# Supplementary Table S2

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| Cluster | gene | significance | reference |  |
| 0 | Ramp3 | adrenomedullin receptor involved in calcitonin signaling | Liverani et al., 2012 | 1 |
| 0 | Actn2 | Actinin alpha 2 which is a cytostructural protein recently described to be co-regulated with Serpinb1a in tissue resident T cells | Tan et al, 2019 | 2 |
| 0 | Neurl3 | E3 ubiquitin-protein ligase, an endosomal protein with as yet unknown function in T cells |  |  |
| 1 | Ikzf4 | EOS has been shown to be essential for Treg suppressor function | Gokhale et al, 2019 | 3 |
| 1 | Itgae/  CD103 | integrin tissue resident marker, usually associated with CD8+ TRM | Mackay et al., 2013 | 4 |
| 1 | Ncmap | non-compact myelin associated protein the function of which has not yet been described in Tregs |  |  |
| 1 | Areg | Amphiregulin, epidermal growth factor family, recently described as a potential anti-neurotoxic astrogliosis factor produced by brain-derived Treg after experimental stroke | Ito et al, 2019 | 5 |
| 1 | Neb | nebulin which is an actin-binding protein described in muscle cells but not immune cells |  |  |
| 1 | Cd74 | MHC class II associated chaperone protein which has a crucial role in MHC-II peptide loading and protein trafficking | Su et al, 2017 | 6 |
| 1 | Tnfrsf13b | transmembrane activator and cyclophilin ligand interactor (TACI), a receptor for the B cell chemokines BAFF and APRIL which have been described as promoting Treg survival by anti-apoptotic downstream signaling | Tai et al, 2019 | 7 |
| 1 | Fabp5 | fatty acid binding protein which has been recently described as expressed on Tregs in a tissue inflammation context | Layland et al, 2010 | 8 |
| 1 | Tnfrsf1b | TNFR2 described as relevant for Treg function in EAE | Atretkhany et al, 2018 | 9 |
| 1 | Fgl2 | secreted fibrinogen-like protein found to be essential for Treg function in an inflammatory bowel disease model and the presence of which in the brain is associated with tumor progression in murine glioma | Bartczak et al, 2017;  Yan et al, 2019 | 10,11 |
| 2 | Klrc1 | Natural Killer Group protein 2A (NKG2A) which is it involved in atypical MHC-I (HLA-E) recognition (negative regulation) primarily in NK Cells |  |  |
| 2 | Nmrk1 | metabolic enzyme essential for NAD+ synthesis and energy metabolism |  |  |
| 2 | Il1r1 | marker of encephalitogenic Th17 cells in EAE | Komuczki et al, 2019 | 12 |
| 2 | Bhlhe40 | EAE relevant transcription factor and marker of tissue resident effector cells | Lin et al, 2016;  Li et al, 2019 | 13,14 |
| 2 | Cxcr6 | tissue resident T cells’ chemokine receptor | Wein et al., 2019 | 15 |
| 2 | Nfkb1 | encoding inflammation-related transcription factors |  |  |
| 2 | Rel |  |  |
| 2 | Furin | pro-protein convertase which modulates TCR-activated transactivation and NF-κB signaling | Ortutay et al, 2015 | 16 |
| 3 | Dusp2 | direct STAT3 phosphatase involved in the downregulation of Th17 cell differentiation | Lu et al, 2015 | 17 |
| 3 | Itgb1 | encoding for integrin beta 1, associates with high cytotoxicity in CD8+ T cells | Nicolet et al., 2020,  Bauer et al., 2009 | 18,19 |
| 4 | Lef1 | typical lymphoid-tissue marker upregulated in chronic EAE | Steinke et al, 2014 | 20 |
| 4 | Cd9 | tetraspanin family relevant for immune cell interactions | Jones et al, 2011 | 21 |
| 4 | Gimap6 | anti-apoptotic function in T cells | Ho & Tsai, 2017 | 22 |

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