Introduction/Background Endometrial cancer (EC) is the most common gynecological cancer and the second most common female malignancy in the developed world. Circulating soluble programmed death-2 ligand (sPD-L2) plays a crucial role within the tumor microenvironment for tumorigenesis. Not much is known about the functional consequence of cell surface-expressed PD-L2 or sPD-L2 in oncologic diseases, but understanding the molecular alterations involved in endometrial cancer provides personalized treatments through the incorporation of targeted therapies.

Methodology Our study aimed to investigate the percentage of peripheral blood (PB) monocytes (MO) with PD-L2 expression, and the prevalence of the sPD-L2 in the plasma of patients with endometrial cancer in comparison to healthy blood donors.

The percentage of PD-L2 positive MO was evaluated by flow cytometry. Soluble PD-L2 levels in the plasma of the EC patients (n=45) and the plasma of the healthy blood donors (n=20) were investigated via an immunoassay kit ELISA (sPD-L2 as specified by the manufacturer Invitrogen, USA). Plate absorbance was read on an ELX-800 plate reader (BioTek Instruments, Inc, USA) and analyzed by Gen5 (BioTek 218 Instruments, Inc). The concentrations of sPD-L2 (pg/mL) were calculated via interpolation from a standard curve.

Results The concentrations of sPD-L2 in the plasma of the EC patients were: median 134.720, range 47.696–11551.89 pg/mL. The sPD-L2 levels in the plasma of patients with endometrial cancer were significantly lower than in the control group (p<0.0001). The percentage of PD-L2 positive MO was significantly lower in the PB of patients with EC than in the control group (3.32% vs. 71.48 p<0.0001).

Conclusion There are significant differences in both, the percentage of PD-L2 positive MO, and sPD-L2 levels in patients with endometrial cancer and healthy women.