The 51st Annual Meeting of the Japanese Society for Immunology
Category Keywords

Category No.	Category	Keywords	
1	Hematopoiesis and Immune Environment	Hematopoietic stem cells	Chemokine receptors
		Hematopoietic progenitors	Chemotaxis
		Lymphoid precursors	Vascular endothelial cells
		Self-renewal	Lymphatic endothelial cells
		Pluripotency	Homing
		Plasticity	Adhesion molecules
		Lineages	Selectins
		Commitment	Cadherins
		Cell fate decision	Integrins
		Mesenchymal stem cells	Lectins
		Osteoblasts	GPCR
		CAR cells	Sphingosin-1-P
		Niche	Cytoskeleton
		Stromal cells	HEV
		Homing	In vivo imaging
		Bone marrow transplantation	Cell Migration
		Cytokines	Extracellular matrix
		Chemokines	Thymic microenvironment
		Receptors	Thymic medulla
		Signal transduction	Promiscuous gene expression
		Bone marrow	AIRE
		Lymph nodes	Notch/Delta
		Thymus	Follicular dendritic cell (FDC)
		Peyer's patches	Fibroblastic reticular cell (FRC)
		Chemokines	
2	B cells	Early B cell development	Co-receptor
		V(D)J recombination	Transcription factors
		Clonal selection	Plasma cells
		Central tolerance	Complement receptor signaling
		Repertoire	APRIL
		B cell activation	BAFF
		B cell receptor (BCR)	negative selection
		pre-BCR	class switch
		ITAM, ITIM	Somatic hypermutation
		Signal transduction	Secondary lymphoid organ
		Antigen-antibody interaction	Germinal center
		Adaptor protein	Affinity maturation
		Cytokines/Chemokines	AID
		Cytokine receptor	Long-lived plasma cells
		Costimulatory signals	memory B cell
		Inhibitory signals	Receptor editing
		GEM/Lipid microdomain	Regulatory B cell
3	T cells	Early T cell development	Notch/Delta
		V(D)J recombination	Immunological synapse
		b-selection	Cytotoxic T cells
		Lineage commitment	Negative selection
		Positive/negative selection	Programmed cell death
		Repertoire selection	Gene regulation
		Central tolerance	Immunological memory
		TEC	CD4 memory
		Repertoire formation	Central memory
		T cell activation	Effector memory
		T cell receptor (TCR)	CD8 memory
		pre-TCR	Life-long memory
		Signal transduction	Immune diseases
		Adaptor proteins	Cell Migration
		Costimulatory signals	Th1
		Inhibitory signals	Immune regulation
		Cytokines/Chemokines	Th17
		Cytokine receptors	tissue resident memory T cells
		Chemokine receptors	Epigenetics
		Transcription factors	memory T cells
		Thymus	Neuro-immune axis
		GEM/lipid raft	Immune-metabolism
		MHC	Cytokines
		CD1	Gene expression
		non-classical MHC	Antigen presenting cells
		Adhesion molecules	Cellular interaction
		Anergy	T-B interaction
		homeostasis	Secondary lymphoid organ
		Homeostatic proliferation	Chemokines
		AICD	Plasticity
4	Innate lymphocytes	NK cells	Va14
		NKT cells	Va24
		MAIT cells	CD1
		NK receptors	Glycolipid
		Paired receptors	Extrathymic differentiation
		NK cell target molecules	gdT cells
		ADCC	cytokine
		Cytotoxic molecules	RORgt
		Virus infection	ILCs
		Bone marrow transplantation	LTi
		GvH	

5	**Dendritic cells, macrophages, granulocytes**	Differentiation	Regulatory macrophage
		Subsets	Antigen-presenting cell
		Immune regulation	Antigen peptides
		Immunological tolerance	Antigen processing
		MHC	Hsp
		Phagocytes	Ubiquitination
		Antigen transfer	Cathepsin
		Cell migration	Autophagy
		Cell circulation	Proteasome
		Th differentiation	CD1
		Interferon	non-classical MHC
		Lectins	Cross-presentation
		TLR	Inflammasome
		NLR	Neutrophils
		Maturation/Activation	Inflammation
		Cytokines/Chemokines	Inflammatory cytokines and chemokines
		Costimulatory molecules	Differentiation
		T cell activation	Migration
		Intercellular interaction	Apoptosis
		Phagocytosis	Differentiation pathway
		Recognition of non-self	tussue macrophage
		Regulatory dendritic cell	
6	**Allergy**	Migration	Cytokine
		Differentiation pathway	Mast cells
		IgE receptor	Activating and inhibitory signal transduction
		Differentiation	Airway inflammation
		Basophils	IgE
		Allergens	Mast cells
		Eosinophils	Contact hypersensitivity
		IgE	Mucosal Immunology
		Protease	Bronchial asthma
		Vaccine for allergy	Innate lymphoid cells
		Mucosal Immunology	Th2
		Allergic conjunctivitis	Atopic dermatitis
		Th2 disease	Allergic disease
7	**Cytokines and chemokines**	Cytokines	Immune regulation
		Cytokine receptors	Immune diseases
		Chemokine	Jak/STAT
		Chemokine receptors	SOCS
		Signal transduction	IRF
		Interleukin	TRAF
		Interferon	Smad
		TNF family	Homing
		TGF-β family	Cell Migration
		CSF	In vivo imaging
		NF-kb	Gene regulation
8	**Tolerance and Immune suppression**	Tolerance	Tr1
		Peripheral tolerance	Regulatory CD8+ T cells
		Immune suppression	Tolerogenic dendritic cells
		Immune homeostasis	Foxp3
		Organ transplantation	Transcription factors
		Transplantation immunology	PD-1
		Bone marrow transplantation	ICOS-L
		MHC	Cytokines
		GvH	TGF-b
		GvL	IL-10
		Immunosuppressive agents	IL-2
		Cytokines	Co-stimulation
		Autoimmunity	dendritic cells
		Inflammation	IDO
		Feto-maternal interaction	Recognition of apoptotic cells
		Anergy	TNF-TNFR family
		Receptor editing	CD28-B7 family
		Cell death	CTLA4
		Treg	ILC
		Thymus-derived Treg	Immune checkpoint
		Peripherally-generated Treg	
9	**Virus infection** **Bacterial / mycofungal / parasite infection**	Virus	MDA5
		Viral peptides	Lgp2
		DNA vaccine	Cell surface receptors
		Virus-specific CTL	Immune responses
		Target cells	Immune regulation
		Host defense mechanism	Cytokine induction
		CTL	Toxin
		Immunological memory	Host defense mechanism
		Maintenance of memory	Macrophages
		Life-long memory	Th1/Th2
		Central memory	Dendritic cells
		Effector memory	Neutrophils
		Interferon	Microbial immunoactivators
		Escape mechanism	Pathogen sensors
		NK cells	Signaling molecules
		IRF3/7	Effector cells
		TBK-1	Anti-microbial products
		TLR	Escape mechanisms
		MyD88	Phagocytosis
		NF-kb	Autophagy
		MAP kinase	TLR
		TRAF	MyD88
		IRAK	Nod like receptor (NLR)
		TIRAP	Lectin receptors
		TRIF/TICAM-1	DNA sensor
		RIG-I	RNA sensor
		IPS-1	

		Mannose receptor	Redox
		Lectin	Reactive oxygen
		Complement	Nitric oxide
		Classical pathway	IRF3/7
		Alternative pathway	TBK-1
		Protease	TLR
		Hyaluronic acid	NLR
		Lipid	MDA5
		Nucleic acid	RIG-I
		Uric acid	STING
		Inflammatory mediators	cGAS
		Apoptosis	DNase
		Necrosis	RNase
		Heat shock protein	MyD88
10	**Innate immunity**	Chaperone	NF-kb
		Antigen presenting cells	MAP kinase
		Immune adjuvant	TRAF
		Immune response	IRAK
		Immune regulation	TIRAP
		Purinergic receptor	TRIF/TICAM-1
		Caspase	MD-1/2
		Cytokine	Recognition of apoptotic cells
		Signal transduction	TNF
		Autophagy	TRAIL
		Organelle	Bcl-2 family
		Intracellular trafficking	Caspase
		Phagocytosis	HMGB-1
		Inflammation	MRP8
		Tissue damage	metabolic change
		Atherosclerosis	inflammasome
		Commensal bacteria	Treg
		Gut-associated lymphoid tissues (GALT)	Tr1
		Mucosa-associated lymphoid tissues (MALT)	Epithelial cell
		Bronchus-associated lymphoid tissues (BALT)	M cells
		Nasopharyngeal-associated lymphoid tissues (NALT)	Dendritic cells
		Peyer's patch	Macrophages
		Intraepithelial T lymphocytes	IgA
		Isolated lymphoid follicles (ILF)	Mucosal vaccine
11	**Mucosal-Skin Immunity**	B-1(Ly-1)cells	Mucosal adjuvant
		Oral tolerance	Homing
		Cytokines	Inflammatory bowel diseases
		ILC1	Food allergy
		ILC2	Upper respiratory allergy
		ILC3	Mucin
		Th1	Skin immunity
		Th2	Atopic dermatitis
		Th17	Langerhans cell
		Autoimmunity	Cytokine receptors
		Inflammatory arthropathy	Adhesion molecules
		Model animals	Costimulatory molecules
		Animal model of arthritis	Cellular interaction
		NOD mouse	Synovial cells
		EAE	Osteoclasts
		Sjogren's syndrome	Osteoblasts
		PBC (Primary biliary cirrhosis)	MMPs
		Multiple sclerosis (MS)	SLE
		Myasthenia gravis	Scleroderma
12	**Autoimmune diseases**	Crohn's disease	Dermatomyositis/Polymyositis
		Inflammatory bowel disease	Angiitis/angitis
		Autoimmune thyroiditis	Autoantigens
		Pemphigus	Anti-phospholipid antibody syndrome
		Type I diabetes	Systemic rheumatic disease
		Pernicious anemia	MPO-ANCA
		Disease-associated gene analysis/SNP	Disease-associated gene
		Gene expression	Biologics
		Chemokines	regulatory T cells
		Chemokine receptors	AIRE
		Cytokines	autoantibody
		Cancer	Chemokines
		tumor microenvironment	Immuno-evasion
		Tumor antigen	Checkpoint blockade
		Peptide vaccine	Neoantigens
		Adjuvant	Co-inhibitory molecules
		Antigen processing	Co-stimulatory molecules
		Antigen presentation	recombinat virus
		Immunogenicity	Immunotherapy
		Immunogenic cell death	Monoclonal antibodies
		Immuno-surveillance	Engineered antibodies
13	**Tumor immunity**	helper T cells	Adoptive immunotherapy
		CTL	CAR-T cells
		B cells	Gene therapy
		Antibody	Chemotherapy
		NK cells	Radiotherapy
		NKT cells	Graft versus tumor effect
		Dendritic cells	Biomarkers
		Macrophages	iPS cell
		Cytokines	metabollism
		Regulatory T cells	DNA, RNA vaccine
		Myeloid-derived suppressor cells	Effector cells
		Human immunity	Adjuvant
		Cord blood lymphocyte	Infection
		Humanized mouse	Tumor
		Disease-associated gene	Organ tansplantation
14	**Human Immunology (Immunointervention)**	Immunodeficiency	Autoimmune disease
		Autoinflammatory disease (Autoinflammatory syndrome)	iPS cell
		Stem cell transplantation	Regenerative medicine
		Biologics	Immunopharmacogenomics
		Immunointervention	organoid