



PRODUCT DESCRIPTION	<p>Cologic is a blood test that measures levels of a metabolite called GTA-446 as a risk factor for colorectal cancer (CRC). The output is a quantitative value that determines whether a subject has normal or deficient levels. A deficient level represents a positive Cologic result, which means increased risk of CRC.</p>
CLINICAL UTILITY	<p>Cologic has several clinical uses:</p> <ul style="list-style-type: none">• Identifying high-risk individuals who should consider follow-up screening by colonoscopy or fecal-based testing (FIT). These individuals have approximately 1 in 34 likelihood of having CRC upon colonoscopy. Cologic has a sensitivity of 87% for early-stage (TNM I/II) CRC.• Improving screening compliance. Less than 30% of the population currently complies with recommended guidelines (including fecal-based testing) due to fear of colonoscopy or the <i>ick factor</i> of handling stool. A blood test will have high compliance and therefore far superior <i>program sensitivity</i>.• Improving the triage of patients on colonoscopy wait lists, especially where colonoscopy capacity is limited. Moving patients up the wait list based on a positive Cologic result will result in earlier detection.• Helping assess prognosis. There is a correlation between GTA-446 level and overall CRC survival; patients with low levels show significantly shorter survival than those patients with high levels. This could be used to aid in deciding aggressiveness of treatment.
CLINICAL STUDIES	<p>Cologic has been evaluated in numerous clinical studies including:</p> <ul style="list-style-type: none">• Multiple independent case-control cohorts around the world, which consistently showed a GTA-446 reduction in CRC patients compared to controls. Most of these studies are described in our publications.• A prospective clinical trial involving 5,000 colonoscopy subjects and 1,000 population controls performed at two hospitals in Saskatchewan over a two-year period, where 87% of subjects diagnosed with early-stage (I/II) CRC were Cologic positive and the positive predictive value (PPV) was 3.1%• Post-market surveillance of approximately 15,000 Cologic customers over a two-year period in Canada resulted in a PPV of 2.9% (1 in 34). 92% of the cases were undetected by fecal-based screening.
GTA-446 MECHANISM	<p>GTA-446 is a novel 28-carbon polyunsaturated fatty acid that inhibits cell proliferation and protects against inflammation of the gastrointestinal tract through the downregulation of NFκB, and subsequent reduction of numerous proinflammatory cytokines. Over time, a reduction of GTA-446 with age in certain individuals is believed to create a chronic inflammatory, pro-oncogenic environment. It is currently hypothesized that GTA-446 is the byproduct of specific gut microbes, and that its levels might be dependent on microbiome composition.</p>
TEST METHOD	<p>The current Cologic test is performed on 15μL of serum, collected using conventional phlebotomy. The assay is based on tandem mass spectrometry, and has been optimized to run on PDI's custom platform that can process up to 1000 samples per day. A proof-of-concept blood-spot version of Cologic has recently been developed to eliminate the need for conventional phlebotomy and improve distribution. The prototype product is based on a helical serum-separator technology that requires approximately two drops of blood from a finger-prick that can be performed in a person's home and mailed back to a central lab for analysis.</p>
REGULATORY STATUS	<p>Cologic is approved for use in Canada by Health Canada. The test is currently performed at Phenomenome Laboratory Services Inc (PLSI), a licensed medical laboratory in Saskatoon that is CLIA-compliant and certified by the College of American Pathologists (CAP) and the College of Physicians and Surgeons of Saskatchewan (SPSS).</p>
INTELLECTUAL PROPERTY	<p>Methods for the Diagnosis of Colorectal Cancer and Ovarian Cancer By the Measurement of Vitamin E-related Metabolites (LEG-117) US Prov 60/716,310 and US Prov 60/804,764. Issued in Canada (2619732), Australia (2006291988), Japan (5038311) and Singapore (165370); other countries pending.</p>
PUBLICATIONS	<ul style="list-style-type: none">• Reduced levels of hydroxylated, polyunsaturated ultra long-chain fatty acids in the serum of colorectal cancer patients: implications for early screening and detection. <i>BMC Medicine</i>. Feb 2010; 8: 13.• Reduction of novel circulating long-chain fatty acids in colorectal cancer patients is independent of tumor burden and correlates with age. <i>BMC Gastroenterology</i>. Nov. 2010; 10:140.• Human serum-derived hydroxyl long-chain fatty acids exhibit anti-inflammatory and anti-proliferative activity. <i>Journal of Experimental & Clinical Cancer Research</i>. 30:59, 2011.• GTA-446 anti-inflammatory fatty acid levels as a new risk factor for colon cancer. <i>Int J Cancer</i>. Jan 15, 2013; 132(2):355-62.