# Supplementary Digital Content 1, Statistical Data

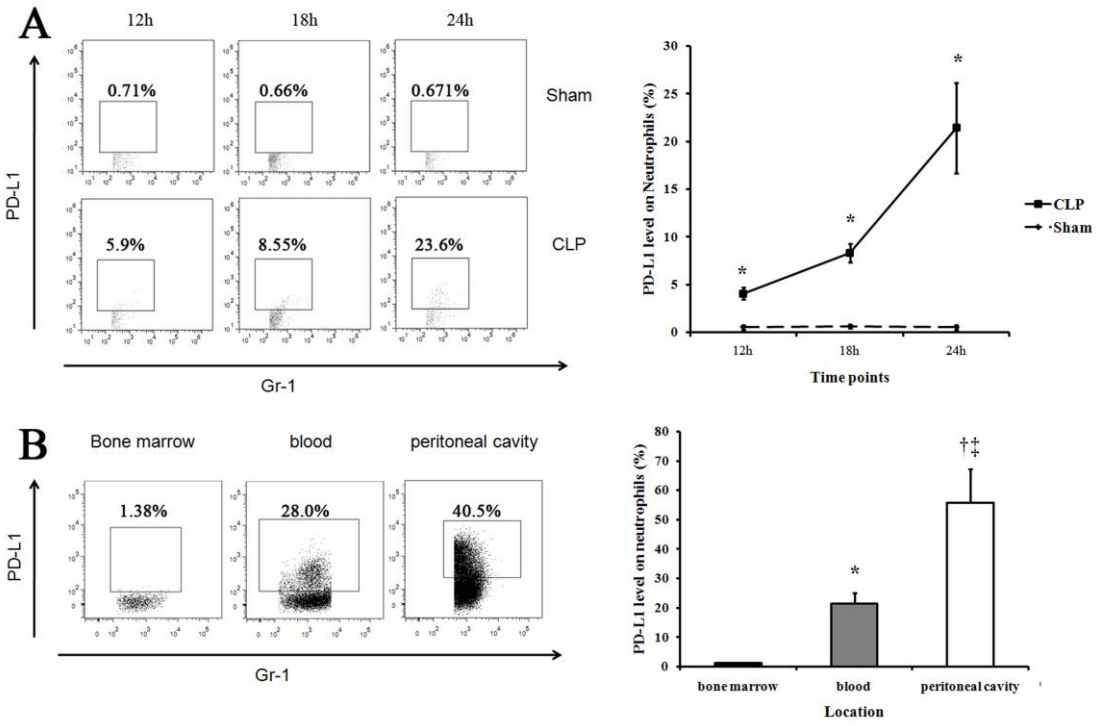


**Fig. 1. PD-L1 expression on neutrophils at different time points after CLP surgery and in different locations at 24 h after surgery.**

Different time points (A):

CLP *vs*. Sham for all time points, $p < 0.001$

CLP 12 h *vs*. CLP 18 h, $p=0.02$; CLP 12 h *vs*. 24 h, $p < 0.001$; CLP 18 h *vs*. CLP 24 h, $p < 0.001$.

Different location (B):

BM *vs*. Blood, BM *vs*. PC, Blood vs. PC, $p < 0.001$.

BM = bone marrow; CLP = cecal ligation puncture; PC = peritoneal cavity; PD-L1 = programmed death receptor 1 ligand 1.

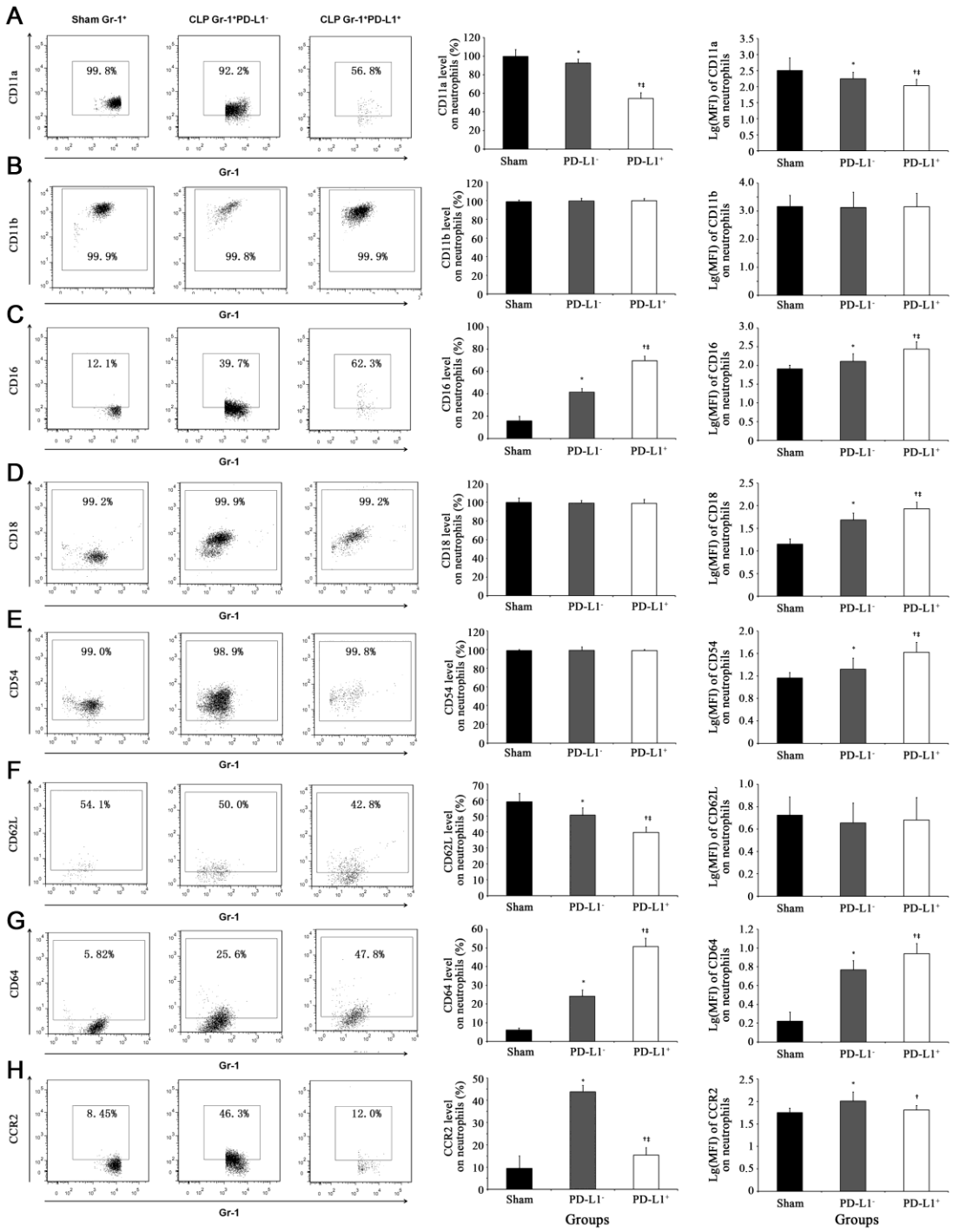


**Fig. 2. Comparison of CD11a, CD11b, CD16, CD18, CD54, CD62L, CD64, and CCR2 between neutrophils from sham operated mice, PD-L1$^{+}$ and PD-L1$^{-}$ neutrophils from CLP mice.**

Percentage:

CD11a (A): Sham *vs*. PD-L1$^{-}$, $p = 0.048$; SHAM *vs*. PD-L1$^{+}$, $p < 0.001$; PD-L1$^{-}$

*vs*. PD-L1$^{+}$, $p < 0.001$;

CD11b (B): Sham *vs*. PD-L1$^{-}$, $p = 0.413$; SHAM *vs*. PD-L1$^{+}$, $p = 0.939$; PD-L1$^{-}$ *vs*. PD-L1$^{+}$, $p = 0.457$;

CD16 (C): Sham *vs*. PD-L1$^{-}$, $p < 0.001$; SHAM *vs*. PD-L1$^{+}$, $p < 0.001$; PD-L1$^{-}$ *vs*. PD-L1$^{+}$, $p < 0.001$;

CD18 (D): Sham *vs*. PD-L1$^{-}$, $p = 0.233$; SHAM *vs*. PD-L1$^{+}$, $p = 0.725$; PD-L1$^{-}$ *vs*. PD-L1$^{+}$, $p = 0.130$;

CD54 (E): Sham *vs*. PD-L1$^{-}$, $p = 1.000$; SHAM *vs*. PD-L1$^{+}$, $p = 0.881$; PD-L1$^{-}$ *vs*. PD-L1$^{+}$, $p = 0.881$;

CD62L (F): Sham *vs*. PD-L1$^{-}$, $p = 0.006$; SHAM *vs.* PD-L1$^{+}$, $p < 0.001$; PD-L1$^{-}$ *vs*. PD-L1$^{+}$, $p = 0.001$;

CD64 (G): Sham *vs*. PD-L1$^{-}$, $p < 0.001$; SHAM *vs*. PD-L1$^{+}$, $p < 0.001$; PD-L1$^{-}$ *vs*. PD-L1$^{+}$, $p < 0.001$;

CCR2 (H): Sham *vs*. PD-L1$^{-}$, $p < 0.001$; SHAM *vs*. PD-L1$^{+}$, $p < 0.001$; PD-L1$^{-}$ *vs*. PD-L1$^{+}$, $p = 0.020$.

<u>MFI:</u>

CD11a (A): Sham *vs*. PD-L1$^{-}$, $p = 0.041$; SHAM *vs*. PD-L1$^{+}$, $p < 0.001$; PD-L1$^{-}$ *vs*. PD-L1$^{+}$, $p = 0.044$;

CD11b (B): Sham *vs*. PD-L1$^{-}$, $p = 0.874$; SHAM *vs*. PD-L1$^{+}$, $p = 0.960$; PD-L1$^{-}$ *vs*. PD-L1$^{+}$, $p = 0.914$;

CD16 (C): Sham *vs*. PD-L1$^{-}$, $p = 0.022$; SHAM *vs*. PD-L1$^{+}$, $p < 0.001$; PD-L1$^{-}$ *vs*. PD-L1$^{+}$, $p < 0.001$;

CD18 (D): Sham *vs*. PD-L1$^{-}$, $p < 0.001$; SHAM *vs*. PD-L1$^{+}$, $p < 0.001$; PD-L1$^{-}$ *vs*. PD-L1$^{+}$, $p = 0.006$;

CD54 (E): Sham *vs*. PD-L1$^{-}$, $p = 0.044$; SHAM *vs*. PD-L1$^{+}$, $p < 0.001$; PD-L1$^{-}$ *vs*. PD-L1$^{+}$, $p < 0.001$;

CD62L (F): Sham *vs*. PD-L1$^{-}$, $p = 0.480$; SHAM *vs*. PD-L1$^{+}$, $p = 0.652$; PD-L1$^{-}$ *vs*. PD-L1$^{+}$, $p = 0.796$;

CD64 (G): Sham *vs*. PD-L1$^{-}$, $p < 0.001$; SHAM *vs*. PD-L1$^{+}$, $p < 0.001$; PD-L1$^{-}$ *vs*. PD-L1$^{+}$, $p = 0.005$;

CCR2 (H): Sham *vs*. PD-L1$^{-}$, $p = 0.002$; SHAM *vs*. PD-L1$^{+}$, $p = 586$; PD-L1$^{-}$ *vs*. PD-L1$^{+}$, $p = 0.005$.

CCR2 = C-C chemokine receptor type 2; PD-L1 = programmed death receptor 1 ligand 1.

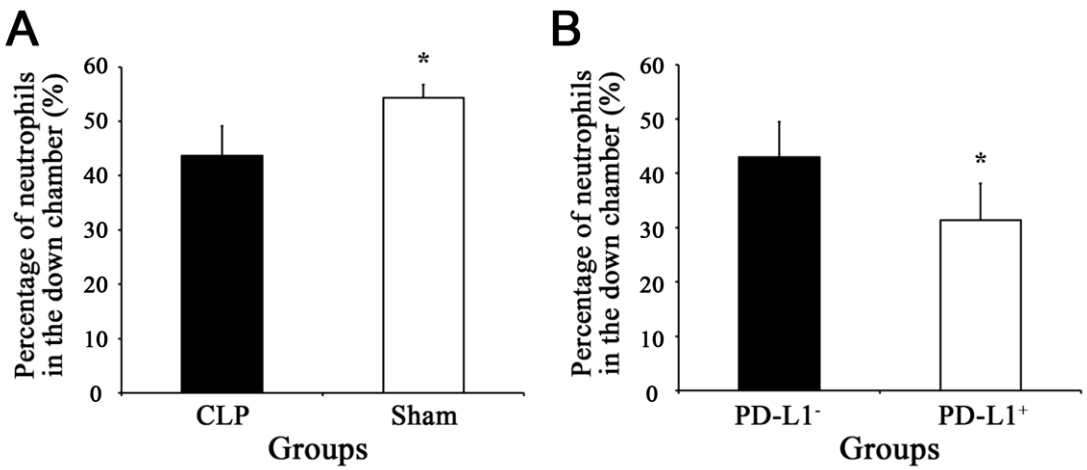


**Fig. 3. Migratory ability of neutrophils isolated from sham operated mice, PD-L1$^{+}$ and PD-L1$^{-}$ neutrophils from CLP mice.**

CLP *vs*. Sham, $p = 0.003$ (A); PD-L1$^{+}$ *vs*. PD-L1$^{-}$, $p = 0.013$ (B).

CLP = cecal ligation puncture; PD-L1 = programmed death receptor 1 ligand 1.

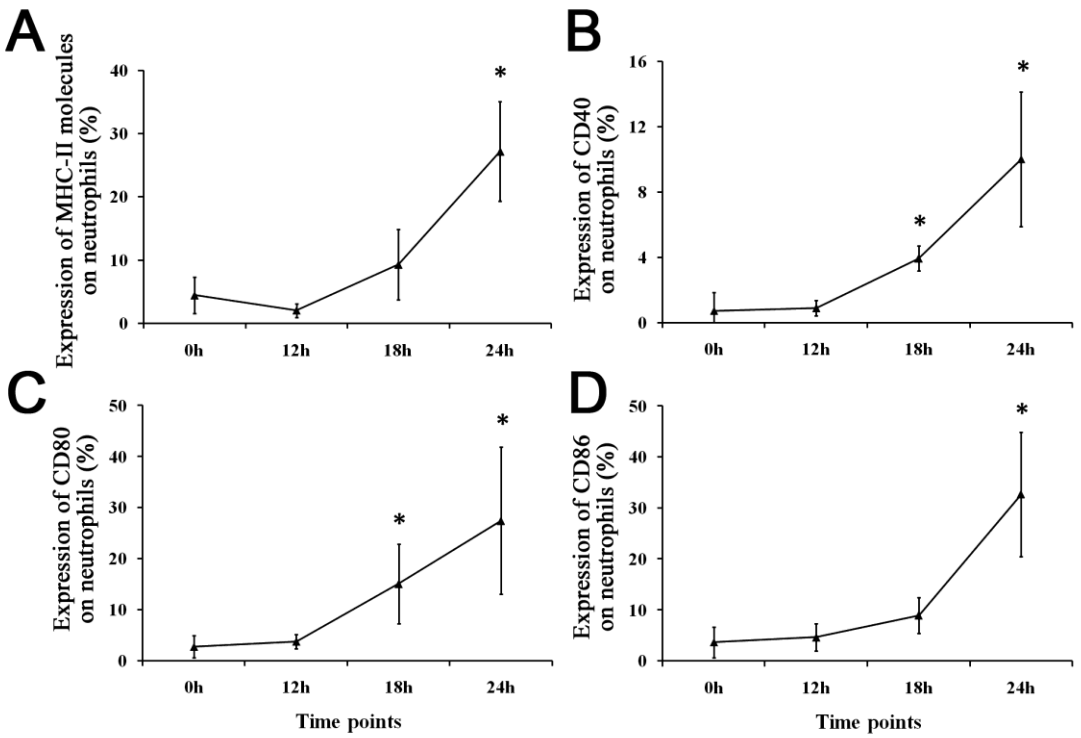


**Fig. 4. Expression of MHC class II molecule, CD40, CD80, and CD86 on neutrophils isolated from CLP mice.**

MHC-II (A): 0 h *vs*. 12 h, $p = 0.421$; 0 h *vs*. 18 h, $p = 0.111$; 0 h *vs*. 24 h, $p < 0.001$; 12 h *vs*. 18 h, $p = 0.022$; 12 h *vs*. 24 h, $p < 0.001$; 18 h *vs*. 24 h, $p < 0.001$; CD40 (B): 0 h *vs*. 12 h, $p = 0.907$; 0 h *vs*. 18 h, $p = 0.019$; 0 h *vs*. 24 h, $p < 0.001$; 12 h *vs*. 18 h, $p = 0.025$; 12 h *vs*. 24 h, $p < 0.001$; 18 h *vs*. 24 h, $p < 0.001$; CD80 (C): 0 h *vs*. 12 h, $p = 0.831$; 0 h *vs*. 18 h, $p = 0.018$; 0 h *vs*. 24 h, $p < 0.001$; 12 h *vs*. 18 h, $p = 0.029$; 12 h *vs*. 24 h, $p < 0.001$; 18 h *vs*. 24 h $p = 0.018$; CD86 (D): 0 h *vs*. 12 h, $p = 0.807$; 0 h *vs*. 18 h, $p = 0.185$; 0 h *vs*. 24 h, $p < 0.001$; 12 h *vs*. 18 h, $p = 0.273$; 12 h *vs*. 24 h, $p < 0.001$; 18 h *vs*. 24 h $p < 0.001$.

CLP = cecal ligation puncture; MHC = major histocompatibility complex.

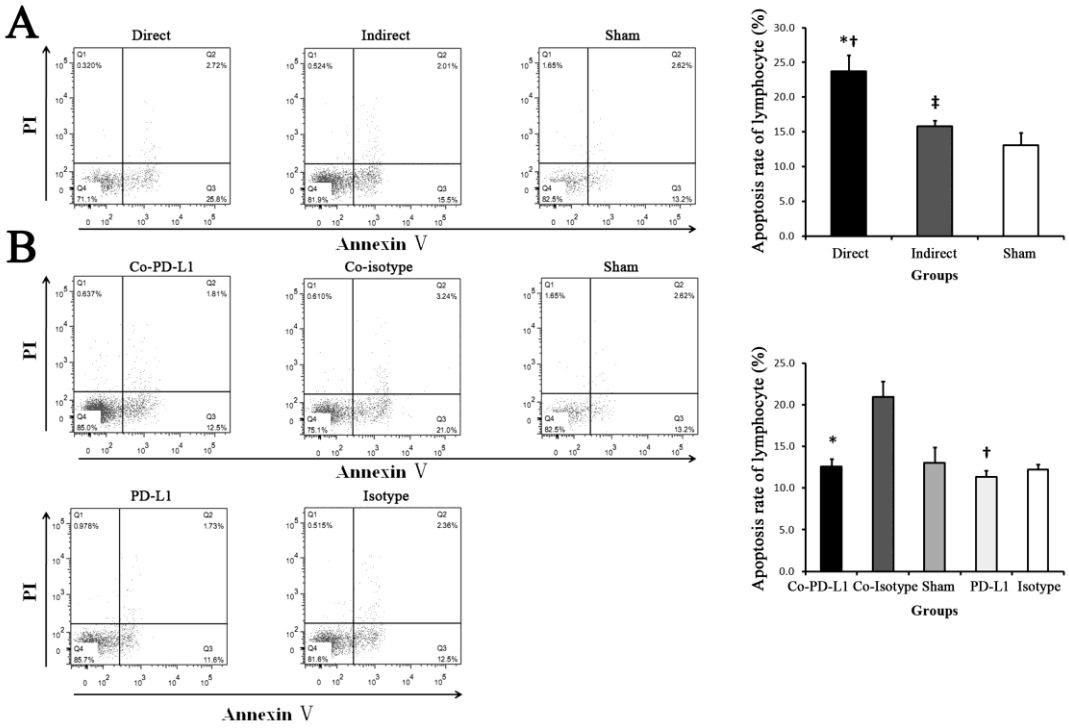


**Fig. 5. Influence of PD-L1 on neutrophils from CLP mice on lymphocyte apoptosis.**

A. Direct *vs*. Indirect, $p < 0.001$; Direct *vs*. Sham, $p < 0.001$; Indirect *vs*. Sham, $p = 0.015$;

B. Co-PD-L1 *vs*. Co-Isotype, $p < 0.001$; Co-PD-L1 *vs*. Sham, $p = 0.530$; Co-PD-L1 *vs*. PD-L1, $p = 0.117$; Co-PD-L1 *vs*. Isotype, $p = 0.633$; Co-Isotype *vs*. Sham, $p < 0.001$; Co-Isotype *vs*. PD-L1, $p < 0.001$; Co-Isotype *vs*. Isotype, $p < 0.001$; Sham *vs*. PD-L1, $p = 0.033$; Sham *vs*. Isotype, $p = 0.273$; PD-L1 *vs*. Isotype, $p = 0.264$.

CLP = cecal ligation puncture; PD-L1 = programmed death receptor 1 ligand 1.

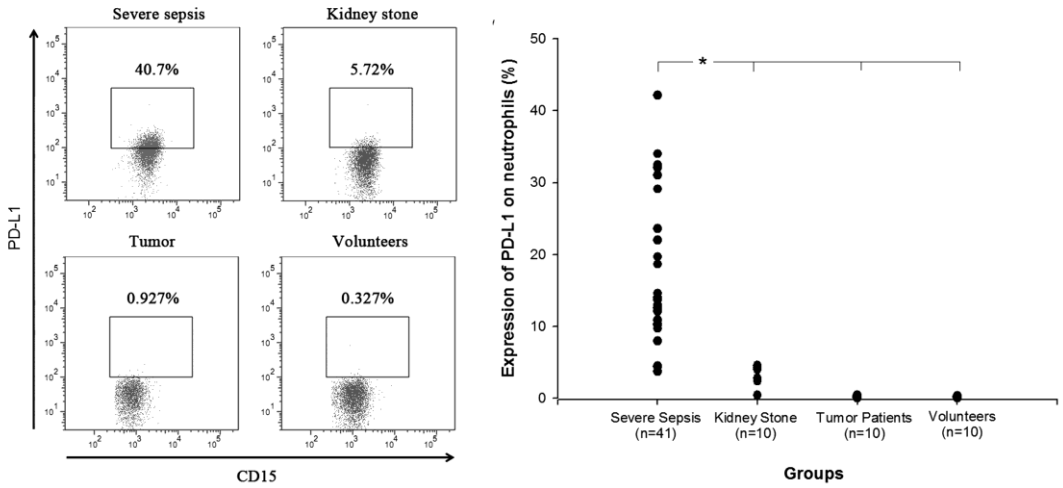


**Fig. 6. PD-L1 expression on neutrophils from patients with severe sepsis, sepsis after PCNL for infectious kidney stone, tumor and healthy volunteers.**

Severe sepsis *vs*. Kidney stone, $p = 0.009$; Severe sepsis *vs*. Tumor patients $p < 0.001$; Severe sepsis *vs*. Volunteers, $p < 0.001$; Kidney stone *vs*. Tumor patients $p = 0.550$; Kidney stome *vs*. Volunteers, $p=0.314$; Tumor patients *vs*. Volunteers, $p = 0.980$.

PCNL = percutaneous nephrolithotomy; PD-L1 = programmed death receptor 1 ligand 1.

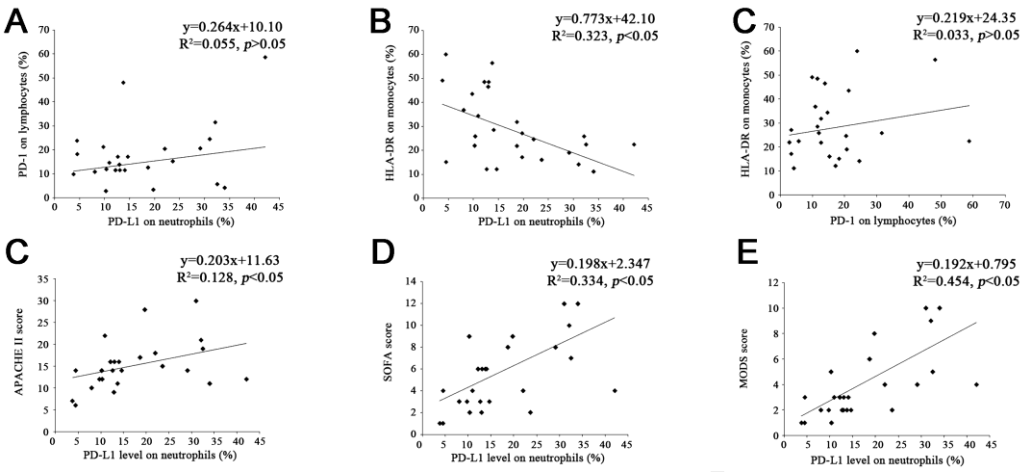


**Fig. 7. The correlation of neutrophil PD-L1 with marker of immunosuppression and disease severity by linear regression analysis.**

A. Neutrophil PD-L1 *&* Lymphocyte PD-1, $p = 0.139$; B. Neutrophil PD-L1 *&* Monocyte HLA-DR, $p = 0.010$; C. Lymphocyte PD-1 *&* Monocyte HLA-DR, $p = 0.255$. D. Neutrophil PD-L1 *&* APACHE II score, $p = 0.021$; E. Neutrophil PD-L1 *&* SOFA score, $p < 0.001$; F. Neutrophil PD-L1 *&* MODS, score $p < 0.001$.

APACHE = acute physiology and chronic health evaluation; HLA-DR = human leukocyte antigen DR; MODS = multiple organ dysfunction syndrome; PD-1 = programmed death receptor 1; PD-L1 = programmed death receptor 1 ligand 1; SOFA = sequential organ failure assessment.

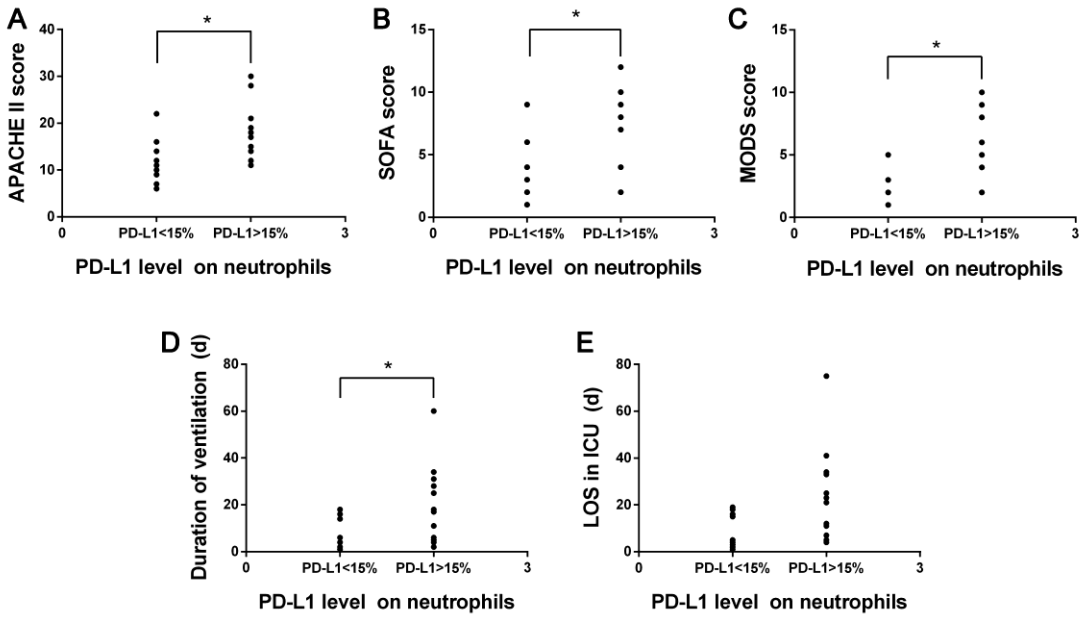


**Fig. 8. Disease severity, duration of mechanical and LOS in ICU in patients with different PD-L1 level on neutrophils.**

* $p < 0.05$ by Mann-Whitney *U* test.

A. APACHE II score, $p = 0.002$; B. SOFA score, $p = 0.001$; C. MODS score, $p < 0.001$; D. mechanical ventilation, $p = 0.033$; E. LOS, $p = 0.060$.

APACHE = acute physiology and chronic health evaluation; HLA-DR = human leukocyte antigen DR; ICU = intensive care unit; LOS = length of stay; MODS = multiple organ dysfunction syndrome; PD-L1 = programmed death receptor 1 ligand 1; SOFA = sequential organ failure assessment.