Introduction/Background Heme-oxygenase 1 (HO-1), programmed cell death protein 1 (PD-1) and its ligand (PD-L1) along with cytokines play an important role in ovarian cancer development. The changes of anti-cancer immunity in post-surgical period and its role in cancer progression are poorly understood. We intended to investigate HO-1, PD-1, PD-L1, immunosuppressive (IL-4) and proinflammatory (IL-1β, IL-6) interleukins expression in peripheral blood mononuclear cells (PBMCs).

Methodology The peripheral venous blood samples were collected before and after surgery on the 1st, 3rd and 5th day from 10 controls and 9 ovarian cancer patients (FIGO stage III-IV) for PBMCs isolation with FICOL Paque Premium and targets mRNA expression analysis. RNA extraction and synthesis of cDNA, quantitative real-time PCR assays were performed. Results are presented as median with interquartile range.

Results Median age of controls and cancer patients were 59 (26) and 58 (14) years respectively (p>0.05). The mRNA expression of all markers in PBMCs were significantly down-regulated in cancer patients before surgery comparing to controls (p<0.05). Relative median expression of HO-1, IL-1β, IL-4, IL-6, PD-1 and PD-L1 in controls and cancer patients respectively were 0.97 (0.33) vs 0.66 (0.5), 0.87 (1.95) vs 0.07 (0.16), 0.86 (1.39) vs 0.43 (0.61), 0.98 (1.15) vs 0.03 (0.03), 0.99 (0.94) vs 0.32 (0.50), 1.18 (0.66) vs 0.26 (0.36). Significant post-surgical changes in IL-6 and PD-L1 expression were observed along with not significant fluctuations of other targets expression (figure 1).

Conclusion Investigated components of anticaner immunity and immunosuppression mechanisms are affected by cancer and surgical treatment. Therefore, PBMCs are worthy targets for detailed investigation in this field.