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## D2.1 Report on 2019 unrelated stem cell transplants

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**Description:**

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## Abbreviations

- BM = Bone Marrow
- CBU = Cord Blood Unit
- DLI = Donor Lymphocyte Infusion
- HLA = Human Leukocyte Antigen
- HSC = Hematopoietic Stem Cells
- PBSC = Peripheral Blood Stem Cell
- WMDA = World Marrow Donor Association

## Executive Summary

Since 1997, the World Marrow Donor Association (WMDA) sends out an annual questionnaire to analyse the global trends in unrelated stem cell and cord blood donation. Approximately 98% of all registries and cord blood bank worldwide participate in this prestigious project. Since 2017, WMDA's Search & Match statistics are also included into the WMDA Global Trends Report.

This WMDA Annual Report describes the 2019 import and export data, trends and insight of unrelated blood stem cell products between the different European Union (EU) member states and third countries. In 2019, more than 1.6 million volunteer individuals were recruited, and HLA typed into unrelated stem cell donor registries within the EU member states. This is a growth of over 10% compared to 2018. In 2019, 5.683 cord blood units were added to the inventory, continuing the healthy growth of the total number of available stem cell donors within the EU member states to 15.9 million available stem cell donors and almost 39 million donors worldwide.

In 2019, the EU Member States provided over 8.835 stem cell products were exchanged with other EU Member States. Furthermore, globally the European Member States exchanged 5.068 stem cell products, making the EU Member States the largest international provider of stem cell products.

This Deliverable D2.1 Report on unrelated stem cell donations part of the 2020 work programme of the World Marrow Donor Association for the EU Third Health Programme (2014-2020). It is based on the data of the Global Trends Report 2019 and focusses mainly on the export to and the import from EU Member States. It includes current volumes, patterns and trends as well as information relating to quality and safety regulations and related operational processes. This report will be used to baseline and track improvements and provide a resource to support EU member registries to implement good and best import/export practices that serve to improve efficiency and quality.

The complete WMDA Global Trends Report 2019 is freely accessible for WMDA members and available on request for people interested in the data.

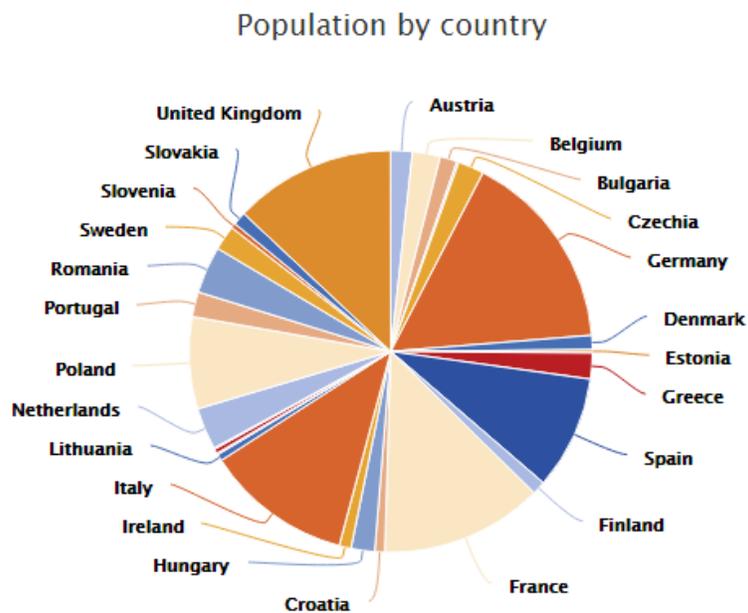
## Introduction

The WMDA is an international collaborative effort of organisations and individuals involved in hematopoietic stem cell donation and transplantation. WMDA’s mission is to promote global collaboration and the sharing of best practices between its members for the benefit of stem cell donors and patients. One of the annual projects of the WMDA is to collect the number of unrelated stem cell products provided by the unrelated stem cell donor registries and cord blood banks (CBB) worldwide. The WMDA office has been collecting these data since 1997 and is proud to distribute the 23rd edition of the WMDA Global trends report in 2019. A total of 106 organisations from 59 different countries providing hematopoietic stem cell products participated in the annual report 2019. Stem Cell Donor and Cord Blood organisations have voluntarily contributed data on the understanding that publications may result. Each organisation is free to use the data for its own internal use, but any use of the data for publication must receive prior approval of the WMDA Board or its designee.

### EU

In 2019 the EU covered over 4 million km<sup>2</sup> and had 513.5 million inhabitants - the world’s third largest population after China and India. By surface area, France is the biggest EU country and Malta the smallest. Germany, France and United Kingdom hold the biggest populations (Figure 1).

Figure 1, Population per EU member state



\*[https://europa.eu/european-union/about-eu/figures/living\\_en](https://europa.eu/european-union/about-eu/figures/living_en)

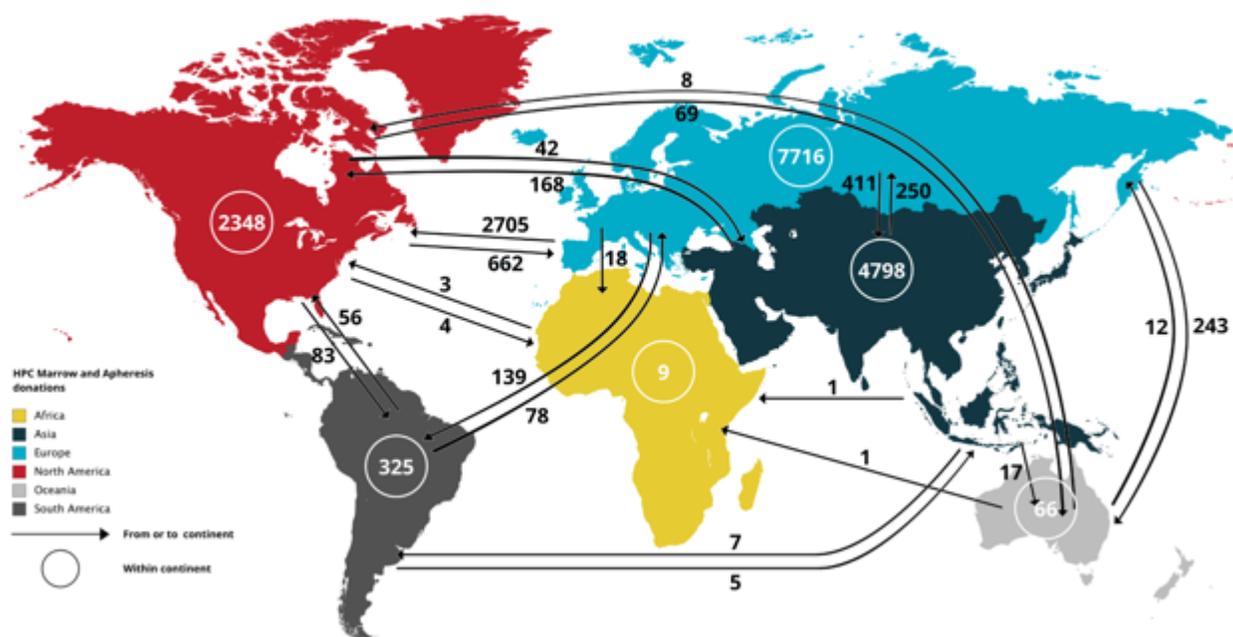
### Global Network

The WMDA connects almost 39 million donors and volunteers worldwide and helps tens of thousands of patients to receive blood stem cells from healthy donors every year. As the WMDA’s centralised global database keeps growing, more patients in need of blood stem cells can be helped through the WMDA’s search and match portal.

### Import / export

This report aims to give a better insight on the importance of both the global exchange and European exchange of stem cell products. Due to increasing globalisation, changing communities and populations, it is of great importance that there is a global network, like the WMDA’s network, to make it possible to search for stem cell donor matches beyond country borders. Figure 2 shows the global exchange of HPC Marrow and Apheresis products. As much as 51% of all donations are shipped internationally. However, despite these high exchange numbers, still 30% of all patients globally are unable to find their donor match, which is why the WMDA keeps on working and innovating to make sure every patient can find their match in the near future. The dominant position of Europe is remarkable, with an impressive internal market.

Figure 2, Global exchange of HPC Marrow + Apheresis\*



\*Global Trends Report 2019

### EU Development

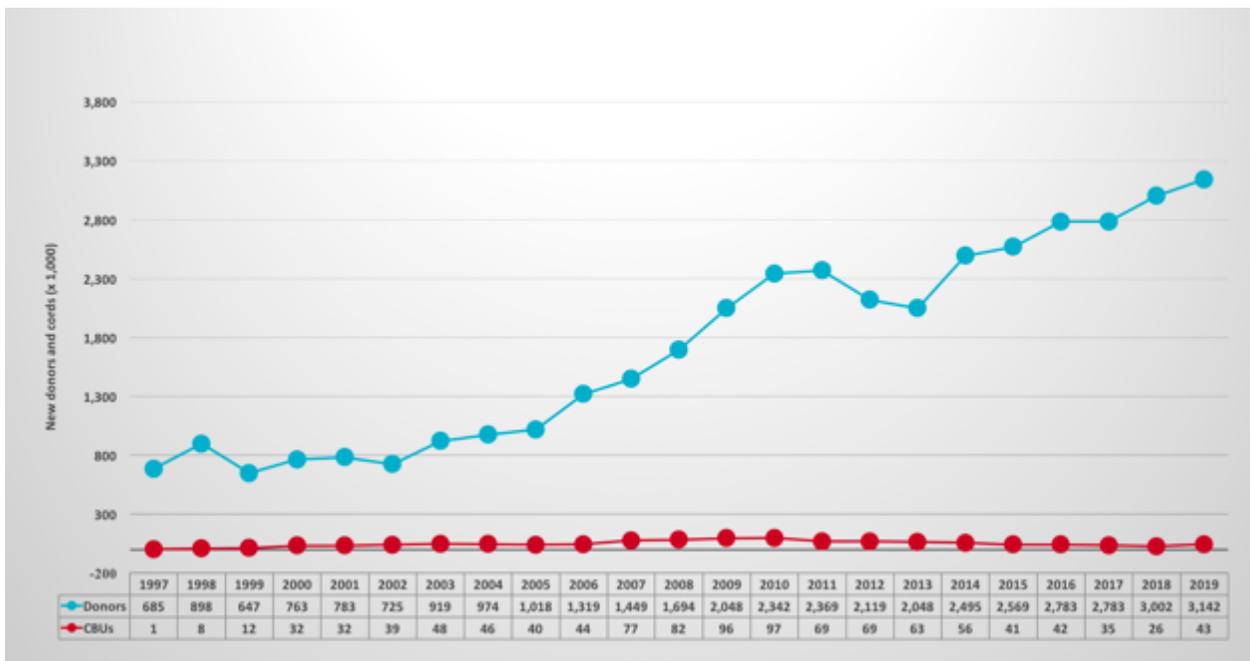
A trend throughout most of the EU is that more donors were added to the database compared to 2018, with some EU member states almost doubling their donor rate. This is a sign that there is an increased awareness for becoming a stem cell donor throughout all EU member states. Furthermore, we noticed increased shipments between EU countries.

Global Trends Report

The Global Trends Report 2019 provides a summary on all stem cell donor activity worldwide. It gives an insight in which countries are the biggest importers and exporters, which countries have the most donors, and where the highest increase in donors was.

Figure 3 shows the increase of new donors globally. Over the past 7 years, the new donor rate showed a steady annual increase of over 10%. This is a sign that there’s still an increasing awareness for blood stem cell donations.

Figure 3, Global Trends Report Highlight: yearly increase in new donors globally\*

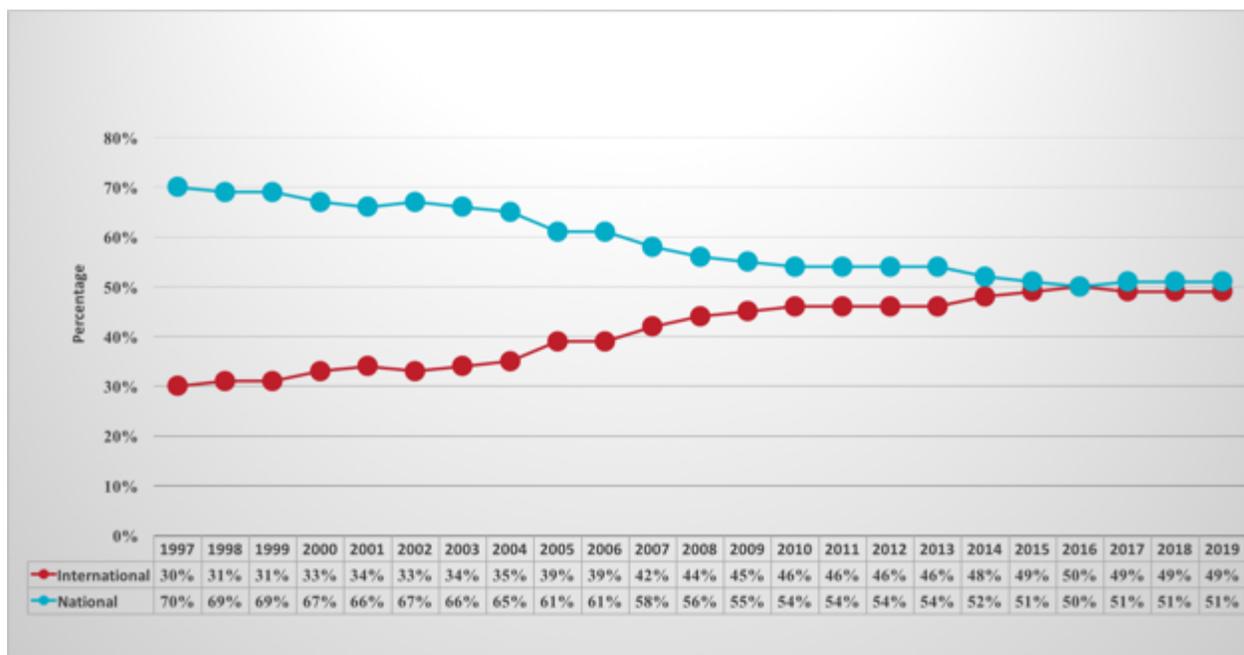


\* Global Trends Report 2019

The constantly increasing rate of globalisation causes an extreme diversification of ethnical groups globally. The global citizen might have a mixed ethnic background or having its roots in another part of the world. Therefore, WMDA observes a trend in the growth of the international shipments over the last two decades, making that the international shipments are now on par with the national shipments, as is visible in figure 4. A big contribution to this increase in international shipments is the concept of free movement between European countries, and the good services provided by some of the European organisations.

The Global Trends Report is accessible for WMDA members on WMDA Share and for external interested people on request. Please contact mail@wmda.info to request a copy of the Global Trends Report.

Figure 4, National vs international shipments\*



\*Global Trends Report 2019

### Questionnaire

In the attachment the WMDA Questionnaire is shown with the questions regarding adult donor and CBU numbers and import and export data that were answered by the different registries worldwide.

Data from Latvia, Estonia and Malta is missing since these countries do not have a donor registry or a cord blood bank. Estonia has a collaboration with Finland to find their donor matches, so they only import stem cell sources from other countries.

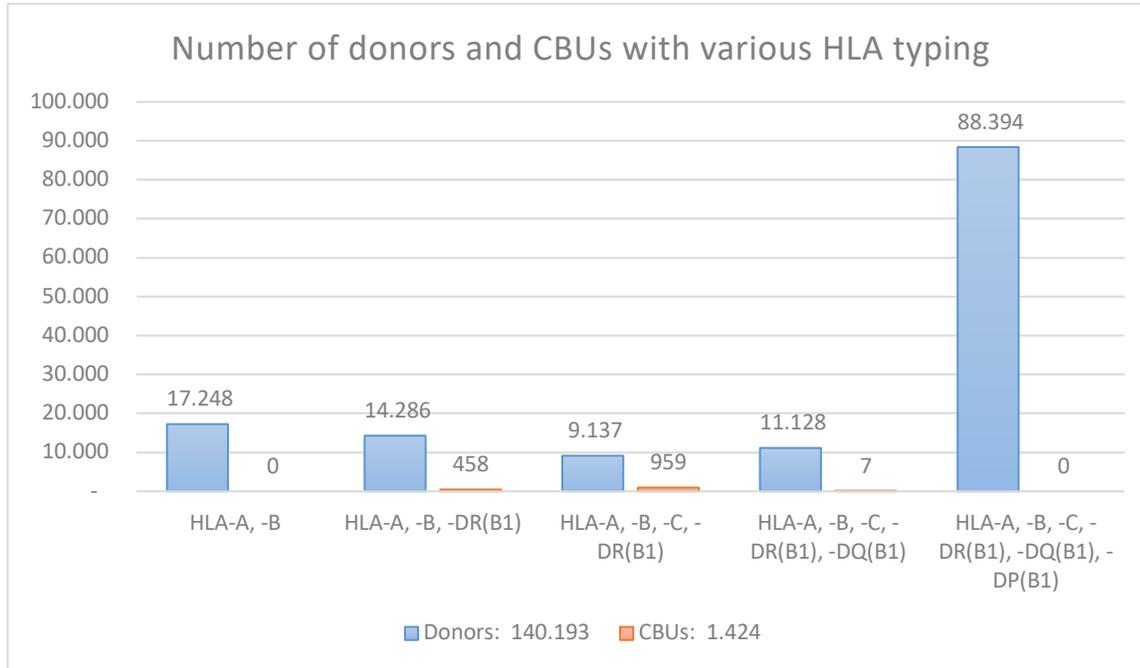
Lithuania, Luxembourg, Portugal, Romania, Bulgaria, Denmark, Hungary and Ireland do not have a cord blood bank, so they only import cord blood products from other countries. Germany is the largest supplier of all stem cell products.

The following pages show the report per individual EU member state including the import and export data of the different stem cell products.

Austria | 8.859 million inhabitants

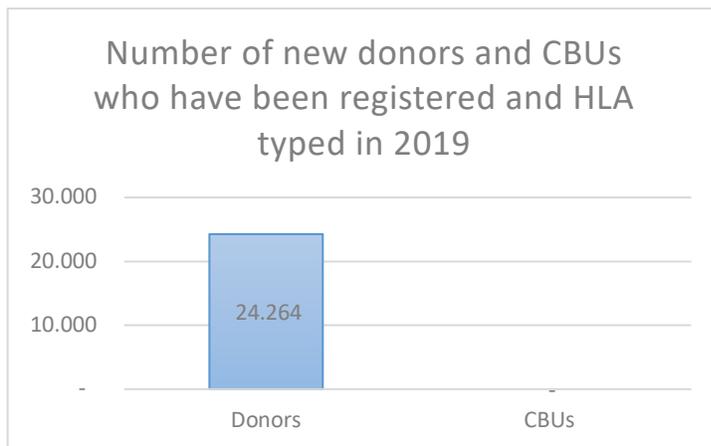
Number of registered and typed donors/CBUs on 31 December 2019

**181.361**



Adult volunteer donors/CBUs added to the database during 2019:

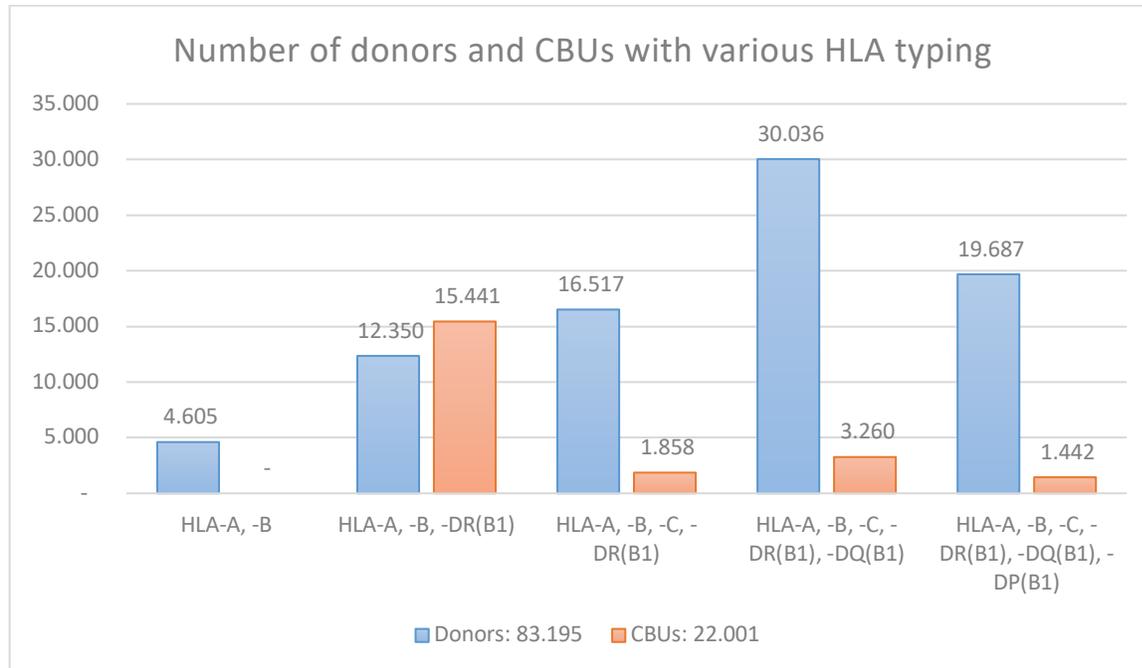
**13.220**



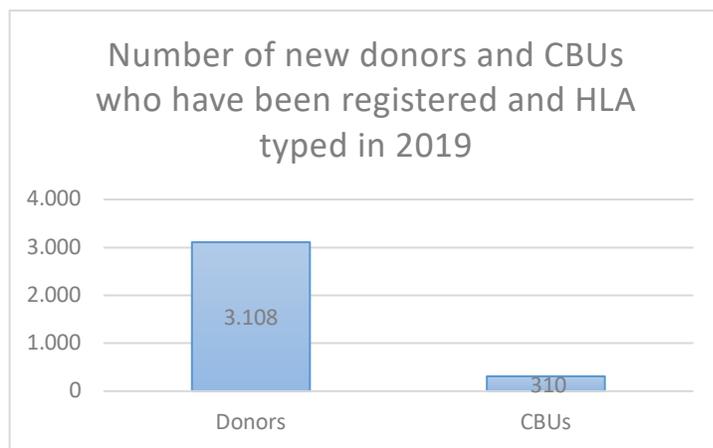
	BM	PBSC	CBU	DLI
National	2	5	0	1
Export to EU member states	8	43	0	5
Export to third countries	6	19	0	4
Import from EU member states	15	89	2	12
Import from third countries	1	11	2	1

Belgium | 11.46 million inhabitants

Number of registered and typed donors/CBUs on 31 December 2019: **105.196**



Adult volunteer donors/CBUs added to the database during 2019: **3.418**

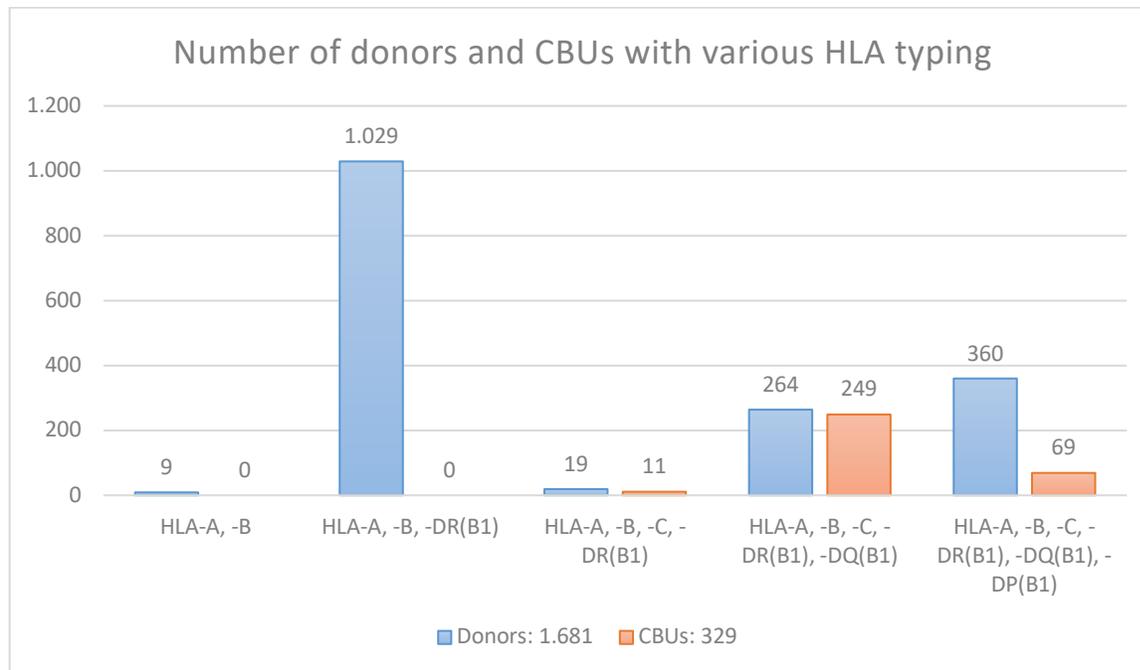


	BM	PBSC	CBU	DLI
National	1	7	0	0
Export to EU member states	2	9	7	2
Export to third countries	1	7	4	0
Import from EU member states	19	194	1	26
Import from third countries	4	33	1	5

# Bulgaria | 7.000 million inhabitants

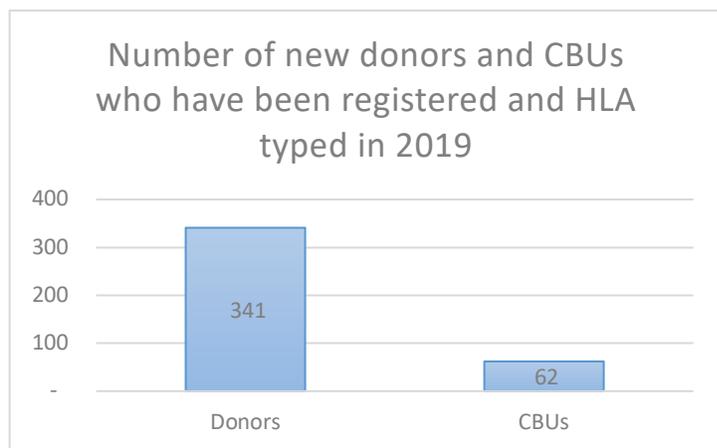
Number of registered and typed donors/CBUs on 31 December 2019

**2.010**



Adult volunteer donors/CBUs added to the database during 2019:

**403**

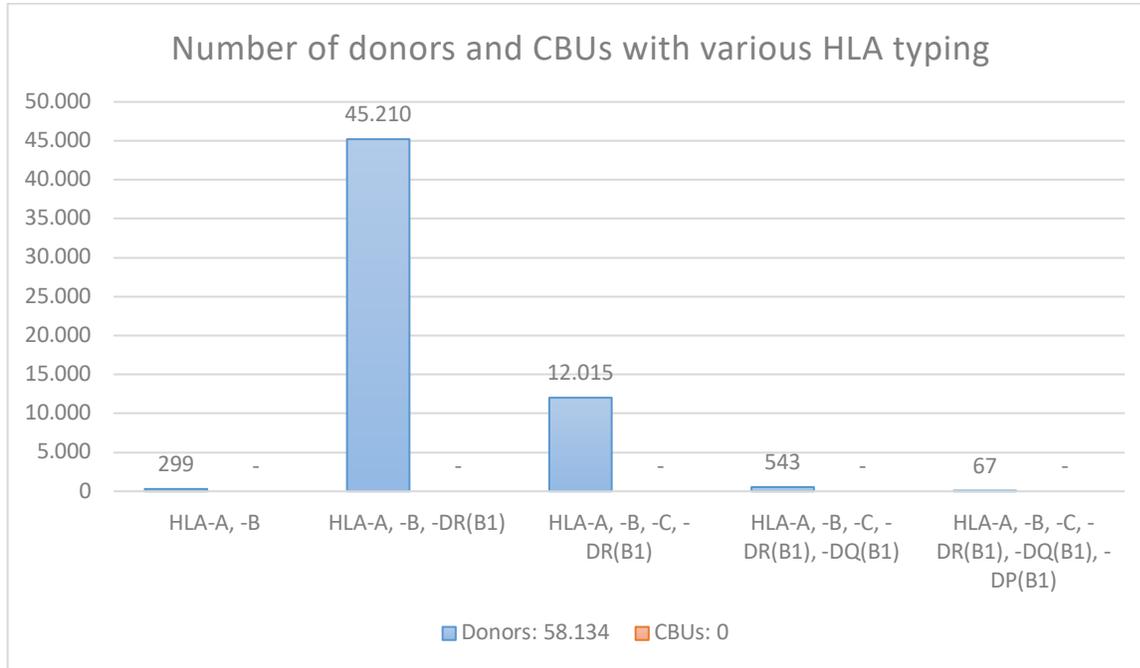


	BM	PBSC	CBU	DLI
<b>National</b>	0	0	0	0
<b>Export to EU member states</b>	0	0	0	0
<b>Export to third countries</b>	0	0	0	0
<b>Import from EU member states</b>	2	33	0	3
<b>Import from third countries</b>	0	1	0	0

Croatia | 4.076 million inhabitants

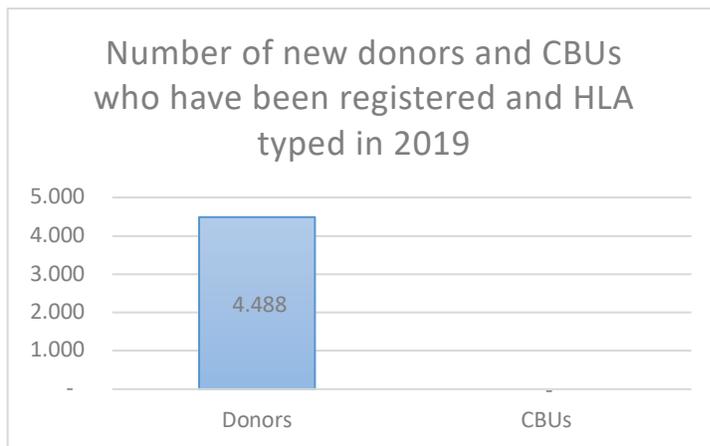
Number of registered and typed donors/CBUs on 31 December 2019

**58.134**



Adult volunteer donors/CBUs added to the database during 2019:

**4.488**

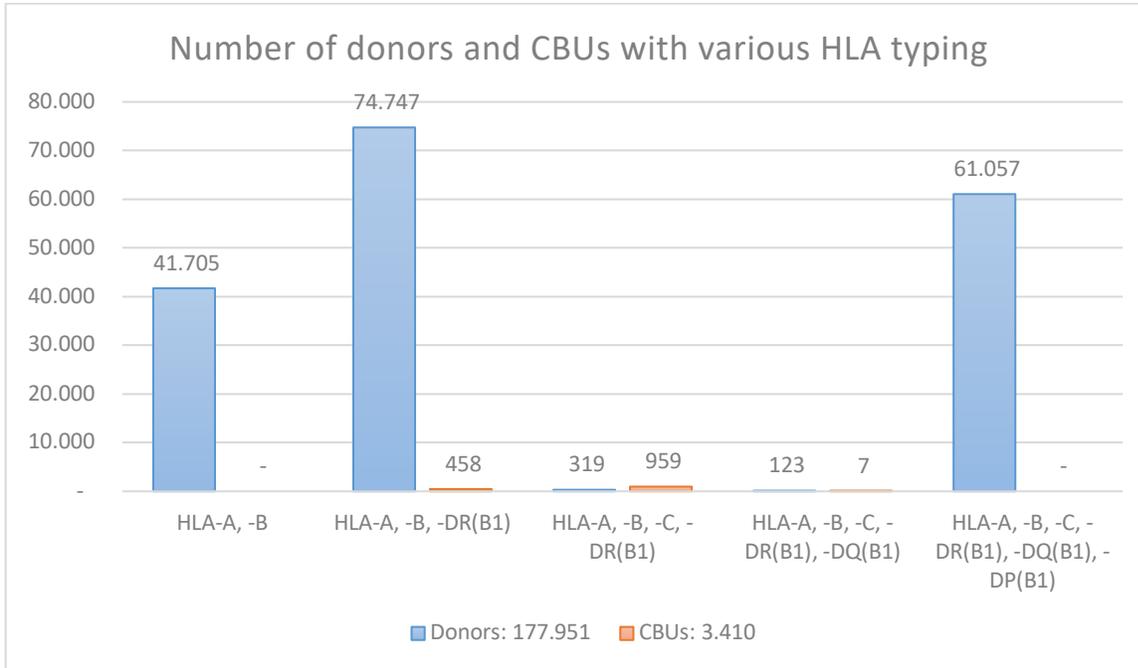


	BM	PBSC	CBU	DLI
<b>National</b>	4	8	0	0
<b>Export to EU member states</b>	1	5	0	0
<b>Export to third countries</b>	0	0	0	0
<b>Import from EU member states</b>	11	32	0	1
<b>Import from third countries</b>	1	2	0	0

Cyprus | 1.207 million inhabitants

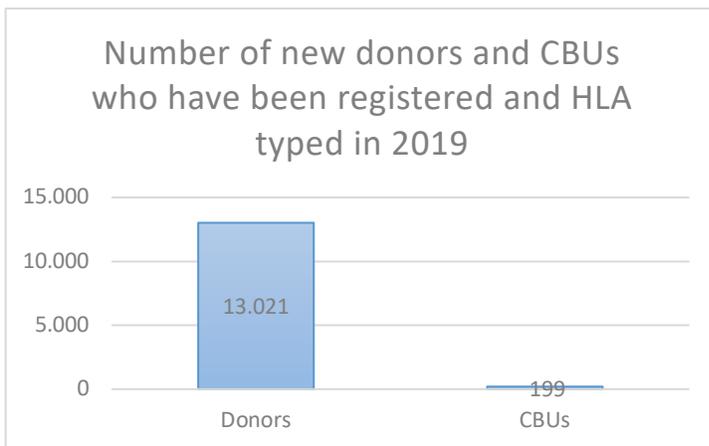
Number of registered and typed donors/CBUs on 31 December 2019

**181.361**



Adult volunteer donors/CBUs added to the database during 2019:

**12.439**

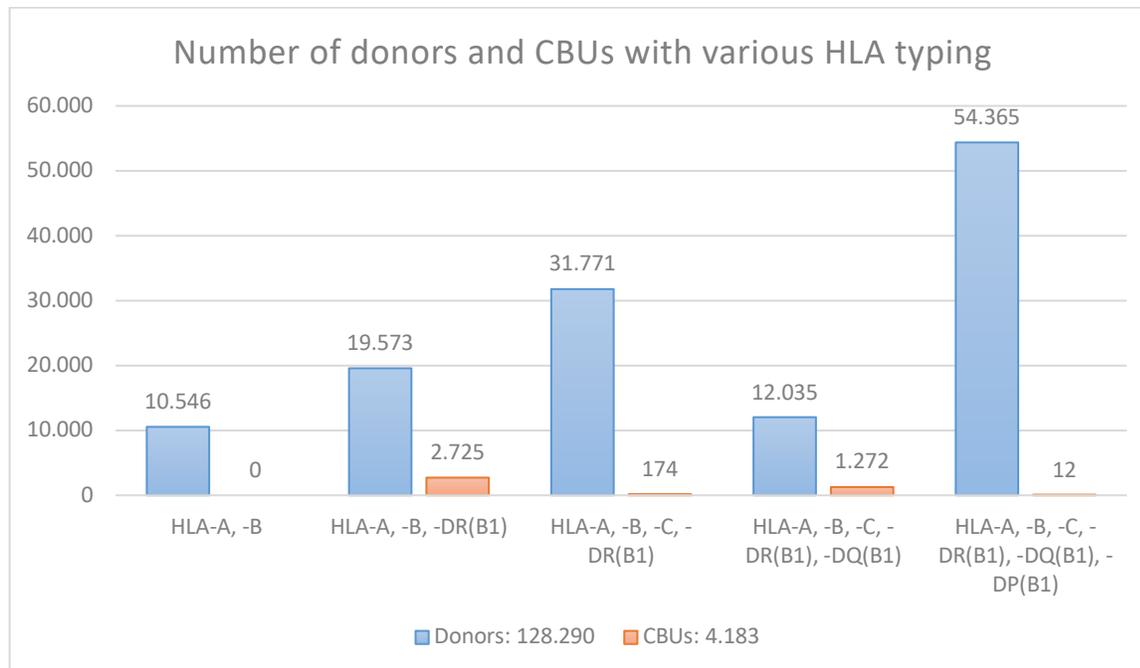


	BM	PBSC	CBU	DLI
National	3	5	0	1
Export to EU member states	4	28	1	4
Export to third countries	2	14	0	1
Import from EU member states	0	0	0	0
Import from third countries	0	0	0	0

Czechia | 10.690 million inhabitants

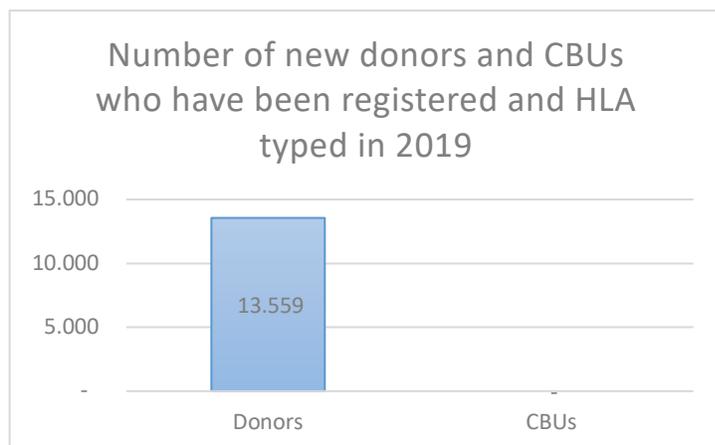
Number of registered and typed donors/CBUs on 31 December 2019

**132.473**



Adult volunteer donors/CBUs added to the database during 2019:

**13.559**

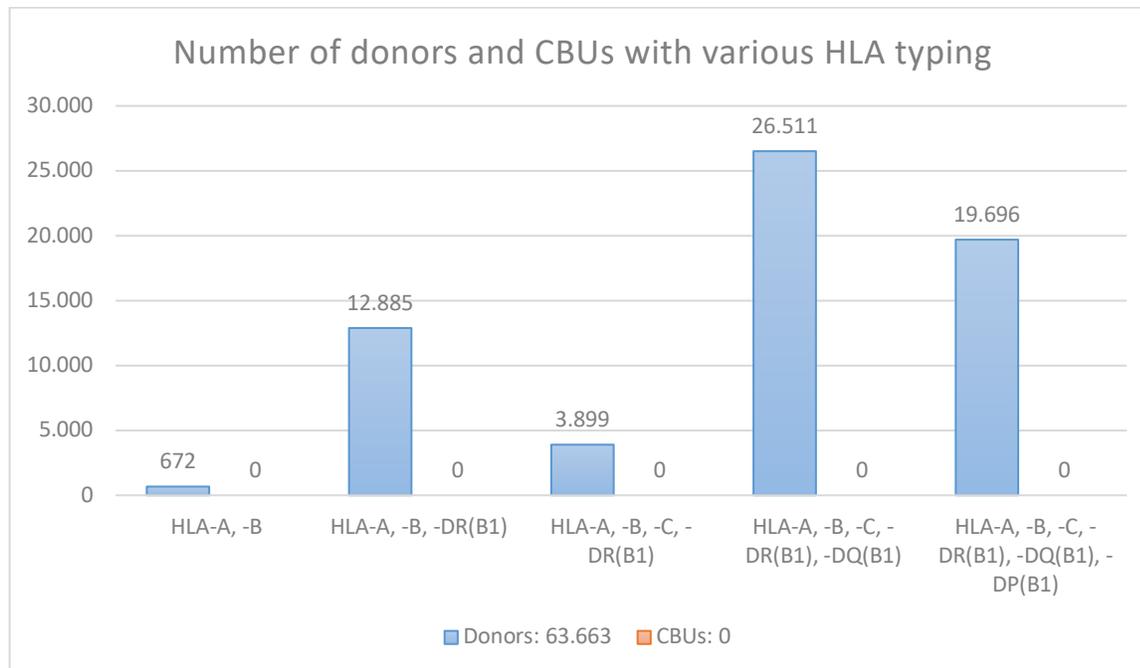


	BM	PBSC	CBU	DLI
National	4	25	0	1
Export to EU member states	5	15	0	1
Export to third countries	3	12	0	1
Import from EU member states	3	127	0	8
Import from third countries	0	17	0	0

# Denmark | 5.806 million inhabitants

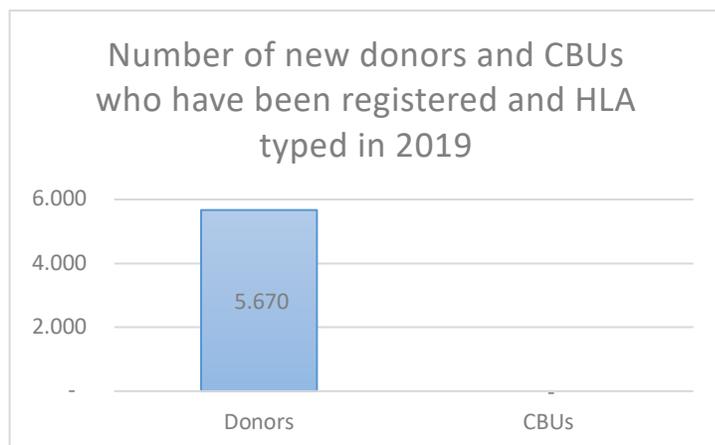
Number of registered and typed donors/CBUs on 31 December 2019

**63.663**



Adult volunteer donors/CBUs added to the database during 2019:

**5.670**

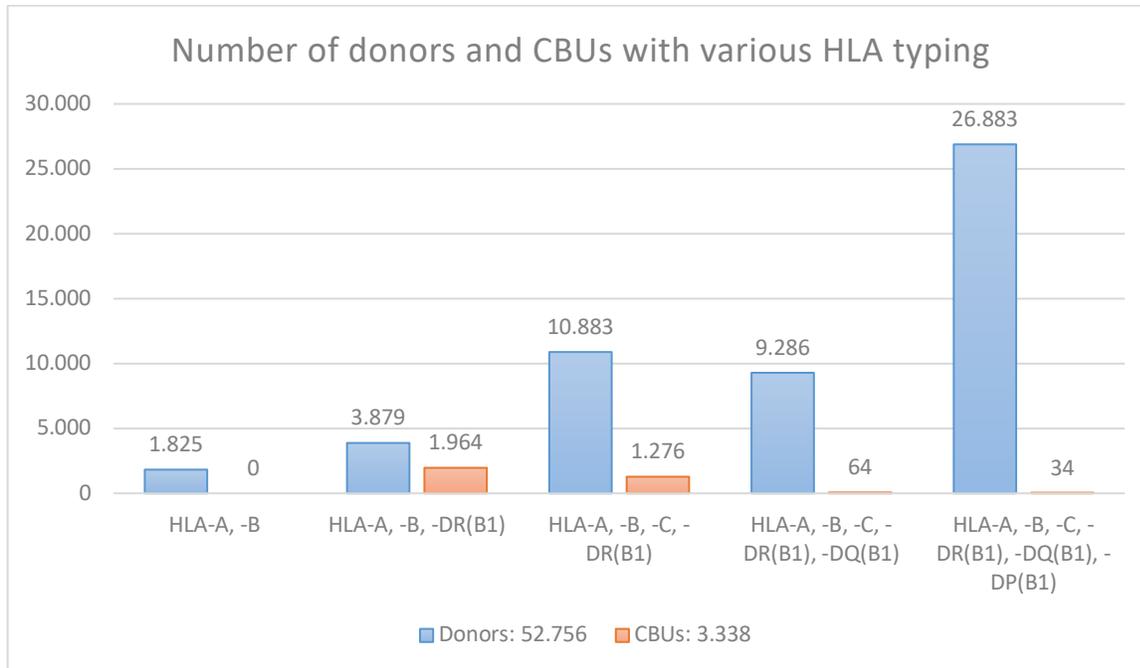


	BM	PBSC	CBU	DLI
National	1	3	0	0
Export to EU member states	3	8	0	2
Export to third countries	0	5	0	0
Import from EU member states	12	36	0	6
Import from third countries	2	8	0	0

Finland | 5.518 million inhabitants

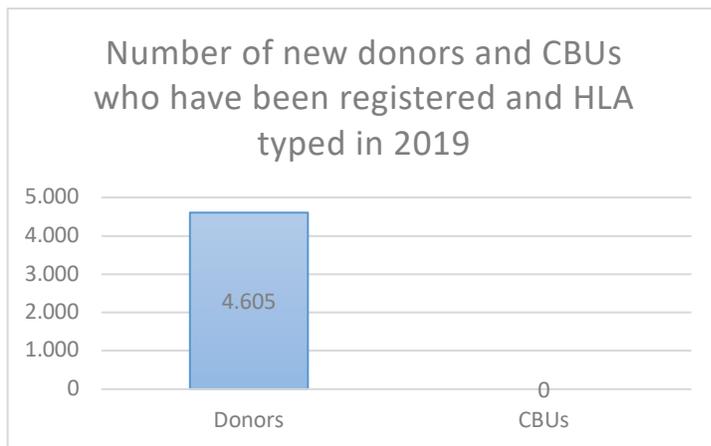
Number of registered and typed donors/CBUs on 31 December 2019

**56.094**



Adult volunteer donors/CBUs added to the database during 2019:

**4.605**

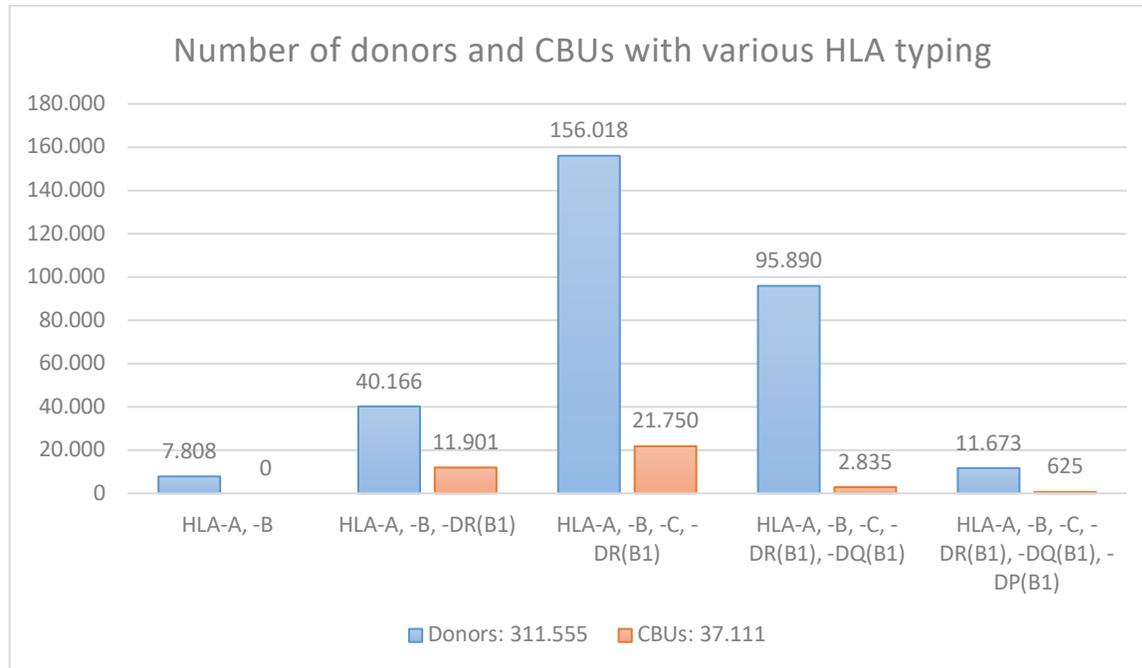


	BM	PBSC	CBU	DLI
<b>National</b>	0	21	0	1
<b>Export to EU member states</b>	3	10	0	0
<b>Export to third countries</b>	0	2	0	0
<b>Import from EU member states</b>	7	53	1	8
<b>Import from third countries</b>	1	5	0	0

France | 66.990 million inhabitants

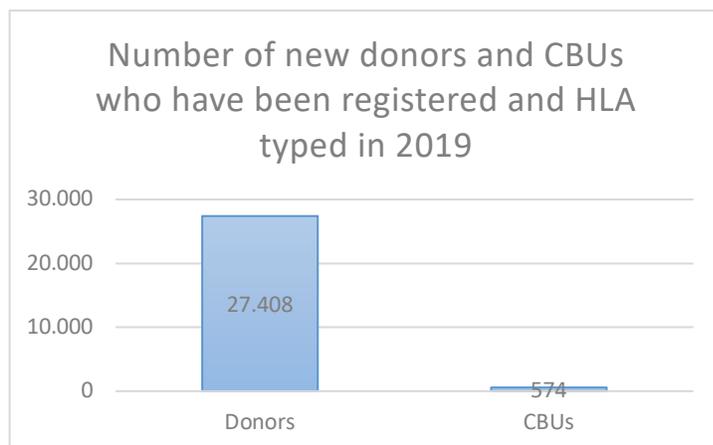
Number of registered and typed donors/CBUs on 31 December 2019

**348.666**



Adult volunteer donors/CBUs added to the database during 2019:

**27.982**

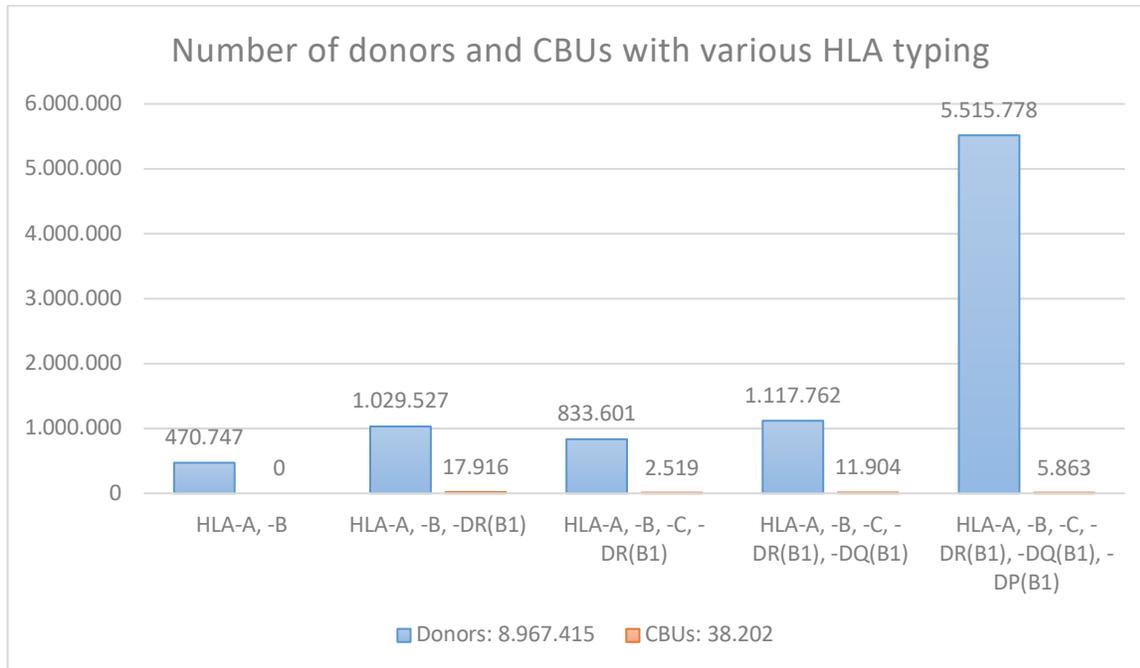


	BM	PBSC	CBU	DLI
<b>National</b>	11	63	32	15
<b>Export to EU member states</b>	13	33	29	8
<b>Export to third countries</b>	9	17	44	1
<b>Import from EU member states</b>	132	571	29	90
<b>Import from third countries</b>	35	118	29	14

Germany | 83.020 million inhabitants

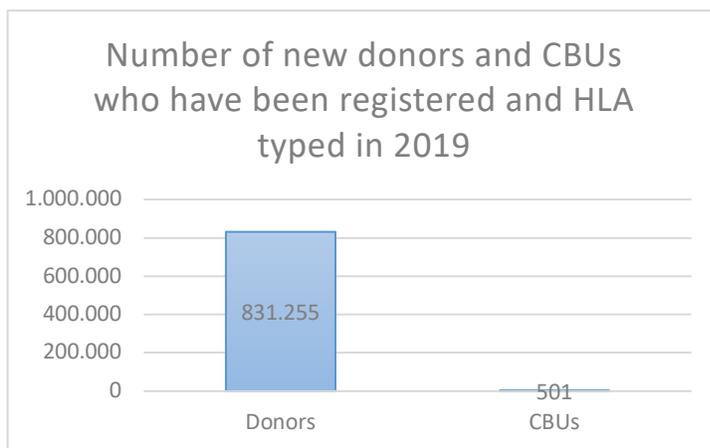
Number of registered and typed donors/CBUs on 31 December 2019

**9.005.617**



Adult volunteer donors/CBUs added to the database during 2019:

**831.756**

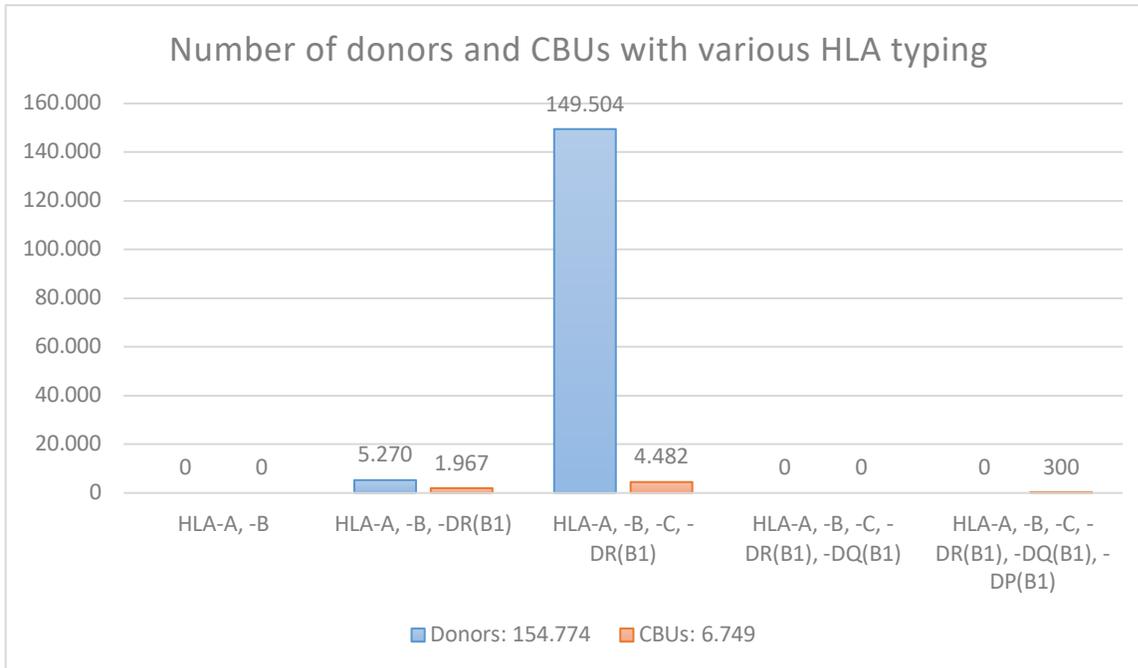


	BM	PBSC	CBU	DLI
<b>National</b>	217	1.736	0	321
<b>Export to EU member states</b>	351	2.116	16	143
<b>Export to third countries</b>	578	2.162	25	116
<b>Import from EU member states</b>	31	227	2	69
<b>Import from third countries</b>	31	202	3	26

Greece | 10.720 million inhabitants

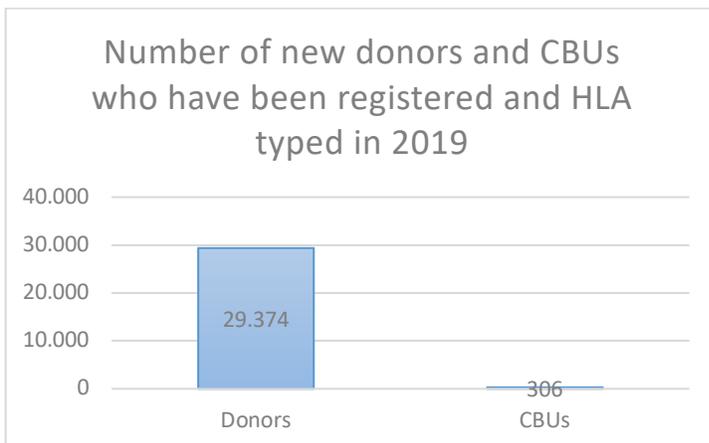
Number of registered and typed donors/CBUs on 31 December 2019

**161.523**



Adult volunteer donors/CBUs added to the database during 2019:

**29.680**

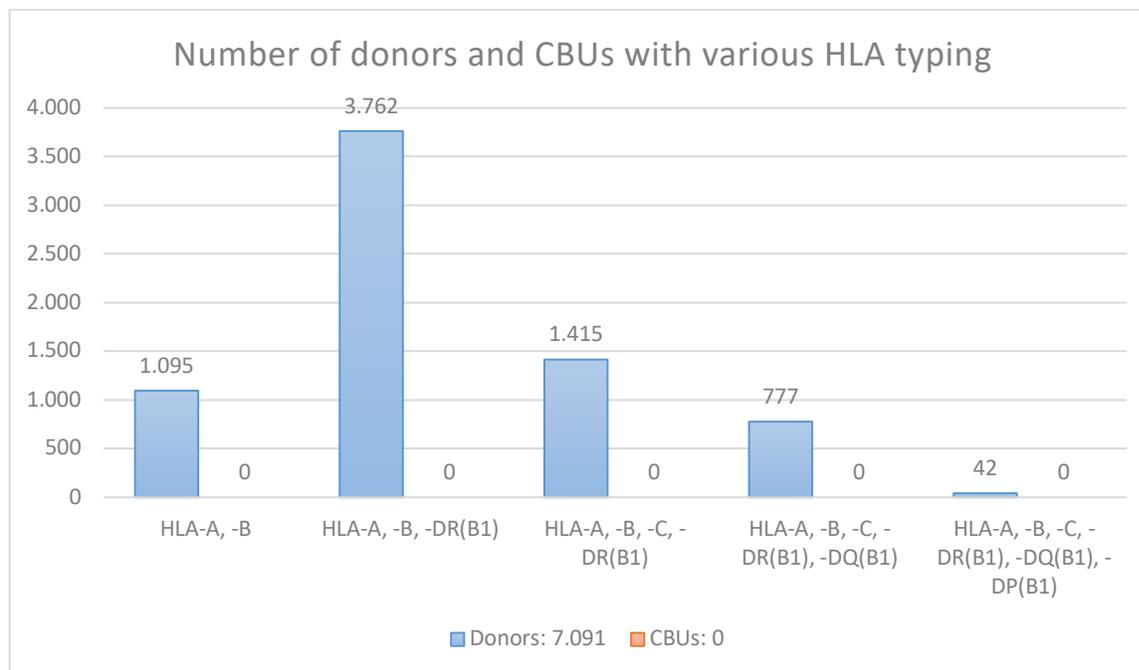


	BM	PBSC	CBU	DLI
<b>National</b>	6	19	0	0
<b>Export to EU member states</b>	2	15	0	4
<b>Export to third countries</b>	2	13	0	1
<b>Import from EU member states</b>	15	54	0	4
<b>Import from third countries</b>	0	26	0	1

# Hungary | 9.773 million inhabitants

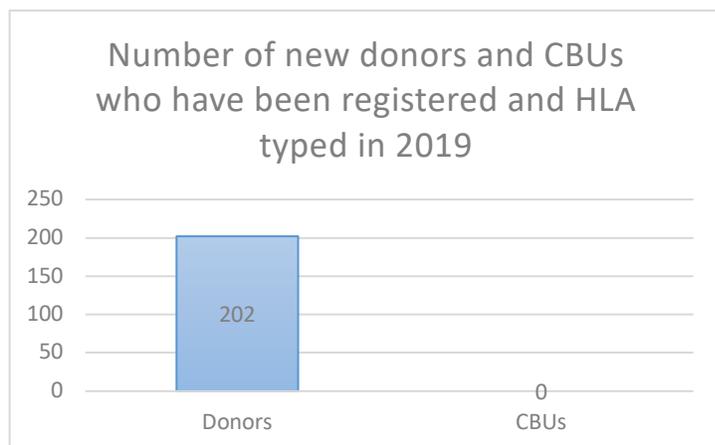
Number of registered and typed donors/CBUs on 31 December 2019

**7.091**



Adult volunteer donors/CBUs added to the database during 2019:

**202**

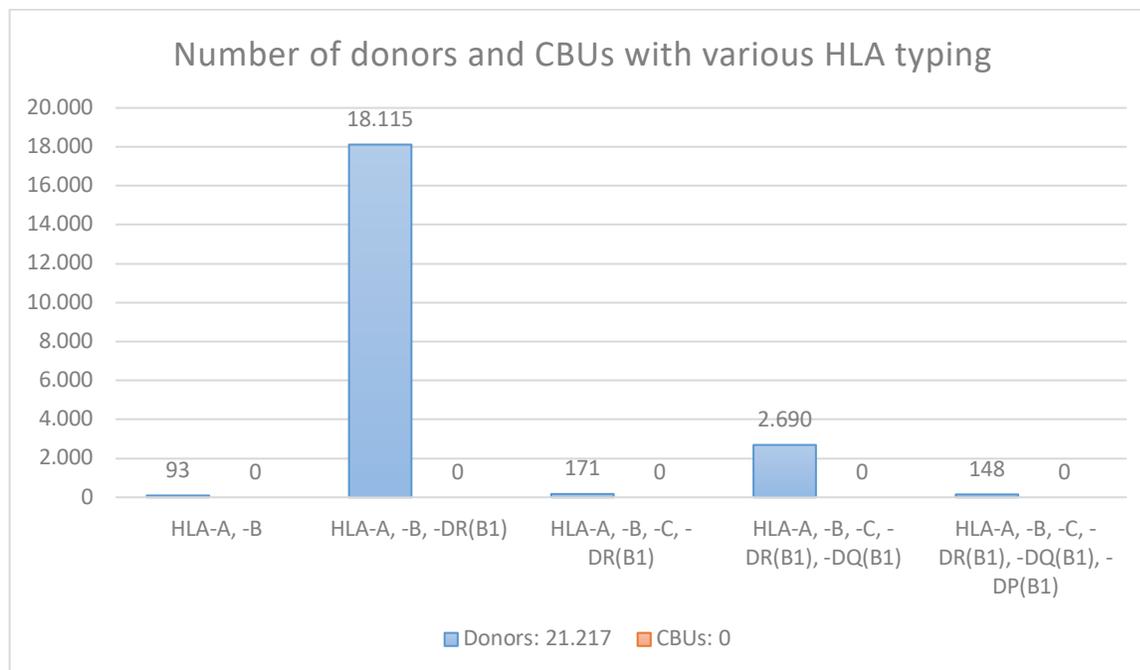


	BM	PBSC	CBU	DLI
<b>National</b>	0	0	0	0
<b>Export to EU member states</b>	0	2	0	0
<b>Export to third countries</b>	0	0	0	0
<b>Import from EU member states</b>	6	46	0	4
<b>Import from third countries</b>	0	2	0	0

Ireland | 4.904 million inhabitants

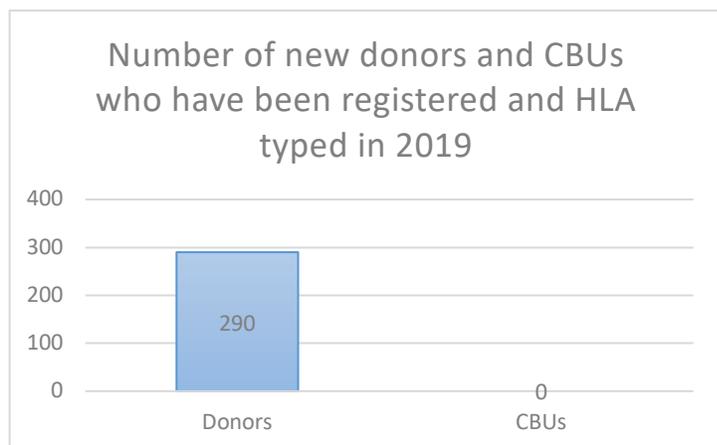
Number of registered and typed donors/CBUs on 31 December 2019

**21.217**



Adult volunteer donors/CBUs added to the database during 2019:

**290**

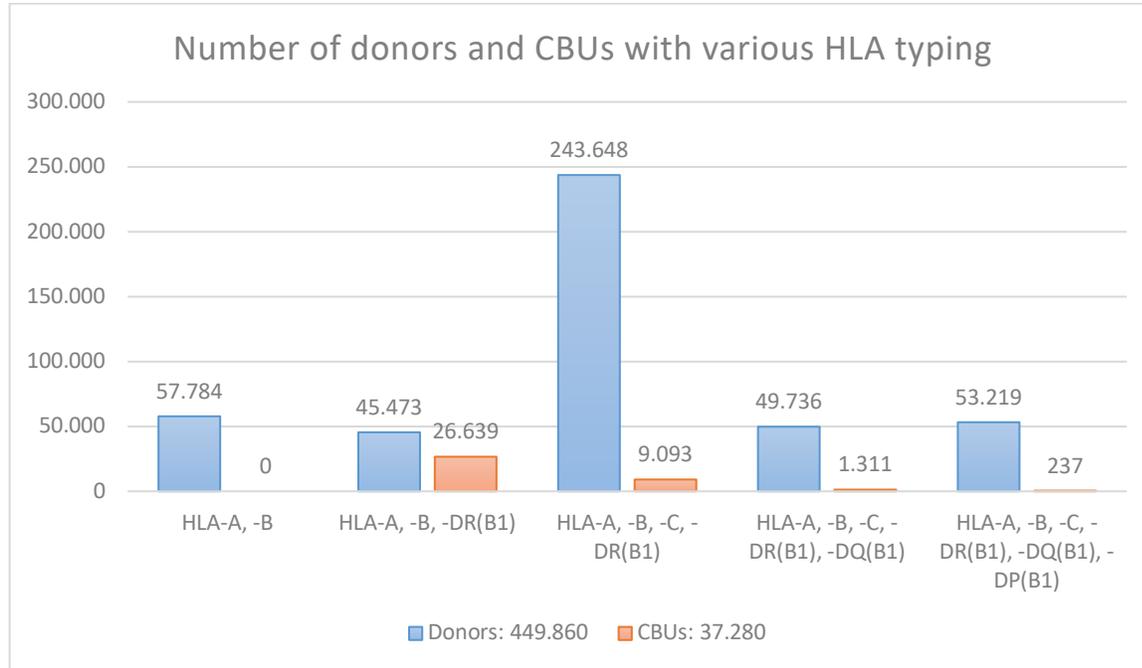


	BM	PBSC	CBU	DLI
<b>National</b>	3	1	0	0
<b>Export to EU member states</b>	0	1	0	0
<b>Export to third countries</b>	0	1	0	0
<b>Import from EU member states</b>	16	29	0	2
<b>Import from third countries</b>	2	3	0	0

Italy | 60.360 million inhabitants

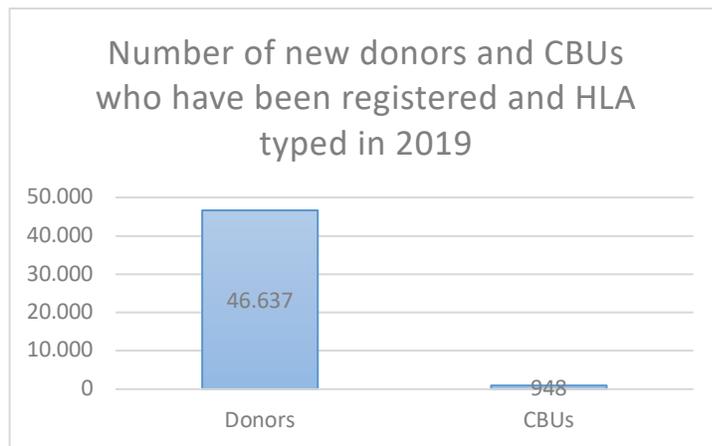
Number of registered and typed donors/CBUs on 31 December 2019

**487.140**



Adult volunteer donors/CBUs added to the database during 2019:

**47.585**

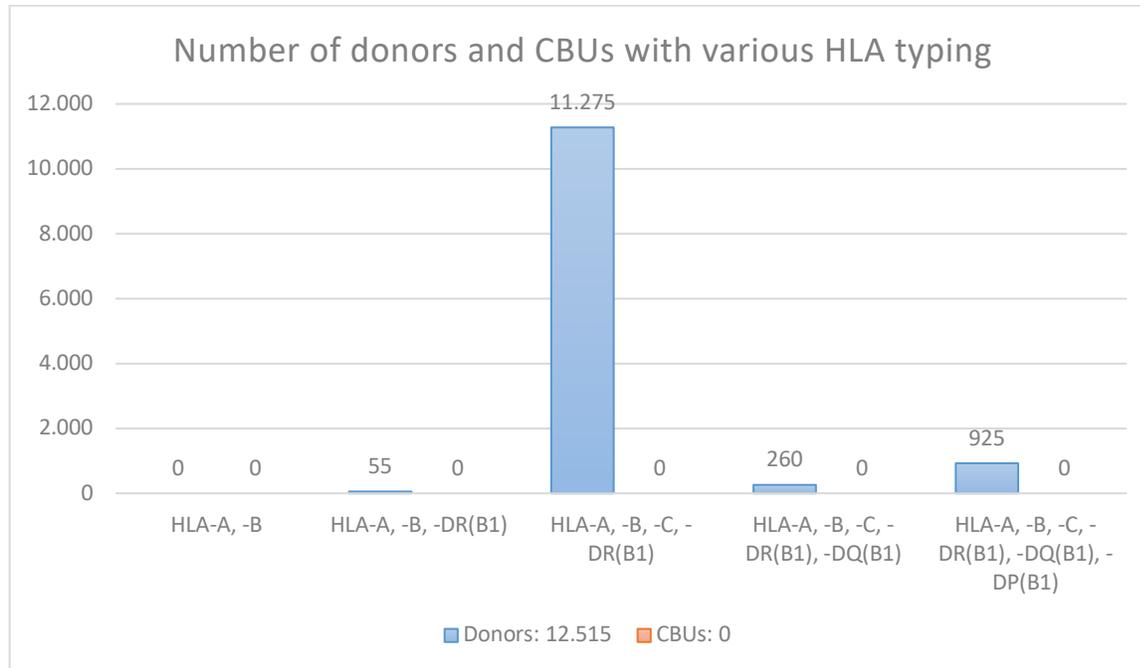


	BM	PBSC	CBU	DLI
<b>National</b>	37	155	5	13
<b>Export to EU member states</b>	11	44	19	4
<b>Export to third countries</b>	11	31	14	1
<b>Import from EU member states</b>	96	347	9	36
<b>Import from third countries</b>	33	171	10	13

Lithuania | 2.794 million inhabitants

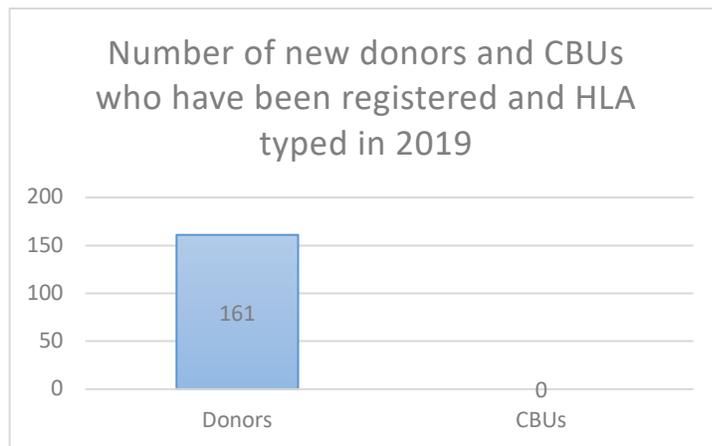
Number of registered and typed donors/CBUs on 31 December 2019

**12.515**



Adult volunteer donors/CBUs added to the database during 2019:

**161**

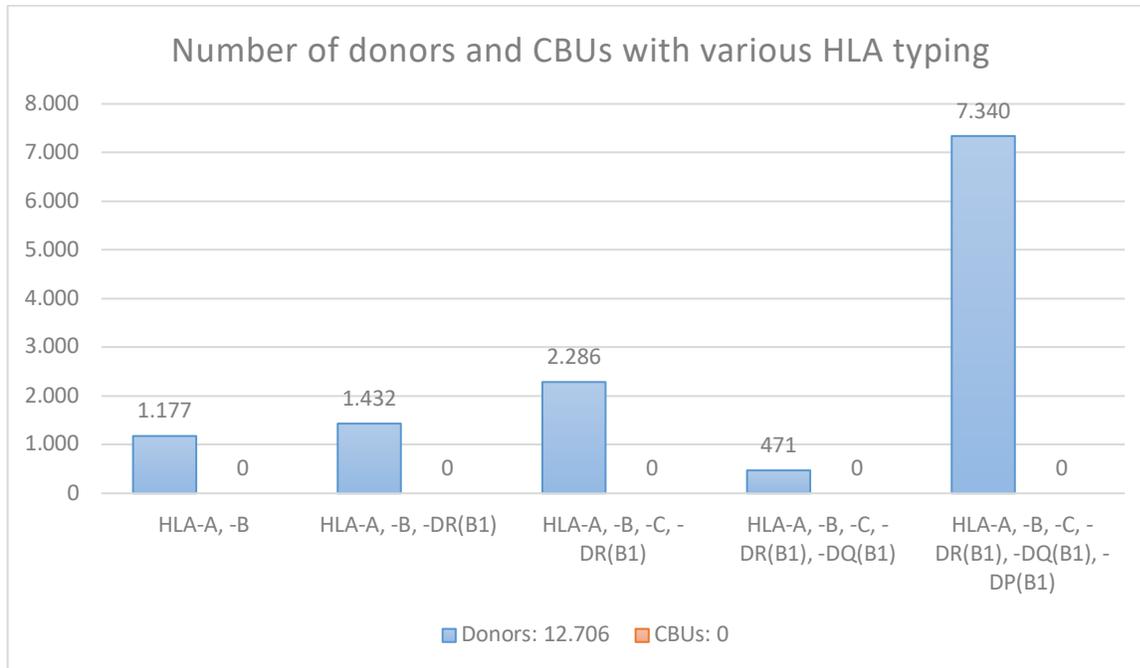


	BM	PBSC	CBU	DLI
<b>National</b>	2	10	0	2
<b>Export to EU member states</b>	0	1	0	0
<b>Export to third countries</b>	0	0	0	0
<b>Import from EU member states</b>	6	42	0	0
<b>Import from third countries</b>	0	2	0	0

Luxembourg | 613,894 inhabitants

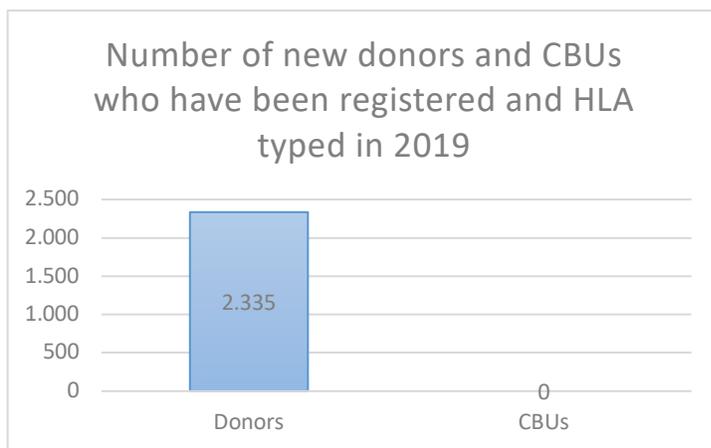
Number of registered and typed donors/CBUs on 31 December 2019

**12.706**



Adult volunteer donors/CBUs added to the database during 2019:

**2.335**

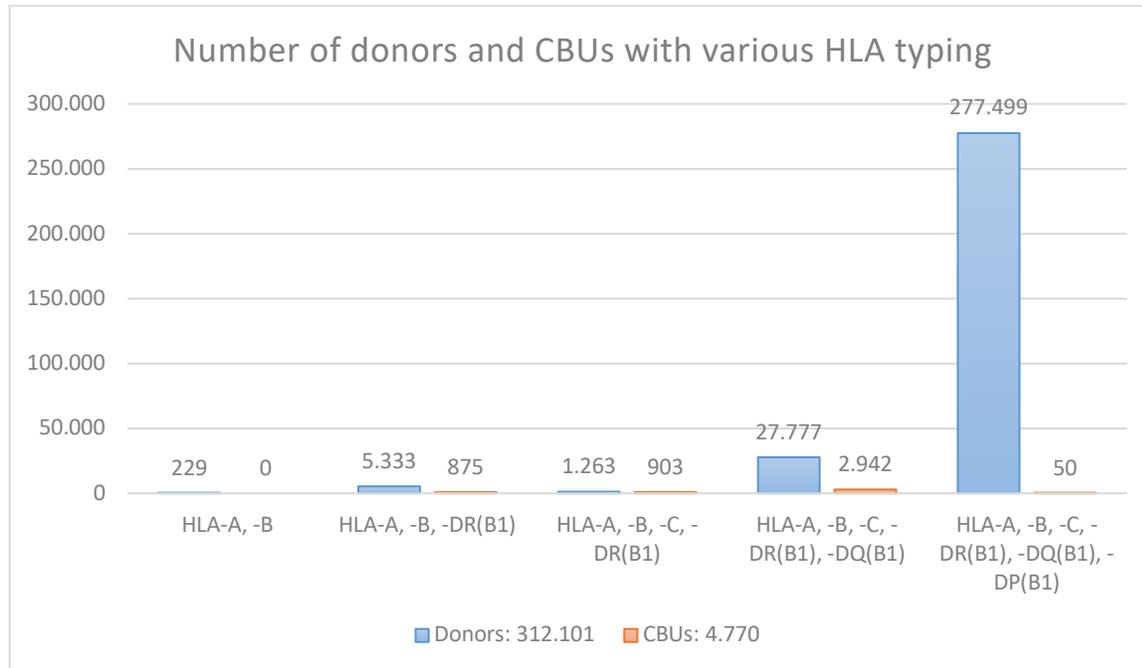


	BM	PBSC	CBU	DLI
<b>National</b>	0	0	0	0
<b>Export to EU member states</b>	1	1	0	0
<b>Export to third countries</b>	2	3	0	0
<b>Import from EU member states</b>	0	0	0	0
<b>Import from third countries</b>	0	0	0	0

# Netherlands | 17.280 million inhabitants

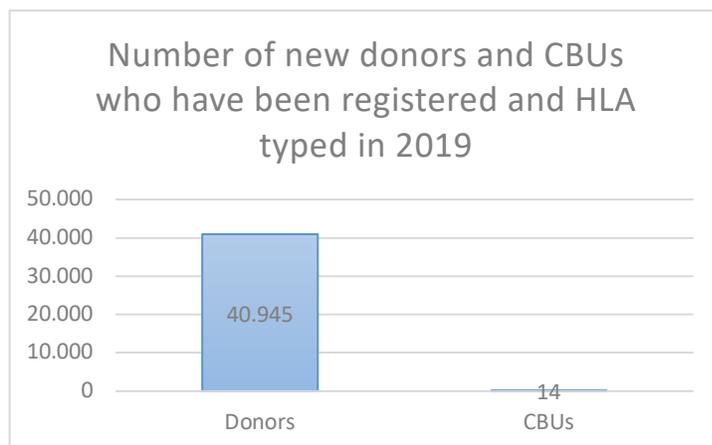
Number of registered and typed donors/CBUs on 31 December 2019

**316.871**



Adult volunteer donors/CBUs added to the database during 2019:

**40.959**

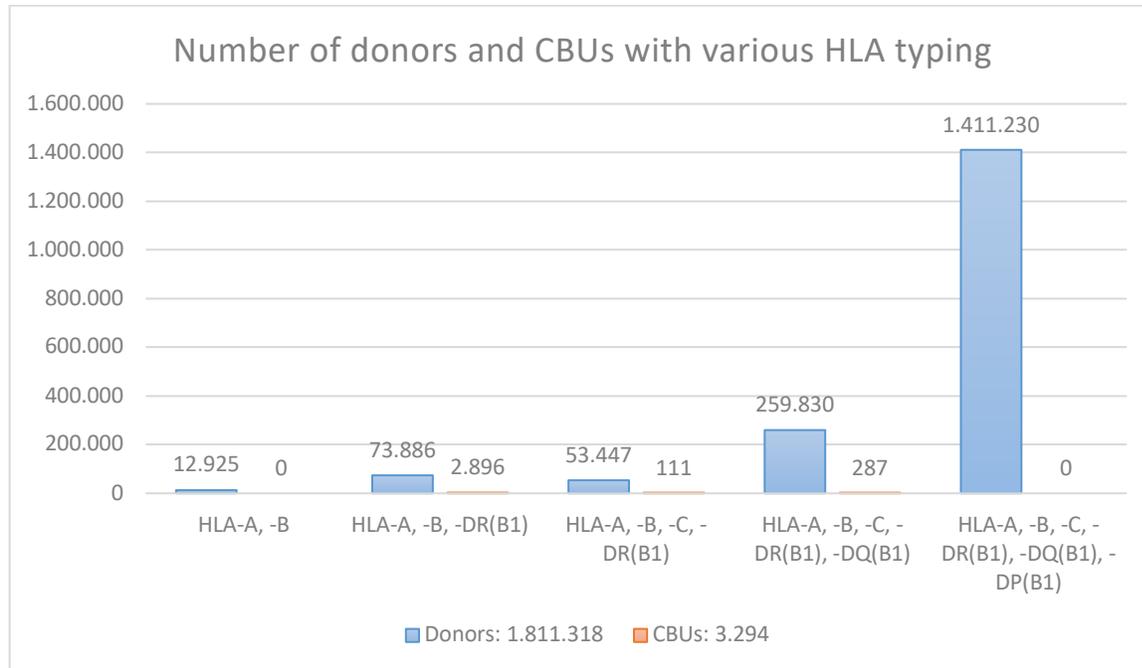


	BM	PBSC	CBU	DLI
<b>National</b>	4	26	2	10
<b>Export to EU member states</b>	18	82	0	4
<b>Export to third countries</b>	14	66	1	3
<b>Import from EU member states</b>	32	287	54	50
<b>Import from third countries</b>	10	28	20	8

Poland | 37.970 million inhabitants

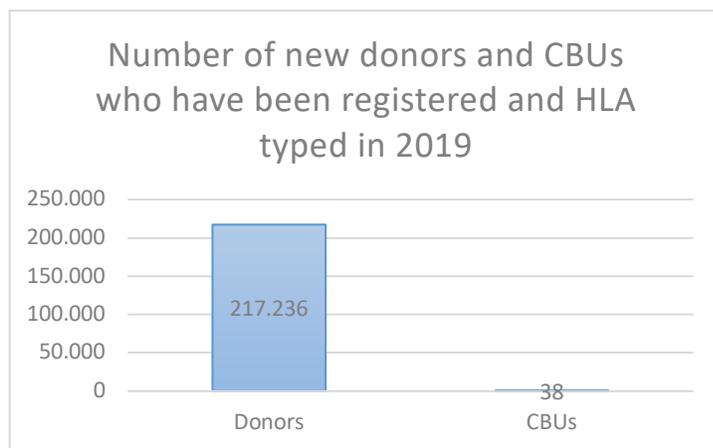
Number of registered and typed donors/CBUs on 31 December 2019

**1.814.612**



Adult volunteer donors/CBUs added to the database during 2019:

**217.274**

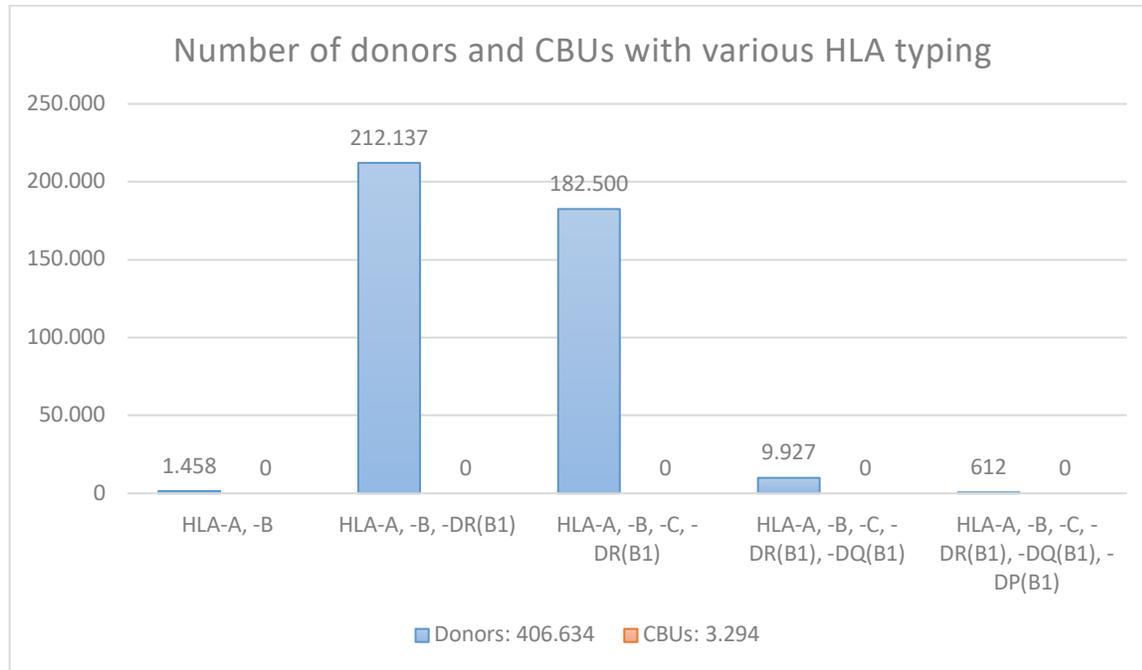


	BM	PBSC	CBU	DLI
National	36	237	0	0
Export to EU member states	83	592	0	16
Export to third countries	109	409	0	74
Import from EU member states	18	127	0	34
Import from third countries	2	11	0	0

Portugal | 10.280 million inhabitants

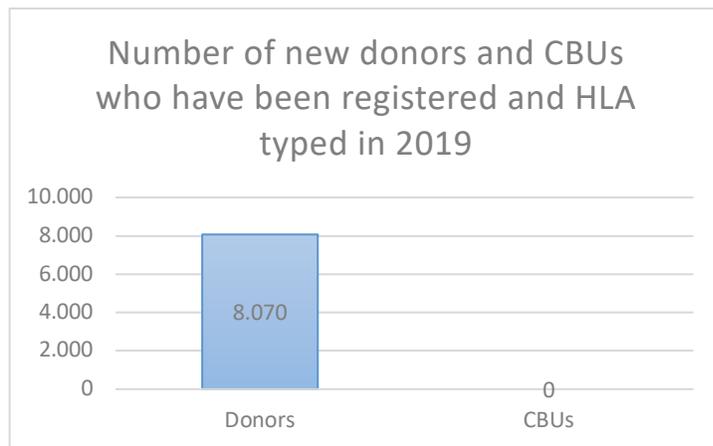
Number of registered and typed donors/CBUs on 31 December 2019

**406.634**



Adult volunteer donors/CBUs added to the database during 2019:

**8.070**

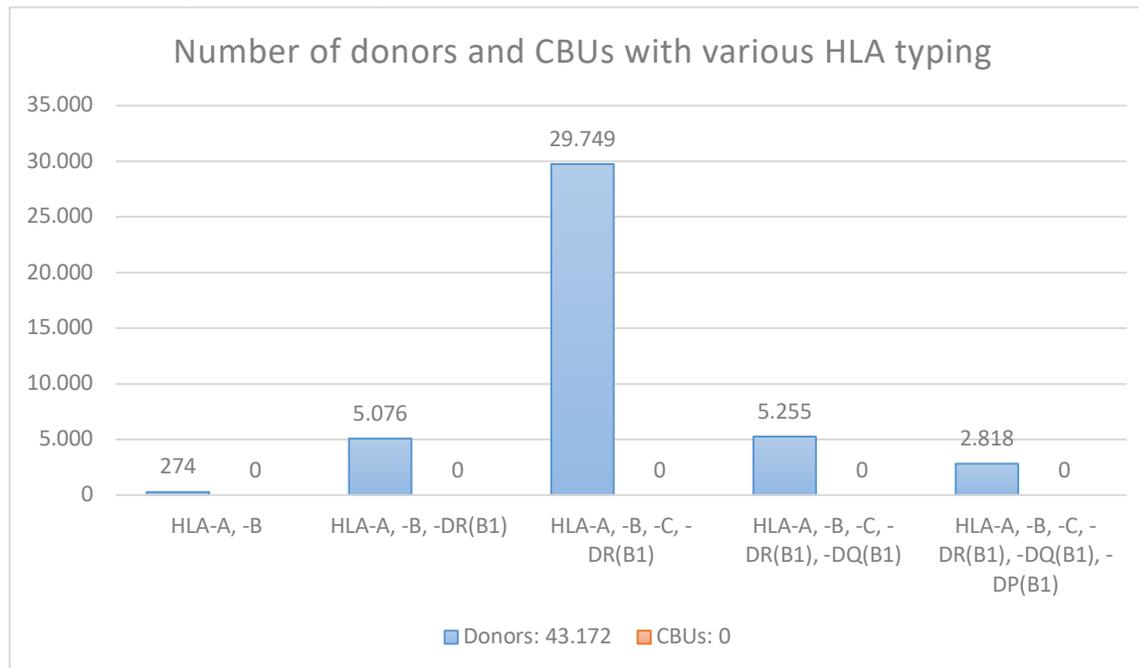


	BM	PBSC	CBU	DLI
National	2	18	0	2
Export to EU member states	5	30	0	2
Export to third countries	8	14	0	1
Import from EU member states	9	28	0	1
Import from third countries	0	7	0	0

Romania | 19.410 million inhabitants

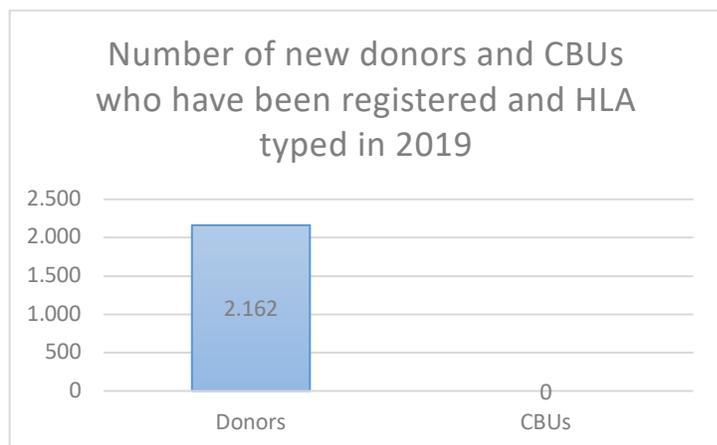
Number of registered and typed donors/CBUs on 31 December 2019

**43.172**



Adult volunteer donors/CBUs added to the database during 2019:

**2.162**

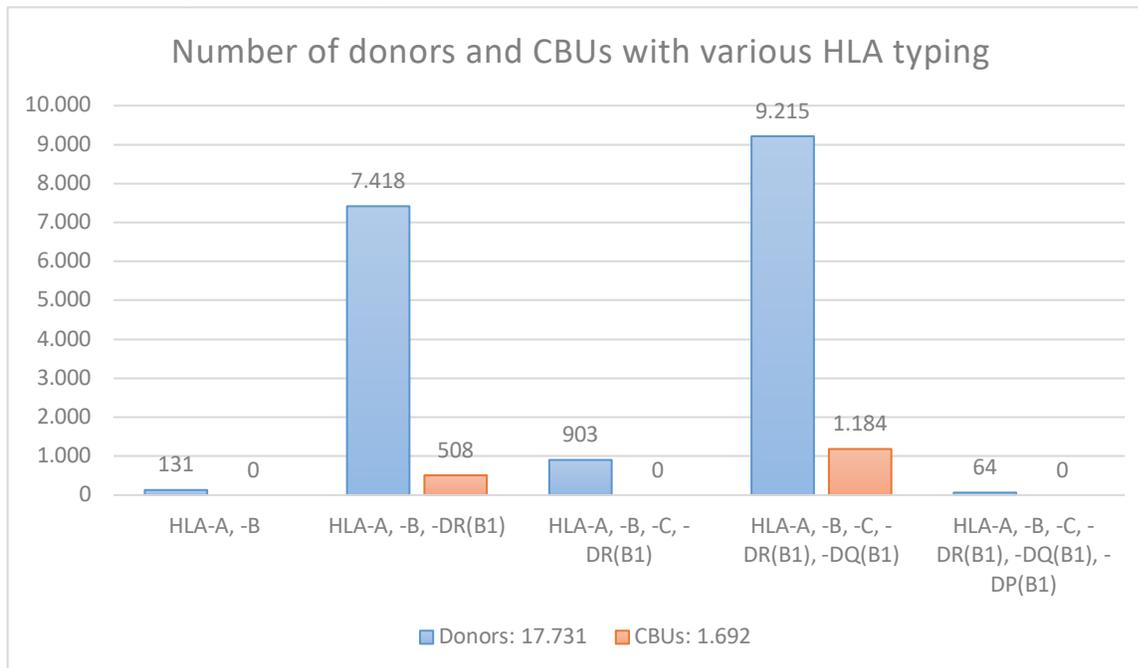


	BM	PBSC	CBU	DLI
National	0	1	0	0
Export to EU member states	0	3	0	0
Export to third countries	0	1	0	0
Import from EU member states	5	37	0	6
Import from third countries	0	6	0	0

Slovakia | 5.458 million inhabitants

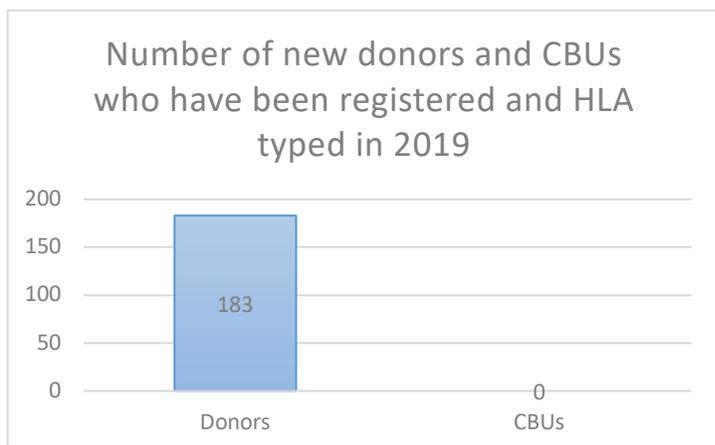
Number of registered and typed donors/CBUs on 31 December 2019

**19.423**



Adult volunteer donors/CBUs added to the database during 2019:

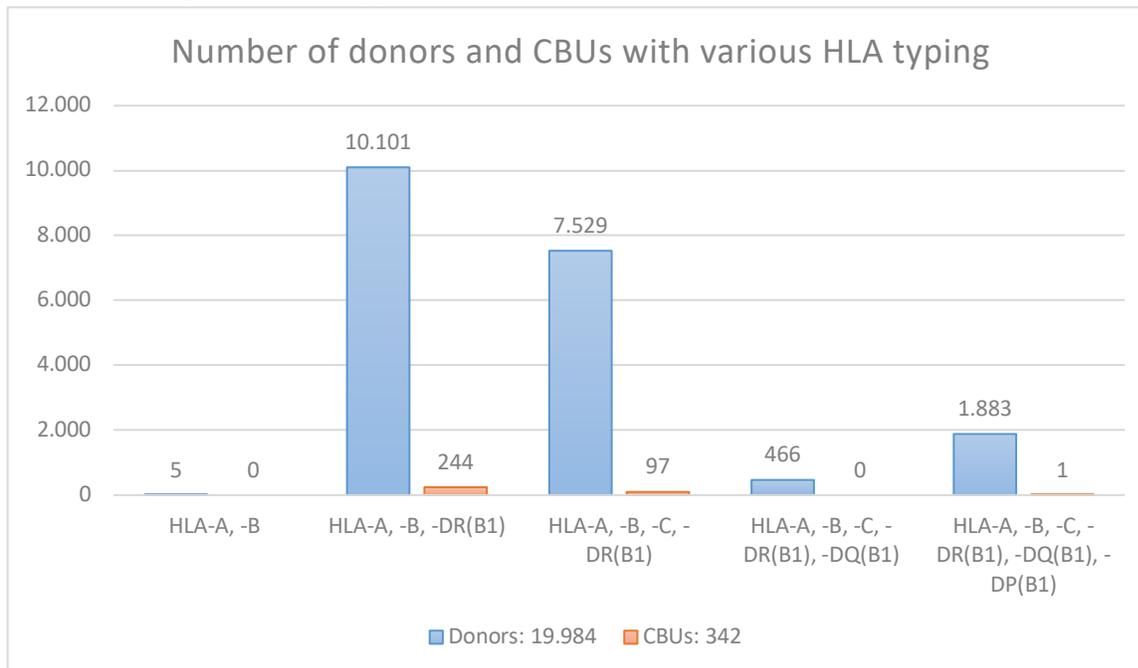
**183**



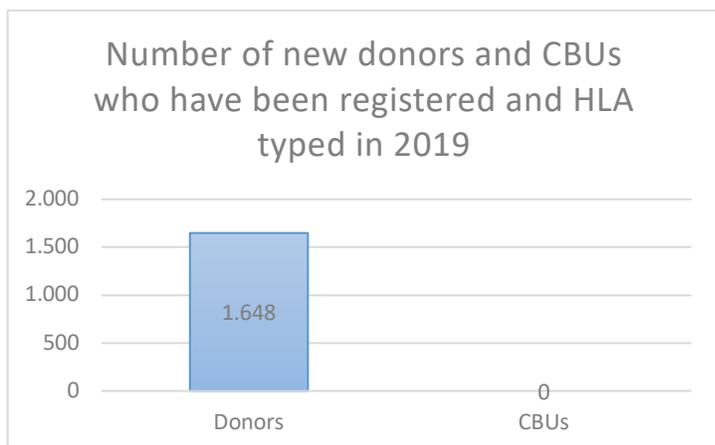
	BM	PBSC	CBU	DLI
National	0	3	0	0
Export to EU member states	0	1	2	0
Export to third countries	1	2	0	0
Import from EU member states	9	44	0	0
Import from third countries	0	3	0	0

Slovenia | 2.081 million inhabitants

Number of registered and typed donors/CBUs on 31 December 2019 **20.326**



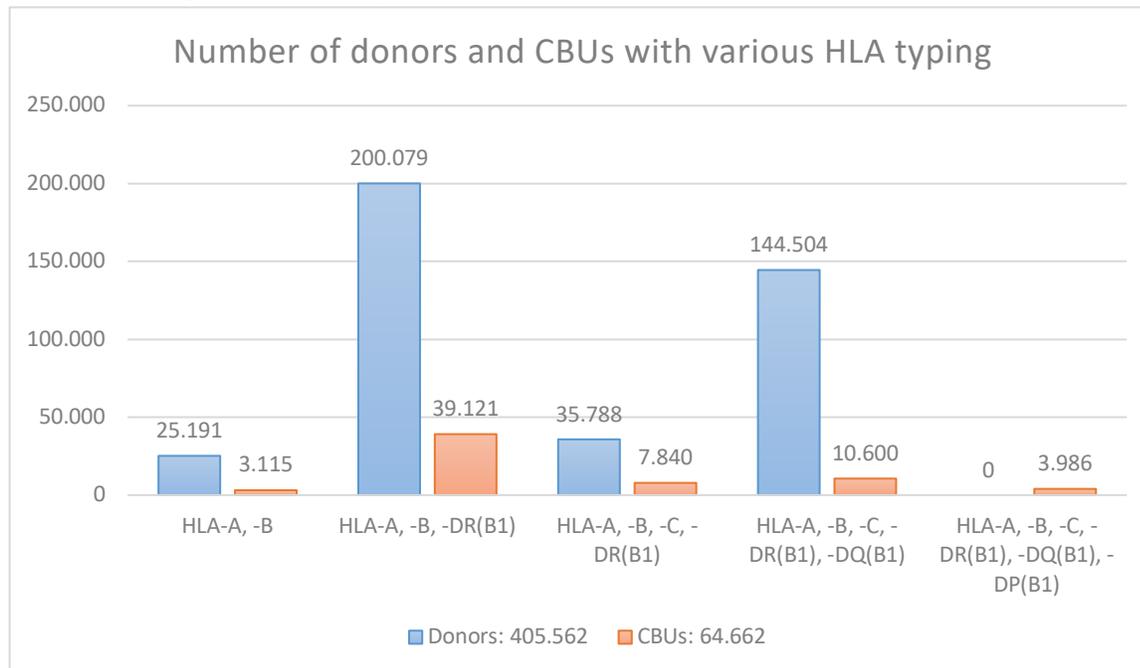
Adult volunteer donors/CBUs added to the database during 2019: **1.648**



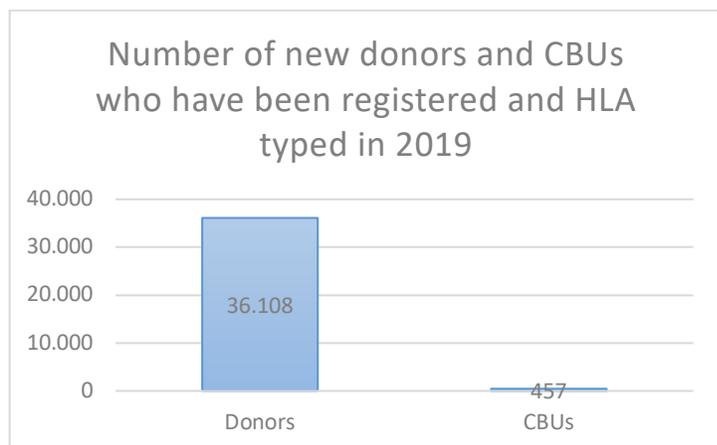
	BM	PBSC	CBU	DLI
National	0	2	0	0
Export to EU member states	0	1	0	0
Export to third countries	0	1	0	0
Import from EU member states	4	28	0	0
Import from third countries	0	4	0	0

Spain | 46.940 million inhabitants

Number of registered and typed donors/CBUs on 31 December 2019 **470.224**



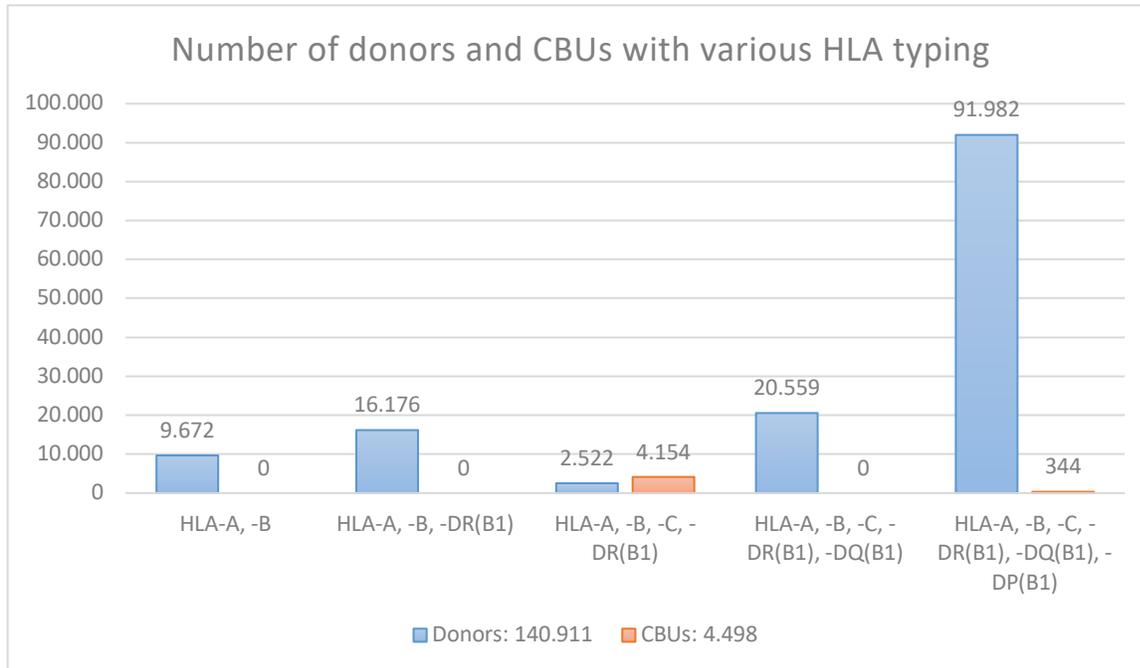
Adult volunteer donors/CBUs added to the database during 2019: **36.565**



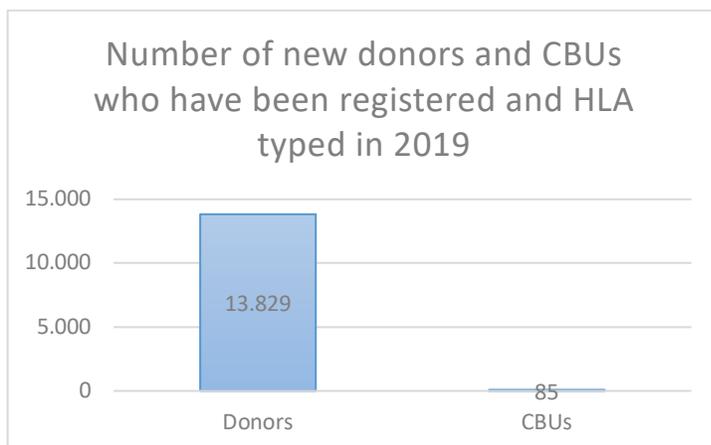
	BM	PBSC	CBU	DLI
National	11	98	7	7
Export to EU member states	8	50	42	5
Export to third countries	6	44	73	2
Import from EU member states	56	188	6	15
Import from third countries	12	84	4	8

Sweden | 10.230 million inhabitants

Number of registered and typed donors/CBUs on 31 December 2019 **145.409**



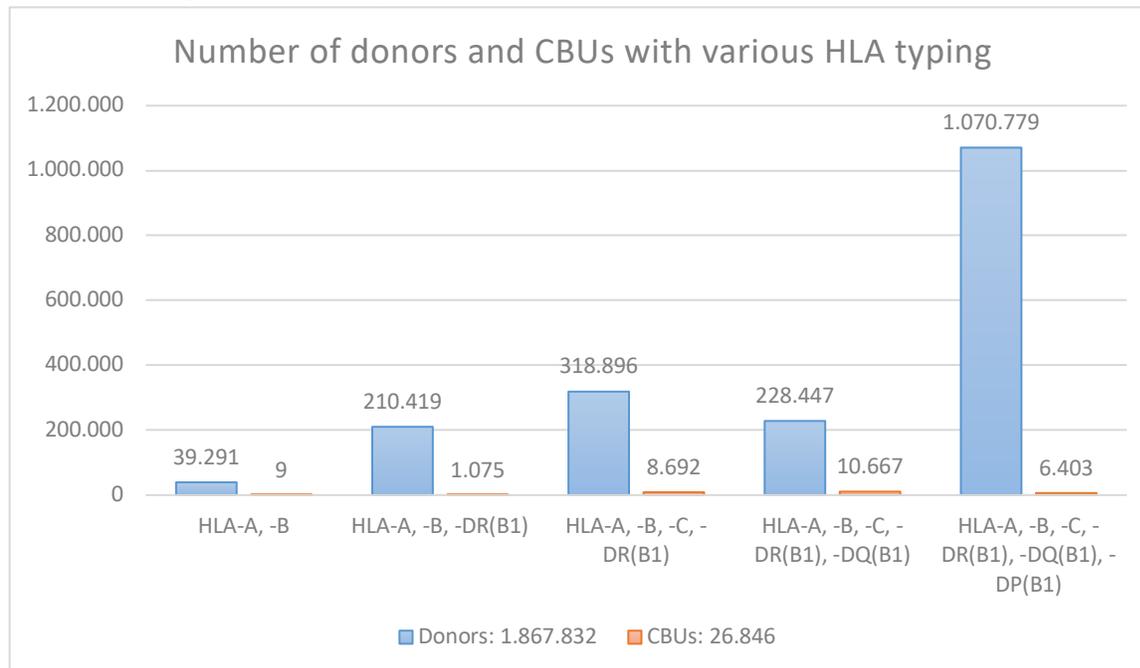
Adult volunteer donors/CBUs added to the database during 2019: **13.914**



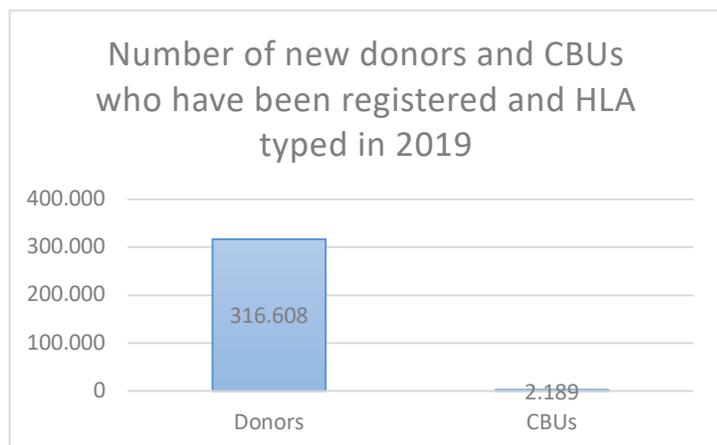
	BM	PBSC	CBU	DLI
National	9	39	1	2
Export to EU member states	4	25	2	2
Export to third countries	6	25	0	1
Import from EU member states	20	125	2	6
Import from third countries	2	24	0	3

# United Kingdom | 66.650 million inhabitants

Number of registered and typed donors/CBUs on 31 December 2019 **1.894.678**



Adult volunteer donors/CBUs added to the database during 2019: **318.797**



	BM	PBSC	CBU	DLI
<b>National</b>	32	320	26	63
<b>Export to EU member states</b>	49	239	18	38
<b>Export to third countries</b>	72	323	50	23
<b>Import from EU member states</b>	75	464	23	54