



CPAL

Central Pennsylvania Alliance Laboratory

Technical Bulletin

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25-OH Vitamin D Assay

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Effective Date:

June 1, 2009

Mnemonic:

VIT D

Performed:

Daily (Monday-Friday)

Specimen:

Serum or Plasma; 0.5mL. Store at 2-8C up to 5 days; Freeze at -20C

Reference Range: 10-100 ng/mL

Vitamin D Status	25 OH Vitamin D
Deficiency	<10 ng/mL
Insufficiency	10-30 ng/mL
Sufficiency	30-100 ng/mL
Toxicity	>100 ng/mL

(Pediatric reference ranges have not been established.)

Note: Measurement of **Total** 25-OH Vitamin D is considered appropriate for most clinical application of this laboratory determination¹. In the rare circumstances in which the reporting of individual D2 and D3 levels is required testing by an alternative method will be required (Liquid Chromatography Mass Spectroscopy; LC-MS).

Summary:

CPAL now offers a total 25-OH Vitamin D assay for the combined measurement of Vitamin D2 (ergocalciferol) and Vitamin D3 (cholecalciferol). 25-OH Vitamin D

measurements are performed on the LIASON[®] platform (Diasorin, Inc.) utilizing a chemiluminescent immunoassay (CLIA) technology.

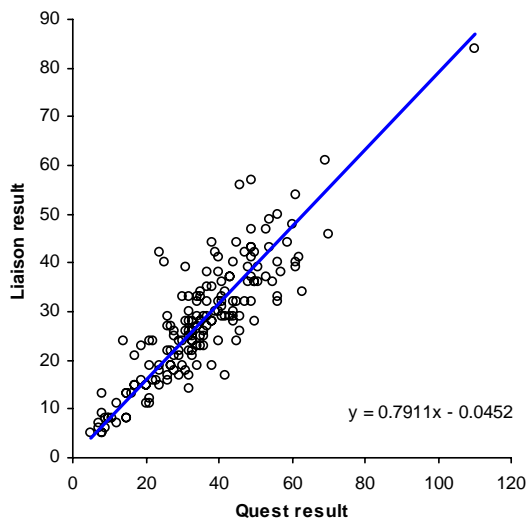
The role of vitamin D in bone and mineral metabolism was recognized from its first identification as a factor that could cure rickets. Now vitamin D is recognized as a prohormone, which has multiple roles in maintaining optimal health.

There are two forms of Vitamin D that can be measured in the blood, 25-hydroxy Vitamin D and 1,25-dihydroxy Vitamin D. 25-hydroxy Vitamin D (25-OH Vitamin D) is the major form found in the blood and is the inactive precursor to the active hormone 1,25-dihydroxy Vitamin D. Because of its long half-life and higher concentration, 25-OH Vitamin D is commonly measured to assess and monitor Vitamin D status.

Vitamin D comes from two sources: endogenous, which is produced in the skin on exposure to sunlight, and exogenous, which is ingested in foods and supplements. Vitamin D3 (cholecalciferol) and Vitamin D2 (ergocalciferol) are the most abundant forms of vitamin D in the body. Vitamin D3 is synthesized in the skin from the 7-dehydrocholesterol in response to sunlight. The best nutrition sources of D3 are oily fish, primarily salmon and mackerel. Vitamin D2's nutrition sources are from some vegetables, yeast and fungi.

This assay correlates well with RIA methodologies for the measurement of total 25-OH Vitamin D as demonstrated in published method comparison studies.^{2,3}

Correlation studies performed at CPAL compared the Diasorin, Inc. Liaison 25-OH vitamin D assay with results obtained by a reference laboratory (Quest) LC-MS method. We compared 174 specimens. Deming regression analysis yielded a slope of 0.7911. The CPAL method runs lower than the Quest method.



References

1. Binkley N, *et al.* Laboratory Reporting of 25-Hydroxyvitamin D results: Potential for Clinical Misinterpretation. *Clinical Chemistry*;52 (11) 2006. 2124-5.
2. Zerwekh, JE. Blood Biomarkers of Vitamin D Status. *Am J Clin Nutr* 2008;87 (suppl):1087S-91S.
3. Frenzel, EM *et al.* Development of the Liaison 25-OH Vitamin D assay with Improved Sensitivity and Precision. *J Bone Miner Res* 2006;21 (suppl):S450 (abstract).