**Supplemental information**

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**FigureS1.**Increased MDSCs levels in peripheral blood and tumor from OC patients. **(A)** Gating strategy for flow cytometry analysis of both MDSC subsets in peripheral blood of OC patients. Flow cytometry analysis of frequencies of PMN-MDSCs **(B)** and M-MDSCs **(C)** in MDSCs (7-AAD-CD3-CD19-CD56-cells) from tumor tissues and matched peripheral blood of OC patients (n=32) compared to those in peripheral blood of healthy donors (n=28). **(D)**The comparison between PMN-MDSCs and M-MDSCs was also analyzed in peripheral blood of patients and healthy donors. Data are given as means ± SD. \**P*<0.05.

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**Figure S2.**Characterization of phenotype and immunosuppressive activity of MDSCs in OC patients.**(A)**The gene expression of COX-2, TNFα, IL-10, TGFβ, iNOS, or ARG1 was detected by qRT-PCR in PMN-MDSCs and M-MDSCs sorted from peripheral blood of OC patients (n=16) and healthy donors (n=13). Autologous CD8+T cells were stimulated by anti-CD3/anti-CD28 beads and in the absence or presence with PMN-MDSCs or M-MDSCs from peripheral blood of OC patients at the indicated ratios for 3 days (n=3). **(B)**The intracellular expression of IFN-, or perforin in CD8+T cells was examined by flow cytometry. The expression levels of ki67 and Annexin V in CD8**+** T cells were also examined by flow cytometry. Data are given as means ± SD. \**P*<0.05

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**FigureS3.** Phenotypic analysis of MDSCs following metformin treatment*.* **(A)**Flow cytometry analysis of ROS expression in PMN-MDSCs and M-MDSCs purified from peripheral blood of OC patients 48h after in vitro treatment of metformin or control solvents (n=3). **(B)**The gene expression of COX-2, TNFα, IL-10, TGFβ, iNOS, or ARG1 was detected by qRT-PCR in PMN-MDSCs and M-MDSCs purified from peripheral blood of OC patients 48h after in vitro treatment of metformin or control solvents (n=4). Data (means ± SD) are representative of three independent experiments.