

## 1. Purpose.

This document describes the functionality and operation of the webservice provided by ETRL.

The service is a SOAP based webservice and performs calculations based on the HLA types of a panel of donors. The chance to receive an organ and the percentage panel reactivity antibody on basis of the reactivity with the actual Eurotransplant donor population can be requested.

## 2. Parameters, functions and response.

The web service offers these functions:

- Calculate vPRA.
- Calculate the chance to receive an organ via different kind of blood group rules
- Calculate the chance to receive a kidney via the AM program

### 2.1 Parameters request.

There are two distinct parameters.

The **antigens** (sUnacceptables, sAcceptables en sTyping) is a string with the different HLA antigens divided by a space, comma or both. For example: : 'A\*01:01 A3 B15 B62 B63 Bw4 Bw6 Cw3 Cw7 DR6 DR13 DR52 DQ1 DQ5 DQ6 DPB1\*01:01 DQA1\*03:01'.

The other parameter is the **blood group**. This string always needs to be provided in case of chance of receiving an organ calculations and can have the values 'A', 'B', 'AB' or 'O'.

### 2.2 vPRA function.

Here, the percentages panel reactivity antibody are calculated, taking into account the unacceptable antigens for 11 loci as entered in string **sUnacceptables**. The program counts the number of donors who don't have any of the entered unacceptable antigens.

### 2.3 FreqABOCompatible, FreqABOETCompatible, FreqABOIdentical.

These functions calculate the chance to receive an organ, taking into account the unacceptable antigens for 11 loci as entered in string **sUnacceptables** and the blood group **ABO**. The program counts the number of donors according to the ABO rules, who also don't have any of the entered nonacceptable antigens.

### 2.3 Function FrequencyAM.

This function calculates the chance to receive a kidney within the AM program, taking into account the typing in **sTyping**, the acceptable antigens in **sAcceptables** and the blood group in **ABO**. Only the splits of A-, B- en DR antigens of sTyping are used. For the blood type, the search will be for donors with a compatible blood group. The calculator takes into account the minimal match criteria of sharing of one HLA-B antigen and one HLA-DR antigen, or two HLA-DR antigens with the patient's own HLA antigens.

## 2.4 Function FreqAM.

This function calculates the chance to receive a kidney within the AM program, taking into account the typing in **sTyping**, the acceptable antigens in **sAcceptables**, unacceptable antigens for 11 loci as entered in string **sUnacceptables** and the blood group in **ABO**. Only the splits of A-, B- en DR antigens are used from sTyping and sAcceptables. For the blood type, the search will be for donors with a compatible blood group. The calculator takes into account the minimal match criteria of sharing one HLA-DR broad antigen with the patient's HLA-DR broad antigen.

## 2.5 Function FreqDesense.

This function calculates the chance to receive a kidney within the desensitization program, taking into account the typing in **sTyping**, the acceptable antigens in **sAcceptables**, unacceptable antigens for 11 loci as entered in string **sUnacceptables** and the blood group in **ABO**. Only the splits of A-, B- en DR antigens are used from sTyping and sAcceptables. For the blood type, the search will be for donors with a compatible blood group.

## 2.6 Response.

The response is equal for all functions and consists of a frequency, the number of matches, the panel size, the and possibly an error response. The response is also available as a class, ETRLResponse.

For example:

```
<ETRLResponse xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns="http://ETRL.O
RG/">
    <Frequency>28.580</Frequency>
    <Matches> 2858</Matches>
    <PanelSize>10000</PanelSize>
    <Version>4.0</Version>
    <ErrorMessage/>
</ETRLResponse>
```

## 3 URL.

The URL is <https://www.etrl.org/calculator4.0/calculator4.0.asmx>.

## 4 Contact.

For technical questions, feedback or to obtain a valid username / password combination, please contact:

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