GEDNAP · c/o Institut für Forensische Genetik GmbH · Im Derdel 8 · 48161 Münster

June 15, 2018

GEDNAP 56 & 57

Dear colleague,

Please find enclosed the samples for the GEDNAP Proficiency Tests 56 and 57, and some important explanations, instructions and conditions. Please read them carefully. This information will also be provided on the GEDNAP website (http://www.gednap.org) in due course.

Furthermore, a letter is enclosed which is from the Stain Commission concerning the 'Rules for publicising the participation in the GEDNAP Proficiency Tests' and the associated declaration to be signed by the authorised participant. Please return this document stamped and signed by an authorized person until October 25, 2018. For further details see para V and VIII.

If you have any queries or problems, please do not hesitate to contact us.

Sincerely

Dr. rer. nat. C. Hohoff

Executive Director of the

GEDNAP Proficiency Tests

Prof. Dr. med. B. Brinkmann

Chairman of the GEDNAP

Proficiency Testing Program

GEDNAP · c/o Institut für Forensische Genetik GmbH
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I. Notes on the Samples:

The proficiency tests are composed of three reference samples and four stains:

GEDNAP 56: Person A – C; Stain 1 – 4
GEDNAP 57: Person A – C; Stain 1 – 4

GEDNAP participants that have registered for the module *extraction efficiency* will receive in addition stain 5 (see VI.).

Please bear in mind that any of the stains could consist of the DNA of a single person ("single source stain") or of the DNA from up to 3 different persons ("mixed stain"), and that the stain material might consist of saliva, blood or semen (as well as mixtures of these materials). In principle, the stains in these Proficiency Tests could simulate any stains encountered in routine casework.

N.B.: Each participating laboratory must retain some material from every stain (except for stain 5) to allow a reanalysis if necessary.

II. DNA loci that may be included in the certificate(s) for GEDNAP 56 and 57:

Please note that compared to previous years there might occur changes of the allele ranges due to the launch of new available kits.

1. autosomal core STRs and Amelogenin *

locus	TH01	VWA	FGA	D21S11	ACTBP2	D3S1358	D8S1179	D18S51	D16S539
allele range*	2-14.3	9-25	12-34.2, 41.2-52.2	23-39	3.2-43, 48-50	8-21	4-20	6-28	3-17

locus	D2S1338	D19S433	D12S391	D2S441	D10S1248	D22S1045	D1S1656	Amelogenin
allele range *	9-29	4.2-20.2	13-28	7-18	7-20	6-21	8-21.3	X/X; X/Y

2. supplementary autosomal STRs *

locus	TPOX	CSF1PO	D5S818	D13S317	D7S820	Penta D	Penta E	D6S1043
allele range *	3-17	4-17	5-19	4-18	4-17	1.2-18	4-25	6-26

3. Y-STRs *

System	DYS19	DYS385	DYS389I	DYS389II	DYS390	DYS391	DYS392	DYS393	DYS437
allele range *	8-20	5-29	8-18	23-36	16-30	4-17	3-21	6-19	9-19

System	DYS438	DYS439	DYS448	DYS449	DYS456	DYS458	DYS460	DYS481	DYS518
allele range *	5-17	5-18	13-25	21-41	9-25	9-25	6-15	16-33	31-50

System	DYS533	DYS549	DYS570	DYS576	DYS627	DYS635	DYS643	GATAH4	DYS387S1
allele range *	6-18	6-18	9-27	9-26	10-28	14-31	5-18	7-19	29-45

4. additional autosomal STRs # *

System	D2S1360	D3S1744	D4S2366	D5S2500	D6S474
allele range *	18-33	12-22	8-16	8-19	12-20

System	D7S1517	D8S1132	D10S2325	D21S2055
allele range *	15-29	11.1-28	5-20	15.1-40

5. X-STRs # *

locus	DXS8378	HPRTB	DXS7423	DXS7132	DXS10134	DXS10074	DXS10101
allele range *	7-16	7-18	11-19	9-18	27-45.3	3-22	20-36

locus	DXS10135	DXS10079	DXS10103	DXS10148	DXS10146
allele range *	12-40.2	13-26	14-23	12.3-34.1, 37.1-39.1	20-48.2

Notes on the tables 1 - 5

*: the numbers indicate the range in which the classification of alleles must be made.
for further explanations see para **V**.

#: the certification of these markers is not carried out in conjunction with the Stain Commission

III. Biostatistical calculation

In the course of both Proficiency Tests GEDNAP 56 and 57 a paper challenge will be conducted for the biostatistics module. The necessary findings will be sent by eMail. In case of a mixed stain please use **both** calculation methods that are recommended by the German Stain Commission (P. Schneider et al. (2009) Int J Legal Med 123:1–5). Please use only the allele frequencies that were observed in the course of an ENFSI population study (STRidER_frequencies_2015-02-09.xml, http://www.strider.online, download date 17.09.2015). They can be downloaded from the GEDNAP website (http://www.gednap.org). For rare alleles please follow the recent recommendations (W. Ulbrich et al. (2016) Rechtsmedizin 26: 291-298). The calculation steps must be documented by a print-out. The employed software version must be named. Please note that the calculations have to be executed without the correction factor 'theta' (i.e. with a theta value of zero).

IV. Instructions for submitting the results

- To submit your results (stain characterization, extraction details, genotyping, mixed-person stain calculation), please exclusively use the web forms on the

GEDNAP homepage (http://www.gednap.org). The submission option will be deactivated on the deadline of **04 December 2018 at 23:59 CET**. Detailed information and your login and password will be, or have already been, provided in separate emails.

- After submitting your results electronically we request you to send a signed and stamped printed copy (the website allows you to create a PDF file), which has to be posted to us together with your original laboratory data as well. The deadline is the **04 December 2018** (date of postmark).

- Also for the submission of your mtDNA results please use the form on the GEDNAP homepage (http://www.gednap.org). As in previous years, you are requested to score the differences of the sequences of Persons A-C and single source stains to the revised Cambridge Reference Sequence (rCRS) using the nomenclature recommendations of the DNA commission of the ISFG (W. Parson et al. 2014, PMID: 25117402). In the case of a point heteroplasmy the np shall be reported according to the IUPAC code, provided the minor component represents at least 20 %. In the case of a length heteroplasmy, „LHP" shall be reported in the field 'remarks'; the shorter variant shall be named if there are two dominant types. The second dominant variant shall be reported in the field 'remarks' as well.

V. General Information

- Please enter only numerical allele values in the web-based results' forms; we would consider any other character (e.g., OL, F, ?) as an error, except for < and > (see below).

- 'Off-category' alleles, i.e. those alleles that are smaller than the smallest allele or longer than the longest allele in the STR systems listed in table 1 - 5, can be reported using the "smaller than" (<) or "greater than" (>) signs relative to the shortest or longest allele. Example: allele 18 at TPOX can be given as '**>17**' or as '**18**' – both would be considered correct. Please note that allele numbers must be given with a 1bp precision (this does not however mean that the example allele above should be scored as *18.0*). Allele designations not adhering to these instructions will be considered erroneous.

- For evaluation and certification it is obligatory to include original laboratory data, i.e., copies of the electropherograms of the samples **and** the corresponding allelic

ladders. The allele scoring must be readily visible and unambiguous, and amplicon lengths and peak heights must be readable. The printed copies must be clearly marked with the Proficiency Test series (GEDNAP 56 or GEDNAP 57, respectively), with the sample name and with its laboratory code (e.g. G56_987). Printed sequence electropherograms must be labelled likewise, and the evaluated range must clearly be indicated by the nucleotide positions (np). The relevant np must be indicated. Furthermore, the steps from the electropherogram to the scoring as deviation(s) from the rCRS must be documented (among other things by mentioning the software for generating the consensus sequence from sequencing both strands). Examples of a GeneMapper analysis as well as an exemplary print-out of a sequencing electropherogram with proper labels are available upon request.

- <u>If the original laboratory data are not included in the submission, the results will not be evaluated and subsequently a certificate will not be issued.</u>

- If you wish to send your original data in digital form (e.g. USB stick, DVD/CD-ROM, e-mail attachment) please ensure that the files are clearly labelled and comprehensible. Please send the electropherograms as PDF files.

- Certificates of participation will be issued for those modules for which you have registered (stain characterisation, common and supplementary STR loci, Y-STRs, sequence analysis of the mtDNA control region, biostatistics of mixed-person stains, additional autosomal STRs and X-STRs, the last two modules being evaluated and certified without involvement by the Stains Commission).

- Certificates of participation can be issued only in the name of the institute which has actually undertaken the analysis. An analysis by a third party is not permissible. In accordance to the Stain Commission ruling, all participants have to sign a self-declaration stating that their GEDNAP certification may not be used by third parties, for example for advertising purposes. If this self-declaration has been submitted in the previous year it can be omitted this year. If the self-declaration has not been received by us until **<u>04 December 2018</u>**, we will neither evaluate the results nor subsequently issue the certificates.

- The categories of participants are defined as in the previous years. Details are given on the GEDNAP website (http://www.gednap.org).

VI. Module Extraction Efficiency

In the course of both Proficiency Tests GEDNAP 56 and 57 a fifth stain will be sent out in triplicate for the module "extraction efficiency". The participant shall extract the **three sub-samples separately by the same methodology** without prior presumptive testing **and return the three DNA extracts** at his own expense and on his own responsibility to the IFG Münster (within 6 weeks after receive of the samples but no later than **02 October, 2018**). The postal address is as follows:

Institut für Forensische Genetik GmbH
GEDNAP XF
Im Derdel 8
48161 Münster
Germany

The choice of transport is left to the participant (on ice, frozen, lyophilized with or without a stabilizer). The IFG asks for details of the extraction techniques (i.e., analytical platform/hardware & chemistry [if applicable], elution buffer and elution volume) and performs the DNA quantitation by real-time PCR. The individual reporting will be provided in conjunction with the other report forms in February 2019.

VII. Stain Workshop in Jena, Germany

The results of the Proficiency Tests GEDNAP 56 and 57 will be presented during the 39th Stain Workshop in Jena (Germany; February 21 - 23, 2019), organized by Univ.-Prof. Dr. Gita Mall, Institute of Legal Medicine Jena (https://www.r-km.de/Spurenworkshop2019), in conjunction with the German Society of Legal Medicine and the Stain Commission. Oral contributions (also in English) are encouraged.

VIII. Fulfilment of Conditions

The executive of the proficiency tests, who is appointed by the Stain Commission, agrees to provide test samples, evaluate submitted results and to issue certificates if the participating laboratory meets the above conditions and furthermore pays the current participation fee, signs the enclosed self-declaration by an authorized member of the participating laboratory and sends it back to the executive such that it arrives at his address. If any of these requirements is not fulfilled, then the submitted results will not be evaluated and a certificate will not be issued.