**Supplementary Table 1**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Gene type | Genes (protein) | Described in  TR1 (ref) | Described in other  Treg types (ref) | Described in  TFH (ref) | DE in Tet+  (vs. TFH) |
| Cell adhesion molecules | Cd226 | + (1) | ND | ND | +++ |
| Itga2 (CD49b) | + (1) | ND | ND | ++ |
| Itgae (CD103) | + (2) | + (3) | ND | +++ |
| Ocln | ND | ND | ND | +++ |
| S1pr2 | ND | ND | + (4) | - |
| Sell (CD62L) | - (5) | + (6) | - (7) | +++ |
| Selplg (Psgl1) | ND | ND | - (8) | +++ |
| Chemokyne receptors | Ccr5 | + (9) | + (10) | + (11) | +++ |
| Ccr7 | ND | + (12) | - (13) | +++ |
| Cxcr3 | + (14) | + (12) | In some subsets (15) | +++ |
| Cxcr4 | ND | ND | + (16) | NS |
| Cxcr5 | ND | ND | + (17) | - - |
| Co-estimulatory molecules | Cd28 | + (18) | ND | + (19) | + |
| Cd40lg | ND | ND | + (20) | + |
| Icos | + (21) | + (22) | + (23) | - |
| Klrk1 (NKG2D) | ND | + (24) | ND | NS |
| Sh2d1a (SAP) | ND | ND | + (25) | - - |
| Tnfrsf4 (Ox40) | + (26) | + (27) | + (28) | ++ |
| Tnfrsf18 (GITR) | + (18) | + (29) | ND | + |
| Tnfsf4 (Ox40L) | ND | ND | ND | +++ |
| Co-inhibitory molecules | Ctla4 | + (30) | + (31) | + (32) | ++ |
| Fasl | ND | + (33) | ND | ++ |
| Havcr2 (TIM-3) | + (34) | + (35) | + (36) | +++ |
| Lag3 | + (1) | + (37) | ND | +++ |
| Pdcd1 (PD-1) | + (9) | + (38) | + (17) | - - |
| Tigit | + (39) | + (40) | + (41) | NS |
| Cytokines | Ebi3 (IL27b) | ND | + (42) | ND | + |
| Ifng | + (43) | ND | ND | +++ |
| Il10 | + (44) | + (45) | + (46) | +++ |
| Il21 | + (47) | ND | + (48) | NS |
| Il4 | - (44) | ND | + (49) | - |
| Il5 | + (44) | ND | ND | NS |
| Mcub (Areg) | + | + (50) | ND | NS |
| Tgfb1 | + (44) | + (45) | ND | NS |
| Cytokine receptors | Il10ra | + (51) | + (52) | ND | ++ |
| Il12rb2 | ND | + (53) | ND | - - |
| Il21r | + (47) | + (54) | + (48) | - |
| Il27ra | + (55) | + (56) | + (57) | + |
| IL7r (CD127) | - (21) | - (58) | - (59) | +++ |
| IL17rc | ND | ND | ND | NS |
| Il2ra (CD25) | - (18) | + (60) | - (61) | +++ |
| Tgfbr1 | - (51) | + (62) | ND | - |
| Tgfbr2 | - (51) | + (63) | ND | NS |
| Tgfbr3 | - (51) | ND | ND | ++ |
|  | Atf6 | - (51) | ND | ND | NS |
| Ahr | + (64) | ND | ND | +++ |
| Ajuba | ND | ND | ND | +++ |
| Ascl2 | ND | ND | + (65) | - |
| Bach2 | - (66) | + (67) | - (68) | ++ |
| Batf | + (69) | ND | + (70) | - |
| Bcl6 | ND | ND | + (71) | - - |
| Bhlhe40 | + (51) | ND | ND | ++ |
| Bmyc | - (51) | ND | ND | NS |
| Cbfa2t3 | ND | ND | ND | - |
| Cebpa | ND | ND | + (72) | - - |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Transcription factors | Dbp | - (51) | ND | ND | NS |
| E2f1 | + (51) | + (73) | ND | NS |
| Egr2 | + (74) | ND | ND | - |
| Elk4 | - (51) | ND | ND | - |
| Eomes | + (75) | + (76) | ND | ++ |
| FoxP1 | ND | ND | - (77) | + |
| FoxP3 | ND | + (78) | ND | - - |
| Grhl1 | ND | ND | ND | NS |
| Hmgb2 | + (51) | ND | ND | NS |
| Id2 | + (51) | + (79) | - (80) | ++ |
| Id3 | - (51) | + (79) | + (80) | - |
| Irf1 | + (69) | ND | ND | + |
| Irf4 | + (81) | + (3) | + (82) | ++ |
| Jdp2 | ND | ND | ND | - - |
| Klf2 | ND | ND | - (83) | +++ |
| Lef1 | ND | ND | + (84) | NS |
| Lilrb4a | ND | + (85) | ND | NS |
| Maf | + (47) | ND | + (86) | - |
| Myb | - (51) | + (87) | ND | NS |
| Mybl2 | + (51) | ND | ND | - - |
| Myc | - (51) | - (88) | ND | NS |
| Nfia | ND | ND | ND | - - |
| Nfil3 | + (34) | ND | ND | ++ |
| Nr1h3 (LXR𝛂) | + (51) | + (89) | ND | - |
| Pax5 | ND | ND | ND | - - |
| Pax9 | ND | ND | ND | ++ |
| Pou2af1 (OcaB) | ND | ND | ND | - |
| Prdm1 (Blimp-1) | + (90) | ND | + (91) | +++ |
| Rbpj | + (51) | + (92) | ND | + |
| Runx2 | + (51) | ND | ND | ++ |
| Rora | + (51) | ND | - (93) | - - |
| S1pr1 | ND | ND | - (83) | ++ |
| Six5 | ND | ND | ND | NS |
| Sox4 | - (51) | - (94) | ND | NS |
| Sox8 | ND | ND | ND | - - |
| Stat1 | + (95) | ND | + (96) | NS |
| Stat3 | + (97) | ND | + (23) | NS |
| Stat4 | ND | - (98) | + (99) | - |
| Tbx21 (T-bet) | + (75) | ND | - (84) | ++ |
| Tcf7 | ND | ND | + (84) | NS |
| Tox2 | ND | ND | + (80) | - - |
| Vdr | ND | + (100) | ND | NS |
| Zbtb16 (PLZF) | + (51) | ND | ND | NS |
| Secretion proteins | Chgb | ND | ND | + (101) | NS |
| Gzmb (Granzyme B) | + (102) | + (103) | ND | +++ |
| Enzymes | Cblb | ND | + (104) | ND | + |
| Entpd1 (CD39) | + (105) | + (106) | ND | +++ |
| Itk | + (107) | + (108) | ND | - |
| Nt5e (CD73) | + (105) | + (106) | + (109) | NS |
| Serpinb6b | + (51) | + (110) | ND | NS |
| Serpinb9 | + (51) | ND | ND | NS |

+++ FC>4

++ 4>FC>2

+ 2>FC>1

NS 1>FC>-1

- -1>FC>-2

- - -2>FC>-4

- - - FC<-4

ND Not determined

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