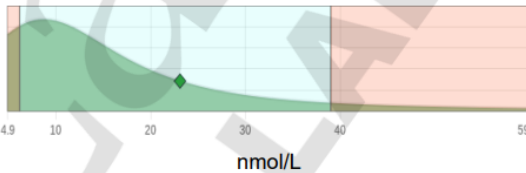


Patient Information	Specimen Information	Client Information

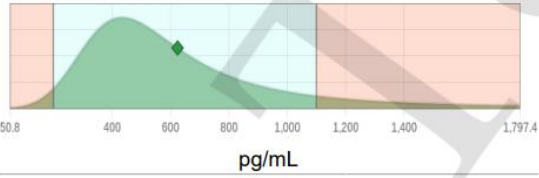
**Micronutrients**

Test Name	In Range	Out of Range	Reference Range	Population Distribution	Population Percentile	Historical Result
<b>B-VITAMINS</b>						
FOLATE Lab :	<b>10.1</b>		>5.4 ng/mL		24.6%	-
VITAMIN B1 (THIAMINE), BLOOD Lab :	<b>107</b>		78-185 nmol/L		21.1%	-
VITAMIN B2 Lab :	<b>23.1</b>		6.2-39.0 nmol/L		77.2%	-
VITAMIN B3 Lab :	<b>21</b>		<=110 ng/mL		92.9%	-
VITAMIN B5 Lab :	<b>60</b>		<275 ng/mL		49.4%	-
VITAMIN B6, PLASMA Lab :	<b>18.2</b>		2.1-21.7 ng/mL		56.7%	-

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SPECIMEN:

Patient Information	Specimen Information	Client Information

Test Name	In Range	Out of Range	Reference Range	Population Distribution	Population Percentile	Historical Result
VITAMIN B12 Lab :	<b>625</b>		200-1100 pg/mL		59.7%	-

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SPECIMEN:

Patient Information	Specimen Information	Client Information

**Comments**

Analyte Name
<p><b>FOLATE</b></p> <p>Folate from food and its synthesized form of folic acid are both considered forms of vitamin B9. Vitamin B9 is a vitamin coenzyme for nucleic acid synthesis, red blood cell production, and methionine regulation. Clinical deficiency is common in pregnant women, alcoholics, in patients who do not consume raw fruits and vegetables, and in people with damage to the small intestine. Low folic acid levels can be a result of vitamin B12 deficiency, which decreases the ability of cells to take up folic acid.</p> <p>For more information, visit <a href="https://ods.od.nih.gov/factsheets/Folate-HealthProfessional/">https://ods.od.nih.gov/factsheets/Folate-HealthProfessional/</a></p>
<p><b>VITAMIN B1 (THIAMINE), BLOOD</b></p> <p>Vitamin B1 is required for branched-chain amino acid and carbohydrate metabolism. Clinical deficiency is most often due to alcoholism or chronic illness. In the early stage, patients with vitamin B1 deficiency exhibit anorexia, irritability, apathy, and generalized weakness. Prolonged deficiency causes beriberi.</p> <p>For more information, visit <a href="https://ods.od.nih.gov/factsheet/Thiamin-HealthProfessional/">https://ods.od.nih.gov/factsheet/Thiamin-HealthProfessional/</a></p> <p>This test was developed and its analytical performance characteristics have been determined by Quest Diagnostics Nichols Institute, Chantilly, VA. It has not been cleared or approved by the FDA. This assay has been validated pursuant to the CLIA regulations and is used for clinical purposes.</p>
<p><b>VITAMIN B2</b></p> <p>Vitamin B2, or riboflavin, is a coenzyme involved in energy production, cellular function, growth, and development; metabolism of fats, drugs, and steroids, and is required for the metabolism of other B vitamins. Low levels can result in lesions of the mouth and skin, corneal vascularization, hair loss, anemia, and personality changes.</p> <p>For more information, visit <a href="https://ods.od.nih.gov/factsheets/Riboflavin-HealthProfessional/">https://ods.od.nih.gov/factsheets/Riboflavin-HealthProfessional/</a></p> <p>This test was developed and its analytical performance characteristics have been determined by Quest Diagnostics Nichols Institute, Chantilly, VA. It has not been cleared or approved by the FDA. This assay has been validated pursuant to the CLIA regulations and is used for clinical purposes.</p>
<p><b>VITAMIN B3</b></p> <p>Vitamin B3 (niacin) is involved in enzyme reactions, metabolism, and energy production. It can be given in pharmacologic doses to lower LDL cholesterol and triglycerides and raise HDL cholesterol.</p> <p>For more information, visit <a href="https://ods.od.nih.gov/factsheets/Niacin-HealthProfessional/">https://ods.od.nih.gov/factsheets/Niacin-HealthProfessional/</a></p> <p>This test was developed and its analytical performance characteristics have been determined by Quest Diagnostics Nichols Institute, Chantilly, VA. It has not been cleared or approved by the FDA. This assay has been validated pursuant to the CLIA regulations and is used for clinical purposes.</p>
<p><b>VITAMIN B5</b></p> <p>Vitamin B5 (pantothenic acid) is involved in fatty acid metabolism and in the citric acid cycle. It is essential to almost all forms of life and is widely distributed in food.</p> <p>For more information, visit <a href="https://ods.od.nih.gov/factsheets/Niacin-HealthProfessional/">https://ods.od.nih.gov/factsheets/Niacin-HealthProfessional/</a></p> <p>This test was developed and its analytical performance characteristics have been determined by Quest Diagnostics Nichols Institute, Chantilly, VA. It has not been cleared or approved by the FDA. This assay has been validated pursuant to the CLIA regulations and is used for clinical purposes.</p>
<p><b>VITAMIN B6, PLASMA</b></p> <p>Vitamin B6 (pyridoxine) is a coenzyme involved in hundreds of different reactions including amino acid metabolism and hemoglobin synthesis. It is also necessary for the nervous system and immune system.</p> <p>For more information, visit <a href="https://ods.od.nih.gov/factsheets/VitaminB6-HealthProfessional/">https://ods.od.nih.gov/factsheets/VitaminB6-HealthProfessional/</a></p> <p>This test was developed and its analytical performance characteristics have been determined by Quest Diagnostics Nichols Institute, Chantilly, VA. It has not been cleared or approved by the FDA. This assay has been validated pursuant to the CLIA regulations and is used for clinical purposes.</p>
<p><b>VITAMIN B12</b></p> <p>Vitamin B12 works with folate and vitamin C to help the body make new proteins. It is necessary for normal red blood cell and white blood cell formation, repair of tissues and cells, synthesis of DNA, and neurologic health. Low vitamin B12 may be a result of alcoholism, malabsorption, vegan diets, and some medications.</p> <p>For more information, visit <a href="https://ods.od.nih.gov/factsheets/VitaminB12-HealthProfessional/">https://ods.od.nih.gov/factsheets/VitaminB12-HealthProfessional/</a></p>

SPECIMEN:

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**End Notes:****Population Distribution Interpretation:**

Quest population data from 1/1/2020 to 3/16/2021 was used to build the population distribution curves. The x-axis represents the biomarker result value and the y-axis represents the patient kernel density estimate, which is a smoothed version of the histogram.

Solid grey lines represent reference interval cutoffs. A data point at the extent of the x-axis may represent a value below/above the lower/upper limits of the x-axis range.

The population percentile indicates where a patient's result is relative to the whole population. For example, a patient result labeled as 45th percentile means 45% of the population has a test result lower than this resulted value.

**PERFORMING SITE:****SPECIMEN:**