Covid19 host genetics, 1MG-NL, 4 May, 2020, 5.1.2e

Genetic Research in relation to covid

>> UK Twin study demonstrates 50% heritability for covid19 (5.1.2e et al. BioArchive 2020)

>Local/Netherlands (some activities, so far…):

1.Array/GWAS Genotyping nose swab collection (Erasmus MC; 5.1.2e 5.1.2e)

2.Array/GWAS genotyping covid IC cases (Erasmus MC, AMC,…)

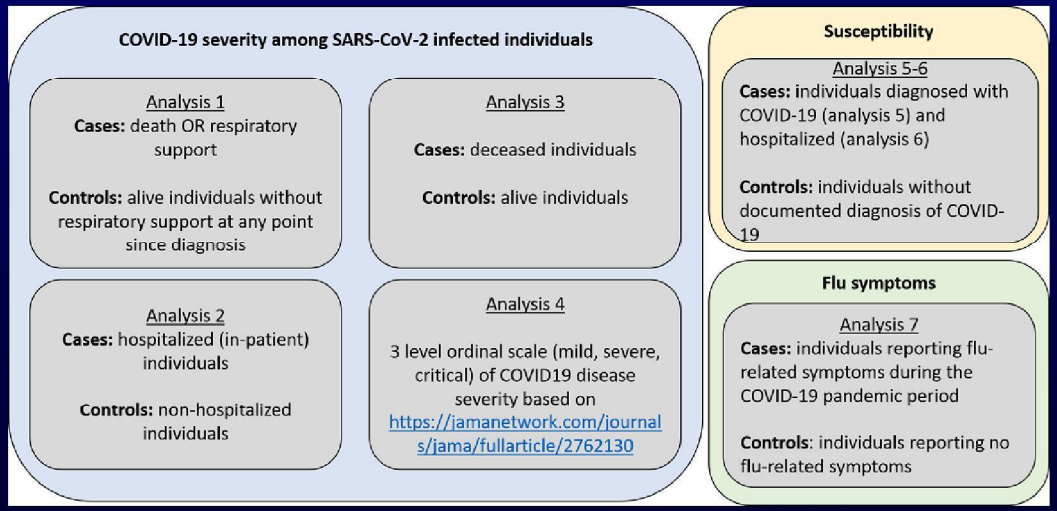
3.Array/GWAS in cohorts with covid-questionaires: LifeLines (5.1.2e), NTR (5.1.2e), ERGO+GenR (5.1.2e , 5.1.2e 5.1.2e , Maastricht (..)

>Global:

-International initiative (covid19HGI) led by Finnish Institute for Molecular Medicine (FIMM, Helsinki; 5.1.2e , 5.1.2e)
to perform large scale meta-analyses of GWAS: www.covid19hg.org

-Erasmus is involved through genotyping service HuGeF, and by providing data from 1-3 (5.1.2e)

>>Proposed types of analyses in covid19HGI (ongoing discussion):



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Covid19 Host Genetics Initiative (HGI), some background:

-Mid March FIMM/ 5.1.2e 5.1.2e initiated covidHGI, including offering 5.1.1c genotyping

-We at HuGeF thought this was a good idea, and talked with FIMM to align efforts

-As HuGeF we contacted Illumina and Thermo Fisher to negotiate discount

-We are able to offer 5.1.1c genotyping for hospitalized covid patients, and 5.1.1c discount on covid-related samples for array and sequencing (e.g., controls, cohorts with covid data collection)

5.1.1c sample for GSA

5.1.1c sample for Whole Exome Sequencing (WES)

-We made a websitepage with more information (www.glimdna.org; next slide)

Source material:

-We take "normal" DNA (e.g. from blood/sputum) but also developed a protocol to work with DNA derived from **nose swabs,** which are used massively for virus testing. There is little human host DNA in there (0.1-20ng; in covid-cases a bit more) but this is sufficient to obtain very good genotype calls on the array (>99% call rate) on >90% of samples.

Since DNA collections from these nose swabs might be readily available (at your virology testing dept; RIVM), this can be a rich source of data for this effort.

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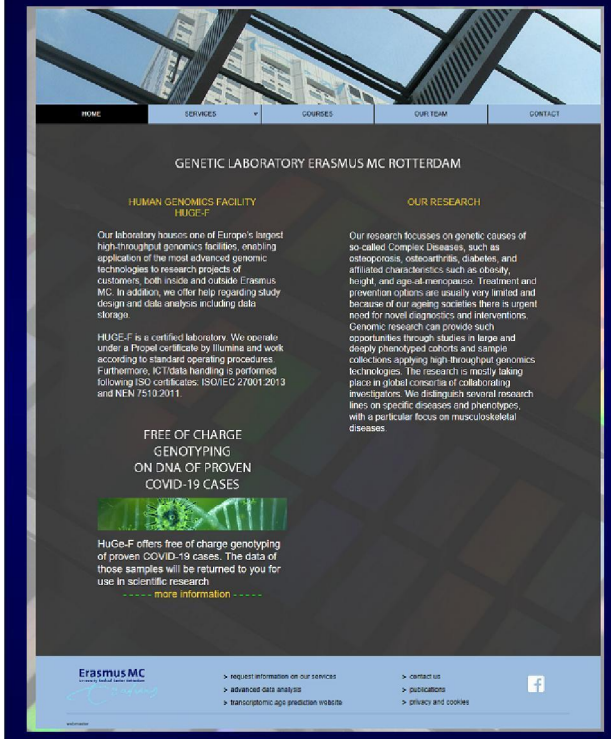
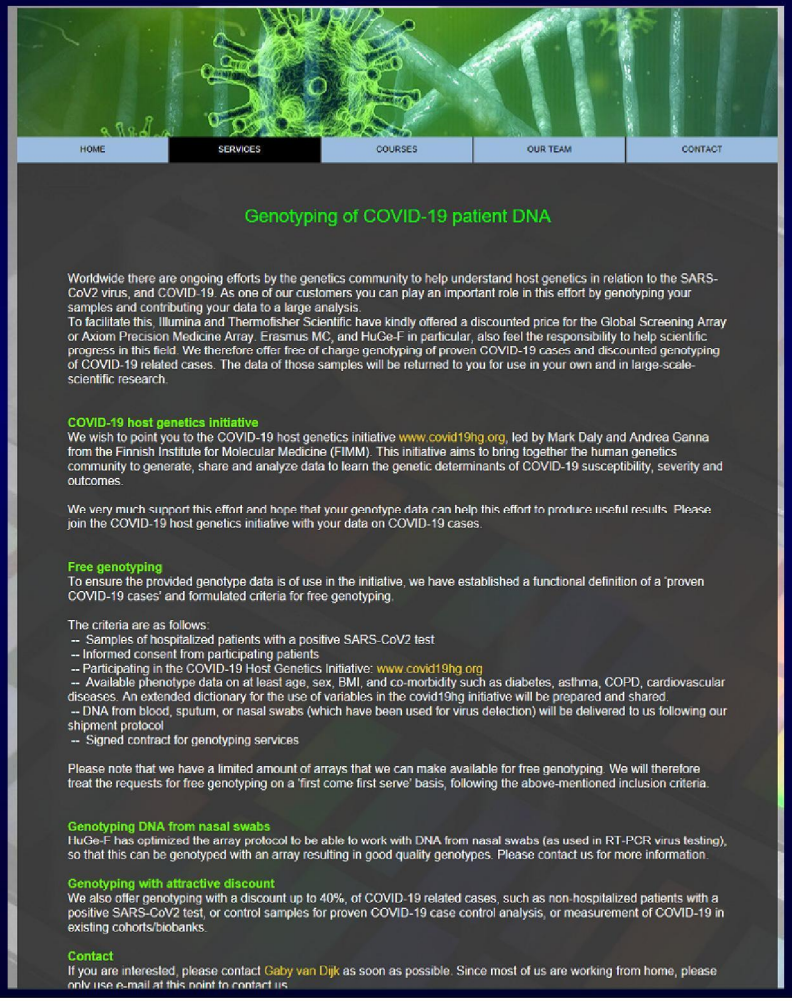
Please visit website : www.glimdna.org





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***Erasmus MC covid19 host genetics efforts:**

-Rotterdam Study has sent out 9,000 questionaires; mostly genotyped already

-GenR will be sending out ~10k questionaires; mostly genotyped already

-Dept Virology has done NL centralized virus typing by rtPCR in nose swabs and has a collection of ~10k DNA extracts from those nose swabs, including ~2k SARS-CoV2 positives

-Erasmus MC IC has biobanked ~300 covid patients

***Dutch covid19 host genetics efforts:**

- Prof. [redacted] has circulated questionaires among 50k participants of LifeLines study already and has done GWAS

- Dutch cohort/biobank initiative started to harmonize questionaires and genotyping involvng LifeLines, Rotterdam Study Generation R, Dutch Twin Register, Maastricht Study, Leiden Longevity Study….