

The 50th Annual Meeting of the Japanese Society for Immunology
Category Keywords

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
Co-receptor			

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3	T cells	Early T cell development	Cytotoxic T cells
		V(D)J recombination	Negative selection
		b-selection	Programmed cell death
		Lineage commitment	Gene regulation
		Positive/negative selection	Immunological memory
		Repertoire selection	CD4 memory
		Central tolerance	Central memory
		TEC	Effector memory
		Repertoire formation	CD8 memory
		T cell activation	Life-long memory
		T cell receptor (TCR)	Secondary lymphoid organ
		pre-TCR	Cell Migration
		Signal transduction	Th1
		Adaptor proteins	Th2
		Costimulatory signals	Th17
		Inhibitory signals	Tfh
		Cytokines/Chemokines	Cytokines
		Cytokine receptors	Cytokine receptors
		Chemokine receptors	Signal transduction
		Transcription factor	Transcription factors
		Thymus	Gene expression
		GEM/lipid raft	Antigen presenting cells
		MHC	Cellular interaction
		CD1	T-B interaction
		non-classical MHC	Secondary lymphoid organ
		Adhesion molecules	Immune regulation
		Anergy	Immune diseases
		homeostasis	Chemokines
Homeostatic proliferation	tissue resident memory T cells		
AICD	Plasticity		
Notch/Delta	Epigenetics		
Immunological synapse			
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	

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5	Dendritic cells, macrophages, granulocytes	Differentiation	Regulatory dendritic cell
		Subsets	Regulatory macrophage
		Immune regulation	Antigen-presenting cell
		Immunological tolerance	Antigen peptides
		MHC	Antigen processing
		Phagocytes	Hsp
		Antigen transfer	Ubiquitination
		Cell migration	Cathepsin
		Cell circulation	Autophagy
		Th differentiation	Proteasome
		Interferon	CD1
		Lectins	non-classical MHC
		TLR	Cross-presentation
		NLR	Inflammasome
		Maturation/Activation	Neutrophils
		Cytokines/Chemokines	Inflammation
		Costimulatory molecules	Inflammatory cytokines and chemokines
		T cell activation	Differentiation
		Intercellular interaction	Migration
Phagocytosis	Apoptosis		
Recognition of non-self	Differentiation pathway		
6	Allergy	Mast cells	Chemokine
		Basophils	Allergens
		Eosinophils	Mast cells
		Neutrophils	Basophils
		IgE	Eosinophils
		IgE receptor	Neutrophils
		Hyperreactivity (type I, II, III, IV)	IgE
		Th2 disease	IgE receptor
		Airway inflammation	Allergen
		Bronchial asthma	Inflammation
		Atopic dermatitis	Protease
		Allergic rhinitis	Inflammatory cytokines and chemokines
		Allergic conjunctivitis	Degranulation
		Contact hypersensitivity	Activating and inhibitory signal transduction
		Intervention	Differentiation
		Vaccine for allergy	Migration
		Cytokine	Differentiation pathway
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		

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8	Tolerance and Immune suppression	Tolerance	Tr1
		Peripheral tolerance	Th3
		Immune suppression	Regulatory CD8+ T cells
		Immune homeostasis	Tolerogenic dendritic cells
		Organ transplantation	Foxp3
		Transplantation immunology	Transcription factors
		Bone marrow transplantation	PD-1
		MHC	ICOS-L
		GvH	Cytokines
		GvL	TGF- β
		Immunosuppressive agents	IL-10
		Cytokines	IL-2
		Autoimmunity	Co-stimulation
		Inflammation	dendritic cells
		Feto-maternal interaction	IDO
		Anergy	Recognition of apoptotic cells
		Receptor editing	TNF-TNFR family
		Fas	CD28-B7 family
		Cell death	CTLA4
		Treg	ILC
Naturally occurring Treg	Immune checkpoint		
Inducible 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- κ b	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	

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10	Innate immunity	Mannose receptor	Reactive oxygen
		Lectin	Nitric oxide
		Complement	IRF3/7
		Classical pathway	TBK-1
		Alternative pathway	TLR
		Protease	NLR
		Hyaluronic acid	MDA5
		Lipid	RIG-I
		Nucleic acid	STING
		Uric acid	cGAS
		Inflammatory mediators	DNase
		Apoptosis	RNase
		Necrosis	MyD88
		Heat shock protein	NF-kb
		Chaperone	MAP kinase
		Antigen presenting cells	TRAF
		Immune adjuvant	IRAK
		Immune response	TIRAP
		Immune regulation	TRIF/TICAM-1
		Purinergic receptor	MD-1/2
		Caspase	Recognition of apoptotic cells
		Cytokine	TNF
		Signal transduction	TRAIL
		Autophagy	Bcl-2 family
		Organelle	Caspase
		Intracellular trafficking	Fas
Phagocytosis	HMGB-1		
Inflammation	MRP8		
Tissue damage	metabolic change		
Atherosclerosis	inflammasome		
Redox			
11	Mucosal-Skin Immunity	Commensal bacteria	Th3
		Gut-associated lymphoid tissues (GALT)	Th17
		Mucosa-associated lymphoid tissues (MALT)	M cell
		Bronchus-associated lymphoid tissues (BALT)	Epithelial cells
		Nasopharyngeal-associated lymphoid tissues (NALT)	Regulatory T cells
		Peyer's patch	Dendritic cells
		Intraepithelial T lymphocytes	Macrophages
		Cryptpatches	IgA
		Isolated lymphoid follicles (ILF)	Mucosal vaccine
		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
		Treg	Langerhans cell
		Tr1	

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12	Autoimmune diseases	Autoimmunity	Adhesion molecules
		Inflammatory arthropathy	Costimulatory molecules
		Model animals	Cellular interaction
		Animal model of arthritis	Synovial cells
		NOD mouse	Osteoclasts
		EAE	Osteoblasts
		Sjogren's syndrome	MMPs
		PBC (Primary biliary cirrhosis)	Biologics
		Multiple sclerosis (MS)	regulatory T cells
		Myasthenia gravis	AIRE
		Crohn's disease	SLE
		Inflammatory bowel disease	Scleroderma
		Autoimmune thyroiditis	Dermatomyositis/Polymyositis
		Pemphigus	Angitis/angitis
		Type I diabetes	Autoantigens
		Pernicious anemia	Anti-phospholipid antibody syndrome
		Disease-associated gene analysis/SNP	Systemic rheumatic disease
		Gene expression	MPO-ANCA
		Chemokines	Disease-associated gene
		Chemokine receptors	Biologics
Cytokines	regulatory T cells		
Cytokine receptors	AIRE		
13	Tumor immunity	Cancer	Immuno-evasion
		tumor microenvironment	Checkpoint blockade
		Tumor antigen	Tumor antigen
		Peptide vaccine	Peptide vaccine
		Adjuvant	Neoantigens
		Antigen processing	Adjuvant
		Antigen presentation	Checkpoint blockade
		Immunogenicity	Co-inhibitory molecules
		Immunogenic cell death	Co-stimulatory molecules
		Immuno-surveillance	Regulatory T cells
		helper T cells	Myeloid-derived suppressor cells
		CTL	Immunotherapy
		B cells	Monoclonal antibodies
		Antibody	Engineered antibodies
		NK cells	Adoptive immunotherapy
		NKT cells	CAR-T cells
		Dendritic cells	Gene therapy
		Macrophages	Chemotherapy
		Cytokines	Radiotherapy
		Regulatory T cells	Graft versus tumor effect
Myeloid-derived suppressor cells	Biomarkers		
Chemokines	iPS cell		
14	Human Immunology (Immunointervention)	Human immunity	Immunointervention
		Human peripheral blood mononuclear cells	Adjuvant
		Cord blood lymphocyte	Infection
		Human cell surface antigen	Tumor
		Humanized mouse	Organ transplantation
		Disease-associated gene	Autoimmune disease
		Immunodeficiency	iPS cell
		Autoinflammatory disease (Autoinflammatory syndrome)	Regenerative medicine
		Stem cell transplantation	Immunopharmacogenomics
		Biologics	organoid