

## 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 on the HLA type of a panel of donors. The change to receive an organ and the percentage panel reactivity antibody 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: : 'A1 A3 B15 B62 B63 Bw4 Bw6 Cw3 Cw7 DR6 DR13 DR52 DQ1 DQ5 DQ6'.

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 HLA-A, -B, -C, -DR and DQ antigens as entered in string **sUnacceptables**. The program counts the number of donors who don't have any of the entered unacceptable antigens.

### 2.3 FreqABOidentical, FrequencyABOcompatible, FrequencyABOETcompatible.

This function calculates the chance to receive an organ, taking into account the unacceptable HLA-A, -B, -C, DR and DQ antigens 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.

### 2.4 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 can be provided. Broads and other antigens will be ignored. For all loci two antigens must be filled in. In case of a homozygous antigen, fill in the same antigen twice, for example: 'A1 A1 B8 B8 DR17 DR17' is correct, whereas 'A1 B8 DR17' is not correct. For the blood type, the search will be for donors with a ET compatible blood group.

### 3. Response.

The response is equal for all functions and consists of a frequency, the number of matches, the panel size 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.ORG/">

    <Frequency>29.025</Frequency>
    <Matches>1994</Matches>
    <PanelSize>6870</PanelSize>
    <ErrorMessage/>

</ETRLResponse>
```

### 4. Error handling.

An error notification, can be the report of an error or a warning. In case of an error or warning, no result will be generated.

Error example: 'Patients HLA-A, -B and -DR typing must consist of two antigens. For homozygous antigens please enter the antigen in duplicate.'

### 5. URL.

The URL is <http://www.etrl.org/calculator3.0/calculator3.0.asmx>.

### 6. Contact.

For technical questions or feedback, please contact:

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