

# ***CDC Hormone Standardization Program (CDC HoSt)***

## **Certified Estradiol Assays**

From 2019 Q4 and forward

(UPDATED 11/2023)

**CDC HoSt Programs started quarterly certification from November 2019 shipment.**

See [https://www.cdc.gov/labstandards/csp/pdf/hs/CDC\\_Certified\\_Estradiol\\_Procedures-508.pdf](https://www.cdc.gov/labstandards/csp/pdf/hs/CDC_Certified_Estradiol_Procedures-508.pdf) for previous list of certified assays.

- The following assays have successfully met the performance criteria of  $\pm 12.5\%$  mean bias (for samples  $>20$  pg/mL) and  $\pm 2.5$  pg/mL absolute bias (for samples  $\leq 20$  pg/mL) when compared to the CDC reference measurement procedure for estradiol for 80% of samples.
- It is not the intent of the CDC HoSt Program to certify each lot of reagents. Participants are awarded certificates for successfully meeting bias criteria using specific methods that consist of different reagent lots and calibrator lots.
- Analytical performance in CDC HoSt Program is assessed using human serum. The measurement procedures may have different accuracy and precision with other specimen types, such as plasma.
- Certification is valid for one quarter from the certification date. It is the responsibility of the participant to ensure that the results of the assay remain consistent, between lots, and over the measurement range reported.
- The analytical performance evaluation used in certification is for testing performed in patient care. Therefore, this certification does not imply suitability of a participant as a calibration laboratory or the procedure as a metrological reference measurement procedure.

Each table includes information about certified assays including participant name, measurement principle, assay identifier, assay measurement range, certification measurement range, certification date, individual samples pass rate, and contact information.

“Assay identifier” is an internal code used by the participant to represent the assay used for certification.

“Assay Measurement range” is the assays’ reported analytical measurement range (AMR) and is not the certification range.

“Certification Measurement Range” is the concentration range the of the samples used for HoSt certification.

“Certification date” includes historical certification information and gaps between years do not always indicate the assay’s failure to meet certification criteria.

“Individual samples pass rate” is the percentage of individual samples out of the 40 provided that met the certification criteria. This information was provided on the website starting June 2019.

Note: The  $\pm 12.5\%$  mean bias used for certification can be considered the allowable calibration bias. Certification indicates that the assay is calibrated to meet those limits. Due to differences in test selectivity, measurements on individual samples can exceed the calibration bias. Therefore, the individual sample pass rate provides some information about the selectivity of a test that meets the calibration criteria.

**Table 1: Currently Certified Assays including their certification history**

Participant	Measurement Principle	Assay Identifier	Assay Measurement Range (pg/mL)	Certification Measurement Range (pg/mL)	Certification Date <i>(active for 1 quarter)</i>	Individual Samples Pass Rate (%)	Participant's Contact Information
<b>ARUP Laboratories</b> Salt Lake City, UT	LC/MS/MS <sup>+</sup>	Estradiol by TMS	2 - 1000	3.40 - 230	Q3 2023	88	Kayla West <a href="mailto:Kayla.west@aruplab.com">Kayla.west@aruplab.com</a> 801-583-2787 x2893
				2.70 - 230	Q2 2023	88	
				2.70 - 230	Q1 2023	85	
				2.50 - 230	Q4 2022	95	
				2.55 - 230	Q3 2022	90	
				2.55 - 230	Q2 2022	90	
				2.50 - 216	Q1 2022	98	
				2.70 - 230	Q4 2021	98	
				2.70 - 230	Q3 2021	100	
				3.01 - 230	Q2 2021	95	
				3.05 - 230	Q1 2021	95	
				2.55 - 230	Q4 2020	92	

Participant	Measurement Principle	Assay Identifier	Assay Measurement Range (pg/mL)	Certification Measurement Range (pg/mL)	Certification Date (active for 1 quarter)	Individual Samples Pass Rate (%)	Participant's Contact Information
Brigham Research Assay Core (BRAC) Laboratory at Harvard Medical School Boston, MA	LC/MS/MS <sup>+</sup>	Serum Estradiol	1.00 - 500.00 (& higher than 500 pg/mL with dilution)	2.55 - 230	Q3 2023	92	Dr. Shalender Bhasin <a href="mailto:SBHASIN@PARTNERS.ORG">SBHASIN@PARTNERS.ORG</a> (617)525-9040  Liming Peng <a href="mailto:Lpeng2@partners.org">Lpeng2@partners.org</a> (617)525-9048
				2.50 - 230	Q2 2023	92	
				2.50 - 230	Q1 2023	92	
				2.50 - 230	Q4 2022	95	
				2.50 - 230	Q3 2022	90	
				3.01 - 230	Q2 2022	90	
				2.55 - 230	Q1 2022	85	
				2.55 - 230	Q4 2021	88	
				2.55 - 216	Q3 2021	92	
				2.55 - 216	Q2 2021	92	
				2.70 - 216	Q1 2021	98	
				2.55 - 230	Q4 2020	98	
				2.55 - 230	Q3 2020	90	
				2.55 - 230	Q2 2020	95	
2.55 - 230	Q1 2020	92					
3.40 - 268	Q4 2019	92					
Centre Hospitalier Universitaire de Liège Sart-Tilman, Belgium	LC/MS/MS <sup>+</sup>	25(OH)D3+25(OH)D2+C3-epimer+24,25(OH)2D in serum and plasma	5 - 1156	9.64 - 230	Q1 2023	84	Etienne Cavalier <a href="mailto:etienne.cavalier@chu.ulg.ac.be">etienne.cavalier@chu.ulg.ac.be</a> +3243667692
				9.64 - 230	Q4 2022	86	
				6.21 - 216	Q2 2020	85	

Participant	Measurement Principle	Assay Identifier	Assay Measurement Range (pg/mL)	Certification Measurement Range (pg/mL)	Certification Date (active for 1 quarter)	Individual Samples Pass Rate (%)	Participant's Contact Information
<b>Clinical Chemistry Branch</b> <b>CDC</b> Atlanta, GA	LC/MS/MS†	Total Estradiol in Serum (1036)	1.72 - 17,100	3.05 - 230	Q1 2023	98	Lumi Duke, MS <a href="mailto:LDuke@cdc.gov">LDuke@cdc.gov</a> (770)488-4126
				3.05 - 230	Q4 2022	98	
				3.05 - 230	Q3 2022	100	
				3.05 - 230	Q2 2022	98	
				3.05 - 230	Q1 2022	98	
				4.10 - 230	Q4 2021	98	
				3.01 - 230	Q3 2021	98	
				3.01 - 230	Q2 2021	100	
				3.01 - 230	Q1 2021	100	
				1.75 - 230	Q4 2020	100	
				1.75 - 230	Q3 2020	100	
				1.75 - 230	Q2 2020	100	
				1.75 - 230	Q1 2020	98	
2.55 - 216	Q4 2019	98					

Participant	Measurement Principle	Assay Identifier	Assay Measurement Range (pg/mL)	Certification Measurement Range (pg/mL)	Certification Date (active for 1 quarter)	Individual Samples Pass Rate (%)	Participant's Contact Information
Covance Central Laboratory Services Indianapolis, IN	LC/MS/MS <sup>+</sup>	Total Estradiol in Serum (E2)	2 - 4,000	2.50 - 230	Q3 2023	87	Cristina Hedin, MS Covance Central Laboratory Services <a href="mailto:Cristina.Hedin@covance.com">Cristina.Hedin@covance.com</a> 317-273-7842
				3.05 - 230	Q2 2023	90	
				2.55 - 230	Q1 2023	92	
				2.55 - 230	Q4 2022	100	
				2.55 - 230	Q3 2022	100	
				2.55 - 230	Q2 2022	100	
				2.70 - 230	Q1 2022	100	
				2.70 - 230	Q4 2021	100	
				2.50 - 230	Q3 2021	100	
				2.50 - 230	Q2 2021	100	
				2.50 - 230	Q1 2021	100	
				2.50 - 230	Q4 2020	100	
				2.70 - 230	Q3 2020	100	
				2.55 - 268	Q2 2020	100	
2.55 - 268	Q1 2020	100					
2.55 - 268	Q4 2019	90					
LabCorp Burlington, NC	LC/MS/MS <sup>+</sup>	Estradiol in Serum	2.5 - 5000	4.07 - 230	Q2 2021	90	Majid Moridani <a href="mailto:moridam@labcorp.com">moridam@labcorp.com</a> 336-436-3102
				2.55 - 230	Q1 2021	90	
				2.55 - 230	Q4 2020	90	
				2.55 - 230	Q3 2020	88	
				2.55 - 230	Q2 2020	85	

Participant	Measurement Principle	Assay Identifier	Assay Measurement Range (pg/mL)	Certification Measurement Range (pg/mL)	Certification Date (active for 1 quarter)	Individual Samples Pass Rate (%)	Participant's Contact Information
<b>LabCorp</b> Calabasas Hills, CA	LC/MS/MS <sup>+</sup>	#500108 Estradiol, LC/MS (Endocrine Sciences)	1 - 500 (1 to 5,000 with validated dilution)	2.50 - 230	Q3 2023	92	Majid Moridani <a href="mailto:moridam@labcorp.com">moridam@labcorp.com</a> 336-436-3102  Dr. Brett Holmquist <a href="mailto:holmqub@labcorp.com">holmqub@labcorp.com</a> (818) 867-1362  Dr. Kelly Chun <a href="mailto:chunk@labcorp.com">chunk@labcorp.com</a> (818) 867-1358
				2.50 - 230	Q2 2023	92	
				2.50 - 230	Q1 2023	95	
				2.50 - 230	Q4 2022	90	
				2.70 - 230	Q3 2022	88	
				2.70 - 230	Q2 2022	85	
				2.70 - 230	Q1 2022	88	
				2.55 - 230	Q4 2021	95	
				2.55 - 230	Q3 2021	98	
				2.55 - 230	Q2 2021	100	
				2.55 - 230	Q1 2021	98	
				2.55 - 230	Q4 2020	98	
				2.55 - 230	Q3 2020	90	
				2.55 - 230	Q2 2020	88	
2.55 - 268	Q1 2020	90					
3.40 - 268	Q4 2019	90					

Participant	Measurement Principle	Assay Identifier	Assay Measurement Range (pg/mL)	Certification Measurement Range (pg/mL)	Certification Date (active for 1 quarter)	Individual Samples Pass Rate (%)	Participant's Contact Information
LabCorp Spokane, WA	LC/MS/MS <sup>+</sup>	ESTRADIOL (LCMSMS)	2.5 - 625 (2.5 - 5000 with validated dilution)	3.95 - 230	Q3 2023	95	Carissa Schmitz MLS(ASCP)CM <a href="mailto:Schmic4@LabCorp.com">Schmic4@LabCorp.com</a> (509) 755-8358
				3.95 - 230	Q2 2023	92	
				3.95 - 230	Q1 2023	90	
				3.95 - 230	Q4 2022	88	
				4.70 - 230	Q3 2022	85	
				4.07 - 230	Q2 2022	87	
				4.07 - 230	Q1 2022	92	
				4.07 - 230	Q4 2021	90	
				3.95 - 230	Q3 2021	88	
				3.95 - 230	Q2 2021	85	
				3.95 - 230	Q1 2021	85	
				3.95 - 230	Q4 2020	90	
				4.97 - 230	Q3 2020	88	
				6.21 - 230	Q2 2020	95	
6.21 - 230	Q1 2020	98					
5.90 - 216	Q4 2019	88					

Participant	Measurement Principle	Assay Identifier	Assay Measurement Range (pg/mL)	Certification Measurement Range (pg/mL)	Certification Date (active for 1 quarter)	Individual Samples Pass Rate (%)	Participant's Contact Information
<b>Mayo Clinic</b> Rochester, MN	LC/MS/MS <sup>+</sup>	Estradiol	10 - 600	11.7 - 230	Q3 2023	98	Sue Reicks <a href="mailto:reicks.sue@mayo.edu">reicks.sue@mayo.edu</a>
				11.7 - 230	Q2 2023	95	
				11.7 - 230	Q1 2023	95	
				11.7 - 230	Q4 2022	95	
				11.7 - 230	Q3 2022	92	
				11.7 - 230	Q2 2022	95	
				11.7 - 230	Q1 2022	100	
				11.4 - 230	Q4 2021	100	
				11.4 - 230	Q3 2021	100	
				11.4 - 230	Q2 2021	100	
				11.4 - 230	Q1 2021	100	
				11.7 - 230	Q4 2020	100	
				11.8 - 230	Q3 2020	95	
				17.1 - 230	Q2 2020	95	
				17.1 - 216	Q1 2020	95	
16.6 - 230	Q4 2019	92					

Participant	Measurement Principle	Assay Identifier	Assay Measurement Range (pg/mL)	Certification Measurement Range (pg/mL)	Certification Date (active for 1 quarter)	Individual Samples Pass Rate (%)	Participant's Contact Information
<b>Roche Diagnostics GmbH</b> Penzberg, Germany	LC/MS/MS†	Total Estradiol in Serum and Plasma	5 - 5000	9.64 - 230	Q3 2023	90	Judith Taibon <a href="mailto:judith.taibon@roche.com">judith.taibon@roche.com</a> 0049 8856 60 12941
				9.64 - 230	Q2 2023	100	
				9.64 - 230	Q1 2023	100	
				11.4 - 230	Q4 2022	100	
				9.64 - 230	Q3 2022	100	
				9.64 - 230	Q2 2022	92	
				9.34 - 216	Q1 2022	92	
				9.34 - 230	Q4 2021	92	
				9.34 - 230	Q3 2021	92	
				9.34 - 230	Q2 2021	95	
				9.64 - 230	Q1 2021	92	
9.64 - 230	Q4 2020	92					

† LC/MS/MS – Liquid Chromatography Tandem Mass Spectrometry