

## KEYWORDS — *Immunology*

### CELL TYPES

B cells  
Basophils/Mast cells  
Dendritic cells  
Endothelial cells  
Eosinophils  
Epithelial cells  
Macrophages/Monocytes  
Memory cells  
Neutrophils  
Natural killer cells (NK cells)  
CD1-restricted/natural killer T cells (NKT cells)  
Stem cells  
T cells  
Helper T cells (Th cells, Th0, Th1, Th2, Th3)  
Regulatory T cells (Treg)  
Gamma Delta T cells  
Cytotoxic T cells (CTL)

### BASIC IMMUNOLOGY

### CLINICAL IMMUNOLOGY

### IMMUNOLOGICAL TISSUE

Germinal centre  
Mucosal associated lymphoid tissue (MALT)  
Spleen/lymph nodes  
Thymus

### IMMUNOGLOBULINS

Affinity maturation/somatic hypermutation  
Antibody engineering  
Antibody responses  
Isotypes/isotype switching  
Monoclonal antibodies  
Cryoglobulins/cryoglobulinaemia

### CELL SURFACE MOLECULES

Receptor clonality/repertoire  
Adhesion molecules  
B cell receptor (BCR)  
Cytokine receptors/interleukin receptors/chemokine receptors  
Fc receptors (FcRs)  
Lectins  
Natural killer receptors (NKR, KIR, LIT etc)  
Pattern recognition receptors  
Scavenger receptors  
T cell receptor (TCR)  
Toll receptors/Toll-like receptors (Toll-Rs/Toll-like receptors)

### CELL PROCESSES/

### ASSOCIATED MOLECULES

Activation  
Acute phase proteins  
Anergy/suppression/tolerance  
Antigen presentation  
Antigen processing  
Antigens/epitopes  
Antioxidants  
Apoptosis  
Carbohydrate/glycobiology  
Cell development/differentiation  
Cell interactions  
Chemokines/monokines  
Chemotaxis  
Complement  
Co-stimulation/co-stimulatory molecules  
Cytokines/interleukins  
Cytotoxicity  
Granzymes/perforin/lysosomal proteins/lactoferrin  
Growth factors  
Heat shock proteins (hsp)  
Immune complexes  
Immunosenescence/aging  
Inflammation/inflammatory mediators including eicosanoids  
Matrix metalloproteinases (MMPs)/collagenases  
Migration/traffic/circulation  
Negative/positive selection  
Nitric oxide  
Nutrition/metabolism/vitamins  
Oral tolerance  
Phagocytosis  
Phenotype/cell markers  
Proliferation  
Proteases  
Protein structure/folding  
Respiratory burst/oxidative state

### SIGNALLING/SIGNAL TRANSDUCTION

Adaptor proteins  
Calcium  
Developmental pathway molecules (Notch etc)  
Kinases/phosphatases  
Lipid mediators  
Phospholipases  
Ras, GTPases etc  
Transcription factors/gene regulation

## GENETICS

MHC/HLA

MHC class I

MHC class II

MHC class III

non classical MHC

MHC-peptide interactions

Minor HC

Invariant chain

Disease susceptibility/resistance/polymorphisms

## METHODS - PLEASE ONLY SELECT IF YOU DEVELOP METHODOLOGICAL TECHNIQUES

Flow cytometry (FACS)

Tetramer binding

Intracellular cytokine staining

Phage Ab/display

Microarray/genomics/proteomics

Diagnostics

Immunohistochemistry/immunohistology

Transgenics/knockouts

Protein engineering

## STATISTICS

### STUDY SYSTEM

Human studies

Animal models/studies - mice/rats

Animal models/studies - primates

Animal models/studies - cows/pigs/horses/cats/dogs

Animal models/studies - other

Paediatric

Neonatal

### AUTOIMMUNITY

Autoantibodies

anti-DNA antibodies

anti-endothelial antibodies (AECA)

anti-phospholipid antibodies (cardiolipin/beta2glycoprotein)

anti-SSA(Ro)/SSB(La) antibodies

anti-glutamate decarboxylase antibodies

anti-transglutaminase antibodies

anti-neutrophil cytoplasmic antibodies

(ANCA)/anti-Pr3/myeloperoxidase

anti-nucleolar antibodies (ANA)

Molecular mimicry

## ALLERGY

Allergens

Hypersensitivity

Delayed type hypersensitivity

Allergic contact dermatitis/contact sensitivity/eczema

Anaphylatoxins/anaphylaxis/food allergy/drug allergy

Asthma

Atopy

Allergic alveolitis/hypersensitivity pneumonitis

Allergic rhinitis

## CANCER

Bladder cancer

Brain/neurological cancer

Breast cancer

Gut cancer

Liver cancer

Ovarian cancer

Skin cancer/melanoma

Leukaemia/lymphoma/myeloma

Kaposi's sarcoma

Cancer antigens

## CARDIAC (HEART)

### IMMUNOLOGY/DISEASE

Cardiomyopathy

Myocarditis/endocarditis

## EYE (OCULAR) IMMUNOLOGY/DISEASE

Uveitis/conjunctivitis/keratitis

## EAR IMMUNOLOGY/DISEASE

## ENDOCRINE IMMUNOLOGY/DISEASE

Autoimmune polyendocrine syndromes

Diabetes

Graves' disease

Hashimoto's disease/thyroiditis

Pancreatitis

Adrenal/Addison's disease

Thyroid

Hormones

Pituitary

Steroids/glucocorticoids/corticosteroids

## GUT IMMUNOLOGY/DISEASE

Coeliac disease  
Crohn's disease  
Gastritis  
Inflammatory bowel disease  
Mucosal immunity  
Ulcerative colitis

## HAEMATOLOGY

Anaemia/Haemolytic anaemia/Pernicious anaemia  
Idiopathic thrombocytopenia purpura (ITP)/  
thrombocytopenia  
Neutropenia  
Platelets  
Serology

## IMMUNODEFICIENCY - primary

## IMMUNODEFICIENCY - secondary

Antibody deficiency  
Ataxia telangiectasia  
Autoimmune lymphoproliferative syndrome  
(ALPS)  
Bare lymphocyte syndrome  
Chronic granulomatous disease (CGD)  
Common variable immunodeficiency (CVID)  
DiGeorge Syndrome  
Hyper IgE syndrome  
Hyper IgM  
Leukocyte adhesion deficiency (LAD)  
Nijmegen breakage syndrome  
Severe combined immunodeficiency (SCID)  
Wiskott-Aldrich Syndrome (WASP)  
X-linked agammaglobulinemia (XLA)  
X-linked lymphoproliferative disease (XLP)

## IMMUNOPHARMACOLOGY/ IMMUNOTOXICITY

## LIVER IMMUNOLOGY/DISEASE

Hepatitis - viral  
Hepatitis - autoimmune  
Primary biliary cirrhosis (PBC)/cirrhosis

## LUNG IMMUNOLOGY/DISEASE

Acute respiratory distress syndrome  
Bronchoalveolar lavage (BAL/BALF)  
Chronic obstructive pulmonary disease (COPD)  
Cystic fibrosis (CF)  
Idiopathic pulmonary fibrosis  
Interstitial lung disease (incl. asbestosis and  
silicosis)  
Sarcoidosis  
Bronchiolitis

## MUSCLE IMMUNOLOGY/DISEASE

Myalgic encephalitis (ME)/chronic fatigue  
syndrome  
Myositis

## NEUROIMMUNOLOGY

Alzheimer's disease  
Encephalitis/encephalomyelitis  
Guillain-Barre syndrome (GBS)  
Meningitis  
Multiple sclerosis (MS)  
Myasthenia gravis  
Neuroendocrine/neuropeptides  
Neurovirology  
Parkinson's disease  
Prion diseases (TSEs/CJD)

## PERIODONTAL/ORAL IMMUNOLOGY

## RENAL IMMUNOLOGY/DISEASE

Glomerulonephritis  
IgA nephropathy

## REPRODUCTIVE IMMUNOLOGY

## RHEUMATOLOGY/RHEUMATIC DISEASE

Behcet's disease  
Lupus/systemic lupus erythematosus  
Arthritis (including rheumatoid arthritis)  
Sjogren's syndrome  
Systemic sclerosis/scleroderma

## SKIN (DERMATOLOGY) IMMUNOLOGY/DISEASE

Skin (dermatological) infections  
Pemphigus (bullous pemphigoid/pemphigus  
vulgaris)  
Psoriasis

## SURGERY/TRAUMA

Ischaemia reperfusion  
Stress (shock/injury/exercise/surgery/trauma/  
hypo/hyperthermia/hypoxia)

## THERAPY/IMMUNOTHERAPY

Anti-inflammatory drugs (steroids/non-  
steroidal/NSAIDs)  
Novel biological therapies (anti-cytokine etc)  
Highly active anti-retroviral therapy (HAART)  
Gene therapy  
Intravenous immunoglobulin therapy (IVIg)  
Peptide immunotherapy

## TRANSPLANTATION

Allotransplantation  
Stem cell/bone marrow transplantation  
Heart transplantation  
Liver transplantation  
Lung transplantation  
Renal transplantation  
Xenotransplantation  
Corneal transplantation  
Islet transplantation  
Graft versus host disease (GVHD)  
Host versus graft disease (HVGD)

## UROLOGY/UROLOGICAL IMMUNOLOGY/DISEASE

### VACCINES

Adjuvants/CpG DNA  
BCG  
Cancer vaccines  
Conjugate vaccines  
DNA vaccines  
Mucosal vaccines

### VASCULITIS

Angiogenesis  
Atherosclerosis  
Kawasaki's disease  
Microscopic polyangiitis/polyarteritis nodosa  
Thrombosis  
Wegener's granulomatosis  
Antiphospholipid syndrome (APS)

## INFECTIONS

### VIRUSES/VIRAL IMMUNITY

#### DNA VIRUSES

##### ADENOVIRIDAE/adenoviruses

HERPESVIRIDAE/herpesvirus  
Herpes simplex virus (HSV) type 1&2  
Epstein-Barr virus (EBV)  
Varicella zoster virus  
Cytomegalovirus (CMV)  
Human herpesvirus types 6&7  
Kaposi's sarcoma associated herpesvirus (HHV-8)

##### POXVIRIDAE/poxviruses

##### PARVOVIRIDAE/parvoviridae

PAPOVA VIRIDAE/papovavirus  
Human papillomavirus (HPV)  
Polyomavirus

##### HEPADNAVIRIDAE

Hepatitis B virus

### RNA VIRUSES

##### ORTHOMYXOVIRIDAE

Influenza virus types A, B & C

##### PARAMYXOVIRIDAE

Parainfluenza virus  
Mumps virus  
Measles virus  
Respiratory syncytial virus (RSV)  
Morbillivirus

##### CORONAVIRIDAE/coronavirus

##### PICORNAVIRIDAE

Poliovirus (enterovirus)  
Coxsackie virus (enterovirus, viral meningitis)  
Echovirus (enterovirus, viral meningitis)  
Other enterovirus  
Hepatitis A virus  
Rhinovirus

##### REOVIRIDAE

Rotavirus  
Reovirus

##### RETROVIRIDAE/retroviruses

Human T lymphocytic virus (HTLV-I/II)  
Human immunodeficiency virus (AIDS, HIV-1, HIV-2)  
Simian immunodeficiency virus (SIV)  
Foamy virus

##### TOGAVIRIDAE

Rubella virus  
Arboviruses causing encephalitis  
Sindbis virus

## FLAVIRIDAE

Yellow fever virus  
Flavivirus/dengue fever  
Hepatitis C virus  
Arboviruses causing encephalitis  
Swine fever virus

## BUNYAVIRIDAE

Hantaan virus  
Arboviruses causing encephalitis  
Crimean-Congo haemorrhagic fever

## ARENAVIRIDAE

Lassa virus  
Lymphocytic choriomeningitis virus (LCMV)

## FILOVIRIDAE

Marburg virus  
Ebola virus

## RHABDOVIRIDAE/rabies virus

## ASTROVIRIDAE/astrovirus

## CALCIVIRIDAE/calcivirus

## HEPATITIS E VIRUS

## BACTERIA

Sepsis  
Exotoxin/enterotoxin/cholera toxin  
Endotoxin/LPS  
Superantigens

## GRAM +VE AEROBES

Staphylococcus spp  
Streptococcus  
Bacillus (Bacillus anthracis)  
Listeria (Listeria monocytogenes)  
Corynebacterium  
Pneumococcus

## GRAM -VE AEROBES

Escherichia (E coli, Shigella)  
Klebsiella  
Proteus  
Salmonella (Salmonella typhi)  
Vibrio spp (Cholera vibrio)  
Campylobacter spp  
Helicobacter spp  
Pseudomonas  
Brucella

## ANAEROBES

Clostridium (Clostridium difficile)  
Bacteroides (Bacteroides fragilis)  
Fusobacterium  
Treponema (Treponema pallidum, Treponema syphilis)  
Borrelia  
Leptospira  
Proteobacteria (Bifidobacterium spp/Lactobacillus spp/Propionibacterium)

## FASTIDIOUS GRAM -VE

Haemophilus (Haemophilus influenzae)  
Neisseria (Neisseria meningitidis, Neisseria gonorrhoeae)  
Legionella  
Bordetella (Bordetella pertussis, whooping cough)  
Yersinia pestis (plague)

## MYCOBACTERIUM

Mycobacterium leprae  
Mycobacterium avium/atypical  
Mycobacterium tuberculosis

## RICKETTSIA/coxiella

## MYCOPLASMA/ureaplasma

## CHLAMYDIA (Chlamydia pneumoniae)

## PARASITOLOGY

### HELMINTHS

#### NEMATODES

Ascaris lumbricoides (ascariasis)  
Strongyloides stercoralis (strongyloidiasis)  
Wuchereria bancrofti/Brugia malayi/timori (filariasis)  
Onchocerca volvulus (onchocerciasis)  
Trichinella spiralis (trichinosis)

#### CESTODES (tapeworms)

Taenia saginata/solium (cysticercus/cysticercosis)  
Echinococcus granulosus/multilocularis (echinococcosis)

#### TREMATODES

Schistosomas spp (schistosomiasis)  
Paragonimus westermani (paragonimiasis)

## PROTOZOAN PARASITES

### FLAGELLATES

Trypanosoma spp (Chagas disease, trypanosomiasis)

Leishmania spp (Leishmaniasis)

Giardia lamblia (giardiasis/lambliasis)

Dientamoeba fragilis (dientamoebiasis)

Trichomonas vaginalis (trichomoniasis)

### SPOROZOA

Plasmodium spp (malaria)

Toxoplasma gondii (toxoplasmosis)

Babesia spp (babesiosis)

Sarcocystis spp

Isospora belli (isosporiasis)

Cryptosporidium parvum

Cyclospora spp

### AMOEBA & CILIPHORA

Entamoeba histolytica

Balantidium coli

Naegleia fowleri

Acanthamoeba spp

### MICROSPORIDIA

Enterocytozoon bienersi

Encephalitozoon spp

Pleisophora spp

Trachipleistophora spp

Nosema connori

Microsporidium spp

### FUNGI

#### MOULDS

Aspergillus spp

Ringworm fungi

Pneumocystis carinii

#### YEASTS

Candida spp (Candida albicans, candidiasis)

Cryptococcus neoformans

Histoplasma capsulatum

Coccidioides immitis