

Blood Group Genotyping Programme – for patients with Sickle Cell, Thalassaemia and other Rare Inherited Anaemias

Monday, 23 June 2025

Dear Colleague

RE: Issuing reports for patients

This communication is to provide information regarding the issuing of reports for the NHSE Blood Group Genotyping Programme. Patient referrals that have been accepted for testing are now being analysed and some results are ready to be issued.

Patients have been tested for Red Cell (HEA) and HLA types. The genotyping test is being used to generate an extended predicted phenotype for 52 red cell types and HLA types. Genotypes and predicted phenotypes of clinical significance will be issued in patient reports. Additional genotypes and predicted phenotypes will be stored within the NHSBT database.

Please review the following information regarding reporting:

- **Only red cell types will be reported at this time.** We have fully implemented red cell typing analysis and reporting for this new genomic test. The HLA typing results are not ready to report. The associated test interpretation software for HLA assignment requires further development. Once the updated HLA assignment software has been validated, we will report HLA results.
- **What to do if HLA results are required for imminent patient care.** Please refer to your local EFI accredited H&I laboratory. If this is within NHSBT please complete the relevant test request form (3C) [3c-haematopoietic-stem-cell-transplantation-recipients-donors.pdf](#) which includes details of sample requirements.
- **Red cell reports will be issued with predicted phenotypes for 21 clinically relevant red cell types.** The genotyping test provides an extended predicted phenotype for 52 red cell types (table below). All types will be held in the NHSBT database and only the 21 red cell types reported (example report below).
- **Reporting of high prevalence antigens outside the 21 reported antigens.** Patients predicted to be negative for high prevalence antigens outside of the reported 21 types, will be explicitly included as an additional result with appropriate comments regarding availability of antigen negative red cells and further steps.
- **Test results may not be issued in the order that referrals were received.** Testing and analysis of the genotyping data is performed in batches and some additional testing is

required for some patients. For some patients, additional testing is required to resolve the red cell types. This additional testing may affect the time taken to issue a report.

- **Test results will be issued in batches over the next few months.** The first batch of reports will be issued over the next few weeks. Once this batch is complete, we will move to issue reports on the remaining batches over the next few months.
- **We are prioritising issuing results where changes in red cell types may alter transfusion advice.** The Blood Group Genotyping Test can identify red blood cell types that are not detected by routine tests, notably D variants that might currently be categorised as D+.
- **Improvements in testing may lead to different results.** The majority of these differences will be due to better identification and resolution of *RH* variant types. The improvements in testing mean that some previously reported genotypes may change e.g. previously C+^{var} may now resolve as C-.
- **Improvements in reporting Fyb.** We have clarified the reporting of Fy predicted phenotypes to include only the red cell phenotype and a comment within the report to indicate if the patient cannot produce anti-Fy^b due to presence of this antigen on other tissues.
- **What to do if there is a difference in result.** Reports will acknowledge any difference between previous and current results and offer guidance. We recommend that you discuss these results with your patients.
- **How to find your results in Sp-ICE.** Reports will be issued in Sp-ICE. Search using “View Latest Reports” and then Filter by speciality “IBGRL” and Investigation “IBGRL Report” (see screenshots below). The User Guide for Sp-ICE is available here: [Sp-ICE - Hospitals and Science - NHSBT](#)
- **Accreditation.** This test is not currently accredited to ISO15189:2022 standards. This test is performed within a UKAS accredited medical laboratory, has undergone extensive validation, and is subject to internal quality control procedures.

If you have any questions about this programme, please contact transfusion@nhsbt.nhs.uk.



Kate Downes
NHSBT Genomics Programme Director

Example Report: report showing the 21 reported Red Cell (HEA) predicted phenotypes with some additional comments

Patient Phenotype Predicted from Genotyping Results:

| | | | | | |
|-----------------|----------|-----------------|----------|-----------------|----------|
| D | Variant | K (KEL1) | Negative | Fy ^a | Negative |
| C | Negative | k (KEL2) | Positive | Fy ^b | Negative |
| c | Positive | Kp ^a | Negative | M | Positive |
| E | Negative | Js ^a | Negative | N | Negative |
| e | Positive | Do ^a | Negative | S | Negative |
| Jk ^a | Positive | Do ^b | Positive | s | Positive |
| Jk ^b | Negative | Lu ^a | Negative | U | Positive |

Red Cell phenotype was predicted by gene array analysis.

The patient cannot produce anti-Fyb because tissues other than RBC are predicted to be Fy(b+).

Due to the predicted presence of a D variant phenotype this patient should receive D- red cells for transfusion.

Note C+var has been previously reported and is now reported as C negative. This makes no change to product selection.

Table with HEA phenotypes resulted in NHSBT LIMS

| | | | | | | | |
|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|-----|-----------------|
| C | D | Fy ^a | Js ^a | Kp ^b | M | Sc1 | Wr ^a |
| c | Di ^a | Fy ^b | Js ^b | Kp ^c | McC ^a | Sc2 | Wr ^b |
| C ^w | Di ^b | He | K | Lu ^a | McC ^b | U | Yk ^a |
| C ^x | Do ^a | Hy | k | Lu ^b | N | V | Yt ^a |
| Co ^a | Do ^b | Jk ^a | Kn ^a | LW ^a | P1 | Vel | Yt ^b |
| Co ^b | E | Jk ^b | Kn ^b | LW ^b | S | VS | |
| Cr ^a | e | Jo ^a | Kp ^a | | s | | |

Recommended search criteria for blood group genotyping reports in Sp-ICE

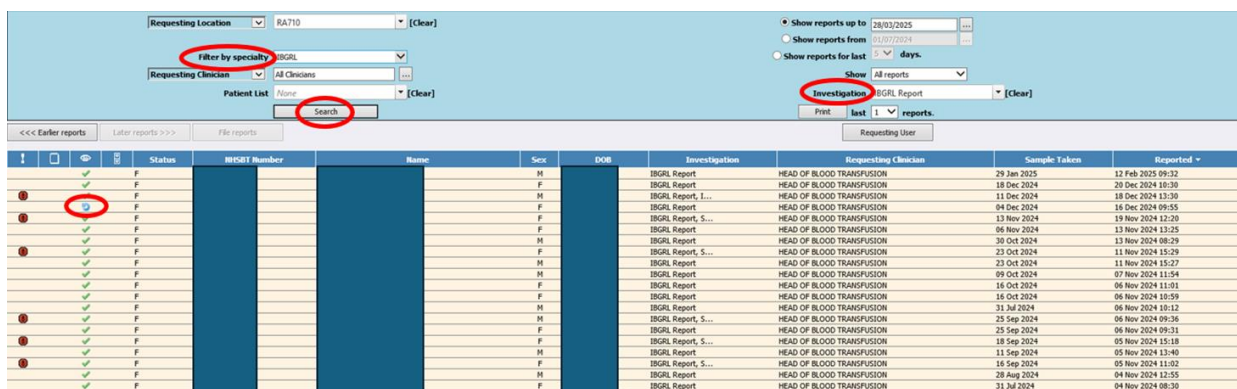
Click on View Latest Reports:



Filter by speciality: IBGRL

Investigation: IBGRL Report

Click Search button



| | Requesting Location | Requesting Clinician | Patient List | Filter by speciality | Investigation | Show reports up to | Show reports from | Show reports for last | Show | Print | last | reports. | Requesting User |
|--|---------------------|----------------------|--------------|----------------------|---------------|--------------------|-------------------|-----------------------|-------------|-------|------|----------|-----------------|
| | RA710 | All Clinicians | Name | IBGRL | IBGRL Report | 28/03/2025 | 01/07/2024 | 5 days | All reports | | 1 | | |

| | Status | HISBT Number | Name | Sex | DOB | Investigation | Requesting Clinician | Sample Taken | Reported |
|--|--------|--------------|------|-----|-----|--------------------|---------------------------|--------------|-------------------|
| | F | | | F | | IBGRL Report | HEAD OF BLOOD TRANSFUSION | 29 Jan 2025 | 13 Feb 2025 09:32 |
| | F | | | M | | IBGRL Report | HEAD OF BLOOD TRANSFUSION | 18 Dec 2024 | 28 Dec 2024 10:30 |
| | F | | | M | | IBGRL Report, I... | HEAD OF BLOOD TRANSFUSION | 11 Dec 2024 | 18 Dec 2024 13:30 |
| | F | | | F | | IBGRL Report | HEAD OF BLOOD TRANSFUSION | 04 Dec 2024 | 18 Dec 2024 09:55 |
| | F | | | F | | IBGRL Report, S... | HEAD OF BLOOD TRANSFUSION | 13 Nov 2024 | 19 Nov 2024 12:30 |
| | F | | | M | | IBGRL Report | HEAD OF BLOOD TRANSFUSION | 06 Nov 2024 | 13 Nov 2024 13:25 |
| | F | | | F | | IBGRL Report, S... | HEAD OF BLOOD TRANSFUSION | 30 Oct 2024 | 13 Nov 2024 08:29 |
| | F | | | F | | IBGRL Report | HEAD OF BLOOD TRANSFUSION | 23 Oct 2024 | 11 Nov 2024 15:29 |
| | F | | | M | | IBGRL Report | HEAD OF BLOOD TRANSFUSION | 23 Oct 2024 | 11 Nov 2024 15:27 |
| | F | | | M | | IBGRL Report | HEAD OF BLOOD TRANSFUSION | 09 Oct 2024 | 07 Nov 2024 11:54 |
| | F | | | F | | IBGRL Report | HEAD OF BLOOD TRANSFUSION | 16 Oct 2024 | 06 Nov 2024 11:01 |
| | F | | | F | | IBGRL Report | HEAD OF BLOOD TRANSFUSION | 16 Oct 2024 | 06 Nov 2024 10:59 |
| | F | | | M | | IBGRL Report | HEAD OF BLOOD TRANSFUSION | 31 Jul 2024 | 06 Nov 2024 10:12 |
| | F | | | M | | IBGRL Report, S... | HEAD OF BLOOD TRANSFUSION | 25 Sep 2024 | 06 Nov 2024 09:36 |
| | F | | | F | | IBGRL Report | HEAD OF BLOOD TRANSFUSION | 25 Sep 2024 | 06 Nov 2024 09:31 |
| | F | | | F | | IBGRL Report, S... | HEAD OF BLOOD TRANSFUSION | 18 Sep 2024 | 05 Nov 2024 15:18 |
| | F | | | M | | IBGRL Report | HEAD OF BLOOD TRANSFUSION | 11 Sep 2024 | 05 Nov 2024 13:40 |
| | F | | | F | | IBGRL Report, S... | HEAD OF BLOOD TRANSFUSION | 16 Sep 2024 | 05 Nov 2024 11:02 |
| | F | | | M | | IBGRL Report | HEAD OF BLOOD TRANSFUSION | 28 Aug 2024 | 04 Nov 2024 12:55 |
| | F | | | F | | IBGRL Report | HEAD OF BLOOD TRANSFUSION | 31 Jul 2024 | 04 Nov 2024 08:30 |

Reports displayed with a blue circle have transitioned from Sample Receipt to IBGRL Report