported values are assigned “Good” grades. Participant results that are beyond 2 SD of the mean but within 3 SD are assigned “Acceptable” grades. Participant results that are beyond 3 SD, and results of %D = 0 or %D = 100 are assigned “Discrepant” grades.
- **When at least 80% consensus exists for %D = 0 or %D = 100 (sample only contains one specimen, there is no admixture):** Participant results that agree with the consensus result are assigned “Good” grades. Results that are not in agreement with the consensus result (any value other than 0% and 100%) will be graded as “Discrepant”.

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