**Objectives** Uterine leiomyosarcoma (uLMS) is one of rare and aggressive gynecologic malignancies. In this study, we aimed to correlate immune cell profiling with clinical outcomes in uLMS.

**Methods** Total of 6 pathologically diagnosed uLMS patients were enrolled in this study. RNAs were extracted from FFPEs of normal and tumor lesions, and Cell Type Profiling analysis was conducted using nCounter, PanCancer Immune Profiling Panel (NanoString). For evaluating the related pathways, the RNAs were used to conduct microarray analysis using SurePrint G3 Human GE microarray 8 × 60K ver.2.0 (Agilent).

**Results** FIGO stage were IB in 4 patients, IIA in one patient, and IVB in one. We divided these patients into three groups by prognosis; good, no recurrence more than 2 years; intermediate, recurrent within 2 years; poor, recurrent immediately after surgery. In good prognostic group, CD8/regulatory T (Treg) ratio and Mast cell score in tumor lesions were elevated, and TP53 network, and DNA damage response signals were upregulated. In intermediate group, total TIL score in normal uterine were elevated, but CD8/Treg ratio was decreased in tumor lesion. And PI3K/AKT/mTOR signal and STAT3, IL8 signaling were upregulated. Finally, in poor prognostic group, total TIL score were decreased in normal and tumor lesions, and Neutrophil score was elevated in tumor lesions. Upregulation of DNA damage response but downregulated TP53 network.

**Conclusions** Immune cell profiling may predict clinical outcomes in uLMS. Further analyses, such as, correlation with signaling pathways affected to immune cell profiling in larger sample size are needed.