

# INDEX

## A

- Adipose-derived stem cells (ADSCs) ..... 3–12
- Adipose stem cells (ASCs) ..... 3–7, 9–12
- Alloantigen ..... 103, 108–114, 117
- Alloantigen specific response ..... 103
- Alloreactivity ..... 103
- Anergy ..... 108, 161, 162, 182
- Autoimmune disease ..... 4, 56, 64, 87, 162, 169, 197
- Autoimmune regulator ..... 162
- Autoimmunity ..... v, 56, 87, 88, 119, 162, 169, 212, 229

## B

- B cells ..... 15, 55–66, 69, 73, 130, 144, 164, 165, 168, 169, 171–173

## C

- Carboxyfluorescein succinimidyl ester (CFSE) ..... 105, 112, 114, 116, 117, 120, 121, 124, 126, 127, 184, 190, 192, 198, 199, 203, 210
- CD25 ..... 44–47, 49, 50, 52, 67–81, 90, 91, 93, 95, 96, 120, 121, 124, 126, 127, 163, 201, 206, 230, 232, 233, 237
- CD28 ..... 88, 91, 97–99, 104, 109, 116, 121, 124, 126, 165, 167, 168, 200, 209
- CD4+ T cell isolation ..... 166, 167, 171, 172
- CD40 ..... 56, 57, 60, 181–184, 186, 190
- CD80 ..... 88, 91–93, 97–99, 145, 150, 163, 166–168, 181, 186, 189
- CD86 ..... 88, 91–93, 97–99, 163, 166–168, 181, 186
- Cell sorting ..... 4, 11, 43–52, 59, 65, 123, 145, 148, 150, 155
- Cell therapy ..... 173
- Clinical symptoms of rejection ..... 169
- CliniMACS ..... 45, 69, 70, 72, 73, 76, 80, 81
- Collagenase ..... 5, 6, 28, 33, 34, 144, 145, 148, 230, 232
- Collagen-induced arthritis (CIA) ..... 164
- Conventional T cells ..... 45, 93, 95, 167
- Cortical thymic epithelial cells ..... 161
- Costimulation ..... 88, 99, 162, 168

- Costimulatory molecule blockade ..... 103–118
- Current Good Manufacturing Practice (cGMP) ..... 46
- Cyclosporine ..... 160
- Cytotoxic T lymphocyte antigen 4 (CTLA-4) ..... 87–100, 104, 166, 168, 182

## D

- Damage-associated molecular patterns (DAMPs) ..... 170
- Delayed type hypersensitivity (DTH) ..... 171
- Dendritic cell (DC) ..... 123, 130, 131, 144, 163, 165, 181

## E

- ELISPOT assay ..... 116, 197, 198, 208, 209
- Experimental autoimmune encephalomyelitis (EAE) ..... 164, 169
- Experimental autoimmune uveitis (EAU) ..... 211, 213, 219, 220, 222–224

## F

- Fetal thymus organ culture (FTOC) ..... 130, 138
- Flow cytometry ..... 4–6, 8–9, 11, 12, 17, 38, 56–60, 62, 63, 65, 89, 92, 93, 95, 96, 105, 112–114, 117, 120, 124, 126, 133, 135, 145, 154, 186, 190–192, 230, 233, 236
- Fluorescence activated cell sorting (FACS) ..... 6, 11, 12, 16–20, 36–38, 43–52, 56–64, 70, 73, 75, 76, 78–80, 92, 96, 100, 123, 124, 126, 133, 145, 148, 183, 186, 188, 190, 192, 197, 200, 206, 207, 236
- Forkhead box P3 (FOXP3) ..... 44, 45, 70, 73, 78, 79, 87, 91, 94, 96, 163, 166, 189, 190, 229–233, 235

## G

- Graft versus host disease (GvHD) ..... 4, 68, 69, 163, 166, 168

## H

- Hematopoietic progenitor cell ..... 16, 25, 28, 33–36, 39, 132, 137
- Hematopoietic stem cell ..... 25, 27–28, 33–34, 68, 69

Human induced pluripotent stem cells (iPSCs) ..... 25–40, 136  
Human T cell assay ..... 44, 122

**I**

Immature B cells ..... 55, 56, 61, 62, 64  
Immune mechanisms of rejection ..... 170, 172  
Immune tolerance ..... v, 15, 144, 159, 229  
Immunomodulation ..... v, 4, 164  
Immunosuppression ..... 68, 116, 159, 160, 163, 164, 167, 173, 174, 182  
Immunotherapy ..... v  
Indoleamine 2,3-dioxygenase (IDO) ..... 4, 168  
Inducible nitric oxide synthase (iNOS) ..... 119, 164  
Inducible T cell costimulator (ICOS) ..... 168  
Inflammation ..... 55, 65, 119, 164, 170, 186, 222, 223  
Interleukin-10 (IL-10) ..... 55–58, 60, 62, 64–66, 164–167, 186, 191, 201  
Intrathymic transplantation ..... 144, 146, 151  
In vitro proliferation assay ..... 120

**L**

Leukapheresis collection ..... 70  
Lipoaspirate ..... 3, 6, 11  
Lipotransfer ..... 3

**M**

Magnetic beads ..... 69, 132  
Major histocompatibility complex (MHC) ..... 130–135, 137, 161, 163, 168–172, 181, 182, 185, 188, 189  
Medullary thymic epithelial cells (mTEC) ..... 135, 137, 150, 155, 161, 162  
Mesenchymal stromal cell (MSC) ..... 3–6, 8–12, 138, 164, 174  
Mixed Lymphocyte Reaction (MLR) ..... 109–118  
Muscular dystrophy ..... 229  
Myeloid-derived suppressor cells (MDSCs) ..... 119, 124, 126, 127, 163, 164

**N**

Natural killer (NK) ..... 69, 130, 166, 168, 172, 183, 185, 188, 192

**O**

Organ transplant ..... 15, 159

**P**

Papain ..... 144, 145, 148  
Pattern recognition receptor (PRR) ..... 170

Peripheral Blood Mononuclear Cell (PBMC) ..... 26, 36, 38, 46–50, 52, 56, 61, 62, 89, 91–94, 96, 103–118, 124, 126, 198, 202, 203, 205, 208, 209  
Plasmacytoid DC (pDC) ..... 163  
Pluripotent stem cells (PSC) ..... v, 25–40, 136, 137, 139  
Progenitor/stem cells ..... 18, 133, 139  
Program cell death (PD) ..... 163  
Program death ligand-1 (PD-L1) ..... 119, 169

**R**

Regulatory B cells (Bregs) ..... 55–66, 164, 165, 173  
Regulatory cells ..... 127, 162, 174, 212  
Regulatory T cell (Treg) ..... 43–52, 78–79, 87–100, 162, 164–168, 173, 182, 189–191, 229

**S**

Skeletal muscle infiltrate ..... 229  
Skeletal muscle injury ..... 229  
Stromal vascular fraction (SVF) ..... 3, 7, 11  
Suppression ..... 4, 43, 64, 65, 69, 87–100, 112–114, 119

**T**

T cell ..... 15, 25, 43, 56, 68, 103, 119, 129, 143, 160, 181, 197, 229  
T cell costimulation ..... 88, 99, 162  
T cell receptor (TCR) ..... 36, 93, 97, 98, 100, 104, 161, 162, 167, 168, 170, 171, 183, 189, 230, 233  
T helper (Th) cell ..... 164, 198  
Thymic epithelial cells (TECs) ..... 130, 132–134, 136, 138, 139, 143, 161  
Thymus bioengineering ..... 132  
Tissue-resident leukocytes ..... 229  
Tissue-specific antigens (TSA) ..... 161  
T2-MZP B cells ..... 55, 56, 59  
Tolerance ..... v, 15, 43, 87, 132, 144, 159, 161, 165, 212, 229  
Tolerogenic dendritic cells ..... 165, 181  
Transendocytosis ..... 88  
Transforming growth factor  $\beta$  (TGF  $\beta$ ) ..... 137, 164  
Transplant tolerance ..... 160, 166, 168, 169  
Transplantation ..... v, 15, 16, 135, 137, 144, 146, 151, 156, 159, 165, 181  
Treg proliferation ..... 43, 97–100, 165, 190, 233  
Treg (regulatory T cell), *see* Regulatory T cell (Treg)

**U**

Uveitis ..... 211, 213

**V**

Vitamin D<sub>3</sub> (VD<sub>3</sub>) ..... 182