# Australian and New Zealand Paired Kidney Exchange Program

## Protocol 9: Pathway for Inclusion of Compatible Pairs in the ANZKX Program

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Australian + New Zealand Paired Kidney Exchange Program

# Pathway for Inclusion of Compatible Pairs in the ANZKX Program

## Background

Participation of compatible pairs (CP) in kidney paired donation (KPD) could be attractive to CP who have a high degree of HLA-mismatch, if the KPD allocation algorithm provides a better HLA match for the CP recipient.

Because the matching algorithm used in the ANZKX Program is not designed to help CP, it is important to define allocation metrics that enable CP to receive a better-matched kidney.

Simulations using incompatible pairs enrolled in AKX and a group of randomly selected CP with 6/6 ABDR mismatch were performed to define allocation metrics. The results of this work was published and have been used as a base to define the pathway for inclusion of compatible pairs in AKX and now ANZKX.

## Summary of expected advantages for compatible and incompatible pairs:

1. The immunological advantage for CP recipients is only apparent when there is a high number of eplet mismatches (EpMM) to the recipient's own donor (approximately greater than 65 in the simulations performed).
2. A better immunological matching can be achieved by excluding unacceptable antigens in the CP recipient.
3. Compared to an EpMM with the own donor of, inclusion of CP reduces the EpMM to the matched donor to if CP added with exclusion of unacceptable antigens (In the simulation the EpMM was reduced from 87±13 to 55±14 (P<0.0001).
4. When HLA-mismatched CP are included in a KPD program the number of ICP being matched increased. This included an increase in matching of ICP with a cPRA ≥97%.
5. There is no disadvantage to ICP when assigning a virtual cPRA to CP recipients; no reduction in matches was observed among highly sensitised ICP.

## Pathway for inclusion of compatible pairs in ANZKX

1. Compatible pairs can be included in ANZKX in order to gain a better HLA-matched donor, provided the HLA mismatch to the own donor has a high level of eplet mismatch (EpMM) (for example approximately >65 combined class I and II EpMM).
   - The majority of CP mismatched at HLA-A, B, DR will meet these criteria.
   - The majority of these CP will able to find a match.
   - CP who do not meet this EpMM threshold can also be considered, if they do have a reasonable argument that they wish to avoid a specific mismatch that would impact a future chance of a repeat transplant.

2. Better immunological matching can be achieved by excluding unacceptable antigens in the CP recipient.
   - The list of unacceptable antigens should translate into a virtual cPRA of approximately 70-80%.