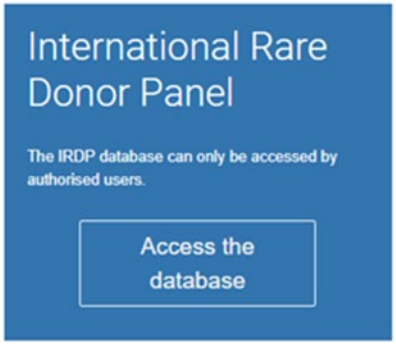


Rare Donor Program

Country: England, UK

Country/Region: England, UK

Rare Donor Program	
Rare Donor Program	Yes
National Regional or Facility based	National
Number of Rare Donors	1163 (in IRDP categories)
Definition of Rare	A donor lacking a high prevalence antigen, where the incidence of this antigen negative phenotype is less than 1 in 1000. Also donors who are negative for multiple antigens, where the combination of antigens lacking has an incidence of less than 1 in 1000, may also be considered rare.
Are the donors listed in the International Rare Donor Panel	Yes
Frozen Inventory	Yes
How are Rare Donors found	Selected donor phenotyping and genotyping Rare Antigen Screening serological techniques Corresponding antibody detected in a donor or patient Family studies
Number of Rare Donor Units used per year	approx. 200 (225 in 2022)
ISBT Rare Donor WP Blood Shipment form used	*Sometimes, but not compulsory*
Outcome of incompatible transfusion form used	*Sometimes, but not compulsory*
Most difficult types to find	Rh_{null}, Di(b-)
Phenotypes confirmed by molecular testing	Js(a+b-); Do(b-), Hy-, Jo(a-), In(a+b-), S-s-U- and S-s-U+^{var}, Jr(a-), Lan- (plus others as required)

Country/Region: England, UK

Phenotype	Total Active Donors	Group O	O Positive	O Negative	Other ABO/Rh
GE:-2,-3	0	0	0	0	0
Jk(a-b-)	15 (10)	6 (1)	5 (1)	1	9 (9)
K_0	0	0	0	0	0
Kp(b-)	41 (9)	34 (4)	26 (3)	8 (1)	7 (5)
M^kM^k	1	1	1	0	0
RH:-34	0	0	0	0	0
U-	112 (13)	60 (5)	52 (4)	8 (1)	52 (8)
$PP1P^k$-	2	1	1	0	1
SC:-1	0	0	0	0	0
En(a-)	0	0	0	0	0
At(a-)	1	1	1	0	0
Di(b-)	0	0	0	0	0
Jr(a-)	1	1	1	0	0
Rh_{null}	0	0	n/a	0	0
Vel(-)	75 (10)	64 (9)	43 (6)	21 (3)	11 (1)
D--	2	0	0	n/a	2
D··	1	0	0	n/a	1
O_h D+	3	n/a	n/a	n/a	n/a
O_h D-	0	n/a	n/a	n/a	n/a

Please note – numbers in brackets are unconfirmed donors, and are <u>additional</u> to the confirmed numbers.

Country/Region: England, UK
How are your rare donors found?

	Yes / No	Method	Comments
Extended phenotyping donors	Yes	All donors typed for Rh (C, E, c, e) and K - Beckman Coulter PK7300 /Primary Blood Grouping Machine Selected K+ donors typed for k Selected donors (all R_0 & donors with self-declared Black / Asian ethnicity codes) typed for C^W, Fy^a, Fy^b, Jk^a, Jk^b, M, S and s (& Kp^a / Lu^a where appropriate) – Immucor Neo	Rare phenotypes confirmed by manual serology techniques; Kp(a+) donations referred for manual serological Kp^b type; S-s- donations referred for manual serological confirmation and U typing (serological & molecular); Jk(a-b-) donations referred for manual serological confirmation and Jk3 typing, occasionally Urea lysis test also.
Extended genotyping donors	Yes	Immucor BeadChip HEA Kit or in-house designed allelic discrimination using Taqman fluorescent probes. Sanger sequencing and/or NGS also used if required for resolution of rare types.	Not routine; selected donors only; serological confirmation preferred and done when antisera is available.
Family studies	Yes	Recruitment of family of donors and patients	Information to recruit family of donors is provided to the donor for discussion with family members. Family of patients are contacted by NHSBT Consultant, consent is obtained via the treating clinician.
Antibody investigations	Yes	All donors are screened for red cell antibodies using the Immucor NEO or Beckman Coulter PK7300	Those with positive antibody screens are referred for antibody identification by manual serological techniques
Other	Yes	Microtitre plate: Screening of selected repeat donors (80 a day) for MAM, GPC, Lan, Kp^b and Vel; Screening of all Black donors for Js^b; screening of all Asian donors for In^b, Jr^a and Di^b	Lu^b screening was previously carried out for many years but not currently done due to surplus of In(Lu) and Lu(b-) rare donors. Other antigens can be screened for, selection based on clinical review of unmet need and antisera availability.

Red Cell Product Specifications

Country: England, UK

Country/Region: England, UK

Donor Selection – Whole Blood		
Donation	Voluntary	
Age or Weight Restrictions	New donors: 17 to 65 years between 50 and 158 kg	
Donation Interval	12 weeks for females; 16 weeks for males	
Sexual Activity Precautions	Positive for HIV, Hepatitis B/C, or HTLV	Permanent deferral
	New partner within 3 months (anal sex)	3 month deferral
	Sex worker or contact with sex worker	3 month deferral
Travel Exclusions *If donor has returned from an area endemic for the listed infectious illnesses*	Dengue	4 week deferral
	Ebola	6 month deferral (travel to endemic country)
	Malaria	4 month deferral with additional testing on return
	West Nile Virus	Accept if well without symptoms/infection with additional testing
Lifestyle	Acupuncture, piercing or tattoo	4 month deferral
	Drug use (Non-prescribed injected)	Permanent deferral
	Incarceration	n/a
CJD geographic restrictions	Unable to accept individuals who are recipients of transfusion or allogeneic human tissue since 1st Jan 1980	
COVID restrictions	COVID19 vaccine administration	48 hours deferral
	COVID infection	7 day deferral from positive test; 14 day deferral after symptoms but no test
	Household contact	n/a

Country/Region: England, UK

Mandatory Infectious Diseases Screening of Blood Products		
	Screening test; (M) mandatory (A) Additional/discretionary	**Risk of blood transfusion transmission**
HIV	anti-HIV 1+2+O or HIV 1+2+O Ag/Ab (M) HIV RNA[1] [1]Although neither are mandatory for blood donations in most of the UK, HIV RNA and HBV DNA are included in nucleic acid screening as the commercial systems available are now triplex assays.	**Residual risk of non-detection on screening (see JPAC website)** **2019-2021 UK** 1 in 34 million donations tested
HCV	anti-HCV (M) HCV RNA (M)	**Residual risk of non-detection on screening** **2019-2021 UK** 1 in 66 million donations tested
HCB	HBsAg (M) HBV DNA[1] anti-HBc [+ anti-HBs] (A)[2] [2] All blood donors are to be screened for anti-HBc at their first donation or their first donation after the introduction of anti-HBc screening. Anti-HBc screening to be repeated if a donor lapses (over 2 years) or has a new HBV risk.	**Residual risk of non-detection on screening** **2019-2021 UK** 1 in 2.6 million donations tested
Syphilis	Treponemal Ab	Not estimated in UK to date
HTLV (1 & 2)	anti-HTLV I/II for previously untested donors and non-leucodepleted products	Not done since 2011. Too much uncertainty about WP, plus widespread leucodepletion has significant impact on transmission
HEV	HEV RNA (A)	England 2016-2020 (Harvala et. al 2022)* Around 50 per million for apheresis donations tested, 35 per million donations tested
CMV	not routinely screened; additional test	Not estimated in UK to date
Zika Virus	NA	NA
West Nile Virus	WNV RNA (A)	No confirmed positive donations since testing began
Babesia	NA	NA
Trypanosoma cruzi (T. cruzi) Chagas Disease	anti-T. cruzi (A)	NA

* Harvala H, Reynolds C, Brailsford S, Davison K. Fulminant Transfusion-Associated Hepatitis E Virus Infection Despite Screening, England, 2016-2020. Emerg Infect Dis. 2022 Sep;28(9):1805-1813. doi: 10.3201/eid2809.220487. PMID: 35997399; PMCID: PMC9423923.

Country/Region: England, UK

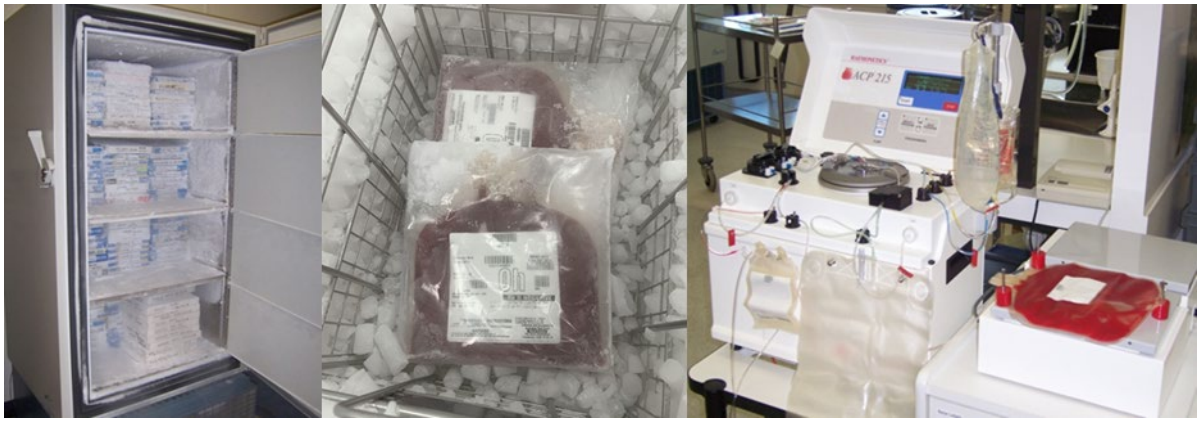
Red Cells	Red cells in additive solution Leucocyte Depleted	Red cells washed Leucocyte Depleted	Red cells thawed and washed; closed system. Leucocyte Depleted
Description	Each unit is obtained from a standard donation of 470 mL (range of 427.5 - 522.5mL) of blood from a single donor bled into a blood pack containing 66.5 mL of Citrate Phosphate Dextrose (CPD) anticoagulant. During processing, the majority of plasma is removed and replaced by additive solution comprising of saline, adenine, glucose and mannitol (SAG-M).	Red cells from a single donor from which most of the plasma has been removed by sequential washing and re-suspension in SAGM additive solution.	These are red cells which have been frozen in the presence of a cryoprotectant, thawed and washed on request.
Anticoagulant	Citrate phospahte dextrose (CPD)	n/a	n/a
Additive Solution	Saline adenine glucose mannitol (SAG-M)	Saline adenine glucose mannitol (SAG-M)	Saline adenine glucose mannitol (SAG-M)
Average volume	289 mL (220-340)	289 mL (220-340)	295 mL (225-325) pre-freeze
Storage Duration	35 days	14 days	3 days
Leukofiltration	leucocyte reduced		
Storage Temperature	4°C±2°C.		
Transport Temperature	between 2°C and 10°C		
Modifications	Phenotyped, CMV seronegative, irradiated		
Irradiation Policy	Gamma or X-ray irradiation		

Country/Region: England, UK

Red Cells	For Intrauterine Transfusion	For neonatal exchange transfusion
Description	Haematocrit of 0.76 (0.70–0.85) Prepared from blood donated by previously tested donors who have given at least one previous donation within the past two years, which was negative for all mandatory microbiological markers	Haematocrit of 0.50-0.55
Anticoagulant	Citrate phospahte dextrose (CPD)	Citrate phosphate dextrose (CPD)
Additive Solution	n/a	n/a
Leukofiltration	leucocyte reduced to <1x10^6/unit	leucocyte reduced to <1x10^6/unit
Average volume	252 mL (150-320)	362 mL (220-395)
Storage Temperature	4°C ± 2°C.	4°C ± 2°C.
Transport Temperature	The component surface temperature must be maintained between 2°C and 10°C	The component surface temperature must be maintained between 2°C and 10°C
Storage Duration	24 hours from time of irradiation and within 5 days of donation.	24 hours from time of irradiation and before the end of day 5
Irradiation Policy	Red cells for IUT must be irradiated. Once irradiated the component must be used within 24 hours.	Red cells must be irradiated. Once irradiated the component must be used within 24 hours.
Other	Preferably but not solely, from a male donor. Group O or ABO identical with the foetus, and D negative in most cases; negative for the relevant antigen(s) determined by maternal antibody status and indirect antiglobulin technique (IAT) crossmatch compatible with maternal serum. K negative except if the infant is suffering from HDN due to anti-k. In CPD-anticoagulated plasma, with no SAG-M additive solution. Free from clinically significant red cell antibodies (tested by IAT) and HT negative. CMV antibody and HbS negative	From a male donor. Group O (or ABO compatible with maternal and neonatal plasma), D negative (or D identical with neonate); negative for red cell antigens to which the mother has antibodies; IAT crossmatch compatible with maternal plasma. K negative except if the infant is suffering from HDN due to anti-k. In CPD-anticoagulated plasma, with no SAG-M additive solution. Free from clinically significant red cell antibodies (tested by IAT) and HT negative. CMV antibody and HbS negative.

Country/Region: England, UK

Red Cells	Red Cells in Additive Solution for Neonatal Use	Red cells in Additive Solution for Neonates and Infants (known as LVT)
Description	Red cells in small volume aliquots	Large volume red cell transfusion (LVT) may be required by neonates and infants undergoing cardiac surgery, extracorporeal membrane oxygenation (ECMO), and other surgeries such as craniofacial surgery. 'Large volume transfusion' is typically equivalent to at least a single circulating blood volume (approx. 80mL/kg for neonates) over 24 hours or 50% of the circulating volume within 3 hours . These components may also be used for small volume top-up transfusion for larger infants.
Anticoagulant	Citrate phospahte dextrose (CPD)	Citrate phosphate dextrose (CPD)
Additive Solution	SAG-M	SAG-M
Leukofiltration	leucocyte reduced to <1x10^6/unit	leucocyte reduced to <1x10^6/unit
Average volume	47 mL (36-66)	289 mL (220-340)
Storage Temperature	4°C ± 2°C.	4°C ± 2°C.
Transport Temperature	The component surface temperature must be maintained between 2°C and 10°C	The component surface temperature must be maintained between 2°C and 10°C
Storage Duration	35 days	35 days. Users are referred to BCSH guidelines on transfusion for foetuses, neonates, and older children (2016)10 if the intended use is for large volume transfusion to neonates and infants: for this situation use before the end of day 5
Irradiation Policy	Shelf life of 14 days from time of irradiation	Once irradiated the component must be used within 24 hours.
Other	The component should be free from clinically significant irregular blood group antibodies including high titre anti-A and anti-B. An additional indirect antiglobulin test is used to screen for clinically significant antibodies in the provision of neonatal/infant specification units (PANTS negative). CMV and HbS negative	From a male donor where possible. ABO and D compatible with the neonate. K negative except if the infant is suffering from HDN due to anti-k . In 105 mL SAG-M additive solution (containing only a small volume of plasma, approx. 20ml). Hct approx. 0.5 – 0.7. Free from clinically significant red cell antibodies (tested by IAT) and HT negative. HbS negative. If irradiated and intended use is for large volume transfusion of neonates and infants, must be used within 24 hours of irradiation. If used for small volume top-up transfusion for larger infants, may be used up to end of 35-day shelf-life (14 days post irradiation).



Frozen Inventory

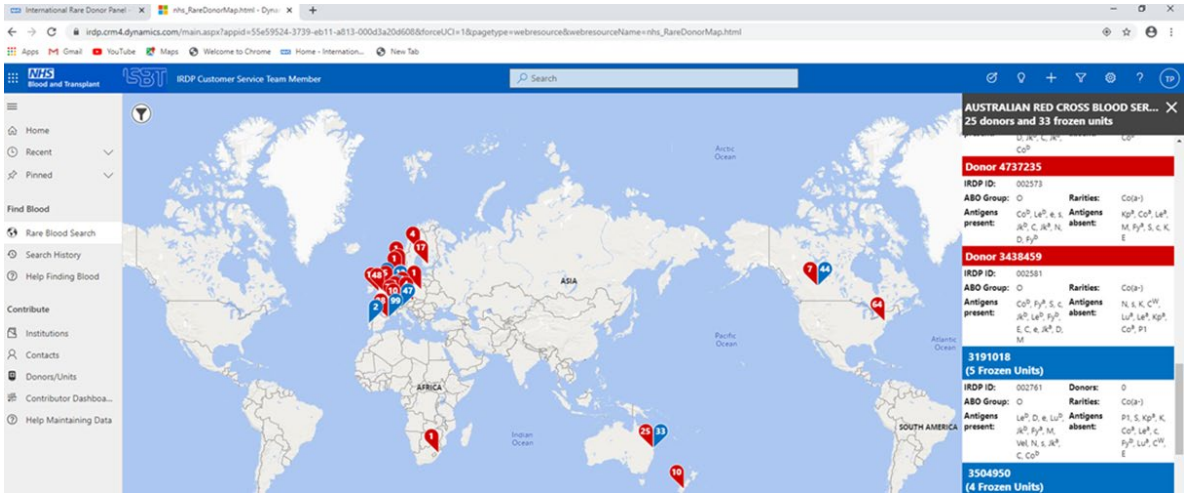
Country: England, UK

Country/Region: England, UK

General Information	
Freezing Method	High Glycerol (57.1%) Haemonetics ACP215 cell washer
Frozen Expiry (years)	30 years
Storage Temperature	-60ºC to -80ºC
Can inventory be issued and sent frozen	Yes
Thawing Method	Barkey Plasma Thawer 29 minutes at 37ºC, deglycerolisation via Haemonetics ACP215 cell washer with 12% then 0.9% saline
Thawed Expiry (days)	3 days (2% of stock 24 hours)
Additive Solution	SAGM
Irradiation Policy	Thawed washed red cells do not require irradiation owing to the freeze/thaw/wash process
IUT and Neonate use	Not a standard product, but may be issued under concession as a patient-tailored product
Supply out of date Policy	Exceptionally rare units may be retained beyond expiry . If required for issue they are released as a non-confirming product

Country/Region: England, UK

Product Specifications	
Volume	225-325ml pre-freeze
Supernatant Haemoglobin	Below 0.2g/unit
Haematocrit	N/A
Haemoglobin	Above 36g/unit
Osmolarity	N/A
Residual leucocyte content	< 1.0 x 10^6/unit) pre-freeze
Sterility	N/A
Other	N/A



Ordering and Shipping

Country: England, UK

Country/Region: England, UK

Exporting	
Request form available	
Government Requirements	
Regulatory Requirements	
Rare Donor Program Requirements	
Other	

Country/Region: England, UK

Importing	
Government Requirements	
Regulatory Requirements	
Rare Donor Program Requirements	
Other	