



東南大學

Immunoregulation

Chuanlai Shen Ph.D.

Professor

Department of Microbiology and Immunology

Southeast University Medical School

E-mail: chuanlaishen@seu.edu.cn

Mobil phone: 13776629706

Phone: 83272454

Chapter 1 role of antigen, antibody and complement

Antigen:

Physicochemical properties

Route of administration and dosage

Antibody:

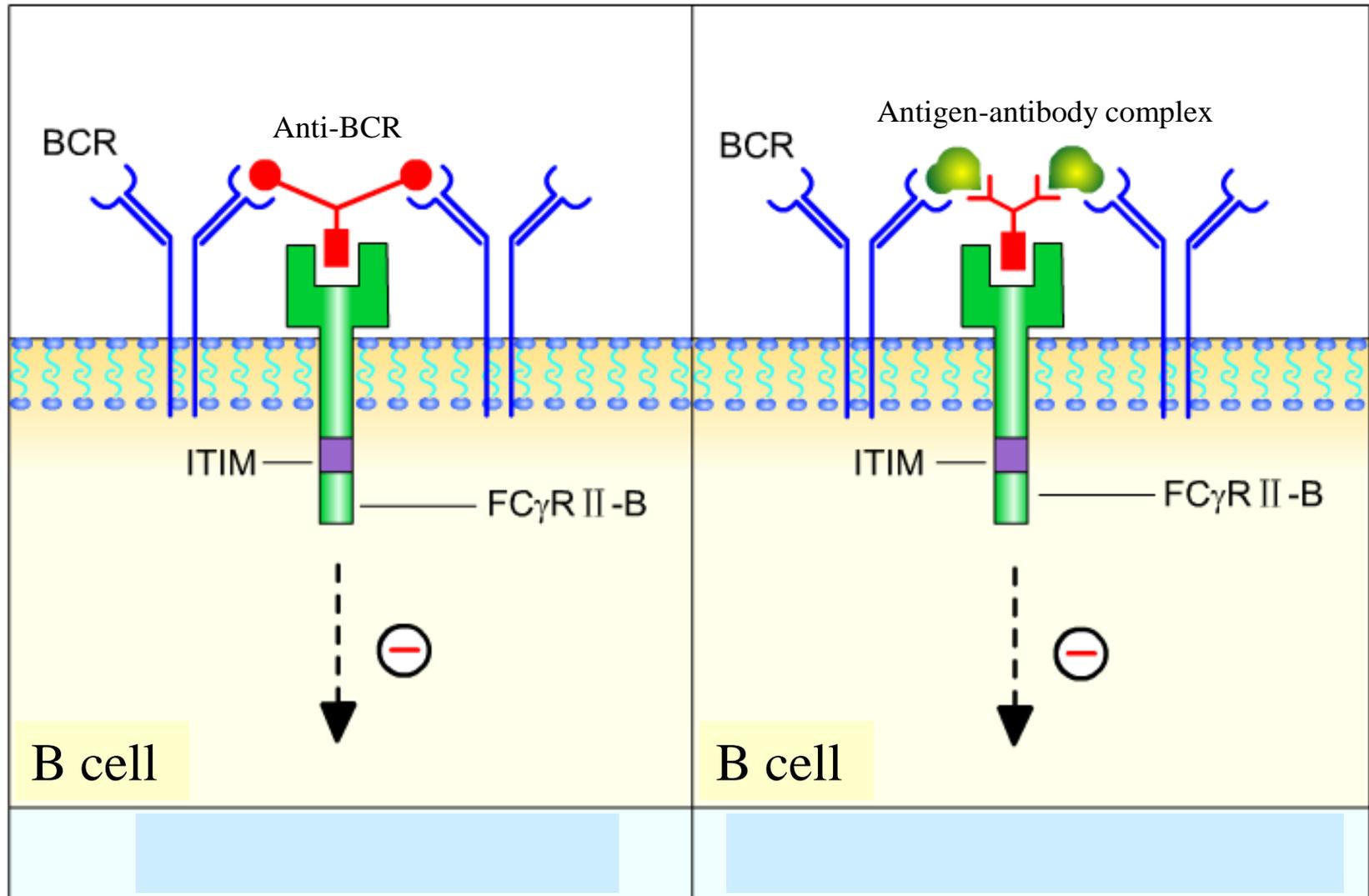
blocking

feedback

Complement:

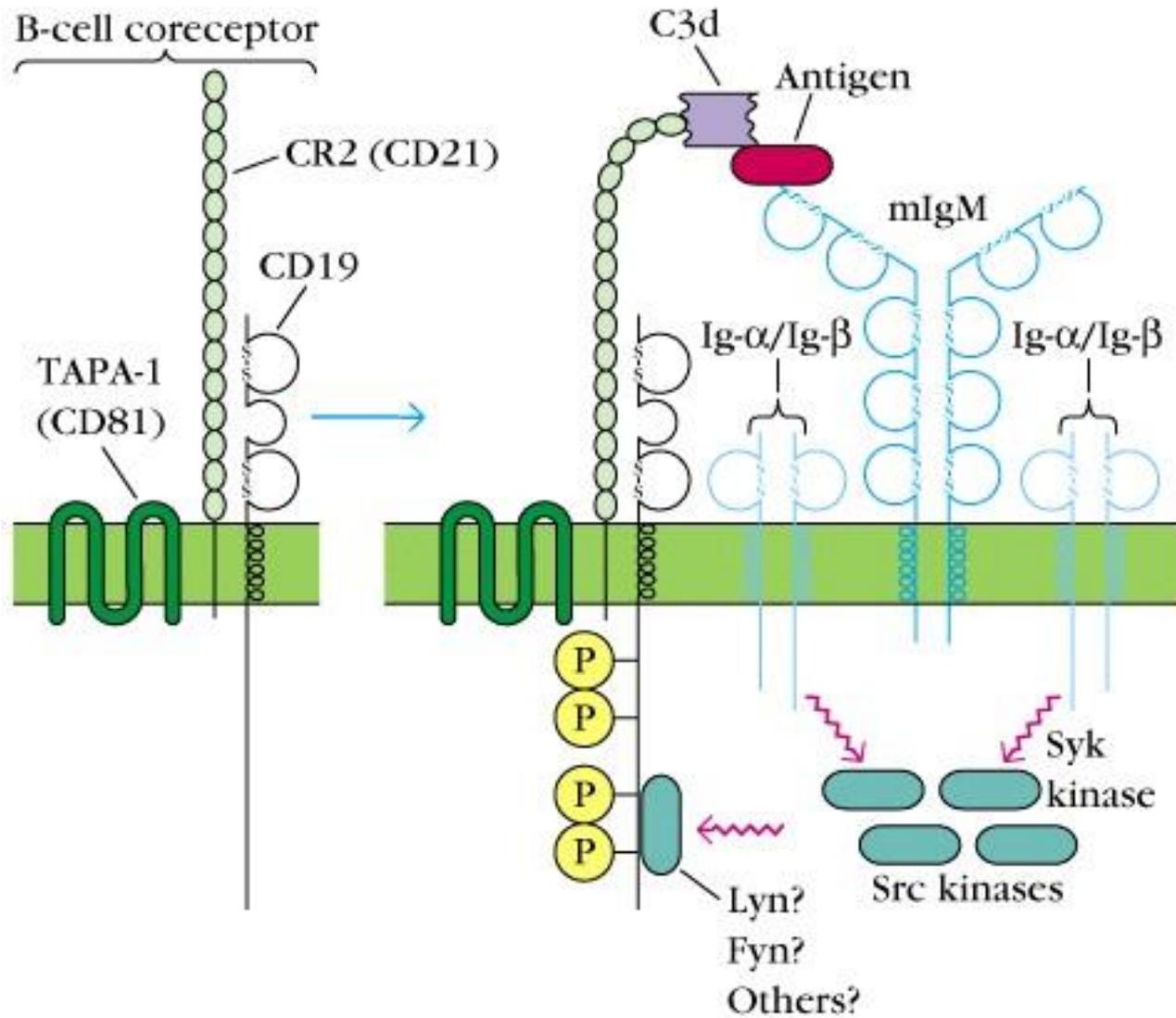
C3d bind with antigen

CD21(CR2) on B cell



Inhibition to B cells mediated by anti-BCR and IC





Chapter 2 role of signaling components and suppressing receptors on the immune cells

Activating receptors:	ITAM	PTKs	initiating transduction of active signals
Suppressing receptors:	ITIM	PTPs	inhibiting transduction of active signals

ITAM: immunoreceptor tyrosine-based activation motifs

ITIM: immunoreceptor tyrosine-based inhibition motifs

PTKs: protein tyrosine kinases

mediate the transfer of the terminal phosphate of ATP to the hydroxyl group of a tyrosine residue in a substrate protein.

PTPs: protein tyrosine phosphatases

remove phosphate moieties from tyrosine residues

Active receptors and suppressing receptors on the immune cells:

T cell:	TCR-CD3 complex	peptide/MHC complex
	CD28	B7.1
	CTLA-4	B7.2
B cell:	BCR complex	conformational determinants of antigen
	CD40	CD40L
	Fc γ RII-B	Fc fragment of IgG
NK:	KAR	glycoprotein
	KIR	MHC class I molecules
	CD94/NKG2A	HLA-E

Chapter 3 role of cells

Role of T cell subtypes:

Natural regulatory T cell:

CD4⁺/CD25⁺/FoxP3⁺

Adaptive regulatory T cell:

CD4⁺ Th1 : IL-2 IFN- γ

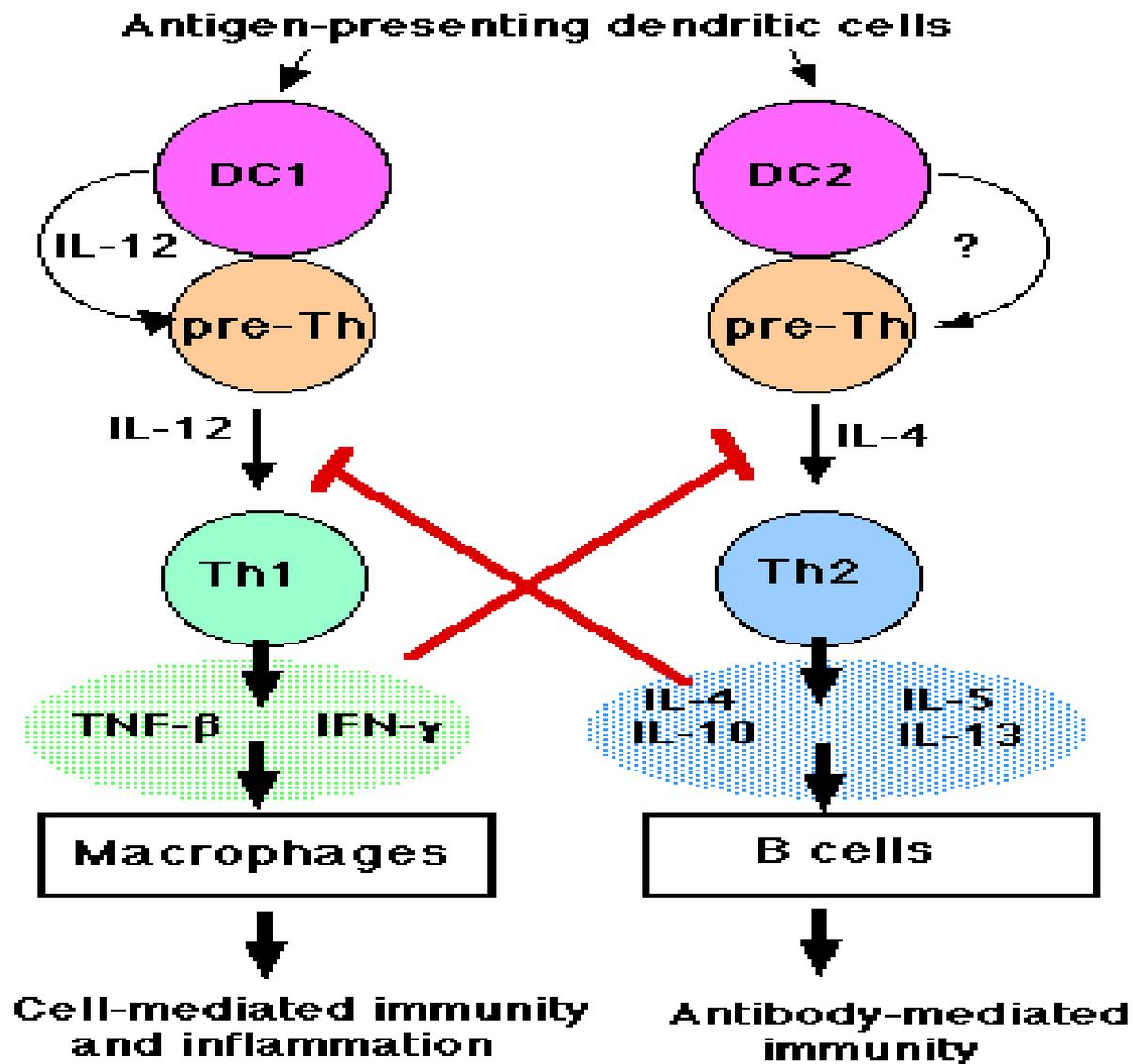
CD4⁺ Th2 : IL-4

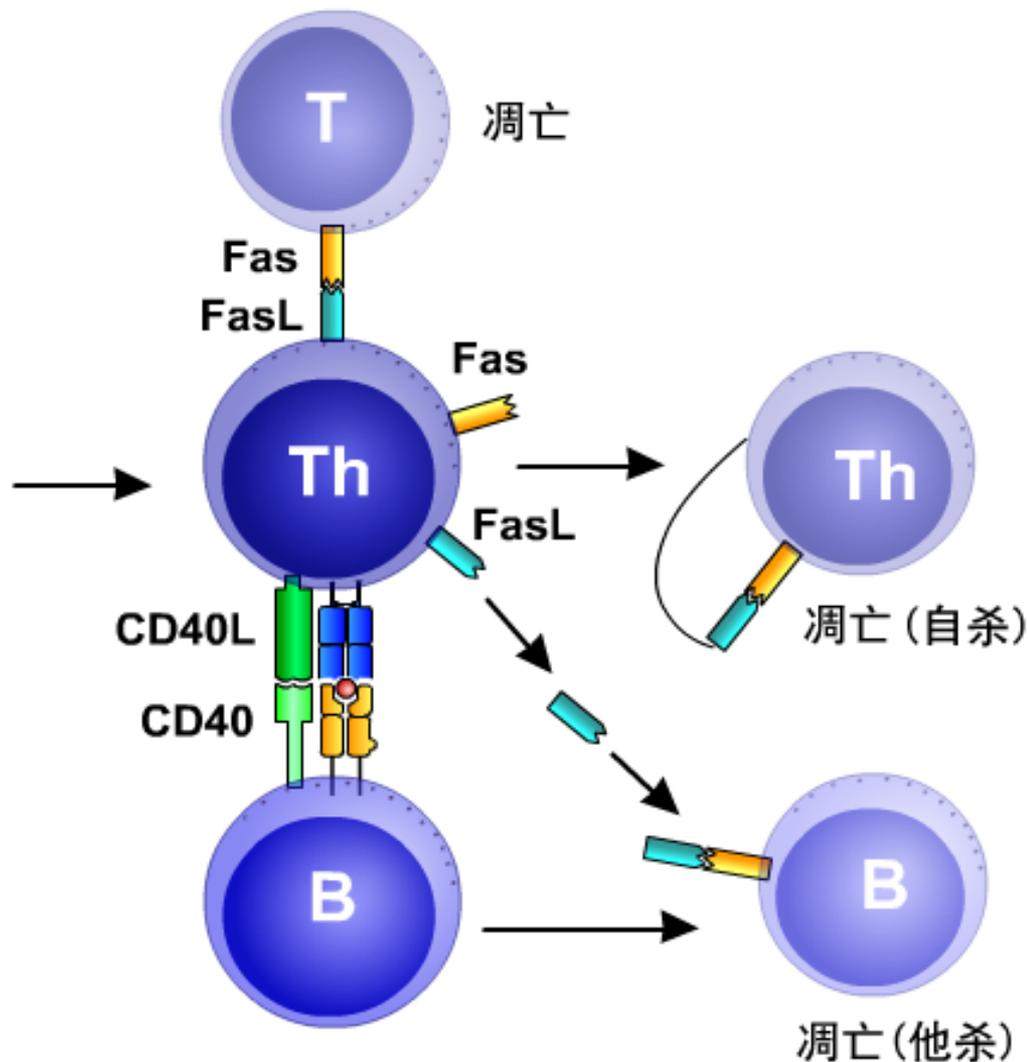
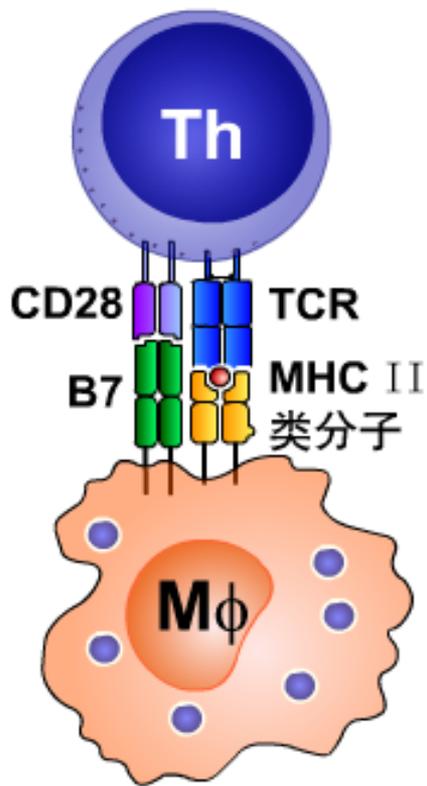
CD4⁺ Tr1 : IL-10

CD4⁺ Th3 : TGF- β

Role of apoptosis:

AICD: activation induced cell death





Fas-FasL induced apoptosis of lymphocytes

Role of idiotype network:

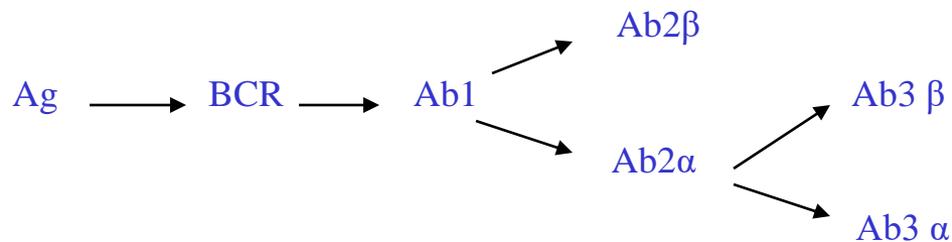
Idiotype:

BCR and TCR molecules are Ig and can be immunogenic. The unique V-region amino acid sequences of the homogeneous Ig produced by a single B cell clone, which have not been confronted, are known as the idiotypes.

Anti-idiotypic:

Antibodies produced in response to these idiotypes are called anti-idiotypic antibodies (AId or Ab2).

Idiotype network:

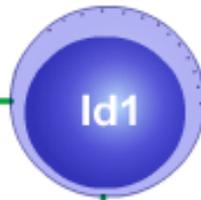


Ab2 β	Ab1	Ab2 α	Ab3
内影像组	独特型组	抗独特型组	抗抗独特型组

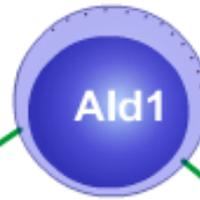
ARC activating cell



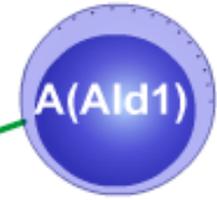
Antigen Reaction Cell



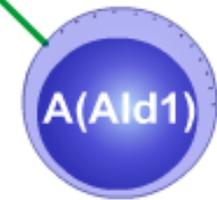
ARC inhibiting cell



Branch



Nonspecific parallel set



Idiotype network



Chapter 4 Neuroendocrine immune system regulation

Endocrine cell hormones

Nervous cell neurotransmitters

Immune cell cytokines