**Supplementary Materials and Methods**

*List of monoclonal antibodies used for flow cytometry*

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| ANTIBODIES | SOURCE | IDENTIFIER | RRID |
| APC alexa750 anti human CD19  (clone J3-119) | Beckman Coulter | Cat# A94681 | na\* |
| APC alexa750 anti human CD56  (clone N901) | Beckman Coulter | Cat# AB46024 | na |
| APC alexa750 anti human CD3  (clone A94680) | Beckman Coulter | Cat# A94680 | na |
| PE cy7 anti human CD11b  (clone ICRF44) | Becton Dickinson | Cat# 557743 | RRID:AB\_396849 |
| APC anti human CD33  (clone WM53) | Becton Dickinson | Cat# 551378 | RRID:AB\_398502 |
| PE Mouse IgG1 isotype control  (clone MOPC-21) | Becton Dickinson | Cat# 559320 | RRID:AB\_397218 |
| PE cy7 Mouse IgG1 isotype control (clone MOPC-21) | Becton Dickinson | Cat# 557646 | RRID:AB\_396763 |
| APC Mouse IgG1 isotype control  (clone MOPC-21) | Becton Dickinson | Cat# 555751 | RRID:AB\_398613 |
| APC anti human IFN-ɣ  (clone B27) | Becton Dickinson | Cat# 554702 | RRID:AB\_398580 |
| BV421 anti human CD4  (clone RPA-T4) | Becton Dickinson | Cat# 562424 | RRID:AB\_11154417 |
| PE anti human TIE2  ( clone 33.1 Ab33) | Biolegend | Cat# 334206 | RRID:AB\_2203207 |
| PercP cy5.5 anti human HLA DR  (clone L243) | Biolegend | Cat# 307630 | RRID:AB\_893567 |
| BV421 anti human CD14  (clone HCD14) | Biolegend | Cat# 325627 | RRID:AB\_2561342 |
| PE anti human TNF-α  (clone MAb11) | Biolegend | Cat# 502909 | RRID:AB\_315261 |
| APC Fire 750 anti human CD3  (clone UCHT1) | Biolegend | Cat# 300470 | RRID:AB\_2629689 |
| eFluor506 Fixable Viability Dye | eBiosciences | Cat# 65-0866-14 | na |

\*na=not available

*TIE2 receptor quantification*

To estimate the absolute number of TIE2 receptors expressed by each M-MDSC phenotype, PE-conjugated QuantibriteTM beads were used (BD Biosciences, France). QuantibriteTM tubes contain lyophilized beads conjugated with four determined concentrations of PE fluorochrome (low: 474 PE, medium-low: 5359, medium-high: 23843 and high: 62 336 PE molecules/beads). After reconstitution, QuantibriteTM tubes were loaded on the FACS BD Canto IITM cytometer, FSC/SSC were adjusted and a calibration curve was plotted and fitted by a linear regression according to the manufacturer’s instructions. Then, circulating M-MDSCs from 5 healthy volunteers and 8 NSCLC patients were stained as previously described and acquired. Mean fluorescence intensity values of TIE2 staining were converted in the number of TIE2 receptors per MDSC phenotype. Samples were acquired on a FACS BD Canto IITM (BD Biosciences) and analyzed with FACSDiva™ software (BD Biosciences).

*Real-time quantitative reverse transcription PCR (RT-qPCR)*

Cells were collected in RLT buffer (Qiagen, France) and total mRNAs were extracted using RNAeasy mini kit according to the manufacturer’s instructions (Qiagen, France). Total mRNAs were reverse-transcribed using the Taqman gene expression assay Hs00945142\_m1 (Thermofisher, France) and the CFX96 real-Time PCR detection system (Biorad, France). Colo320 colon cancer cell line (RRID:CVCL\_0219**)** and HT29 colorectal carcinoma cells (RRID:CVCL\_0320**)** were used as positive controls of TIE2 expression. A549 lung carcinoma cells (RRID:CVCL\_0023**)** were used as negative controls. All these cell lines were purchased at ATCC, cryopreserved and routinely tested for mycoplasma with MycoalertTM detection kit (Lonza, France). Upon receipt, each cell line was expanded and stock vials were frozen. Each cell line was cultured no longer than one week before thawing a cryotube from the original stock.