The 18th International HLA & Immunogenetics Workshop

May 2022 - Amsterdam, The Netherlands

PG AE POPULATION GENETICS, ANTHROPOLOGY AND EVOLUTION

EFI Satellite Meeting - 26 March 2021

Organisers:

Alicia Sanchez-Mazas

Natasja de Groot

MHC genes

Humans: HLA

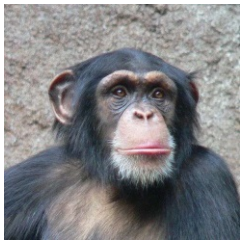
New data (NGS)

Data analyses

Chimpanzees: PATR

New data (NGS)

Data analyses



Meta-analyses

Presentation by Alicia Sanchez-Mazas & Natasja de Groot

UNIVERSITÉ DE GENÈVE FACULTY OF SCIENCES Department of Genetics and Evolution

iGE3

HUG Hôpitaux Universitaires Genève IMMUNOLOGY AND ALLERGOLOGY

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efi PG

HLA net

Biomedical Primate Research Centre

POPULATION GENETICS, ANTHROPOLOGY AND EVOLUTION

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Credit: Lise Michèle

Human part

Coordination: Alicia Sanchez-Mazas

Presentation by Alicia Sanchez-Mazas & Natasja de Groot

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Human part: Participants' list

Update 26-03-2021

30 participating laboratories

List of participants (updated on March 26, 2021)

#	Name	Surname	Institution	Place	Country	Region
1	IVANOVA	Milena	University Hospital Alexandrovska	Sofia	Bulgaria	EUR
2	GRUBIC	Zorana	University Hospital Centre Zagreb	Zagreb	Croatia	EUR
3	PETREK	Martin	Palacky University Olomouc	Olomouc	Czech Republik	EUR
4	BENITEZ	Oscar	Hôpital Saint-Louis	Paris	France	EUR
5	DUBOIS	Valérie	EFS Auvergne Rhone Alpes	Décines-Charpieu	France	EUR
6	ARRIETA-BOLANOS	Esteban	University Hospital Essen	Essen	Germany	EUR
7	LENZ	Tobias	Max Planck Institute for Evolutionary Biology	Ploen	Germany	EUR
8	TARASSI	Katerina	Evangelismos Hospital	Athens	Greece	EUR
9	ANDREANI	Marco	IRCCS Ospedale Pediatrico Bambino Gesù	Rome	Italy	EUR
10	SACCHI	Nicoletta	E. O. Ospedali Galliera	Genova	Italy	EUR
11	KIRIJAS	Meri	Biomedica dijagnostika	Skopje	North Macedonia	EUR
12	LOGINOVA	Maria	Scientific-research Inst. Hematology & Blood Transfusion of FMBA	Kirov	Russia	EUR
13	VIDAN-JERAS	Blanka	Blood Transfusion Center of Slovenia	Ljubljana	Slovenia	EUR
14	BUHLER	Stéphane	Hôpitaux Universitaires de Genève	Geneva	Switzerland	EUR
15	SANCHEZ-MAZAS	Alicia	University of Geneva	Geneva	Switzerland	EUR
15	NUNES	José	University of Geneva	Geneva	Switzerland	EUR
15	DI	Da	University of Geneva	Geneva	Switzerland	EUR
16	ROELEN	Dave L.	Leiden University Medical Center	Leiden	The Netherlands	EUR
17	KANGA	Uma	All India Institute of Medical Sciences	New Dehli	India	SWA
18	MEHRA	Narinder	All India Institute of Medical Sciences	New Dehli	India	SWA
19	SINGH	Meenakshi	Advanced Centre for Treatment, Research and Education in Cancer	Mumbai	India	SWA
20	HAJEER	Ali	King Saud bin Abdulaziz University for Health Sciences	Riyadh	Saudi Arabia	SWA
21	ELGHAZALI	Gehad Eltayeb	Sheikh Khalifa Medical City	Abu Dhabi	United Arab Emirates	SWA
22	ALMAWI	Wassim	Abu Dhabi University	Abu Dhabi	United Arab Emirates	SWA
23	ELFISHAWI	Sally	National Cancer Institute of Egypt	Cairo	Egypt	NAF
24	MAHFOUDH	Nadia	Faculté de médecine De Sfax	Sfax	Tunisia	NAF
25	RICHARD	Lucie	Héma-Québec	Saint-Laurent	Québec	NAM
25	LEMIEUX	William	Héma-Québec	Saint-Laurent	Québec	NAM
26	GORODEZKY	Clara	Fundacion Comparte Vida	Mexico City	Mexico	CAM
27	PETZ-ERLER	Maria-Luisa	Federal University of Paraná	Curitiba	Brazil	SAM
28	DIAZ PENA	Roberto	Universidad Autónoma de Chile	Talca	Chile	SAM
29	HIRSCHAUER	Claire	Centre hospitalier de Polynésie française	French Polynesia	French Polynesia (France)	OCE
30	TOUZAIN	Frédéric	Labo HLA Nouméa	Numéa	New Caledonia	OCE

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Human part: Work plan

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Participating laboratories involved in HLA typing

Source of data

NGS AllType kits © Thermo Fisher

- New data, typing in progress
- New data, already typed
- Recently published data

Expected data

High-resolution HLA genotypes / DNA sequences at multiple loci in population samples

Biostatistical analyses

Molecular population genetics pipeline

Expected results

HLA molecular diversity in populations

Workshop presentation
Publications:
population reports + joint paper

Participating laboratories involved in data analyses

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Human part: Sampled populations

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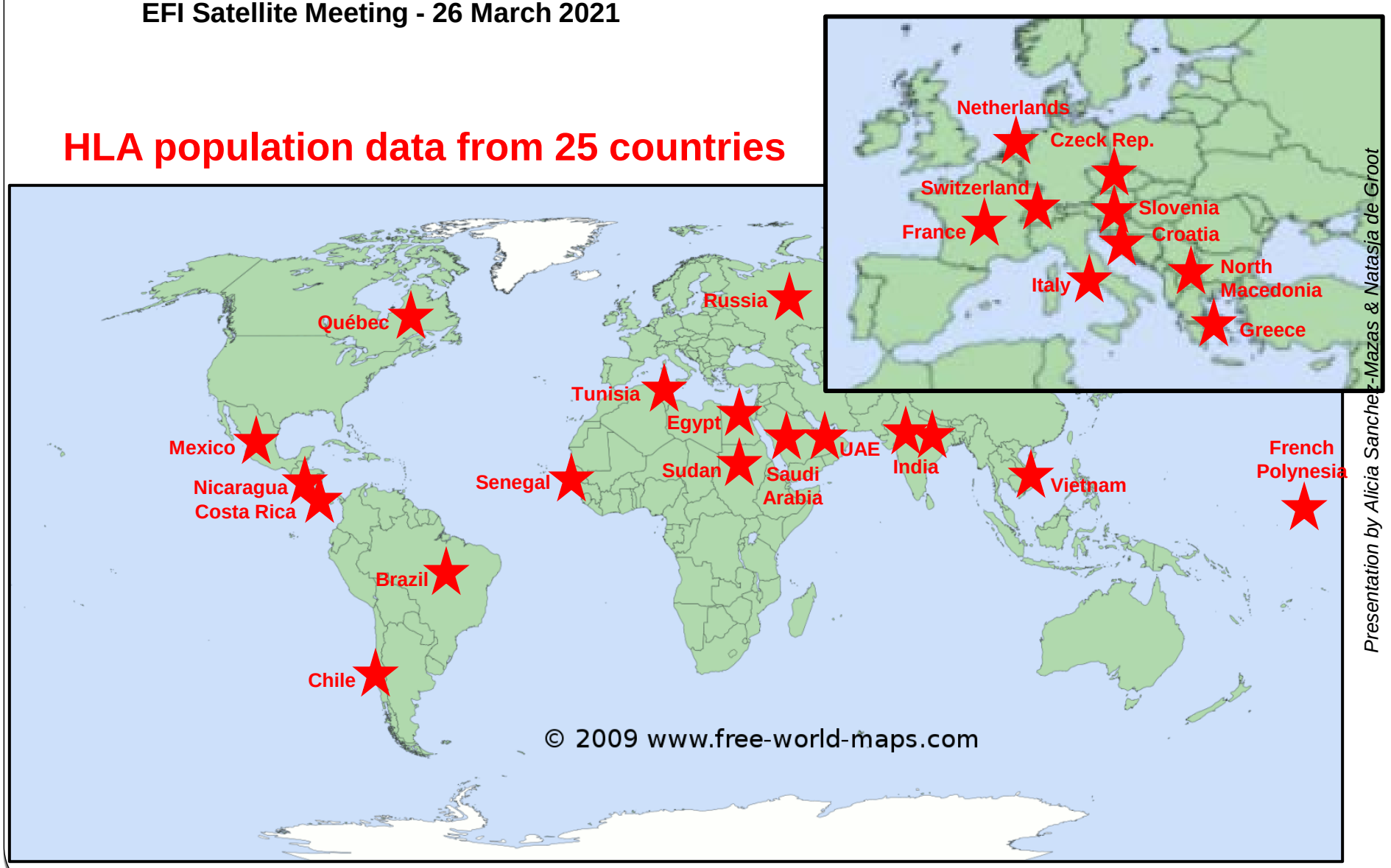
HLA population data from 25 countries



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Non-human primate part

Coordination: Natasja G. de Groot

Committed to health research and alternatives

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Non-human primate part: Overview

Update 26-03-2021

Aim:

Gather MHC class I (and II) full length genomic sequence data of bonobos and different populations of chimpanzees

P.t.v.: western African chimpanzees
P.t.t.: central African chimpanzees
P.t.s.: eastern African chimpanzees

Chimpanzee (*Pan troglodytus*) and bonobo (*Pan paniscus*)

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Non-human primate part: Participants and data

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3 participants

Dr. Linda Vigilant

Senior scientist at Dpt of Primatology
Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany
Full length MHC class I A, B, C data on bonobo, central, eastern and western African chimpanzees (21, 20, 6, 4). Maibach V. et al., Immunogenetics 2017

Dr. Emily Wroblewski

Assistant Professor of Biological Anthropology
Department of Anthropology, Washington University, St. Louis, USA
Full length MHC class I A, B, C data on bonobo and western African chimpanzees (9, 9). Currently analysed

Dr. Natasja de Groot

Senior scientist at Dpt of Comparative Genetics and Refinement
Biomedical Primate Research Centre, Rijswijk, The Netherlands
Full length MHC class I A, B, C data on western African chimpanzees (35). Currently analysed

MHC class II data, DPA/DPB, DQA/DQB, DR (cDNA). Otting N, et al., Immunogenetics 2018
MHC class II data, DR (gDNA). Doxiadis et al., 2008 and 2021
MHC class II data, DQA/DQB. Project in progress

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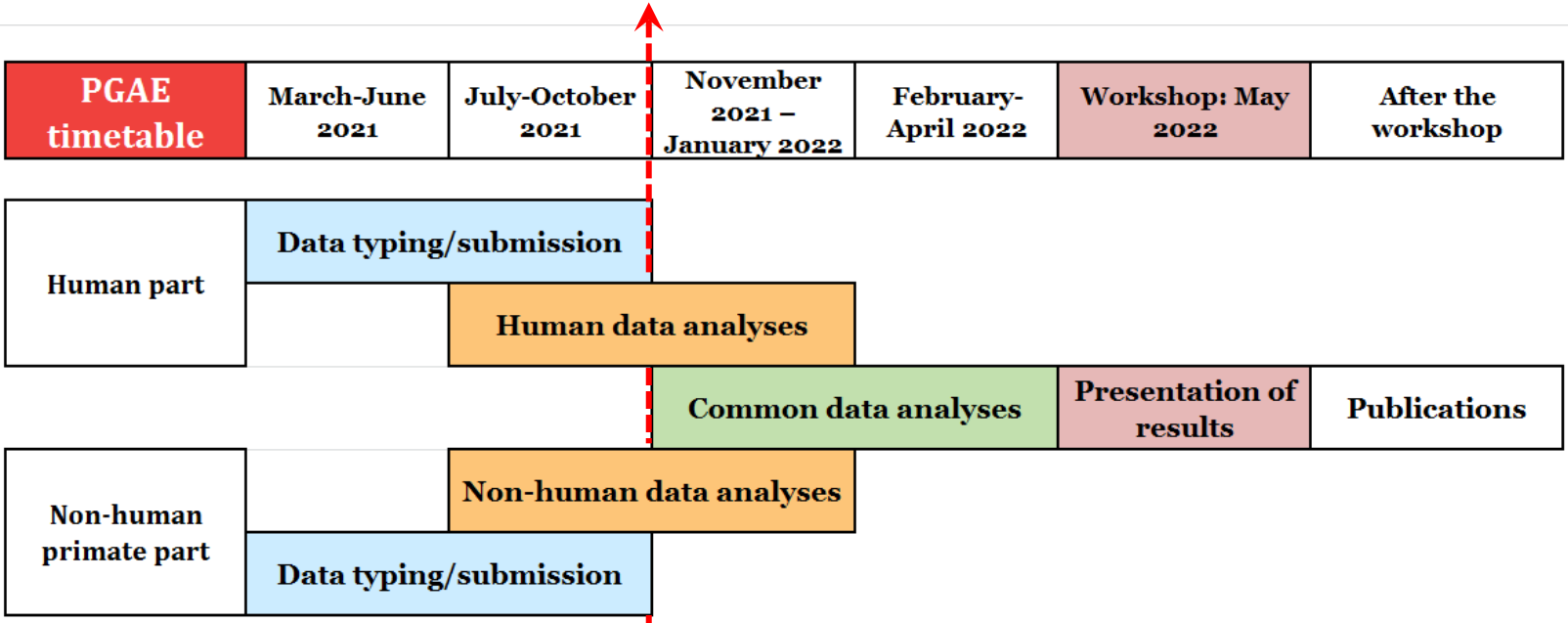
Schedule & milestones



Data already available:
send data as soon as possible

Samples still to be typed:
send data as soon as available

Deadline for sending data: 31.10.2021

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How to send data

(1) Population information: the Population Questionnaire (new version) will be sent to all participants

(2) Genotype data in two formats (ideally both of them):

1. ***HLA multi-locus genotypes at maximum level of resolution (Text files, NO Excel files !)***

Example:

ID	HLA-A(1)	HLA-A(2)	HLA-B(1)	HLA-B(2)	HLA-C(1)	HLA-C(2)	HLA-DRB1(1)	HLA-DRB1(2)
ID-1	A*33:03:01	A*36:01	B*44:03:01	B*53:01:01	C*04:01:01	C*04:01:01	DRB1*11:01:02	DRB1*11:01:02
ID-2	A*30:01:01	A*68:01:01	B*15:03:01	B*42:01:01	C*02:10	C*17:01:01	DRB1*03:02:01	DRB1*04:05:01
ID-3	A*02:01:01	A*68:01:01	B*15:03:01	B*42:01:01	C*02:10	C*17:01:01	DRB1*03:02:01	DRB1*11:01:02
…								
…								

or:

ID	HLA-A	HLA-B	HLA-C	HLA-DRB1
ID-1	A*33:03:01,A*36:01	B*44:03:01,B*53:01:01	C*04:01:01,C*04:01:01	DRB1*11:01:02,DRB1*11:01:02
ID-2	A*30:01:01,A*68:01:01	B*15:03:01,B*42:01:01	C*02:10,C*17:01:01	DRB1*03:02:01,DRB1*04:05:01
ID-3	A*02:01:01,A*68:01:01	B*15:03:01,B*42:01:01	C*02:10,C*17:01:01	DRB1*03:02:01,DRB1*11:01:02
…				
…				

2. ***DNA sequences = two sequences per individual per locus (NGS sofware outputs)***

Example:

```
<sample id="111111111111">
<hla locus="A">
<amplification>
<sbt method="SMS" allele-number="1"
continuity="true">CTCCCCAGACGCCGAGGATGGCCGTCATGGCGCCCCGAACCCTCGTCCTGCTACTCTCGGGGGCTCTGGCCCTGACCCAGACCTGGGCGGGTGAGTC
sbt>
<sbt method="SMS" allele-number="2"
continuity="true">CTCCCCAGACGCCGAGGATGGCCGTCATGGCGCCCCGAACCCTCCTCCTGCTACTCTCGGGGGCCCTGGCCCTGACCCAGACCTGGGCGGGTGAGTC
sbt>
```

(3) Electronic submission (e-mail) to *alicia.sanchez-mazas@unige.ch*

(all files will be carefully checked and reformated before being integrated in the IHIW database)

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Thank you for your attention!

Contacts:

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groot@bprc.nl

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