

Reprimo as a potential biomarker for early detection in gastric cancer

Bernal, Carolina

Aguayo, Francisco

Villarroel, Cynthia

Vargas, Macarena

Díaz, Ignacio

Ossandon, Francisco J.

Santibáñez, Eudocia

Palma, Mariana

Aravena, Edmundo

Barrientos, Carlos

Corvalan, Alejandro H.

Purpose: Gastric cancer is a curable disease if diagnosed at early stage. However, most cases are diagnosed at advanced stage because of the lack of screening programs. Therefore, the identification of plasma biomarkers for early detection is necessary. **Experimental Design:** To search for these biomarkers, we evaluated the DNA methylation patterns of 24 genes by Methylation-specific PCR in primary tissues from 32 retrospectively collected gastric cancer cases (testing group). Correlation between methylation and gene expression was evaluated in the MKN-45 cell line after treatment with 5-aza-2'-deoxycytidine. The most frequently hypermethylated genes were next evaluated in primary tissues and plasma samples from 43 prospectively collected gastric cancer cases as well as plasma samples from 31 asymptomatic age- and gender-matched controls (validation group). **Results:** In the testing group, 11 genes were hypermethylated in at least 50% of cases (APC, SHP1, E-cadherin, ER, Reprimo, SEMA3B,