

No	Brand	FDA approved	CDC VDSCP	Metod	References	Proces	Sample	Specifity	Detection L	Assay Range (
1	IDS- 25 VitDS Immunoassay	Approved	Certified	CLIA	<a href="https://www.idsplc.com/pr">https://www.idsplc.com/pr</a>	Automated	Serum and Plasma	25(OH)D2 and 25(OH)D3		4.0-110
2	IDS-iSYS 25VitDS CLIA	Approved	Previously cer	CLIA	<a href="https://www.accessdata.fda">https://www.accessdata.fda</a>	Automated	Serum or Plasma (EDTA/Heparin)		LoB: 1.31 LoD: 1.98 LoQ: 3.53	4.0-110
3	IDS- 25-Hydroxy Vitamin Ds EIA Immunoassay	Approved	Certified	EIA	<a href="https://www.accessdata.fda">https://www.accessdata.fda</a>	Manual	Serum or Plasma (EDTA/Heparin)	25(OH)D2 and 25(OH)D3	LoB: 1.3 LoD: 2.7 LoQ: 4.8	6.5-100
4	IDS- 25-Hydroxy Vitamin D RIA Immunoassay	Approved	Not available	RIA	<a href="https://www.idsplc.com/pr">https://www.idsplc.com/pr</a>	Manual	Serum or Plasma (EDTA/Heparin)	25(OH)D and other hydroxylated metabolites		0 - 160
5	Diasorin LIAISON® 25 OH Vitamin D Total assay	Approved	Certified	Competitive	<a href="https://www.accessdata.fda">https://www.accessdata.fda</a>	Automated	Serum	25(OH)D2 and 25(OH)D3	LoD:2.0 LoQ: 4.0	4.0 - 150
6	Diasorin (formerly Incstar)- 25-Hydroxyvitamin D 125i RIA	Approved	Not available	RIA	<a href="https://www.accessdata.fda">https://www.accessdata.fda</a>	Automated	Serum and Plasma			

7	DIAsource 25OH Vitamin D Total-RIA-CT	Not available	Not available	RIA	<a href="https://www.ibl-america.com">https://www.ibl-america.com</a>	Manual	Serum	25(OH)D2 and 25(OH)D3	LoB: 0.8 LoD: 1.9 LoQ: 2.6	0/5.8-100
8	DIAsource- Total 25OH Vitamin D ELISA	Approved	Certified	ELISA	<a href="https://www.accessdata.fda.gov">https://www.accessdata.fda.gov</a>	Manual	Serum	25(OH)D2 and 25(OH)D3	LoB: 1.69 LoD: 2.81 LoQ: 4.32	7.7-122.9
9	Access 25(OH) Vitamin D Total Assay for use on the UniCel DxI 9000 Access Immunoassay Analyzer	Approved	Not available	CLIA	<a href="https://www.accessdata.fda.gov">https://www.accessdata.fda.gov</a>	Automated	Serum and Plasma	25(OH)D2 and 25(OH)D3	LoB: 2.5 LoD: 4.5 LoQ: 7.0	7-120

10	Access 25 (OH) Vitamin D Total for use on the Access 2 Immunoassay System	Approved	Not available	CLIA	<a href="https://www.accessdata.fda.gov/cdrh/devices/d110001/Abbott%20Diabetes%20Care%20Systems%20LLC%20Access%202%20OH%20Vitamin%20D%20Immunoassay%20System.pdf">https://www.accessdata.fda.gov/cdrh/devices/d110001/Abbott%20Diabetes%20Care%20Systems%20LLC%20Access%202%20OH%20Vitamin%20D%20Immunoassay%20System.pdf</a>	Automated	Serum and Plasma	25(OH)D2 and 25(OH)D3	LoB: 0.55 LoD: 1.0 LoQ: 3.0	7-120
11	ARCHITECT 25-OH Vitamin D assay	Approved	Certified	Chemiluminescence	<a href="https://www.accessdata.fda.gov/cdrh/devices/d110001/Abbott%20Diabetes%20Care%20Systems%20LLC%20Access%202%20OH%20Vitamin%20D%20Immunoassay%20System.pdf">https://www.accessdata.fda.gov/cdrh/devices/d110001/Abbott%20Diabetes%20Care%20Systems%20LLC%20Access%202%20OH%20Vitamin%20D%20Immunoassay%20System.pdf</a>	Automated	Serum and Plasma	25(OH)D2 and 25(OH)D3	LoB: 1.9 LoD: 3.1 LoQ: 8.0	13- 96

12	ARCHITECT 25-OH Vitamin D 5P02	Approved	Certified	Chemiluminescence	<a href="https://www.accessdata.fda.gov/drugsatfda_docs/CDER/2017/171221Orig1s001.pdf">https://www.accessdata.fda.gov/drugsatfda_docs/CDER/2017/171221Orig1s001.pdf</a>	Automated	Serum or Plasma (EDTA/Heparin)	25(OH)D2 and 25(OH)D3	LoB: 1.6 LoD: 2.2 LoQ: 2.4	3.4–155.9
13	Cobas Elecsys® Vitamin D total III	Approved	Certified	ECL binding	<a href="https://www.accessdata.fda.gov/drugsatfda_docs/CDER/2017/171221Orig1s001.pdf">https://www.accessdata.fda.gov/drugsatfda_docs/CDER/2017/171221Orig1s001.pdf</a>	Automated	Serum or Plasma	25(OH)D2 and 25(OH)D3	LoB: 1.6 LoD: 2.8 LoQ: 5.1	6-120

14	Siemens Dimension EXL LOCI Vitamin D Total Assay	Approved	Not available	CLIA	<a href="https://www.accessdata.fda.gov/cdlr/devices/2014/CDLR140010">https://www.accessdata.fda.gov/cdlr/devices/2014/CDLR140010</a>	Automated	Serum or Plasma (EDTA/Heparin)	25(OH)D2 and 25(OH)D3	LoB: 0.8 LoD: 1.3 LoQ: 5.0	5-150
15	Siemens Advia Centaur Vitamin D Total Assay	Approved	Not available	CLIA	<a href="https://www.accessdata.fda.gov/cdlr/devices/2014/CDLR140010">https://www.accessdata.fda.gov/cdlr/devices/2014/CDLR140010</a>	Automated	Serum or Plasma (EDTA/Heparin)	25(OH)D2 and 25(OH)D3	LoB: 1.6 LoD: 3.3 LoQ: 4.2	4.2-150
16	Siemens Atellica IM Vitamin D Total Assay	Not available	Certified	CLIA	<a href="https://www.siemens-healthineers.com/clinical-testing/immunoassay">https://www.siemens-healthineers.com/clinical-testing/immunoassay</a>	Automated	Serum	25(OH)D2 and 25(OH)D3	LoQ: 2.73	4.2-150
17	Maglumi 2000 25-Oh Vitamin D	Approved	Certified	CLIA	<a href="https://www.accessdata.fda.gov/cdlr/devices/2014/CDLR140010">https://www.accessdata.fda.gov/cdlr/devices/2014/CDLR140010</a>	Automated	Serum		LoB: 1.99 LoD: 3.80 LoQ: 5.37	5.37-143

18	Nichols Advantage 25-Hydroxyvitamin D	Approved	Not available	RIA	<a href="https://www.accessdata.fda.gov/drugsatfda_docs/nda/2015/014174Orig1s01.pdf">https://www.accessdata.fda.gov/drugsatfda_docs/nda/2015/014174Orig1s01.pdf</a>	Automated	Serum or Plasma	25(OH) vitamin D and other hydroxylated metabolites	LoD: 4.0 LoQ: 7.0	7-120
19	Sunlong Biotech- Human 25-hydroxy vitaminD3(25-OH-D3) ELISA	Not available	Not available	ELISA	<a href="https://www.sunlongbiotech.com/">https://www.sunlongbiotech.com/</a>	Manual	Serum, Plasma (EDTA or citrate), Urine, Cell Culture Media		Sensitivity: 0.1 ng/mL	0.5-40 ng/mL
20	MassChrom® 25-OHD3/D2 in Serum/Plasma - LC-MS/MS	Not available	Not available	LC-MS/MS	<a href="https://chromsystems.com/">https://chromsystems.com/</a>	Automated	Serum and Plasma			25(OH)D3: 1.0 - 250 µg/l 25(OH)D2: 1.0 - 250 µg/l
21	MassChrom® 25-OHD3/D2 and 3-epi-25-OHD3 in Serum/Plasma - LC-MS/MS	Not available	Not available	LC-MS/MS	<a href="https://chromsystems.com/">https://chromsystems.com/</a>	Automated	Serum and Plasma			25(OH)D3: 1.5- 250 µg/l 25(OH)D2: 1.5- 250 µg/l 3-epi-25(OH)D3: 1.5- 250 µg/l

No	Brand	Intraassay	Interassay	Total/Inter	Cross reactivity	Standardisation
1	IDS- 25 VitDS Immunoassay					ID-LCMS/MS Reference Method Procedure
2	IDS-iSYS 25VitDS CLIA	3.2-5.2		6.4-9.4	101% for 25(OH)D3 (20 ng/mL) 105% for 25(OH)D2 (20 ng/mL) 197% for 24,25 (OH)2D3 (25 ng/mL) 37% for 24,25 (OH)2D2 (25 ng/mL) 3% for 1,25 (OH)2D3 (20 ng/mL) 8% for 1,25 (OH)2D2 (20 ng/mL) 0% for 3-epi-25-(OH)D3 (100 ng/mL)	The IDS-iSYS 25 VitDS assay is traceable to the Ghent University isotope dilutionliquid chromatography/tandem mass spectrometry (ID-LCMS/MS) 25(OH)D Reference Method Procedure (RMP). The ID-LCMS/MS RMP is further traceable to the National Institute of Standards and Technology Standard Reference Material (NIST SRM) 2972. This assay has been standardized in accordance with the Vitamin D Standarization Program (VDSP). To achieve standardization, the IDS iSYS 25 VitDS assay master calibration parameters were aligned to the VDSP by using 136 single-donor human serum samples from the VSDP program, which were value assigned using the ID-LCMS/MS RMP.
3	IDS- 25-Hydroxy Vitamin Ds EIA Immunoassay	1.9-3.7		3.7-11.5	95% for 25(OH)D3 (10-20 ng/mL) 109% for 25(OH)D2 (10-20 ng/mL) 91% for 24,25 (OH)2D3 (4-6 ng/mL) 5% for 1,25 (OH)2D3 (2 ng/mL) 84% for 1,25 (OH)2D2 (20 ng/mL) -1% for 3-epi-25-(OH)D3 (100 ng/mL) -1% for 3-epi-25-(OH)D2 (100 ng/mL) 17% for Paricalcitol (100 ng/mL) 0% for Vitamin D3 (1000 ng/mL) 6% for Vitamin D2 (100 ng/mL)	The 25-Hydroxy Vitamin DS EIA assay is traceable to the isotope dilution-liquid chromatography/tandem mass spectrometry (ID-LC-MS/MS) 25(OH)D Reference Method Procedure (RMP) which is traceable to the National Institute of Standards and Technology Standard Reference Material (SRM) 2972 in accordance with the Vitamin D Standardization Program (VDSP).
4	IDS- 25-Hydroxy Vitamin D RIA Immunoassay					
5	Diasorin LIAISON® 25 OH Vitamin D Total assay	4.8-7.7		8.8-12.5	100% for 25(OH)D2 100% for 25(OH)D3 1.9% for Vitamin D2 1.9% for Vitamin D3 6.7% for 1,25-(OH)2D2 9.3% for 1,25-(OH)2D3 1.3% for 3-epi-25(OH)D3	Calibrators and control materials were cleared under k071480. Calibrators are traceable to concentrations determined by UV spectrophotometric analysis of an in-house standard preparation. The standard material used is a commercially available 25-Hydroxyvitamin 0. The stock solution of 25 OH Vitamin 0 is then used to make calibrators by diluting into human serum.
6	Diasorin (formerly Incstar)-25-Hydroxyvitamin D 125i RIA					

7	DIAsource 25OH Vitamin D Total-RIA-CT	4,7	6.7-5.8		100% for 25 (OH)D3 85% for 25 (OH)D2 4.1% for 1,25 (OH)2D3 0.2% for 1,25 (OH)2D2 Non detectable for Vitamin D3 0.1% for Vitamin D2 0.4% for 3-epi-25 (OH)D3 23% for 24,25 (OH)2D3 26.5% for 25,26 (OH)2D3	The assay is calibrated to the ID-LC-MS/MS reference method developed by Prof. Dr. Linda THIENPONT from the Ghent University in Belgium, as encompassed in the Vitamin D Standardization Program initiative. It shows a high correlation with other commercially available LC-MS/MS and RIA assays.
8	DIAsource- Total 25OH Vitamin D ELISA	2.5-7.8		4.5-9.4	20.3% for 1,25(OH)2D3 (200 ng/mL) 1.9% for 1,25(OH)2D2(690 ng/mL ) 2.9% for Vitamin D3 (200 ng/mL) 1.3% for Vitamin D2 (200 ng/mL) >100% for 24,25(OH)2D3 (20 ng/mL) >100% 25,26(OH)2D3 (4 ng/mL) 0.07% for 3-epi-25 (OH)D3 (20 µg/mL) 100% for 25 (OH)D3 (10 ng/mL) 83% for 25 (OH)D2 (10 ng/mL)	Calibrator values for all six levels have been assigned by using native serum samples that have been assayed by LC/MS-MS. The LC/MS-MS method has been validated against a reference method.
9	Access 25(OH) Vitamin D Total Assay for use on the UniCel DxI 9000 Access Immunoassay Analyzer	2.3-12.1		4.3-18.6	Concentration of 25(OH) vitamin D in sample: 20 ng/mL 40 ng/mL 100 ng/mL 1336% for 1, 25 (OH)2D2(9 ng/mL) at 20 ng/ml 1043% for 1, 25 (OH)2D2(9 ng/mL) at 40 ng/ml 2262 % for 1, 25 (OH)2D2(9 ng/mL) at 100 ng/ml 293% for 1, 25 (OH)2D3 (25 ng/mL) at 20 ng/ml 212% for 1, 25 (OH)2D3 (25 ng/mL) at 40 ng/ml 324% for 1, 25 (OH)2D3 (25 ng/mL) at 100 ng/ml 282% for Paricalcitol (Zemplar) (24 ng/mL) at 20 ng/mL 264% for Paricalcitol (Zemplar) (24 ng/mL) at 40 ng/mL 288% for Paricalcitol (Zemplar) (24 ng/mL) at 100 ng/mL 96% for 25OHD2 (40 ng/mL) at 20 ng/ml 99% for 25OHD2(40 ng/mL) at 40 ng/ml 116% for 25OHD2(40 ng/mL) at 100 ng/ml 64% for 3-epi-25(OH)D3 (100 ng/mL) at 20 ng/mL 54% for 3-epi-25(OH)D3 (100 ng/mL) at 40 ng/mL 70% for 3-epi-25(OH)D3 (100 ng/mL) at 100 ng/mL 9% for 24, 25 (OH)2D3 (104 ng/mL) at 20 ng/ml 2% for 24, 25 (OH)2D3 (104 ng/mL) at 40 ng/ml -13% for 24, 25 (OH)2D3 (104 ng/mL) at 100 ng/ml 0% for Vitamin D3 (19832 ng/mL) at 20, 40 and 100 ng/ml 0% for Vitamin D2 (19232 ng/mL) at 20, 40 and 100 ng/ml 0% for 1 (OH)D3 (8013 ng/mL) at 20, 40 and 100 ng/ml	The calibrators are traceable to a Joint Committee for Traceability in Laboratory Medicine (JCTLM) - approved isotope dilution mass spectrometry (ID-LC-MS/MS) reference method procedure (RMP) developed at Ghent University. This RMP is further traceable to the NIST SRM 2972.



10	Access 25 (OH) Vitamin D Total for use on the Access 2 Immunoassay System	1.5-3.8		6.8-7.7	<p>Concentration of 25(OH) vitamin D in sample: 20 ng/mL 40 ng/mL 100 ng/mL;</p> <p>1336% for 1, 25 (OH)2D2(9 ng/mL) at 20 ng/ml 1043% for 1, 25 (OH)2D2(9 ng/mL) at 40 ng/ml 2262 % for 1, 25 (OH)2D2(9 ng/mL) at 100 ng/ml 293% for 1, 25 (OH)2D3 (25 ng/mL) at 20 ng/ml 212% for 1, 25 (OH)2D3 (25 ng/mL) at 40 ng/ml 324% for 1, 25 (OH)2D3 (25 ng/mL) at 100 ng/ml 282% for Paricalcitol (Zemplar) (24 ng/mL) at 20 ng/mL 264% for Paricalcitol (Zemplar) (24 ng/mL) at 40 ng/mL 288% for Paricalcitol (Zemplar) (24 ng/mL) at 100 ng/mL 96% for 25OHD2 (40 ng/mL) at 20 ng/ml 99% for 25OHD2(40 ng/mL) at 40 ng/ml 116% for 25OHD2(40 ng/mL) at 100 ng/ml 64% for 3-epi-25(OH)D3 (100 ng/mL) at 20 ng/mL 54% for 3-epi-25(OH)D3 (100 ng/mL) at 40 ng/mL 70% for 3-epi-25(OH)D3 (100 ng/mL) at 100 ng/mL 9% for 24, 25 (OH)2D3 (104 ng/mL) at 20 ng/ml 2% for 24, 25 (OH)2D3 (104 ng/mL) at 40 ng/ml -13% for 24, 25 (OH)2D3 (104 ng/mL) at 100 ng/ml</p> <p>0% for Vitamin D3 (19832 ng/mL) at 20, 40 and 100 ng/ml 0% for Vitamin D2 (19232 ng/mL) at 20, 40 and 100 ng/ml 0% for 1 (OH)D3 (8013 ng/mL) at 20, 40 and 100 ng/ml</p>	The calibrators are traceable to a Joint Committee for Traceability in Laboratory Medicine (JCTLM) - approved isotope dilution mass spectrometry (ID-LC-MS/MS) reference method procedure (RMP) developed at Ghent University. This RMP is further traceable to the NIST SRM 2972.
11	ARCHITECT 25-OH Vitamin D assay	1.4-3.7		2.6-4.6	<p>102% for 25-(OH)D3 (100 ng/mL) 0% for Vitamin-D2 (1000 ng/mL) 0.3% for Vitamin-D3 (1000 ng/mL) 114% for 24,25-(OH)2 Vitamin D3(20 ng/mL) 11.5% for 1,25-(OH)2 Vitamin D3 (100 ng/mL) 3.1% for 3-epi 25-(OH)D3(100 ng/mL) 1.7% for Paricalcitol (Zemplar) (24 ng/mL)</p>	The ARCHITECT 25-OH Vitamin D is traceable to a manufacturer's internal standard (Primary Calibrator), which is anchored against Absorbance at 264 nm.

12	ARCHITECT 25-OH Vitamin D 5P02	1.9-4.5		3.1-6.9	Cross-reactivity across the three analyte levels (20 ng/mL, 30 ng/mL, and 40 ng/mL); 0.8% for Vitamin D3 (100 ng/mL) 0.4% for Vitamin D2 (100 ng/mL) 1.3% for C-3-epimer- of 25-(OH)D3 (OHD3) (100 ng/mL) 0.8% for C-3-epimer- of 25-(OH)D2 (OHD2) (100 ng/mL) 0.1% for 1,25-(OH)2D3 (100 ng/mL) -0.4% for 1,25-(OH)2D2(100 ng/mL) 101.9-189.2% for 24,25-(OH)2D3 (20 ng/mL) 71.4-114.2% for 24,25-(OH)2D2(20 ng/mL) 0.6% for Paricalcitol (Zemplar) (24 ng/mL)	The ARCHITECT 25-OH Vitamin D assay is standardized against NIST SRM 2972 (National Institute of Standards & Technology Standard Reference Material 2972)
13	Cobas Elecsys® Vitamin D total III	2.9-9.6		3.2-10.0	Normalized cross reactivity at 25-hydroxyvitamin D concentrations (25, 40 and 60 ng/mL); 100% for 25 (OH)D3 (50 ng/mL) 103.3% for 25 (OH)D2 (50 ng/mL) 8.1% for 24,25 (OH)2D3 (100 ng/mL) 121.6% for 3-epi-25 (OH)D3 (50 ng/mL) 102.7% for 3-epi-25 (OH)D2 (50 ng/mL) 0.9% for Vitamin D3 (1000 ng/mL) 0.7% for Vitamin D2 (1000 ng/mL) None detected % for 1,25 (OH)2D3 (100 ng/mL) 0.9% for 1,25 (OH)2D2 (100 ng/mL)	The device has been standardized using internal standards which are traceable to the ID-LC-MS/MS 25-hydroxyvitamin D Reference Measurement Procedure. The ID-LC-MS/MS is traceable to the National Institute of Standards and Technology Standard Reference Material 2972.

14	Siemens Dimension EXL LOCI Vitamin D Total Assay	1.8-5.6		4.1-8.7	<p>Cross reactivity at 25-hydroxyvitamin D concentrations (26.5-28.8 ng/mL);</p> <p>0.1% for Vitamin D2 (1000 ng/mL)</p> <p>-0.1% for Vitamin D3 (1000 ng/mL)</p> <p>151.9% for 1,25 (OH)2D2 (0.5 ng/mL)</p> <p>1.7% for 1,25 (OH)2D3 (0.5 ng/mL)</p> <p>3.9% for 3-epi-25 (OH)D3 (100 ng/mL)</p> <p>93.8% for Paricalcitol (24 ng/mL)</p> <p>0.1% for 1 (OH)D3 (3000 ng/mL)</p> <p>2.5% for 24,25 (OH)D3 (60 ng/mL)</p> <p>95.1% for 25 (OH)D2 (30 ng/mL)</p> <p>88.6% for 25 (OH)D3 (30 ng/mL)</p> <p>Cross reactivity at 25-hydroxyvitamin D concentrations (129-136.8 ng/mL);</p> <p>-0.1% for Vitamin D2 (1000 ng/mL)</p> <p>0.1% for Vitamin D3 (1000 ng/mL)</p> <p>1.3% for 1,25 (OH)2D2 (0.5 ng/mL)</p> <p>-224.5% for 1,25 (OH)2D3 (0.5 ng/mL)</p> <p>2.5% for 3-epi-25 (OH)D3 (100 ng/mL)</p> <p>70.8% for Paricalcitol (24 ng/mL)</p> <p>0% for 1 (OH)D3 (3000 ng/mL)</p> <p>1.2% for 24,25 (OH)D3 (60 ng/mL)</p> <p>94.1% for 25 (OH)D2 (30 ng/mL)</p> <p>90.1% for 25 (OH)D3 (30 ng/mL)</p>	Standardized using internal standards traceable by method correlation to Ghent University's IDLC-MS/MS 25 OH vitamin D Reference Method Procedure (RMP) which is traceable to NIST SRM 2972.
15	Siemens Advia Centaur Vitamin D Total Assay	2.7-7.0		4.8-11.1	<p>Cross reactivity at 25-hydroxyvitamin D concentrations (35, 55 and 115 ng/mL);</p> <p>0.5% for Vitamin D2 (1000 ng/mL)</p> <p>0.3% for Vitamin D3 (1000 ng/mL)</p> <p>104.5% for 25 (OH)D2 (30 ng/mL)</p> <p>100.7% for 25 (OH)D3 (30 ng/mL)</p> <p>4.0% for 1,25 (OH)2D2 (30 ng/mL)</p> <p>1.0% for 1,25 (OH)2D3 (30 ng/mL)</p> <p>1.1% for 3-epi-25 (OH)D3 (100 ng/mL)</p> <p>0.1% for Paricalcitol (24 ng/mL)</p>	The ADVIA Centaur Master Curve Materials (MCM) are traceable to internal standards, which are traceable to LC-MS/MS. The internal standards were value assigned via method correlation using clinical samples with LC/MS/MS values.
16	Siemens Atellica IM Vitamin D Total Assay					Traceable to the IDLC/MS/MS 25 (OH) vitamin D Reference Measurement Procedure
17	Maglumi 2000 25-Oh Vitamin D	1.45-5.04		2.98-9.23	<p>Cross reactivity at 25-hydroxyvitamin D concentrations (30 and 60 ng/mL);</p> <p>98.10% for 25-(OH)D2</p> <p>96.13% for 25-(OH)D3</p> <p>1.04% for Vitamin D2</p> <p>1.98% for Vitamin D3</p> <p>8.12% for 1,25-(OH)2D3</p> <p>8.77% for 1,25-(OH)2D2</p> <p>2.04% for 3-epi-25OH D3</p>	ID-LC-MS/MS traceable to NIST RMP 2972

18	Nichols Advantage 25-Hydroxyvitamin D	3.0-45		6.4-14.5	1.6% for Vitamin D2 1.4% for Vitamin D3 100% for 25-(OH)D2 100% for 25-(OH)D3 100% for 24,25-(OH)2D3 39% for 25,26-(OH)2D3 1.1% for 1,25-(OH)2D3	
19	Sunlong Biotech- Human 25- hydroxy vitaminD3(25-OH-D3) ELISA	<10	<12			
20	MassChrom® 25-OHD3/D2 in Serum/Plasma - LC-MS/MS					
21	MassChrom® 25-OHD3/D2 and 3-epi-25-OHD3 in Serum/Plasma - LC-MS/MS					