

Results from the NIST Reference Measurement Procedure for the October 2012 to October 2018 25-hydroxyvitamin D EQA Samples

Distribution	Sample No.	NIST 3-epi-25-OHD3 nmol/L	NIST 25-OHD2 nmol/L	NIST 25-OHD3 nmol/L	NIST 'Total' 25-OHD (25-OHD3 + 25-OHD2) nmol/L	DEQAS ALTM nmol/L	% Difference *
October 2012	421	2.3	1.0	57.5	58.5	55.4	-5.3
	422	1.7	1.7	36.6	38.2	36.2	-5.2
	423	5.7	1.0	84.6	85.6	81.2	-5.1
	424	2.6	1.0	46.2	47.2	47.0	-0.4
	425	2.5	1.0	46.2	47.1	46.9	-0.4
January 2013	426	0.4	1.1	33.4	34.5	32.0	-7.2
	427	4.5	0.9	75.2	76.1	72.5	-4.7
	428	2.8	2.5	52.3	54.8	51.8	-5.5
	429	3.0	0.6	58.9	59.5	58.5	-1.7
	430 ***	0.8	22.3	17.6	39.9	35.0	-12.3
April 2013	431	1.2	1.3	22.6	23.9	24.9	4.2
	432	2.9	2.7	48.6	51.3	50.0	-2.5
	433	11.7	1.2	90.4	91.6	88.2	-3.7
	434 !	2.4	4.4	74.2	78.6	67.2	-14.5
	435	2.4	0.5	46.1	46.6	45.8	-1.7
July 2013	436	4.0	1.3	76.7	78.0	83.2	6.7
	437	1.4	1.4	33.3	34.7	35.2	1.4
	438	2.7	1.8	54.8	56.6	57.3	1.2
	439	2.3	1.2	39.7	40.9	42.6	4.2
	440	2.3	1.3	47.1	48.4	51.3	6.0
October 2013	441	7.1	1.6	89.0	90.6	93.6	3.3
	442	4.6	1.6	73.8	75.4	82.3	9.2
	443	1.3	1.9	29.5	31.4	31.3	-0.3
	444	1.9	1.6	41.8	43.4	42.9	-1.2
	445 ***	1.4	14.8	39.3	54.1	49.3	-8.9
January 2014	446	5.7	0.9	91.8	92.6	96.7	4.4
	447	2.2	1.1	47.0	48.1	51.3	6.7
	448	1.3	1.8	30.7	32.5	32.7	0.6
	449	4.1	1.5	70.8	72.3	69.5	-3.9
	450	2.5	1.0	63.5	64.4	65.2	1.2

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April 2014	451	1.4	1.9	27.3	29.2	32.4	11.0
	452	7.8	1.1	99.0	100.1	114.9	14.8
	453	3.2	2.3	64.1	66.4	60.7	-8.6
	454	2.5	2.3	45.2	47.5	50.3	5.9
	455	na	1.4	50.9	52.3	55.5	6.1
July 2014	456	3.9	1.5	72.6	74.1	81.8	10.4
	457	1.4	2.0	39.0	41.0	42.0	2.4
	458	5.8	1.3	69.9	71.2	74.5	4.6
	459	4.8	0.9	92.5	93.4	99.4	6.4
	460	n/a	1.3	50.9	52.7	55.2	4.7
October 2014	461	2.7	2.1	55.0	57.1	56.6	-0.9
	462	4.5	1.2	80.0	81.2	80.1	-1.3
	463	5.6	0.7	85.7	86.4	91.9	6.4
	464	3.1	2.0	57.7	59.7	56.5	-5.4
	465 **	3.1	2.0	57.9	59.9	88.4	47.6
January 2015	466	3.1	1.0	63.4	64.4	66.1	2.6
	467	2.3	1.3	43.1	44.4	42.3	-4.7
	468	4.4	1.2	67.1	68.3	64.2	-6
	469	3.6	1.4	67.9	69.3	64.6	-6.8
	470	9.9	1.9	116.5	118.4	128.4	8.4
April 2015	471 ***	3.4	11.0	53.4	64.4	63.6	-1.2
	472	1.7	1.7	38.0	39.6	37.9	-4.4
	473	4.1	2.6	62.6	65.2	69.2	6.1
	474	5.5	1.3	77.4	78.6	82.6	5
	475	5.6	1.2	74.0	75.2	78.6	4.5
July 2015	476	5.4	0.7	100.4	101.1	99.7	-1.4
	477	1.8	1.8	43.5	45.3	42.8	-5.5
	478	2.5	1.2	73.5	74.6	74.1	-0.7
	479	1.0	1.4	30.9	32.3	30.8	-4.7
	480 ***	3.0	56.6	47.1	103.6	97.7	-5.7
October 2015	481	2.6	2.1	58.7	60.8	62.8	3.4
	482	1.8	0.8	34.8	35.6	34.5	-3.1
	483	5.2	0.8	115.4	116.2	118.6	2
	484	3.6	0.7	77.4	78.2	80.8	3.4
	485 !	1.8	1.1	47.1	48.2	44.2	-8.3
January 2016	486	2.3	0.5	28.3	28.7	30.6	6.5
	487	7.0	0.8	92.2	92.9	100.3	7.9
	488	4.8	1.2	65.6	66.8	69.0	3.3
	489	3.3	1.0	45.6	46.7	45.0	-3.4
	490	9.0	0.4	116.5	116.9	129.4	10.8

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April 2016	491	2.1	1.5	31.9	33.4	33.7	0.9
	492	3.1	1.1	50.5	51.6	53.4	3.5
	493	7.4	1.3	90.5	91.8	94.1	2.5
	494	3.7	1.1	70.8	71.9	68.7	-4.5
	495***	4.8	34.4	63.1	97.6	93.2	-4.5
July 2016	496	4.9	2.4	73.5	75.9	76.2	0.4
	497	3.6	1.4	48.6	50.0	54.1	8.2
	498	1.2	0.6	28.3	28.9	31.7	9.6
	499	3.4	1.4	49.8	51.2	54.2	5.9
	500	11.7	1.0	129.3	130.3	135.6	4.1
October 2016	501	6.5	2.8	93.4	96.2	100.4	4.4
	502	1.4	1.2	38.8	40.0	41.5	3.8
	503	5.5	1.4	79.5	80.6	87.1	8.1
	504	2.9	2.0	55.7	57.6	64.1	11.3
	505	0.9	0.7	21.0	21.7	23.5	8.3
January 2017	506	2.5	1.3	54.5	55.8	52.4	-6.1
	507	4.1	1.5	73.1	74.6	73.1	-2.1
	508	n/a	1.9	29.5	31.4	29.4	-6.4
	509	n/a	1.1	70.4	71.6	67.9	-5.1
	510	12.1	0.5	134.1	134.6	133.6	-0.8
April 2017	511	(4.3)	1.5	65.7	67.2	72.5	7.9
	512	(2.7)	1.9	44.9	46.8	49.9	6.6
	513	(6.8)	0.8	102.8	103.7	104.4	0.7
	514	(1.5)	0.6	27.1	27.7	29.6	6.9
	515	(3.0)	18.5	47.7	66.2	66.3	0.2
July 2017	516	2.9	1.3	45.2	46.5	47.3	1.7
	517	7.1	0.8	67.5	68.3	70.5	3.2
	518	8.7	1.2	103.7	105.0	110.3	5.0
	519	2.7	1.1	32.1	33.2	33.1	-0.3
	520	8.3	1.2	102.9	104.1	110.0	5.7
October 2017	521	2.1	1.0	39.6	40.5	41.2	1.7
	522	9.1	1.0	83.9	84.9	89.3	5.2
	523	1.2	3.5	22.5	25.9	25.7	-0.8
	524	14.1	0.9	107.9	108.8	124.8	14.7
	525	3.8	0.8	55.6	56.3	61.5	9.2

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January 2018	526	3.0	0.9	46.5	47.3	52.7	11.3
	527	5.5	1.0	88.4	89.4	96.1	7.5
	528	4.5	1.9	68.9	70.8	76.6	8.2
	529	1.4	0.7	19.9	20.5	25.4	23.7
	530***	2.8	21.5	36.8	58.3	58.2	-0.1
April 2018	531	2.1	1.0	22.2	23.3	27.1	16.5
	532	3.0	0.8	44.1	44.9	47.2	5.1
	533	4.9	1.9	74.8	76.7	83.4	8.8
	534	3.2	2.3	59.2	61.5	65.3	6.1
	535	9.1	1.6	134.1	135.6	147.1	8.5
July 2018	536	4.8	3.9	68.7	72.6	80.6	11.0
	537	3.5	0.6	46.2	46.8	49.1	4.9
	538	1.9	0.9	28.2	29.1	34.0	17.0
	539	5.2	1.1	78.6	79.7	85.6	7.4
	540	3.2	29.5	37.3	66.8	64.1	-4.0
October 2018	541	6.7	3.8	78.4	82.2	82.0	-0.3
	542	(2.5)	1.4	49.3	50.7	49.4	-2.5
	543	4.9	1.0	65.1	66.1	69.9	5.8
	544	3.6	1.0	46.4	47.4	50.2	5.8
	545^Δ	3.9	1.0	46.5	47.5	66.8	40.5

* % Difference of the ALTM from the NIST RMP assigned value. All values rounded to one decimal place.

** Sample spiked with 24,25-dihydroxyvitamin D

*** Sample contained a mixture of endogenous 25-OHD2 and 25-OHD3

! Lipaemic sample

n/a Result not available due to presence of an unknown interferent not completely resolved from the 3-epi-25OH-D3 peak

() Use result with caution due to presence of an unknown interferent not completely resolved from the 3-epi-25OH-D3 peak

Δ Sample spiked with biotin