Congenital Disorders of Glycosylation (CDG)

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2025 First Round Interim Report

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Please Note:

- This interim report is intended for participants of the ERNDIM CDG scheme. The contents should not be used for any publication without permission of the Scientific Advisor.
- This is an interim report, and it includes provisional scores only. All scores are subject to change following moderation at the Scientific Advisory Board meeting in autumn of this year. For final scores and performance data the ERNDIM CDG Annual Report should be referred to.
- The fact that your laboratory participates in this scheme is not confidential, however, the raw data and performance scores are confidential and will only be shared within ERNDIM for the purpose of evaluating your laboratories performance, unless ERNDIM is required to disclose performance data by a relevant government agency. For details, please see the ERNDIM Privacy Policy on www.erndim.org.

1. Results Submission

Results were submitted to the online results website (cscq.hcuge.ch/cscq/ERNDIM/) which is hosted and maintained by CSCQ. The submission deadline for the first round (samples CDG-PP-2025-A, -B and -C) was 26th May 2025.

57 laboratories registered for the 2025 CDG scheme; of these, 53 labs (93%) submitted results for the first round.

2. Scoring scheme

In agreement with ERNDIM rules, we applied a scoring system of 2+2:

Technical aspects: 1 point for identification of an abnormal profile and 1 point for correct identification of the profile as type I or II.

Diagnostic suggestions: This section should be filled for scoring. Just referring to a specialised lab is insufficient. If required, advice can be obtained from a reference laboratory or in collaboration with a clinical colleague. For normal profiles 2 points are scored. For abnormal profiles, comments should be made on the possibility of the presence of a secondary cause in light of the clinical indication. In addition, the right suggestions should be made for the next step in the diagnostic process that eventually will lead to the genetic defect. Scoring for this part is not so straightforward, but we tried to keep it as consistent as possible. The maximum score achievable with full submission for all samples is 24, while a maximum of 12 points are available for labs that only submitted results for the first or second round. The level for satisfactory performance is 17 points.

For the 2022 scheme onwards labs that only submit results for 3 or fewer samples in a scheme year will be classed as partial submitters and their performance will not be evaluated. This information is included in the CDG

[1] **If this Annual Report is not Version 1 for this scheme year, go to APPENDIX 2 (page 5) for details of the changes made since the last version of this document.**

scheme instructions for 2022 onwards. Partial submitters receive a formal Non-submitter letter notifying them of this status and their certificate of participation shows them as not submitting results for the relevant scheme. As the number of participants in the CDG scheme are limited due to the nature of the EQA samples, ERNDIM reserves the right to exclude participants that are classed as partial/non-submitters for 2 out of 3 registered years (i.e., persistent partial and non-submitters) from the scheme.

For the 2014 scheme onwards, another criterion for satisfactory performance is the absence of any "critical error", which is defined as an error resulting from seriously misleading analytical findings and/or interpretations with serious clinical consequences for the patient. For the 2025 CDG scheme, any critical errors will be agreed at the meeting of the Scientific Advisory Board on 27th and 28th November 2025, and details of these will be included in the 2025 CDG Annual Report.

a. Appeals

If your laboratory is classed as having poor performance at the end of the 2025 scheme and you wish to appeal against this classification, please use the link given in the Performance Support letter you will be sent, to submit your appeal request. The online form should be completed with full details of the reason for your appeal and submitted within one month of receiving your Performance Support Letter. Please note that only appeals submitted using the online response form will be considered.

3. Results of samples and evaluation of reporting

The shipped samples were from (CDG) patients and from controls. The final results of the three first round samples with respect to CDG are summarised in Table 1 below.

Table 1: Samples in the first-round of the 2025 scheme

Sample	Clinical Information	Sex	Age	Diagnosis
CDG-PP-2025-A	Hips lipodystrophy, terminal nystagmus, without autonomous walking.	F	17 years	PMM2-CDG
CDG-PP-2025-B	Inverted nipples, epilepsy, liver dysfunction.	F	4 years	Normal serum
CDG-PP-2025-C	Mild intellectual disability, hearing impairment, epilepsy.	M	30 years	RFT1-CDG

All submitted results are treated as confidential information and are only shared with ERNDIM approved persons for evaluation and reporting purposes.

For the laboratories that reported their method (53/57), isofocusing was still the most frequently employed technique (16/53), just closely followed by HPLC (13/53) and CE (13/53), then mass spectrometry (10/53), and other methods (1/53).

Table 2: Scoring of the first-round samples in the 2025 scheme

Sample	No of returns	Technical Aspects (%)	Diagnostic Suggestions (%)	Total (%)
CDG-PP-2025-A	53	100.0	91.5	95.8
CDG-PP-2025-B	53	96.2	95.3	95.8
CDG-PP-2025-C	53	97.2	92.5	94.8

The full anonymised results for all labs that submitted results are given in APPENDIX 1 on page 4 of this report.

3.1. CDG-PP-2025-A: Type 1 – PMM2-CDG

A type I transferrin glycoform profile was identified and interpreted as abnormal by all laboratories, resulting in a total proficiency score of 95.8%. The pattern corresponded to a classical type I profile, without major differences between the analytical methods used.

The clinical information provided is compatible with PMM2-CDG, the most frequent CDG-I subtype. Therefore, when a type I profile is observed in this context, PMM2-CDG should be considered as the most likely diagnosis. The high total score reflects not only the correct identification of the abnormal type I profile but also the provision of appropriate diagnostic recommendations, which were mainly focused on genetic studies and enzymatic analysis of the phosphomannomutase activity in leukocytes. Correct identification of the profile as abnormal and the suggestion of PMM2-CDG as a possible diagnosis were required for full scoring.

3.2. CDG-PP-2025-B: Normal sample

A normal transferrin glycoform profile was identified and interpreted as normal by almost all laboratories, resulting in a total proficiency score of 95.8%.

3.3. CDG-PP-2025-C: Type 1 – RFT1-CDG

A type I abnormal transferrin glycoform profile was reported by almost all laboratories, resulting in a total proficiency score of 94.8%. The profile was clearly abnormal, and no relevant differences were observed between the different analytical methods. The elevated total score demonstrates both the accurate recognition

of the abnormal type I profile and the inclusion of appropriate diagnostic recommendations, which were mainly focused on genetic studies.

Around 38% (20/53) of participants suggested RFT1-CDG as a potential diagnosis, mainly based on the presence of hearing impairment in the clinical presentation.

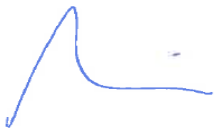
4. **Questions, Comments and Suggestions**
   For participants who use isoelectric focusing (IEF) with antibody, one of our members is seeking recommendations for effective antibodies, as their current option is proving too weak. If you have experience with reliable antibodies for this application, please contact admin@erndim.org.

   If you have any questions, comments or suggestions in addition to specific user comments please contact the ERNDIM Administration Office (admin@erndim.org).

5. **Confidentiality Statement**
   This interim report is intended for participants of the ERNDIM Congenital Disorders of Glycosylation scheme. The contents of this report or data derived from the use or analysis of ERNDIM EQA materials must not be used in written publications or oral presentations unless the explicit prior consent of ERNDIM has been granted.

Dr Dulce Quelhas

Scientific Advisor



Dr Blai Morales

Deputy Scientific Advisor

APPENDIX 1. **Detailed scores for submitting laboratories**

Sample ID	Technical				Advice				Total score (Max 12)
	A	B	C		A	B	C		
Average score / Lab ID	2.00	1.92	1.94	Total	1.83	1.91	1.85	Total	
1	2	2	2	**6**	2	2	2	**6**	**12**
2	2	2	2	**6**	2	2	2	**6**	**12**
3	2	2	2	**6**	2	2	2	**6**	**12**
4	2	2	2	**6**	2	2	2	**6**	**12**
5									**No results submitted**
6	2	2	2	**6**	2	2	2	**6**	**12**
7	2	2	2	**6**	2	2	2	**6**	**12**
8	2	2	2	**6**	2	2	2	**6**	**12**
9	2	2	2	**6**	2	2	2	**6**	**12**
10	2	0	2	**4**	1	0	2	**3**	**7**
11	2	2	2	**6**	2	2	1	**5**	**11**
12	2	2	2	**6**	1	2	2	**5**	**11**
13	2	2	2	**6**	2	2	2	**6**	**12**
14	2	2	2	**6**	2	2	2	**6**	**12**
15	2	2	2	**6**	2	2	2	**6**	**12**
16	2	2	2	**6**	2	2	2	**6**	**12**
17	2	2	2	**6**	2	2	2	**6**	**12**
18	2	2	2	**6**	2	2	2	**6**	**12**
19	2	0	2	**4**	2	0	2	**4**	**8**
20	2	2	2	**6**	2	2	2	**6**	**12**
21	2	2	2	**6**	2	2	2	**6**	**12**
22	2	2	2	**6**	2	2	2	**6**	**12**
23	2	2	2	**6**	1	2	2	**5**	**11**
24	2	2	2	**6**	2	2	1	**5**	**11**
25	2	2	2	**6**	2	2	2	**6**	**12**
26	2	2	0	**4**	1	2	0	**3**	**7**
27	2	2	2	**6**	2	2	2	**6**	**12**
28	2	2	2	**6**	2	2	2	**6**	**12**
29	2	2	2	**6**	2	2	2	**6**	**12**
30	2	2	2	**6**	2	2	2	**6**	**12**
31	2	2	2	**6**	2	2	2	**6**	**12**
32	2	2	2	**6**	1	2	2	**5**	**11**
33	2	2	2	**6**	2	2	2	**6**	**12**
34	2	2	2	**6**	2	2	2	**6**	**12**
35	2	2	2	**6**	2	2	2	**6**	**12**
36	2	2	2	**6**	2	2	1	**5**	**11**
37	2	2	2	**6**	2	2	2	**6**	**12**
38	2	2	2	**6**	2	2	2	**6**	**12**
39	2	2	2	**6**	2	2	2	**6**	**12**
40	2	2	2	**6**	2	2	2	**6**	**12**
41	2	2	2	**6**	1	1	2	**4**	**10**
42	2	2	2	**6**	2	2	2	**6**	**12**

Sample ID	Technical				Advice				Total score (Max 12)
	A	B	C		A	B	C		
Average score / Lab ID	2.00	1.92	1.94	Total	1.83	1.91	1.85	Total	
43	2	2	2	**6**	1	2	2	**5**	**11**
44	2	2	2	**6**	2	2	1	**5**	**11**
45	2	2	2	**6**	2	2	2	**6**	**12**
46									**No results submitted**
47	2	2	1	**5**	2	2	1	**5**	**10**
48	2	2	2	**6**	2	2	2	**6**	**12**
49									**No results submitted**
50	2	2	2	**6**	1	2	2	**5**	**11**
51	2	2	2	**6**	2	2	2	**6**	**12**
52	2	2	2	**6**	2	2	2	**6**	**12**
53	2	2	2	**6**	2	2	2	**6**	**12**
54									**No results submitted**
55	2	2	2	**6**	1	2	1	**4**	**10**
56	2	2	2	**6**	2	2	2	**6**	**12**
57	2	2	2	**6**	2	2	2	**6**	**12**

APPENDIX 2. Change log (changes since the last version)

Version Number	Published	Amendments
1	01 October 2025	• 2025 First round interim report published

END OF REPORT