

CO-ORGANIZED EVENT

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## Serum biomarker panel (GastroPanel®) and slow-release L-cysteine (Acetium® Capsule): Rational for the primary prevention of gastric cancer

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**Statement of the Problem:** The major risk factors of gastric cancer (GC) are *Helicobacter pylori* (HP) infection and atrophic gastritis (AG). It is possible to diagnose HP-infection and AG by serological testing with panel of biomarkers (GastroPanel®, Biohit Oyj, Finland): pepsinogen I (PGI), pepsinogen II (PGII), gastrin-17 (G-17) and HP-antibodies. Severe AG leads to acid-free stomach colonized by HP and other bacteria, producing acetaldehyde (Group I human carcinogen; IARC). Together with other conditions leading to acid-free stomach, or those exposing the subjects to increased concentrations of acetaldehyde, these subjects are at high-risk for gastric and esophageal cancer.

**Methodology & Theoretical Orientation:** GastroPanel® is the first non-invasive diagnostic tool for dyspeptic symptoms, and for screening of asymptomatic subjects for the risks of GC. A novel formulation (Acetium® Capsule, Biohit) based on slow-release L-cysteine, designed to protect the stomach in these high-risk subjects by its capacity to eliminate carcinogenic acetaldehyde.

**Findings:** The test results test are interpreted by a specially designed software (GastroSoft®) identifying eight diagnostic marker profiles. Of those, four represent purely functional disorders, while three others specify structural abnormalities, and one is typical to HP-infection. Its superb clinical performance was validated in two recent meta-analysis, and the test has excellent longitudinal predictive values for incident GC. Acetium® Capsule is a unique medical device designed to elimination of carcinogenic acetaldehyde in the stomach among the high-risk subjects: AG associated with HP infection; autoimmune AG; cigarette smokers; alcohol consumers; chronic users of PPI medication, and those 500 million people in Asia with mutated ALDH2 enzyme exposed to higher local concentrations of acetaldehyde.

**Conclusion & Significance:** With a rational use of these two medical devices, one can diagnose the gastric high-risk conditions and subsequently protect the stomach against acetaldehyde exposure.

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