Supplementary data

Oral Fullerene Tablets for Colorectal Cancer Therapy Based on Modulation of Tumor Inflammatory Microenvironment

Xinran Cao [a,b], Mingming Zhen [a,b*], Lei Li [a,b], Zhanfeng Wu [a,b], Chen Zhou [a,b], Jiawei Huo [a,b], Shenge Su [a,b], Yuan Xu [a,b] Wang Jia [a,b], Xiaodan Liao [a,b], Zihao Sun [a,b] , Hui Li[c], and Chunru Wang [a,b*]

[a] Beijing National Laboratory for Molecular Sciences, Key Laboratory of Molecular Nanostructure and Nanotechnology, Institute of Chemistry, Chinese Academy of Sciences, Beijing 100190, China

[b] University of Chinese Academy of Sciences, Beijing 100049, China

[c] Beijing Fullcan Biotechnology Co. Ltd, Beijing, 100085, China

*E-mail: zhenmm@iccas.ac.cn, crwang@iccas.ac.cn

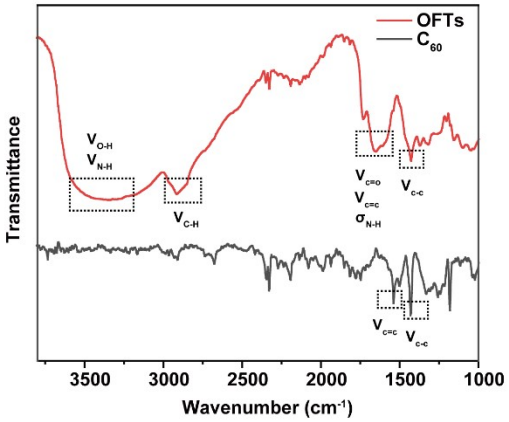


Fig. S1. FT-IR spectrum analysis of OFTs.

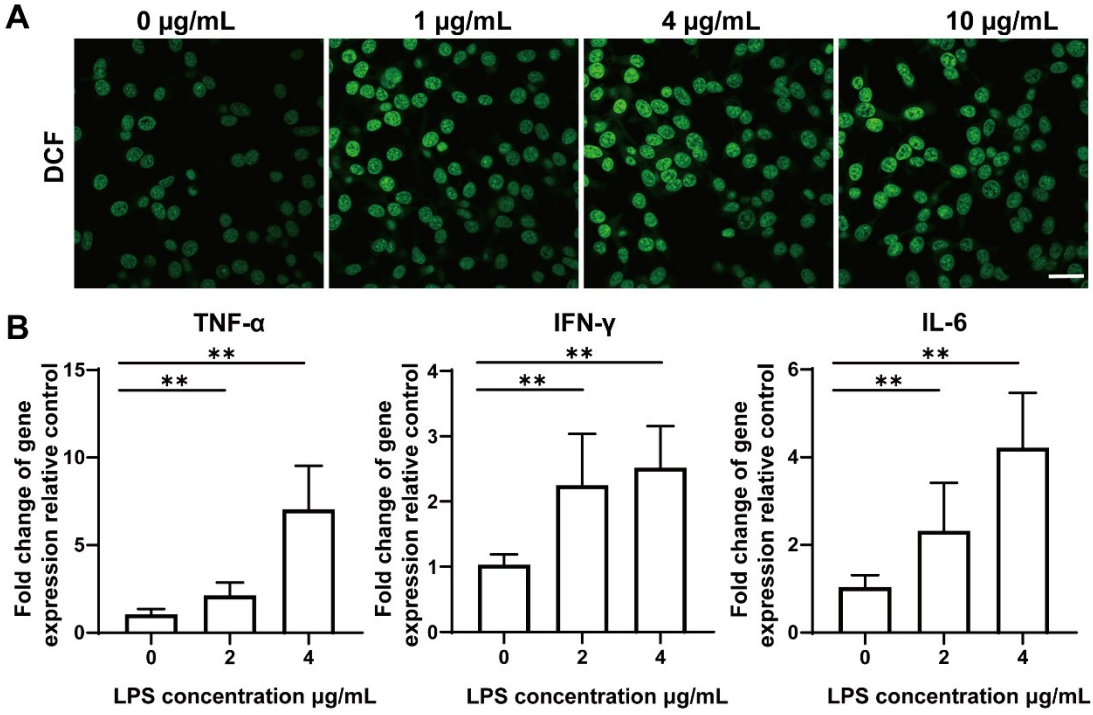


Fig. S2. Establishment of an inflammatory cell model using lipopolysaccharide (LPS) stimulation on CT26 colon cancer cells. (A) Confocal fluorescence images of DCF in CT26 cells with different concentrations of LPS treatment. Scale bar, 30 μm. (B) The levels of mRNA expression of inflammatory cytokines (TNF-α, IFN-γ and IL-6) in the CT26 cells by different concentrations of LPS treatment. The data are shown as the mean ± s.d. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

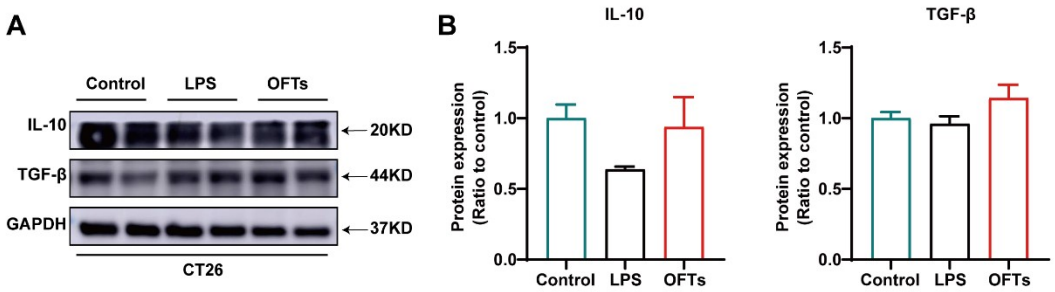


Fig. S3. Effect of OFTs on anti-inflammatory factors in CT26 cells. (A-B) The protein expression and quantitative analysis of IL-10 and TGF-β of CT26 cells after different treatments via WB. The data are shown as the mean ± s.d. *p < 0.05, **p < 0.01, ***p < 0.001.

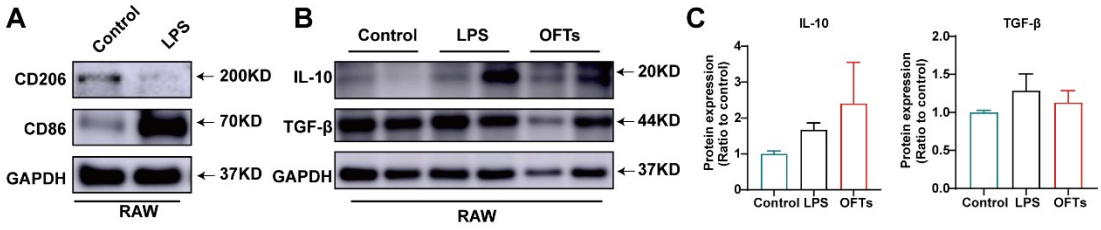


Fig. S4. Establishment of an inflammatory cell model using lipopolysaccharide (LPS) stimulation on RAW cells. (A) M2 marker CD206, and M1 marker CD86 protein expressions before and after co-incubation of RAW with LPS. (B-C) The protein expression and quantitative analysis of IL-10 and TGF-β of RAW cells after different treatments via WB. The data are shown as the mean ± s.d. *p < 0.05, **p < 0.01, ***p < 0.001.

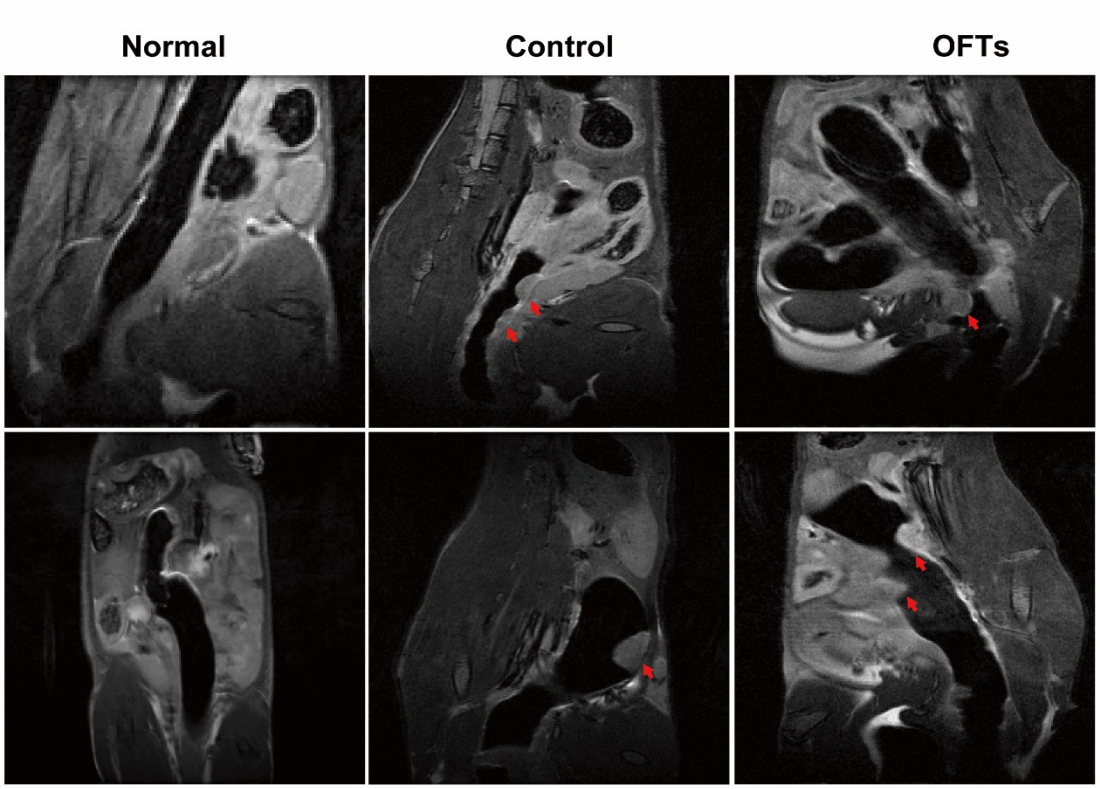


Fig. S5. MRI of tumors in the colorectal area of mice (the red arrows refer to the tumors).

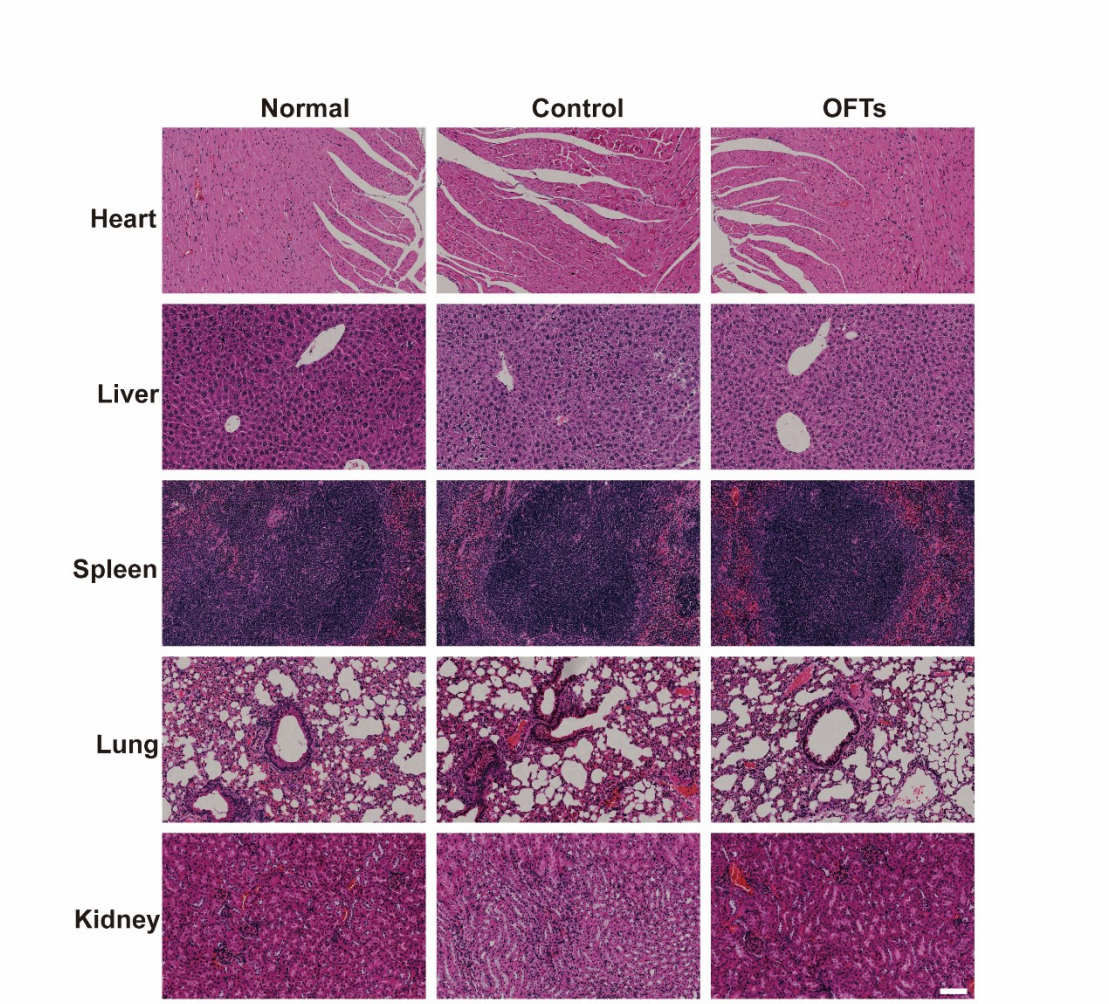


Fig. S6. Representative images of H&E staining of heart, liver, spleen, lung, and kidney at the end of treatment. Scale bar, 100 μm.

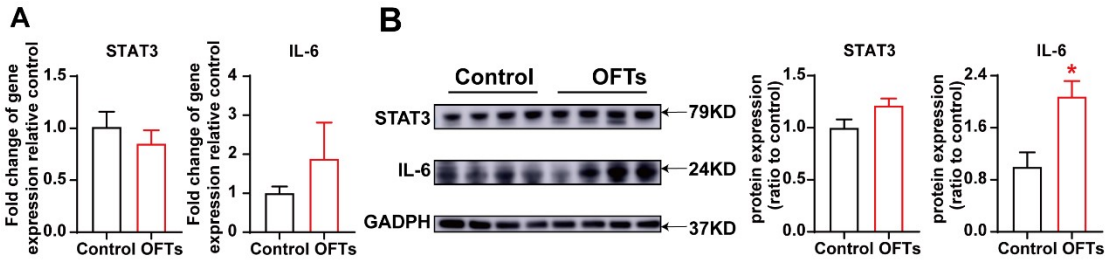
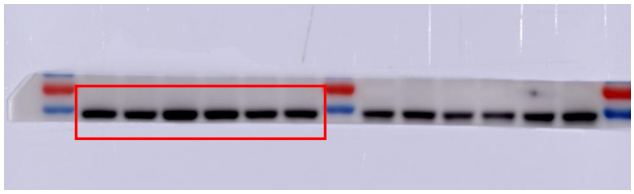


Fig. S7. Clearance of inflammation in tumors. (A) The gene expression of STAT3 and IL-6 mRNAs compared by qRT-PCR. **(B)** The protein expression and quantitative analysis of STAT3 and IL-6 of tumors treated with OFTs via WB. The data are shown as the mean ± s.d. *p < 0.05, **p < 0.01, ***p < 0.001.

Full uncropped Western blots in manuscript

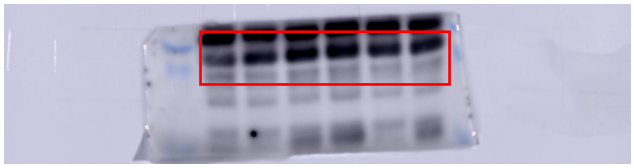
Figure 2

NF-κB

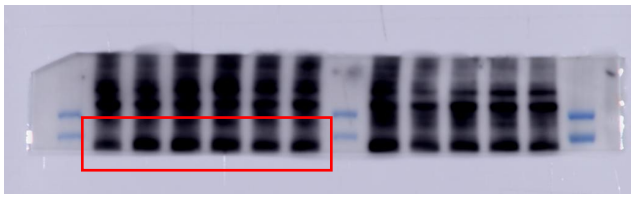


TNF-α

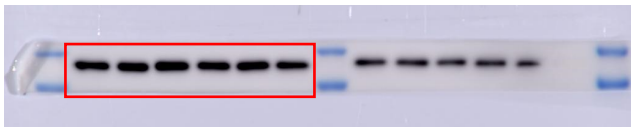
IFN-γ



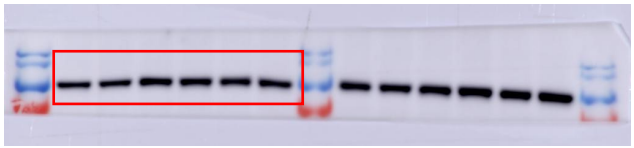
iNOS



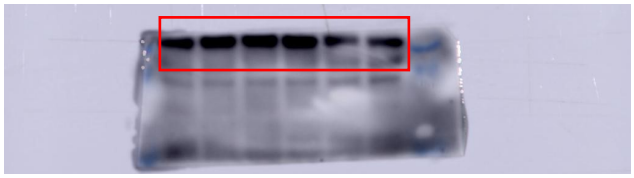
GAPDH



STAT3



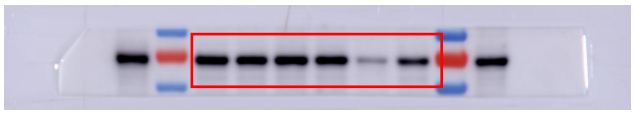
IL-6



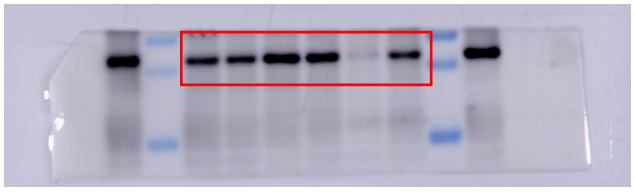
GAPDH

Figure 3

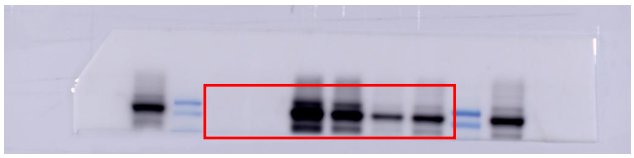
NF-KB



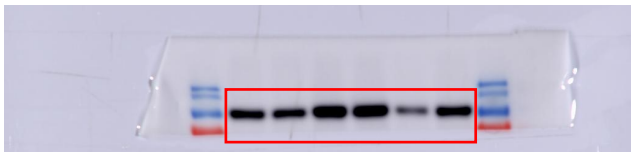
IFN-γ



iNOS



STAT3



GAPDH

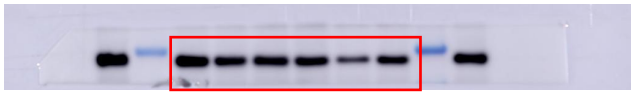
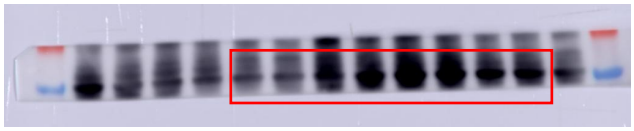


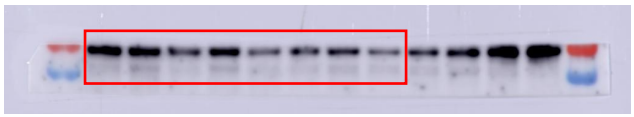
Figure 5

P53

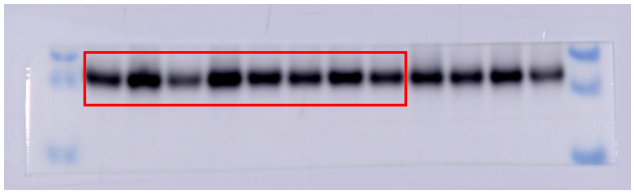


GAPDH

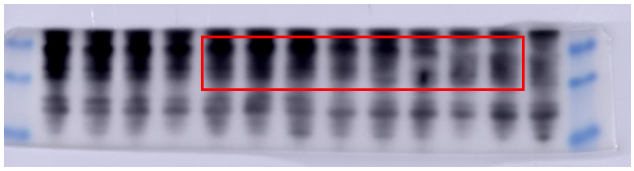
NF-κB



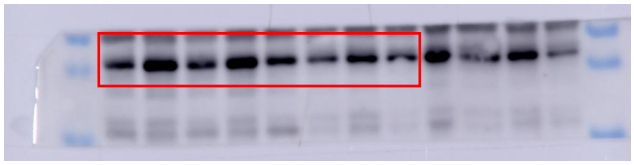
P-IκBα



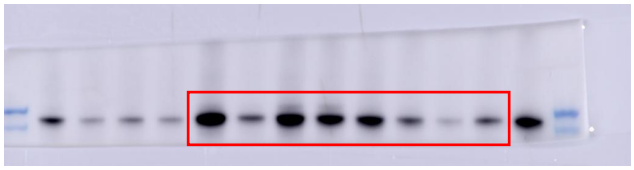
TNF-α



IFN-γ

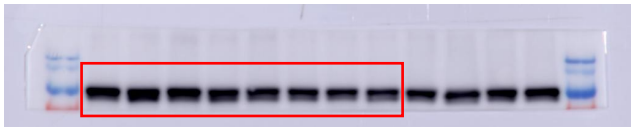


iNOS

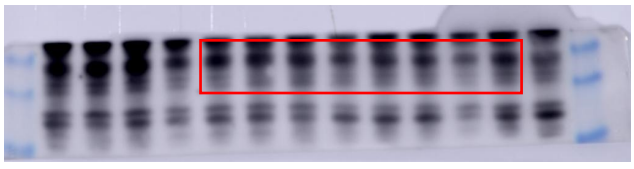


GAPDH

STAT3



IL-6



GAPDH

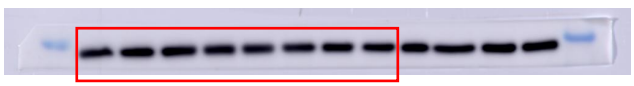
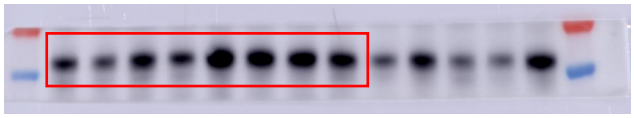
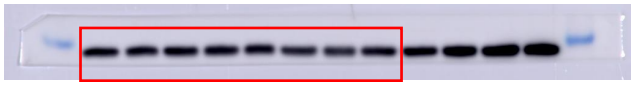


Figure 6

P53

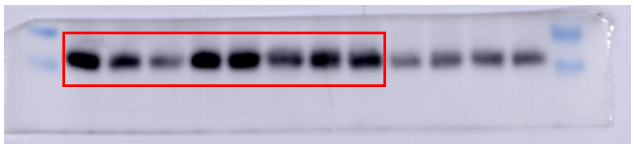


GAPDH



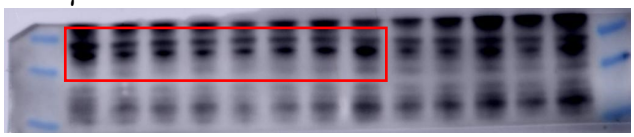
NF-κB

P-IκBα

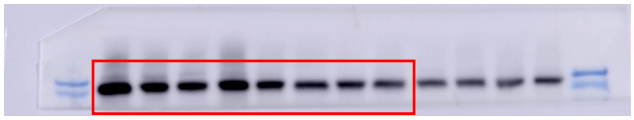


GAPDH

IFN-γ



iNOS



GAPDH

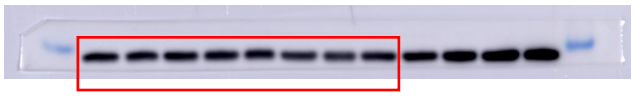


Figure 7

CD86

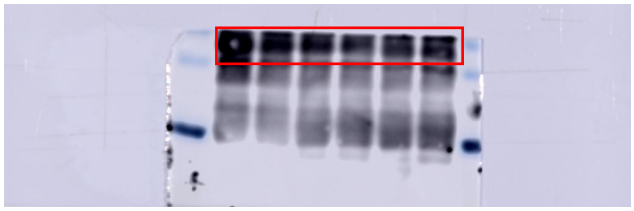
LY6G

GAPDH

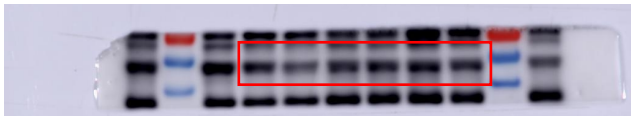
Full uncropped Western blots in Supporting Information

Figure S3

IL-10



TGF-β



GAPDH

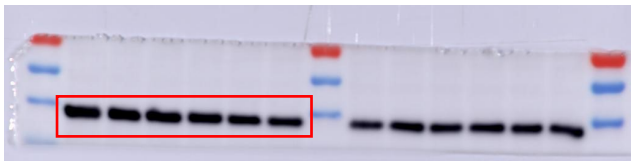
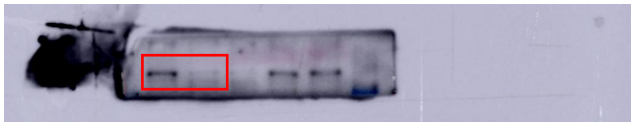


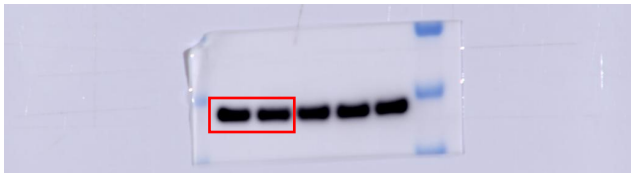
Figure S4

CD206

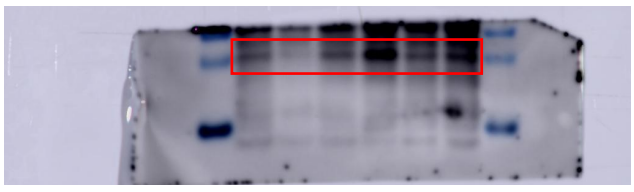


CD86

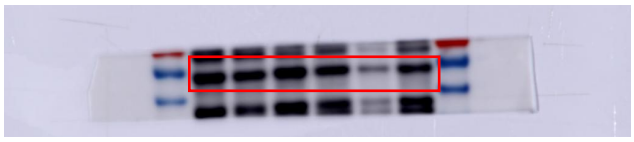
GAPDH



IL-10



TGF-β

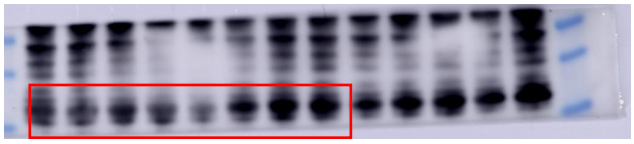


GAPDH

Figure S7

STAT3

IL-6



GAPDH