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Ovarian Cancer Diagnosis through Genome-Scale Expression

Antonio Scilimati[1]*, Oreste Luisi[1], Maria Grazia Perrone[1] and **Anna De Grassi[2]**
[1]Department of Pharmacy – Pharmaceutical Sciences, University of Bari, Italy
[2]Department of Biosciences, Biotechnology and Biopharmaceutics, University of Bari, Italy

Epithelial ovarian cancer (EOC) is the most lethal gynaecologic malignancy. The global EOC burden is approximately 225, 000 new cases per year, with a survival rate of 30%.

EOC is hallmarked by a high degree of heterogeneity. This heterogeneity is apparent in tumor histopathology such as serous, mucinous, endometrioid and clear cell histotypes. The high-grade serous ovarian cancer (HGSOC) accounts for approximately 70% of all ovarian carcinoma.

Patients with HGSOC show diverse clinical outcomes and usually low survival rates (LSRs), even after thesame or very similar treatment regimens. This LSR would also be ascribed to the diagnosis usually made in advanced stage, because no or specific symptoms are related to EOC onset and progression. Early diagnosis determines the patient overall survival. Currently, CA 125 and HE4 are used as early stage EOC biomarkers. Unfortunately, they are not EOC specific and have a poor diagnostic rate, so that the EOC biomarker research is still a challenge.

In this presentation, we will show a comparison between the transcriptome profiles of hundreds of HGSOCs and normal tissues, obtained from RNAseq experiments and reported in big data portals. Our analysis resulted in a panel of tenths of genes that are strongly over-expressed in cancer tissues and might be novel candidates as cancer biomarkers. The expression of our selected genes was further tested on a different cohort of patients by comparing matched cancer and normal tissues by the nano-string technology to validate a panel of biomarkers suitable for a very precocious EOC diagnosis.

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Biography:

Dr. Antonio Scilimati graduated cum laude in Chemistry at the University of Bari (Bari, Italy). PhD at the University of Wisconsin (Madison, USA). Four years as a Qualified Person at MerckSerono plant producing recombinant drugs. Currently, he is an Associate Professor of Medicinal Chemistry at the University of Bari. His scientific interest focus the “pharmaceutical sciences”, targeting the cyclooxygenase (COX)-1 as a novel theranostic biomarker in oncology and neuroinflammation.