In 2011, over 60,111 new cases of ovarian cancer were registered in the seven major markets and the number of associated deaths recorded was around 37,400. Ovarian cancer is the leading cause of gynecologic cancer mortality. Ovarian cancer is difficult to diagnose at the early stages as the symptoms are non-specific. There is a current need for novel markers and methods for the early diagnosis of ovarian cancer as 70% of cases are diagnosed at the advanced stages. Serum markers are of considerable value for the clinical screening, diagnosis, and monitoring.

**PROBLEM**
An ideal marker will have high sensitivity and high specificity, in order to discriminate cancer patients from healthy subjects as well as from patients with benign tumors or unrelated conditions. Elevated levels of CA-125 are found in 90% of advanced ovarian cancer patients, but in less than 50% of early stage I disease patients. CA-125 and the emerging HE4 are neither sufficiently sensitive nor specific to be used as a general screening tool.

**OUR PROPOSAL**
Dr Derek Boerboom and his team at the Faculté de Médecine Vétérinaire de l’Université de Montréal have identified a new sensitive biomarker for determining whether a subject suffers from ovarian cancer. This diagnostic method is based on the determination of the serum level of Valosin Containing Protein (VCP) in the patient.

Dr Boerboom found that VCP is abundantly secreted by cultured mouse granulosa cell tumor (GCT) cells. He validated that serum VCP levels are significantly increased in 100% of patients with ovarian carcinoma when compared to healthy subjects. Elevated levels of VCP are also observed in GCT (90%), non-Hodgkin’s lymphoma, breast, colon, and pancreatic cancer patients, but not in lung or prostate cancer. Moreover, increased VCP levels were observed in all ovarian cancer patients including those that tested negative for CA-125, the most widely-used marker to date. VCP is also elevated in some GCT, breast and colon cancer patients in whom standard serum biomarkers (e.g. inhibin A and B, CEA, or CA15.3) were present at normal levels.

**APPLICATIONS**
VCP is overexpressed in the serum of all ovarian carcinoma patients tested and it represents a new clinically useful marker for detecting this cancer. Its sensitivity is superior to the commonly used markers, indicating that it could be used for diagnosis, and in applications such as monitoring treatment efficacy or monitoring for disease recurrence.