ABOi Lite Matching in KPD

Recommendations and Appendices

Public (P)

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Background

The Kidney Paired Donation Program (KPD) runs 3 Match Cycles per year, generally in February, June and October. The algorithm is also run between Match Cycles to repair chains and identify new matches for pairs in chains that collapse.

As of May 2025, 986 kidney transplant candidates with blood group O have participated in match runs. Of those, 118 had a cPRA of 100%. Of the 868 ABO-O candidates with a cPRA < 100%, 51% (439) have received a transplant as compared with 74% (479 of the 645) of the non-O blood group candidates with a cPRA < 100%. Patients with blood group O continue to make up the majority of participants and receive fewer match proposals in each Match Cycle despite receiving extra points for matching O donors to O candidates before using the O donors for other blood groups. Introducing an option to receive a “slightly” incompatible kidney transplant for ABO blood types (ABOi Lite) will expand matching opportunities for blood type O candidates in the KPD Program. By allowing select ABO-incompatible combinations under clearly defined criteria, it increases opportunities for O candidates to be matched and transplanted without compromising program safety or equity.

As of May 2025, 265 kidney transplant candidates with blood group B have participated in match runs. Of those, 27 had a cPRA of 100%. Of the 238 ABO-B candidates who have a cPRA < 100%, 69% (165) have received a transplant as compared with 59% (753 of the 1,275) of the non-B blood group candidates with a cPRA < 100%. Patients with blood group B are consistently represented in KPD Match Cycles, with 11.5% (±4.5%) of pairs active in a Match Cycle having an ABO-B candidate.

Bringing ABO-B-candidate pairs into the proposed chains by matching them to a ‘blood group A-subgroup non-A_1’ donor will open up opportunities for more total pairs to get a match in the Match Cycle combination. Based on how the point system has been structured, an ABO-B candidate that matches to the same ‘blood group A-subgroup non-A_1’ donor as an ABO-O candidate will receive the match over the ABO-O candidate only if they are able to bring in more match points (e.g., a highly sensitized patient, a pediatric, etc.) to the top combination.

ABOi Lite Matching in KPD

ABOi Lite refers to the practice of proposing matches between:

- Blood group A-subgroup non-A_1 donors with blood group O and B candidates.
- Blood group AB-subgroup non-A_1B donors with blood group B candidates.

Donor Subgroup Testing

ABO-A subgroup testing for all blood group A and AB donors registered in KPD is conducted by the living donation program’s transfusion medicine lab to determine A_1 vs non-A_1 subgroup and A_1B vs non-A_1B subgroup.

Transplant Candidate Anti-A Antibody Level Testing

It is recommended that anti-A antibody levels be measured prior to each Match Cycle for blood group O and B candidates under consideration for ABOi Lite matching. This allows transplant programs to assess a candidate's potential suitability for matching to a non-A_1 or non-A_1B subgroup donor. The decision to activate ABOi Lite matching for a given transplant candidate should be made by the transplant program based on a comprehensive clinical evaluation, including patient-specific factors and circumstances, alongside these recommended guidelines.

Agglutination Assay

Anti-A antibody levels measured by agglutination assay are usually carried out by the transplant program's local transfusion medicine lab (TML). If a program's local TML does not measure anti-A antibody levels by agglutination assay, arrangements should be made with another transplant centre that can support this testing, in alignment with the recommendations for initial and ongoing stability testing (see 1.c.i and 1.c.ii below). Anti-A antibody levels measured by the agglutination assay are reported as a "titre" value, the highest serial dilution showing agglutination. For ABOi Lite transplants, a titre of ≤1:8 (without plasmapheresis) is the recommended threshold. Different variations of the agglutination assay are used by transfusion medicine laboratories therefore sample requirements may vary (DTT treated vs non treated samples, optional use of anti-human globulins, gel assay vs test tube assay, use of ABO-A_1 vs ABO-A_2 erythrocytes) i.e., type and size of tubes, storage conditions for archiving. Transplant centres are encouraged to confirm with the TML which variation of agglutination assay is being used, as the titre threshold acceptable for ABOi Lite transplants may vary depending on the method applied.

Supplemental Tests

Anti-A antibody levels are being measured by flow cytometry and by Luminex assay at 2 different HLA laboratories in Canada. These 2 methods have shown more reproducible results than the current agglutination testing. Transplant programs are strongly encouraged to use the results of these two tests to supplement the titre results obtained by agglutination when deciding to enroll a patient in ABOi Lite matching. These may be particularly helpful when assessing eligibility for a patient whose titre results (by agglutination) are somewhat higher than the program's usual threshold to move forward with transplant. To obtain results using these 2 methods, the transplant program will submit a list of blood group O and B candidates along with the appropriate sample specifications, initial or ongoing (see 1.c. below), to their local HLA lab using both ABOi Lite Sample Tracking Forms (CTR>>Documents). The transplant program's local HLA lab will aliquots and ship archived frozen samples as requested for each Match Cycle to the 2 central testing HLA labs (see 1.d. below).

Flow cytometry assay results will report the anti-A antibody level as a percentage relative to the calibrators; the calibrators being the patients with the highest flow cytometry measured, anti-A antibody levels from previously successful ABOi Lite transplants. A recommended conservative threshold for proceeding with transplant is 80% of the calibrators level.

Luminex immunoassay results will be reported as *above* or *below* a conservative MFI threshold, determined by testing samples from patients successfully transplanted with non-A_1 kidneys from 3 transplant centres.

For further discussion or questions

In cases where discrepant results are observed, or when clarification is required regarding result interpretation or the application of the ABOi Lite recommendations, inquires can be directed to KPD@blood.ca. The KPD team will facilitate connections with the appropriate expert for follow-up.

1. Recommendations for a Transplant Candidate to Participate in ABOi Lite Matching in KPD

a. The Transplant Program is responsible for ensuring:
   i. the candidate's anti-A antibody levels are within acceptable thresholds,
   ii. key elements to ABOi Lite matching in KPD (appendix 5) have been discussed with the candidate and informed consent has been documented, as appropriate, and as per local practice (the patient is *willing* to participate) and
   iii. match filters in the Canadian Transplant Registry (CTR) are set appropriately (see 1.e below).

b. Transplant programs are not permitted to desensitize transplant candidates by using plasmapheresis to bring antibody levels down to acceptable levels for the purpose of ABOi Lite matching in KPD. Attempting to desensitize would pose a risk for late chain collapse if the acceptable anti-A antibody level is not reached right before transplant.

c. The transplant candidate's anti-A antibody levels should be stable to participate in ABOi Lite matching in KPD.
   i. Initial stability is defined as anti-A antibody levels below acceptable threshold, demonstrated on two samples; one current sample drawn 6–8 weeks prior to the first Match Cycle in which they wish to participate, and another historical sample drawn approximately 3 (±1) months prior to the current sample.
      1. If both samples are below acceptable threshold and the candidate consents to match to a non-A_1 or non-A_1B donor, the program may set the ABOi Lite filter in the CTR record accordingly (see 1.e.i and 1.e.ii below).
      2. In cases where sample results conflict (e.g. non concordance between the agglutination assay and the flow cytometry assay), programs should evaluate the broader clinical context in determining whether to proceed with ABOi Lite matching.

ii. Ongoing stability should be confirmed on a current sample obtained from the candidate 6-8 weeks prior to each subsequent Match Cycle in which the candidate wishes to participate in ABOi Lite matching.
    1. If the anti-A antibody level is above the acceptable threshold, change the response to the ABOi Lite match filter in CTR to "No" before the Match Cycle start date (see 1.e.iii below).
        a. To participate again in ABOi Lite matching in subsequent Match Cycles, it is recommended that the patient's anti-A antibody levels from 2 samples, taken 3 (±1) months apart, be below acceptable threshold.

d. Batch shipping of samples by the transplant program's HLA lab:
    i. Samples for each Match Cycle may be batch shipped to the central HLA lab and can include:
        1. For blood group O and B candidates participating in their first Match Cycle, 2 samples, one current and one historical, as per 1.c.i *Initial stability*.
        2. For transplant candidates who participated in ABOi Lite matching in the previous Match Cycle, a current serum sample as per 1.c.ii *Ongoing stability.*

e. Setting match filters in the CTR: The clinical team will review the patient's results from all anti-A antibody level tests as well as their comprehensive clinical assessment to determine whether the patient is eligible to be matched in ABOi Lite. If the patient is eligible, informed consent must be documented, as per local practice.
    i. For eligible blood group O candidates, select "Yes" to ***Eligible and willing to Match to a Blood Group A non-A1 Donor*** in the match filters on the transplant candidate's CTR record.
    ii. For eligible blood group B candidates, select "Yes" to ***Eligible and willing to Match to a Blood Group A non-A1*** or ***Blood Group AB non-A1B Donor*** in the match filters on the transplant candidate's CTR record.
    iii. If the clinician determines that the candidate is not eligible to be matched in ABOi Lite, the ABOi Lite filter response must be changed to "No" on the candidate's CTR record.

2. Recommendations to Proceed to Transplant:

a. The candidate's anti-A antibody levels are stable and within acceptable thresholds (see 1.c).
b. The candidate's anti-A antibody levels should be verified for stability on a sample drawn between 2 and 4 weeks before the transplant.
c. Informed consent should be confirmed and documented, and match filters appropriately updated in the CTR.

3. Immunosuppression:

a. Transplant programs should use the same immunosuppression regimen that would otherwise be used for the recipient with the same blood group as the donor.

4. Post-Transplant Anti-A Antibody Level Monitoring:

a. No post-transplant anti-A antibody level monitoring is required to participate in ABOi Lite in the KPD Program. For transplant programs electing to measure post-transplant anti-A antibody levels, it is recommended **to not act** solely on rising anti-A antibody levels.

5. Renal Graft Dysfunction:

a. Assess as per your program's usual standard of care.

   i. For suspected or biopsy-proven antibody-mediated rejection (BP-AMR), the rejection episode is to be reported to the KPD program KPD@blood.ca as soon as practical.

6. Outcome Data Submission to Canadian Blood Services KPD Team:

a. Outcome data will be collected and submitted to Canadian Blood Services by the transplant programs using the same KPD annual outcome data survey.

7. Review:

a. The ABOi Lite Working Group will monitor rejection episodes as they are submitted, and outcome data will be reviewed annually.

8. Questions:

a. For inquiries related to the recommendations for ABOi Lite matching in KPD, appendices, and logistics, or to consult on conflicting test results, please e-mail KPD@blood.ca and include ABOi Lite in the subject line.

Appendix 1A: Your Blood Group and Transplant

What is blood group?

There are four blood groups: O, A, B or AB. Your blood group is determined by which antigens are present on your blood cells.

Does blood group matter in kidney transplantation?

Yes, it does. Not all blood groups can be mixed together. It depends on the **antigens** on your blood cells and the antigens on your donor's blood cells.

What antigens does each blood group have?

Blood group O has **no antigens** on the surface of each blood cell.	Blood group A has **A antigens** on the surface of each blood cell.	Blood group B has **B antigens** on the surface of each blood cell.	Blood group AB has both **A and B antigens** on the surface of each blood cell.
			

Why are antigens important?

Antigens are important because they tell your immune system which cells belong to you. Your immune system leaves your cells alone. When things enter your body with antigens that are different than yours, your immune system jumps into action to protect you from harm.

Your immune system makes proteins called **antibodies.** Your antibodies protect you from things they do not recognize and that might make you sick. Viruses and germs have antigens on their surface. Your antibodies recognize the virus and germ antigens as different than yours and attack them. Your antibodies try to destroy the viruses and germs to keep you healthy.

Your antibodies can also recognize antigens on someone else's blood that are different from your blood antigens. Your antibodies will attack and try to destroy the blood with the different antigens. This means that you will not be able to receive blood from everyone.

What blood group(s) can my donor be?

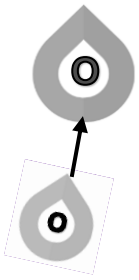
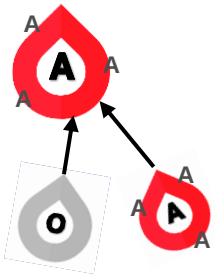
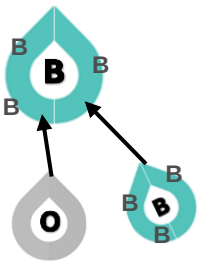
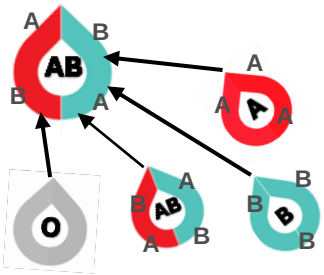
You can receive a kidney transplant from a donor with the same blood group as you. Your immune system will recognize the similar antigens and leave the new blood alone.

Donors with blood group O do not have any antigens on their blood cells, so there are no antigens for someone's immune system to attack. Everyone can receive an organ from a donor who is blood group O.

You can also receive a transplant from a donor with a blood group that is compatible with yours. A compatible blood group does not have antigens that your immune system would attack.

> For example, if you have blood group AB, you already have both A and B antigens on your blood cells. Your immune system will not attack blood that has A or B antigens because it already knows the A and B antigens that are on your blood cells.

The diagrams below show which blood groups are compatible:

If you have blood group O, you can get organs from donors with blood group O.	If you have blood group A, you can get organs from donors with blood group O and A.	If you have blood group B, you can get organs from donors with blood group O and B.	If you have blood group AB, you can get organs from donors with any blood group.
			

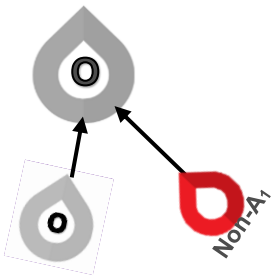
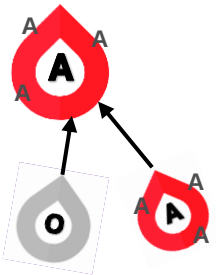
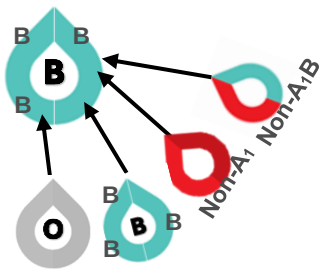
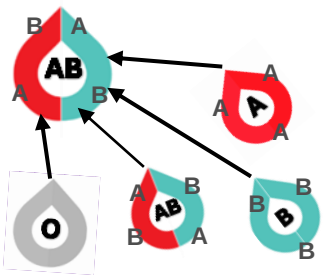
Can I get a transplant from a donor with any other blood groups?

Yes, but only in some cases. Blood group O and B are special cases. People with blood group O and B can sometimes receive a kidney transplant from donors with blood group A or AB.

What is different about blood group A and AB?

People with blood groups A and AB can be grouped by the kind of A antigens on their blood cells. A antigens can be either A_1 or non-A_1. Kidneys from donors with non-A_1 blood or non-A_1B blood can sometimes be given to recipients with O or B blood group because they only have about 20% of the A antigens that is expected from blood group A.

The diagrams below show how non-A_1 and non-A_1B blood can sometimes help people who have O or B blood.

If you have blood group O, you can get organs from donors with blood group O or non-A_1.	If you have blood group A, you can get organs from donors with blood group O or A.	If you have blood group B, you can get organs from donors with blood group O or B or non-A_1 or non-A_1B.	If you have blood group AB, you can get organs from donors with any blood group.
			

I have blood group B -why should I consider getting a kidney from a donor with non-A_1 or non-A_1B blood?

A and O are the most common blood groups in Canada. This means most donors will be either blood group A or O. Less than 10% of people in Canada have blood group B. This means that you might have to wait longer for a kidney transplant since fewer donors will have the same blood group as you. Agreeing to consider a kidney from a donor with non-A_1 or non-A_1B blood may increase the number of donors you might match to. This could result in a shorter wait time for you. When you are matched with any donor in the KPD program, your transplant program will review the matched donor carefully to make sure they are a good match for you.

I have blood group O. Why should I consider getting a kidney from a donor with non-A_1 blood?

People with blood group O can only receive a kidney from a blood group O donor. Because of the shortage of organs, organs from O donors are used for people with all blood groups. This means there are fewer donors to match to O recipients. This could result in longer wait times for people with O blood.

Agreeing to consider a kidney from a donor with non-A_1 blood may increase the number of donors you might match to. This could result in a shorter wait time for you. When you are matched with any donor in the KPD program, your transplant program will review the matched donor carefully to make sure they are a good match for you.

Can everyone with blood group O or B get a kidney from a donor with non-A_1 or non-A_1B blood?

No. It depends on the level of anti-A antibodies you have in your body. These are the antibodies that will attack A antigens that your immune system does not recognize.

Your doctor will first do a test to measure your anti-A antibody levels. This will tell your doctor how strong your anti-A antibodies are. If your antibody levels are low enough, you are eligible to be matched to a non-A_1 or non-A_1B kidney donor. Your transplant program will discuss this option with you.

> If you choose to consider matching to a non-A_1 or non-A_1B donor and are not matched right away in the KPD program, your anti-A antibody levels will be measured every 3-4 months. This is to make sure your antibody levels remain low enough that you can still be matched to a non-A_1 or non-A_1B donor in the next match cycle.

What happens when I am offered a kidney from a donor with non-A_1 or non-A_1B blood?

If you proceed and are matched with a non-A_1 or non-A_1B donor, your transplant program will review the matched donor carefully to make sure they are a good match for you. Your blood will be tested again for anti-A antibody levels 2-4 weeks before your transplant. If your anti-A antibody levels are stable and low enough, the transplant process will continue. If your antibody levels are too high, the transplant will not proceed because the chance of rejection is too high.

What about after the transplant?

Transplant recipients are always at risk for rejection. Transplants from donors with non-A_1 blood to people with blood group O or B are low risk transplants, and the long-term outcomes are similar to those who have received a transplant from a donor with the same blood group.

Appendix 1B: Option for Blood Group O or B Kidney Transplant Candidates

You are getting this information because your blood group is O or B. People with these blood groups have fewer options for organ transplants because they can only get organs from certain blood groups.

But there might be a way to increase your chances of getting a kidney transplant. Some people with blood group A have a special kind of A blood that might work for you. To find out if this is possible, your doctor will test your blood to check your antibody levels. If your levels are low enough, you might be able to get a kidney from one of these special A donors.

Saying yes to getting a kidney from someone with special group A blood could give you more chances to find a match. This might help you get a transplant sooner.

If you decide to go ahead and are matched with one of these donors, your transplant team will carefully check to make sure the donor is a good match. Your antibody levels will be tested again 2 to 4 weeks before the transplant. If your levels are still low, the transplant can happen. If your levels are too high, the transplant won't go ahead because your body might reject the kidney.

If you want to try matching with a special A donor but don't get matched right away, your antibody levels will be checked every 3 to 4 months. This helps make sure you're still able to match with a special A donor in the future.

Appendix 2A: Sample Tracking Form – Halifax Lab – Flow Cytometry

Kidney Paired Donation: ABOi Lite Sample Tracking Form-Flow Cytometry

HALIFAX

Ship samples to:
In care of: **Dr. Robert Liwski**
HLA Laboratory
5788 University Ave.
Mac Kenzie Building, Room 632
Halifax, Nova Scotia, B3H 1V8
Phone: (902) 403-7615

Email this form to: robert.liwski@nshealth.ca

Hospital name:

Hospital address:

Transplant program/clinical team (primary contact)
name:
e-mail:
contact:

LOCAL HLA LAB
director /designee:
e-mail:
contact:

HALIFAX HLA LAB (flow cytometry)
director/designee:
e-mail:
contact:

	Patient	CTR #	PHN/HCN	Blood Group	Initial or Ongoing	Sample Type	Date of Draw dd/mm/yyyy	Sample accession #	Result (% in relation to calibrator)	Eligible Y/N
1						Current				
						Historial				
2						Current				
						Historial				
3						Current				
						Historial				
4						Current				
						Historial				
5						Current				
						Historial				
6						Current				
						Historial				

Instructions

NOTE: Please ensure that the information entered on both sample tracking sheets is identical.

1- **Transplant program/Clinical team** will initiate this form (found in CTR) by completing the applicable information and submitting to their local HLA lab. Select "initial" for new participants in ABOi Lite and "ongoing" for participants in subsequent match cycles.

2- **Local HLA lab** to aliquot and clearly label all tubes with the **centers name, CTR #, sample accession #** and **date of sample draw** for the list of patients requested.

3 - For each sample, enter the accession # and the date it was drawn for each patient listed on this forms.

4- **E-mail** this completed form to robert.liwski@nshealth.ca

5 - **Cold pack** all samples and include a copy of this form. Ship to the Halifax HLA lab (address provided at the top right corner).

Initial stability testing (first time)

- *2 samples*
  - 1x current (sent 6-8 weeks before MC)
  - 1x historical (3+1) months prior)

Ongoing stability testing (before MC)

- *1 sample*
  - 1x current (sent 6-8 weeks before MC)

- Serum aliquot - minimum sample volume = 200µL
- Archived HLA samples or fresh aliquoted samples are acceptable

Results will be reported back to the local HLA lab by e-mail 2-4 weeks before the Match Cycle.

Appendix 2B: Interpreting the results – Assay by flow cytometry (Halifax)

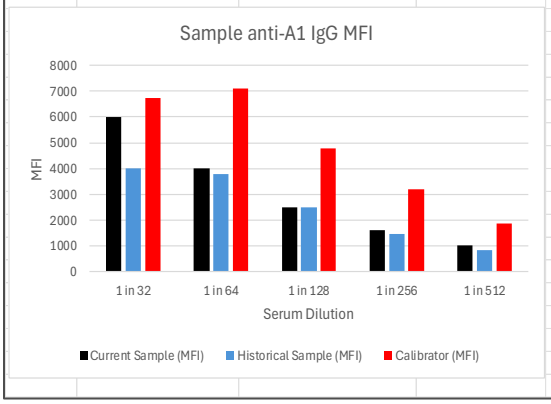
Sample MFI

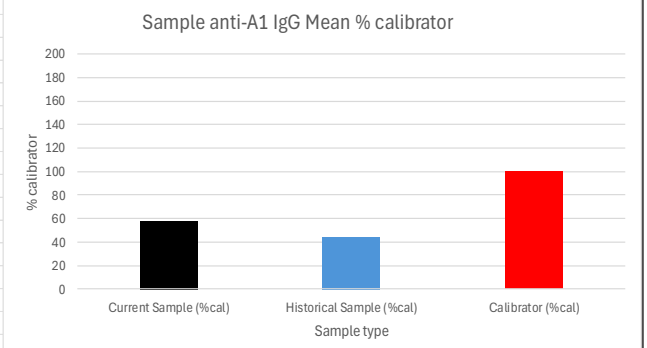
Dilution	Current Sample (MFI)	Historical Sample (MFI)	Calibrator (MFI)
1 in 32	6000	4000	6752
1 in 64	4000	3800	7120
1 in 128	2500	2477	4780
1 in 256	1600	1465	3181
1 in 512	1000	825	1859
1 in 1024	400	175	500
1 in 2048	100	75	400

Mean % calibrator

Dilution	Current Sample (%cal)	Historical Sample (%cal)	Calibrator (%cal)
1 in 32	88.86255924	59.24170616	100
1 in 64	56.17977528	53.37078652	100
1 in 128	52.30125523	51.82008368	100
1 in 256	50.29864822	46.05469978	100
1 in 512	53.79236148	44.37869822	100
1 in 1024	80	35	100
1 in 2048	25	18.75	100

	Current Sample (%cal)	Historical Sample (%cal)	Calibrator (%cal)
Mean %cal (do not lock)	58.06208564	44.08799634	100





"Sample MFI" table

1- The lab will report the MFI for a series of dilutions for both the current and historical (if applicable) samples. (first two columns)

2- The lab will also report calibrator MFI values from equivalent serial dilutions : the calibrators being the patients with the highest flow cytometry measured, anti-A antibody level from previously successful ABOi Lite transplants. (third column)

"Mean % Calibrator" table

3- Results are automatically calculated and populate the cells in this table when values are input into the Sample MFI table. The values reported are a percentage relative to the calibrator for each dilution in the series and represent both the current and historical sample. (if applicable) (first two columns)

4- For this purpose, the calibrator is considered 100% for each serial dilution.

5- The final values reported (row "Mean %cal") are the mean %cal for the serial dilutions for both the current and historical samples.

6- A recommended conservative threshold for proceeding with transplant is under 80% of the calibrators level.

Color	% of calibrator	Interpretation
	< 80	Safe to proceed
	80-99.99	Above the conservative threshold, consider re-testing for next Match Cycle
	≥ 100	Should not proceed to transplant. Values over 100 would indicate permanent ineligibility for ABOi Lite matching.

Appendix 3A: Sample Tracking Form – Edmonton Lab – Luminex Bead Immunoassay

Kidney Paired Donation: ABOi Lite Sample Tracking Form-Luminex Immunoassay

EDMONTON

Email this form to: Anne.Halpin@albertaprecisionlabs.ca

Ship samples to:
Care of: Dr. Anne Halpin, ABOi Lite Testing
Edmonton Transplant Laboratory (Histocompatibility)
8440-112 Street
Room 4B4.19, WMC Bldg.
Edmonton, AB T6G 2B7
Phone: (780) 407-8881

Hospital name:

Hospital address:

Transplant program/Clinical team			LOCAL HLA LAB		Edmonton Transplant Laboratory (Histocompatibility)	
name:			lab director/designee:		name:	
e-mail:			e-mail:		e-mail:	
contact:			contact:		contact:	

Patient	CTR #	PHN/HCN	Blood Group	Initial or Ongoing	Sample Type	Date of Draw dd/mm/yyy	Sample accession #	Above or below MFI threshold for eligibility*	Eligible? Y/N
1	123123				Current			below	Y
					Historical			below	Y
2					Current				
					Historical				
3					Current				
					Historical				
4					Current				
					Historical				
5					Current				
					Historical				
6					Current				
					Historical				

Instructions

NOTE: Please ensure that the information entered on both sample tracking sheets is identical.

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2 - **Local HLA lab** to aliquot and clearly label all tubes with the **centers name, CTR #, sample accession #** and **date of sample draw** for the list of patients requested.

3 - For each sample, enter the accession # and the date it was drawn for each patient listed on this forms.

4 - **E-mail** this completed form to Anne.Halpin@albertaprecisionlabs.ca

5 - **Cold pack** all samples and include a copy of this form. Ship to the Edmonton Transplant Laboratory (Histocompatibility) (address provided at the top right corner).

Initial stability testing (first time)	Ongoing stability testing (before MC)
• *2 samples* - 1x current (sent 6-8 weeks before MC) - 1x historical (3 +1) months prior)	• *1 sample* - 1x current (sent 6-8 weeks before MC)

• Serum aliquot - minimum sample volume = 200µL
• Archived HLA samples or fresh aliquoted samples are acceptable

Results will be reported back to the local HLA lab by e-mail 2-4 weeks before the Match Cycle.

***Eligibility based on Halpin, Murphey et al Multiplex bead immunoassay in ABO-A2-incompatible kidney transplantation. Am J Transplant. 2025 Apr 10**

Appendix 3B: What is the Luminex bead-based immunoassay? (Edmonton)

Dr. Anne Halpin and Dr. Lori West developed a Luminex, bead-based assay to be used to measure the levels of ABO antibodies. These single antigen beads are each coated with individual ABO-A (and ABO-B) glycans. These beads are then incubated with patient serum, and we are able to measure how much ABO antibody is present using a Luminex cytometer, just as we do for HLA antibody measurement.

For ABOi Lite, we have offered to test ABO-O and ABO-B patients to see if their level of anti-A antibody falls “above” or “below” an established MFI threshold and will be reported as such. This test is supplemental to titre testing and the results can provide a more comprehensive picture of a patient’s ABO immune risk assessment.

This voluntary Luminex bead-based testing available via the Edmonton HLA laboratory is supported by the laboratory of Dr. Lori West.

Detailed information can be found here: https://pubmed.ncbi.nlm.nih.gov/40216222/

Appendix 4: Anti-A antibody level testing-quick reference guide

Determine if anti-A antibody testing is for initial or ongoing stability:

- Initial: Patients who have not previously participated in ABOi Lite matching in KPD.
- Ongoing: Patients who wish to participate in ABOi Lite matching in subsequent Match Cycles.

TESTING	Initial	Ongoing	Pre-transplant
Samples required? (for each of 3 tests)	2	1	1
Current sample?	Yes Taken 6-8 weeks before a Match Cycle	Yes Taken 6-8 weeks before a Match Cycle	Yes Taken 2-4 weeks before transplant
Historical sample?	Yes Taken 3 (±1) months before current sample	No	No

Anti-A antibody tests: Agglutination, flow cytometry and Luminex immunoassay.

	Titres by agglutination	Flow cytometry assay	Luminex bead immunoassay
Threshold?	≤ 1:8	≤ 80% of the calibrator	"Below" MFI threshold
Performed by?	Transfusion medicine lab (usually local)	Local HLA lab: aliquots and ship to Halifax HLA lab	Local HLA lab: aliquots and ship to Edmonton HLA lab
Sample tracking sheet?	No (done locally)	Yes (in CTR)	Yes (in CTR)

Sample tracking sheets:

- There are 2 similar sheets:
  - one for Halifax (flow cytometry)
  - one for Edmonton (Luminex immunoassay)

Initial or Ongoing	Sample Type	Date of Draw dd/mm/yyyy
	Current	
	Historial	
initial	Current	
ongoing	Historial	
	Current	
	Historial	
	Current	
	Historial	
	Current	
	Historial	
	Current	
	Historial	

- Select initial or ongoing from the dropdown menu

Appendix 5: Key elements for informed consent

To support informed consent, the following guide outlines key elements of ABOi Lite matching in KPD that should be included in patient discussions or when drafting a consent form (in accordance with local practice). Example wording for each element is provided to help guide conversations, and to complement the information found in Appendix 1A and 1B – "Your Blood Group and Transplant" and is meant to provide information to the transplant candidate about participating in ABOi Lite matching.

Please note that this is supplementary and does not replace the KPD Consent form in CTR.

1. General statement of advantages

Because blood group O candidates face the longest wait times for a kidney transplant in KPD, considering offers from blood group A subgroup non-A_1 (or non-A_1B) donors can provide an opportunity for an earlier transplant.

2. Comparison of transplant outcomes

Transplant outcomes when non-A_1 donor kidneys are transplanted into blood group O or B recipients (or non-A_1B into blood group B recipients) are generally comparable to outcomes when receiving blood group matched kidneys.

3. Benefits and Risks

Benefits

- ABOi Lite matching broadens the number of donors you can potentially be matched to, with the possibility of an earlier transplant.
- The potential benefit of accepting a kidney from a subgroup non-A_1 (or non-A_1B) donor outweigh the risk of waiting longer for a transplant.

Risks

- Any person receiving a transplant is at risk for rejection, however, there is no current evidence that the risk for rejection is higher in blood group O or B recipients with low anti-A antibody levels who have received non-A_1 (or non-A_1B) kidneys in comparison to blood group matched kidneys.

4. Anti-A antibody level and stability monitoring requirement

**We strongly recommend incorporating the below disclaimer to the verbal or written consent, per local practices.*

> *You are proceeding to receive matches in ABOi Lite. Before your transplant, your anti-A antibody level will be measured using the [standard agglutination test] at your local center, along with two supplemental tests. The results from all three assays will be considered together to guide your clinical team in determining whether you are eligible to move forward with transplant.

To ensure your body safely accepts the kidney, periodic blood tests will be required to monitor your anti-A antibody levels and stability before the transplant. (refer to 1.c.i and 1.c.ii)

5. Full program explanation

**Appendix 1A and/or 1B – Patient Information* *A copy should be provided to patients who are eligible for ABOi Lite.*

The transplant team has explained the nature, risks, and benefits of accepting a non-A_1 or non-A_1B donor kidney and have provided you with the information needed to make an informed decision. You have been given the opportunity to ask questions, and they were answered to your satisfaction.

Appendix 6: ABOi Lite working group members

Canadian Blood Services Members:

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Machivei Danha

Charley Bekolay

Kathy Yetzer

Clinical Working Group:

Dr. Abubaker Hassan

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