

NSW Transplantation and Immunogenetics Services Laboratory

NSW/ACT Renal Recipients

The following work instruction summarises the procedures required for:

1. Activation of Renal Recipients on to the NSW/ACT Transplant Waiting List
2. Living Renal Donor Workups

This work instruction is distributed to transplant hospitals and dialysis units to provide information on the procedures to be followed when organising Tissue typing, crossmatching and the detection and identification of HLA antibodies.

1. ACTIVATION OF PATIENTS ONTO THE NSW/ACT KIDNEY TRANSPLANT WAITING LIST (TWL):

1.1. INITIAL TESTING

Step 1. Fill out the *NSW Transplantation and Immunogenetics Service Laboratory Request Form (ARCBS-NSW-TTGO-L3-045)* with the required information.

- No prior booking is required for these samples

Step 2. Collect blood. Blood must be

- collected pre-dialysis
- stored/transported at room temperature
- received by the laboratory within 24 hours of collection
- 14 days post transfusion
- **Testing is performed between Monday and Thursday**

Testing may not be able to be completed if blood is received after 9:30am on a Friday.

All blood samples must be accompanied by the *NSW Transplantation and Immunogenetics Service Laboratory Request Form (ARCBS-NSW-TTGO-L3-045)* and must be clearly labelled with

- full name,
- date of birth and
- date of collection

The NSW Request Form can be downloaded from www.transplantservices.com.au

Without these details on the tubes and the forms, testing may be delayed or maybe unable to proceed to testing.

The table below lists the blood requirements and tests that will be performed:

KR1 1ST TYPING	Blood Required	40-60 mL ACD (* note 40mL is acceptable) 10mL Clot with gel
	Tests Performed	HLA (<i>Class I and II</i>) typing + auto T cell crossmatch + HLA antibody detection and identification
	Patient Status	INTERIM
KR2 2ND TYPING (NORMALLY COLLECTED 1 WEEK AFTER KR1)	Blood Required	40-60mL ACD (* note 40mL is acceptable) 10mL Clot with gel
	Tests Performed	HLA (<i>Class I and II</i>) typing
	Patient Status	ACTIVE

- ABO testing must be organised by the patient's doctor at a NATA accredited laboratory and the result forwarded to the Red Cross.
- When **KR1** is received, patient is listed as **interim** on the National Organ Matching System (NOMS).
- If **KR2** is not received within 2 months, the patient will be taken **offlist**. A laboratory report with activation/re-activation requirements will be sent to patient's doctor.
- The *NSW Activation Request Form (ARCBS-NSW-TTS-L3-017)* is also required to activate patients, which can be downloaded from: www.transplantservices.com.au
- **Email** The *NSW Activation Request Form* to tsoseg@redcrossblood.org.au
- It is essential that the activation form is received. **Activation onto the NOMS** cannot occur without this.

If KR1 and KR2 samples are received without an activation form, a laboratory report with activation requirements will be sent to patient's doctor and patient will be made **offlist**.

1.2. RE-ENTERING A PATIENT ON THE TRANSPLANT WAITING LIST

A patient is required to be re-entered onto the waiting list in the following circumstances:

- Re-entering the program after previous graft loss
- A previously active patient who, at the request of the physician, has been "offlist" for more than 6 months

- An interstate recipient who has transferred to NSW.
- A patient on the waiting list, for whom serum has not been received for 12 months and therefore, has been de-activated from the waiting list

The table below lists the blood requirements and tests that will be performed:

KRR Re-entry onto NSW waiting list	Blood Required	40-60mL ACD (* note 40mL is acceptable) 10mL Clot with gel
	Tests Performed	Dependent on previous testing of patient
	Patient Status	ACTIVE

If a patient has been interim/offlist for less than six months and has not received a transplant, a re-entry is NOT required.

Please email a current and up to date *NSW Activation Request Form* to: ttsoseg@redcrossblood.org.au

The *NSW Activation Request Form* can be downloaded from: www.transplantservices.com.au

1.3. MONTHLY SAMPLES

Once activated, every patient is required to send a monthly clotted dry tube (10mL clot WITH GEL) to the NSW Transplantation and Immunogenetics Services Laboratory

Step 1. Fill out the *NSW Transplantation and Immunogenetics Service Laboratory Request Form (ARCBS-NSW-TTGO-L3-045)* with the required information.

- No booking form is required for this sample
- **The sample needs to be received prior to the 30th of the month**
- Crossmatch trays are made on the 1st of every month. Samples received after this date may not appear on the trays for that month.
- 14 days post transfusion
- Form can be downloaded from: www.transplantservices.com.au

Step 2. Collect Blood. Blood must be

- clotted dry tube
- stored at ROOM TEMPERATURE. Refrigeration of samples can cause haemolysis. The laboratory will not accept haemolysed samples.
- Sent to the laboratory as soon as possible after collection. Delays in sending monthly clotted dry tubes could result in haemolysis of the sample.

1.4. PATIENT STATUS

Active: The patient will be matched with any potential deceased donors

- Patient has had auto crossmatch (crossmatch with patient serum and patient cells), ABO blood groups and HLA A, B and DR typing completed
- KR1 + KR2 testing is complete and Activation form emailed (See section 1.1)
- Patient is fit for transplant
- Patient required to send a monthly clotted dry tube (see section 1.3)
- If the patient has sent a monthly clotted dry tube, they will now be matched with all ABO compatible deceased donors in NSW and other states.

Interim: A patient is interim if

- They are waiting for the KR2 to be received and processed by the laboratory
- They are temporarily unfit for transplant
- A request has been made by the patient's doctor or renal coordinator for any other reason.
- The patient has received a blood transfusion within the last month.

Off list: The patient's serum WILL NOT BE on the NSW kidney crossmatch trays and WILL NOT be matched with any potential deceased donors

- The patient is NOT required to send a monthly clotted dry tube
- The patient's status will be changed to offlist if they are not to be considered for deceased donor transplantation. Reasons may include the following:
 - o The patient no longer wants to be listed for a deceased donor transplant.
 - o The patient is unfit for transplant and the doctor or transplant coordinator has requested permanent removal from the list.
 - o The patient has not fulfilled laboratory requirements by not sending a serum sample in the last 12 months. The patient will be automatically de-activated from the list by the laboratory under these circumstances. However, please note that prior to this event occurring, the doctor/renal unit would have been given notice each month as to the status of this patient.
 - o The patient has been transplanted.
 - o The patient is now deceased.

1.5. NOTIFYING THE LABORATORY OF CHANGES TO PATIENTS RECORDS

The laboratory requires written confirmation for any database changes to patient records. This includes:

- Transplants: Any live donor transplants need to be recorded on the *NSW Live Donor Renal Transplant Form (ARCBS-NSW-TTS-L3-029)*, which can be downloaded from: www.transplantservices.com.au
 - o Email the *NSW Live Donor Renal Transplant Form* to: ttsoseg@redcrossblood.org.au
- Blood transfusions: If an active patient receives a blood transfusion, the laboratory must be notified immediately. The patient's status needs to be changed to **interim** by the laboratory to prevent the pre-transfusion samples being used for crossmatching.
- Dialysis: For active patients on the waiting list, any changes to a patient's dialysis, is required to be filled in on an activation form and emailed to the laboratory.
- Patient deaths: The laboratory needs to be notified of any patient deaths, so they can be made offlist.

Written confirmation of all events are required and should be emailed to: ttsoseg@redcrossblood.org.au

Written notification will ensure that changes are from authorised personnel.

2. LIVING RENAL DONOR TRANSPLANTS (LOD)

2.1. INITIAL TESTING

Step 1. ABO compatibility testing for both patient and donor is performed by the requesting doctor at a NATA accredited laboratory.

ABO results are to be emailed to the laboratory when making a booking.

Step 2. **Bookings are required for testing.** Fill out the *NSW Solid Organ Booking Form* for Stage 1,2 and 3 testing with the required information.

Form can be downloaded from: www.transplantservices.com.au

Form needs to be emailed to: ttcbo@redcrossblood.org.au

Step 3. Collect blood. Blood must be

- collected at same time for patient and donor
- collected pre-dialysis
- stored/transported at room temperature
- received by the laboratory within 24 hours of collection.
- 14 days post transfusion for patients

Step 4. Fill out the *NSW Transplantation and Immunogenetics Service Laboratory Request Form (ARCBS-NSW-TTGO-L3-045)* with the required information. Form can be downloaded from: www.transplantservices.com.au

The NSW Request Form and must be clearly labelled with:

- full name
- date of birth and
- date of collection

Without these details on the tubes and the forms, testing may not proceed.

The table below lists the blood requirements and tests that will be performed:

STAGE 1: (Initial testing on ABO compatible recipient and donors)	Blood required	RECIPIENT: 40-60mL ACD (* note 40mL is acceptable) 10mL clot with gel DONOR: 40-60mL ACD (* note 40mL is acceptable)
	Tests Performed	T and B cell CDC crossmatching on both patient and donor + HLA (Class I and II) typing + HLA antibody detection
STAGE 3: (Final CDC crossmatch) Please organise at least 1 month prior to planned transplant date.	<i>It is recommended that this test be performed ONE MONTH prior to transplant</i>	
	Blood required	RECIPIENT: 40-60mL ACD (* note 40mL is acceptable) 10mL clot with gel DONOR: 40-60mL ACD (* note 40mL is acceptable)
	Tests Performed	Final CDC crossmatch between patient and donor + HLA antibody screen + HLA (Class I and II) typing

STAGE 2:

Flow Cytometric Crossmatching can be performed at the request of the clinical unit. Testing is not mandatory, but may be required. Testing will be performed if required clinically or immunologically, based on previous results. Testing should not be booked automatically or prior to completion of stage 1 testing. Please contact the laboratory for testing details.

2.2. POST TRANSPLANT

The laboratory requires written confirmation of all live donor renal transplants. Download the *NSW Live donor renal transplant form* from: www.transplantservices.com.au

Please email this form to ttsoseg@redcrossblood.org.au to ensure the patient and donor records are up to date.

3. CONTACTING THE LABORATORY

One of the primary functions of the NSW Transplantation and Immunogenetics Services Laboratory is to coordinate and maintain NOMS for NSW/ACT solid organ recipients and donors.

3.1. NOTIFYING THE LABORATORY OF CHANGES TO PATIENTS RECORDS

The laboratory requires written confirmation for any database changes to patient records. This includes:

- **Transplants:** Any live donor transplants need to be recorded on a Live donor renal transplant form, please refer to ... for this form. The patient can then be linked to the donor and made offlist.
- **Blood transfusions:** If an active patient receives a blood transfusion, the laboratory must be notified immediately. The patient's status needs to be changed to "interim" by the laboratory to prevent the pre-transfusion samples being used for crossmatching.
- **Dialysis:** For active patients on the waiting list, any changes to a patient's dialysis, is required to be filled in on an activation form and emailed to the laboratory.
- **Patient deaths:** The laboratory needs to be notified of any patient deaths, so they can be made offlist.

3.2. TESTING FOR ANTIBODIES – POST TRANSPLANT

If any further testing for HLA antibodies, for the detection of Donor Specific Antibodies is required, please contact the laboratory

3.3. CONTACT DETAILS

NSW Transplantation & Immunogenetics Services

Australian Red Cross Blood Service

17 O'Riordan Street, Alexandria, NSW 2015

(P) 02 9234 2351

(F) 02 9234 2363

(E) ttsoseg@redcrossblood.org.au

www.transplantservices.com.au

For any other issue, outside the scope of this document, please contact-

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4. DEFINITIONS

HLA: Human Leucocyte Antigen. The HLA gene complex is located on chromosome 6 in humans. This region is further divided into Class I, Class II and Class III. HLA Class I is expressed as HLA – A, HLA- B and HLA-C. Class II is expressed as HLA-DR, HLA-DQ, HLA-DP, HLA-DM, and HLA- DO.

Tissue Typing: Tissue Typing is a procedure that determines the type of histocompatibility antigens on a person's cells or tissues. This procedure is typically used prior to transplantation of tissues or organs. Routine Tissue Typing involves testing for HLA- A, B and DR only.

HLA Antibody Screen: A screen performed to determine the presence of an antibody. Depending on which test is used, antibodies may be HLA or non HLA, IgG or IgM.

PRA: Panel Reactive Antibody. A method of antibody screening, where a panel of known HLA antigens is used to determine the amount and specificity of antibody present in a patient's serum.

Auto or Autologous Crossmatch: PATIENT CELLS + PATIENT SERUM

A test which determines if a recipient has antibodies against oneself. If auto antibodies are present, it must be determined if they are IgM or IgG antibodies.

DTT Crossmatch: DTT is a reagent used to help determine if an autoantibody is an IgG antibody or an IgM antibody. DTT breaks down the disulphide bonds of an IgM antibody resulting in a negative DTT autocrossmatch. If the DTT crossmatch result remains positive, the antibody is most likely IgG.

Allo or Allogeneic Crossmatch: DONOR CELLS + PATIENT SERUM

A test which determines if a recipient has antibodies against another person's cells.

NOMS: National Organ Matching System

A National database used to store data on all solid organ recipients and donors.