



Butterfly rash

AMERICAN OSTEOPATHIC SOCIETY FOR RHEUMATIC DISEASE

LOOKING AT RHEUMATIC DISEASE

Presented by

Robert R. Speer, D.O., FAOCRh

biography

- Certified- family medicine by the AOA,AOBFM
- Certified- rheumatology By the AOA,AOBIM
- Past president of AOCRH(american osteopathic college of rheumatology)
- Past chairman division of rheumatology at cape regional medical center
- President of AOSRD (american osteopathic society of rheumatic disease)

COURSE OBJECTIVE

- SUPPLY AN INSIGHT TO THE EVALUATION OF RHEUMATIC DISEASE
- UPDATE NEWER TERMINOLOGY
- UPDATE CLINICAL FINDINGS AND CORRELATE TO LABORATORY EVALUATION
- VIEW BASIC IMMUNE SYSTEM FUNCTION

Financial disclosure

- NONE

Demographics of RA

- GENERAL ONSET BETWEEN AGE 30-50

DEMOGRAPHICS OF RA

- FEMALE 2-3X MORE SUSCEPTABLE THAN MALE
-

DEMOGRAPHICS OF RA

- THERE ARE UP TO 2MILLION AFFECTED PEOPLE WITH RA
- ESTAMATES OF 1 IN 150 PEOPLE GET RA

ONSET OF RA

- EARLY ONSET RA (EORA) ages 30-50
- LATE ONSET RA (LORA) AGES 65 AND ABOVE

CRITERIA FOR RA

- OLD CRITERIA 1987 -2010
- FATIGUE
- AM STIFFNESS >30-60 MINUTES
- JOINT PAIN SYMPTOMS >6WEEKS
- SYMETRICAL SYMPTOMS AFFECTING BOTH SIDES OF THE BODY
- SWELLING AND PAIN WRISTS ,HANDS ,FINGER
- POSITIVE SEROLOGIC TEST-RF AND ANTI-CCP
- RHEUMATOID NODULES
- IMAGING EVIDENCE OF EROSION IN JOINTS

ACR/EULAR CRITERIA

- 0 1 LARGE JOINT
- 1 2-10 LARGE JOINTS
- 2 1-3 SMALL JOINTS(with or without large joint involvement)
- 3 4-10 SMALL JOINTS(with or without large joint involvement)
- 5 >10 joints (at least 1 small joint)

ACR/EULAR CRITERIA SEROLOGY

- 0 NEGATIVE RF AND ANTI-CCP
- 2 LOW POSITIVE RF OR ANTI-CCP
- 3 HIGH POSITIVE RF OR ANTI-CCP

ACR/EULAR ACUTE PHASE REACTANTS

- 0 NORMAL CRP AND SED RATE
- 1 ABNORMAL CRP AND SEDRATE

ACR/EULAR

DURATION OF SYMPTOMS

- 0 < 6WEEKS
- 1 > 6 WEEKS

RESULTS

- ADD UP THE SCORE AND IF GRATER THAN 6 THE CRITERIA FOR RHEUMATOID ARTHRITIS IS MET

DISEASE ACTIVITY

- DAS-28 CRP/SED RATE (disease activity score)
- RAPID 3 (routine assessment patient index data)
- SDAI (simplified disease activity index)
- CDAI (clinical disease activity index)

CDAI-SCORING

- SWOLLEN JOINT COUNT (DAS28) 0-28
- TENDER JOINT COUNT (DAS28) 0-28
- PATIENT GLOBAL ASSESSMENT (HOW ARE YOU FUNCTIONING) 0-10
- EVALUATOR GLOBAL ASSESSMENT (YOUR OPINION ON THE PATIENTS FUNCTION) 0-10
- <2.8 RMISSION, 2.8-10 LOW DISEASE ACTIVITY,10-22 MODERATE, >22 HIGH ACTIVITY

SDAI-SCORING

- TENDER JOINT COUNT (DAS28)
- SWOLLEN JOINT COUNT (DAS28)
- PATIENT GLOBAL ASSESSMENT 0-10
- EVALUATOR MEDICAL OPINION 0-10
- C-reactive protein (CRP)
- <3.3 REMISSION, 3.3-11 LOW ACTIVITY, 11-26 MODERATE ACTIVITY, >26 HIGH ACTIVITY

DAS28-SCORING

- TENDER JOINT COUNT 28
- SWOLLEN JOINT COUNT 28
- CRP/ESR VALUES
- PATIENT GLOBAL HEALTH 0-10 (OPTIONAL)
- <2.6=REMISSION, 2.6-3.2=LOW ACTIVITY, 3.2-5.1=MODERATE ACTIVITY, >5.1=HIGH ACTIVITY

THE JOINT COUNT OF 28

- MCP JOINTS BILATERAL
- PIP JOINTS BILATERAL
- MP JOINTS BILATERAL
- WRISTS BILATERAL
- SHOULDERS BILATERAL
- ELBOWS BILATERAL
- KNEES BILATERAL

RAPID 3

- FUNCTION 0-10 PHYSICAL ABILITIES
- PAIN 0-10
- PATIENT GLOBAL ESTIMATE OF STATUS 0-10
- TOTAL SCORE 0-30
- <3=REMISSION,3.1-6=LOW ,6.1-12=MODERATE,>12=HIGH

ACR 20,50,70

- THIS ONLY MEANS ARE YOU 20%, 50% OR 70% IMPROVED, A VERY NON SPECIFIC INDICATOR OF DISEASE ACTIVITY

TREATMENT PATTERNS FOR RA

- NSAIDS (IBUPROFEN, NAPROSYN ETC.)
- DMARDS (MTX, IMURAN, PLAQUENIL ETC)
- STEROIDS (PREDISONE, METHLYPREDNISONNE
- DEXAMETHASONE ETC.)
- BIOLOGICS (MONOCONAL ANTI-BODIES)
- BIO-IDENTICAL BIOLOGICS (NOT A GENERIC)
- SMALL CELL AND ENZYME INHIBITORS (JAK ,
- PDE4 INHIBITORS

Newer terms for dmards

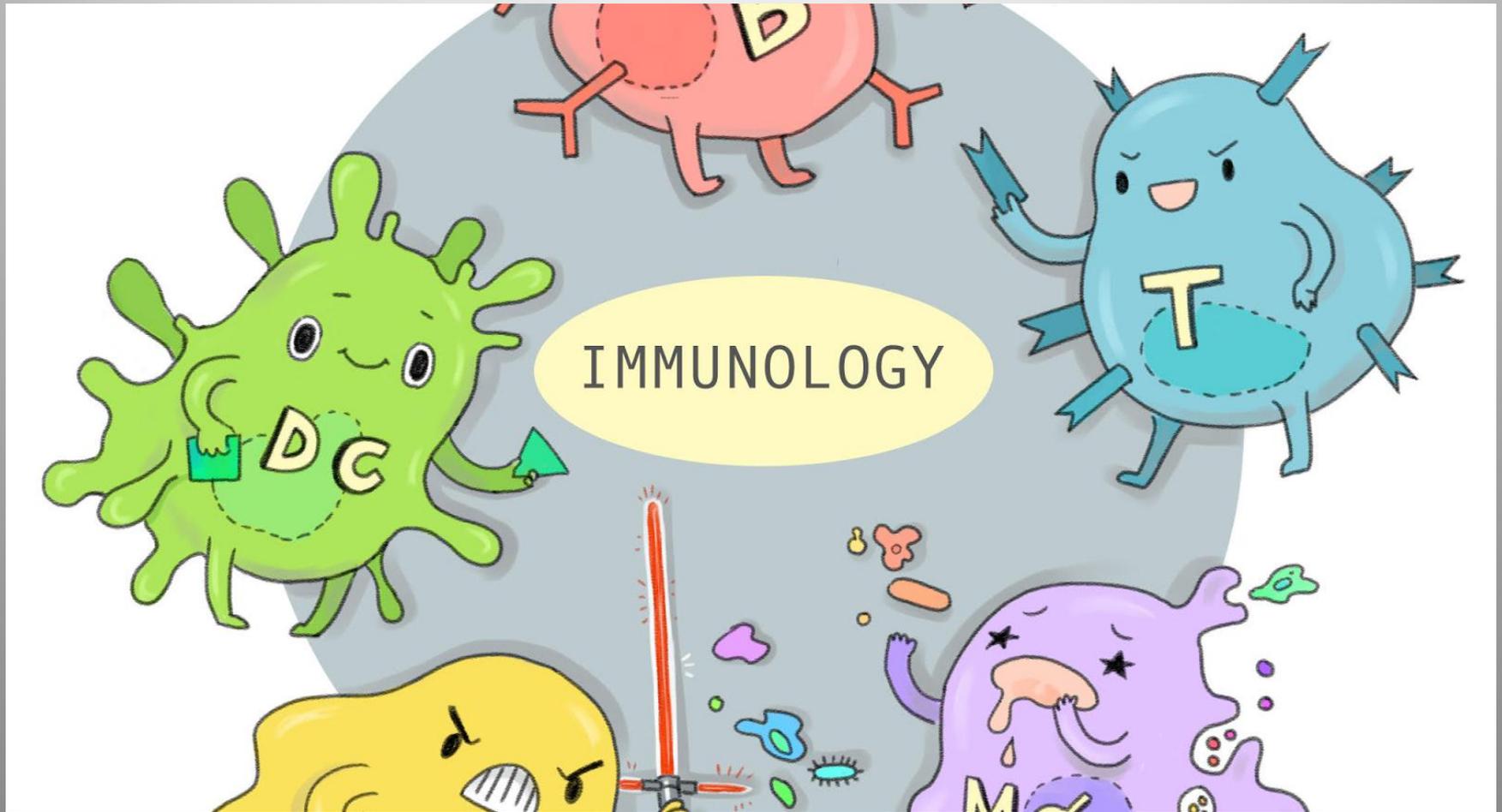
- Cs dmard-conventional synthetic- mtx, leflunamide,hydroxychloroquin etc.
- b dmard or bo dmard-biologic original,tnf, il's
- bs dmard- biologic similar, they are not generic drugs,but act in a similar fashion
- Ts dmard-targeted synthetic – PDE4 inhibitors etc.

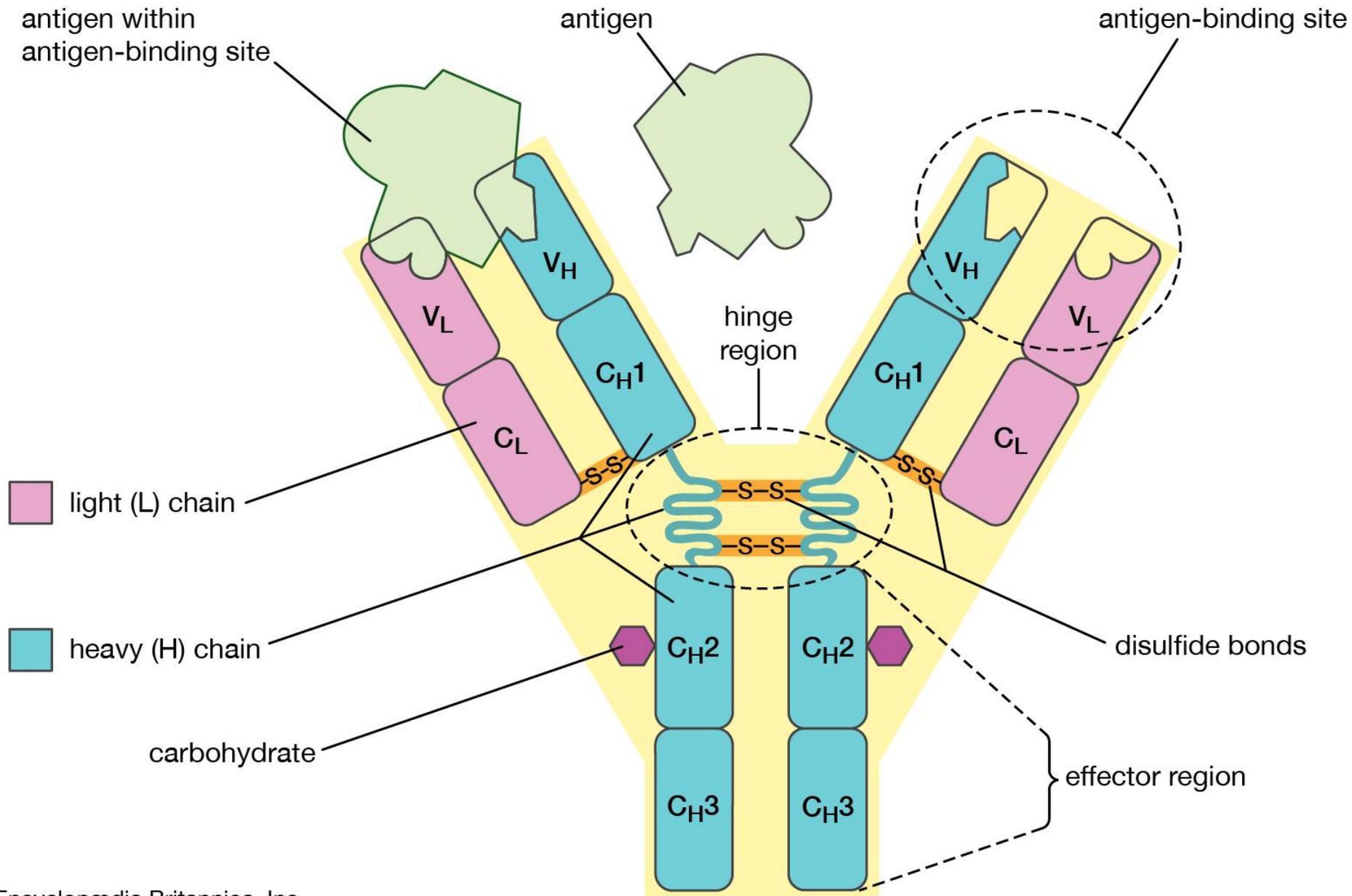
clinical signs and laboratory testing

-

- LETS BEGIN

A brief look at the immune system

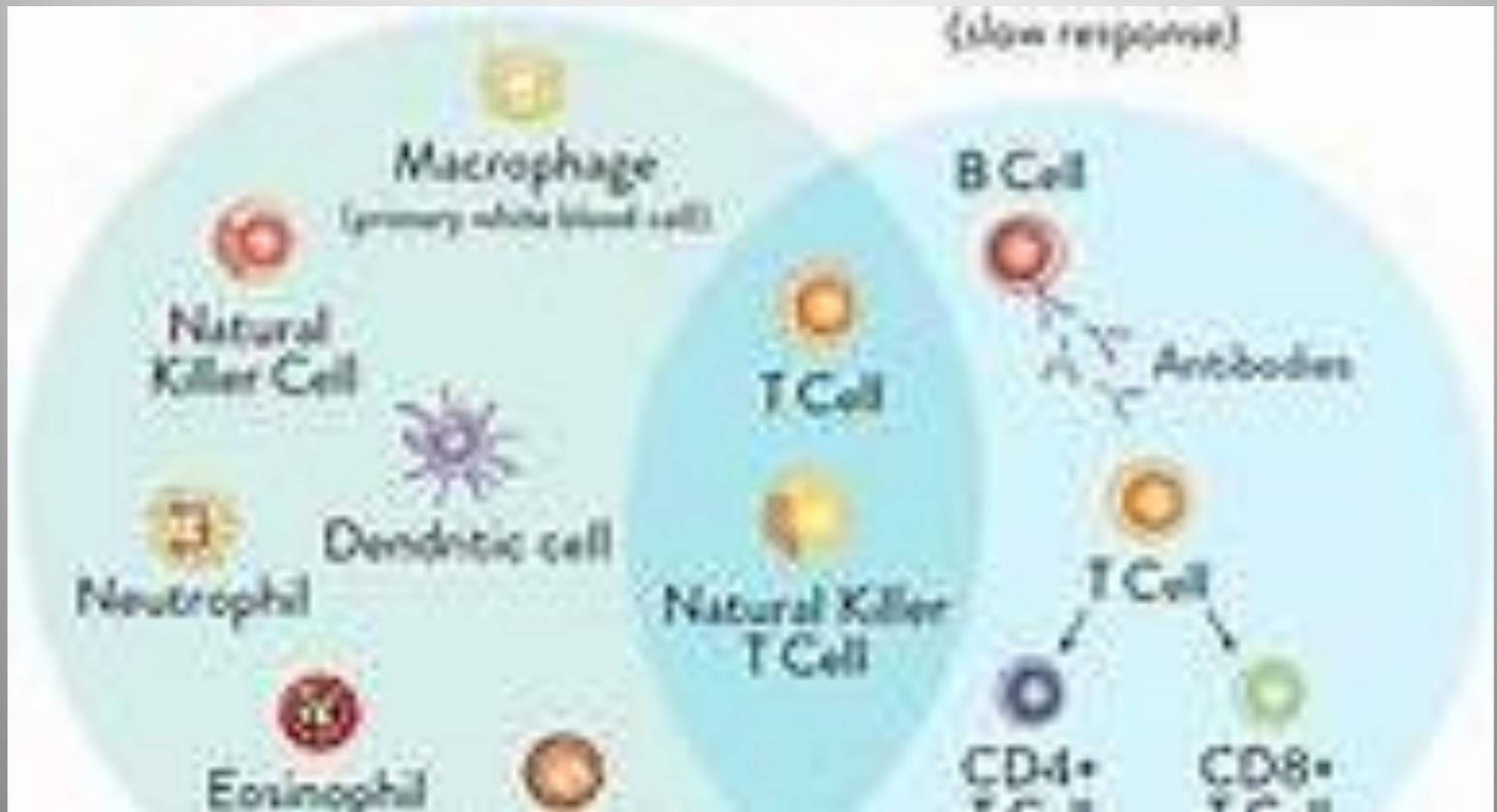




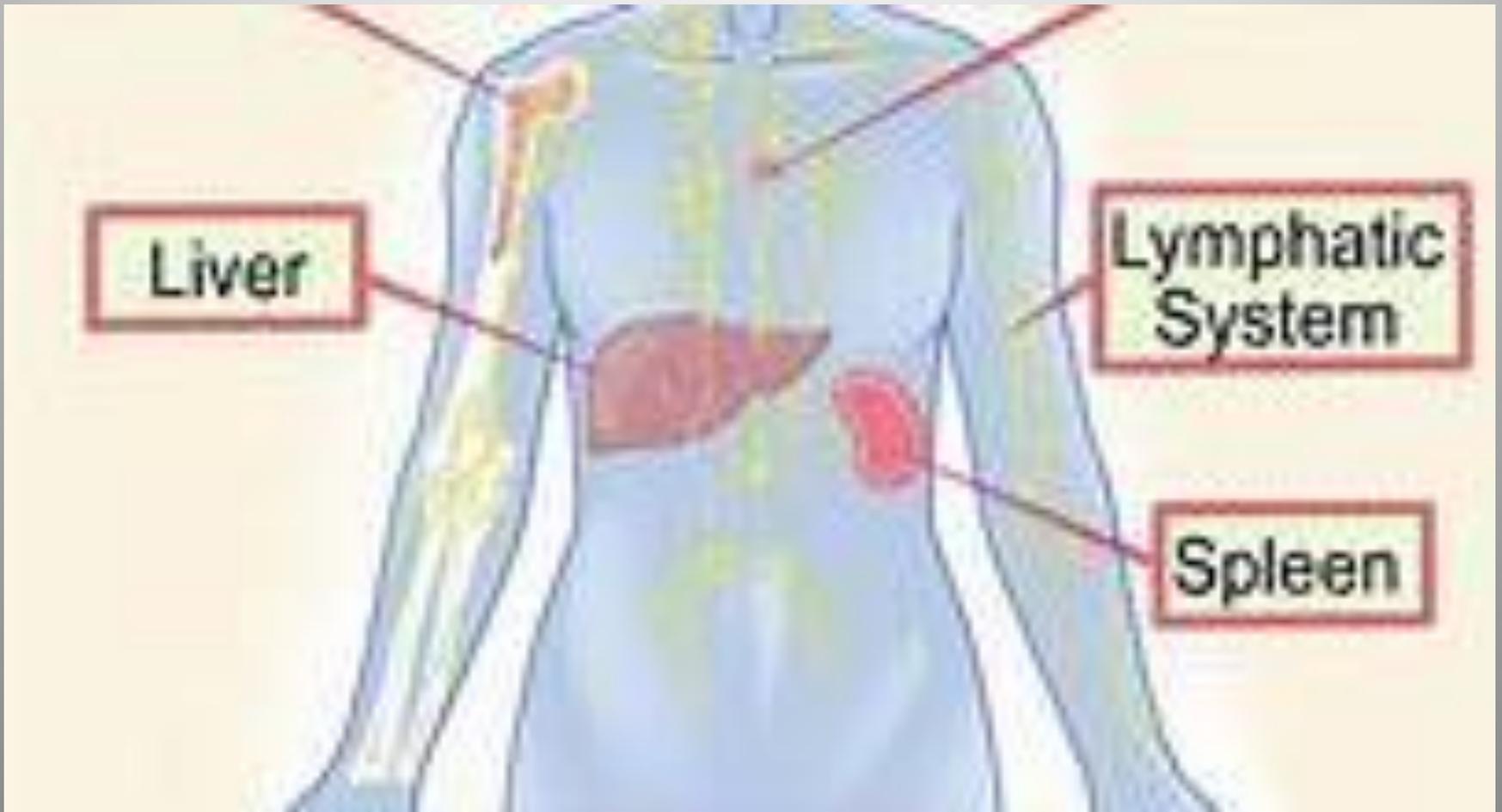
Area on antibody terms

- Fab (fragment antigen binding) located on the upper section of the antibody
- Fc (fraction crystallized) located on the lower half of the antibody

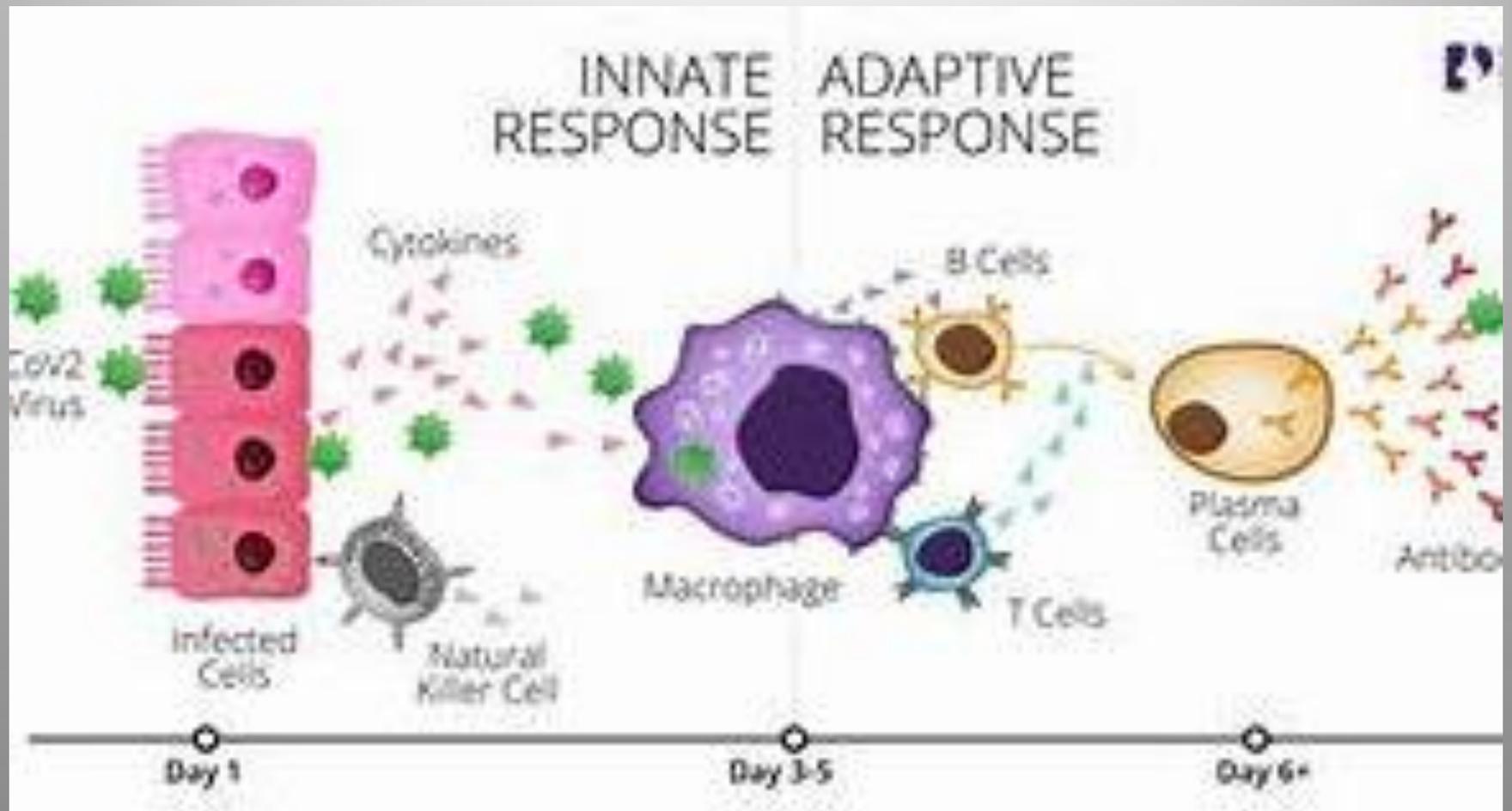
Cells of the immune system



Areas of immune production



Immune



- **Humoral Immunity**

- Humoral immunity involves the production of antibodies (immunoglobulins), and is brought about by lymphocytes, which are called B-cells. After B-cells are stimulated by an antigen, they proliferate and transform into plasma cells, which produce specific antibodies.
- **Cellular Immunity**

TYPES OF LYMPHOCYTES

Types of Lymphocytes

T - Lymphocytes



PARTICIPATE IN THE PROCESSES
OF CELLULAR IMMUNITY

B - Lymphocytes



PARTICIPATE IN THE PROCESSES
OF HUMORAL IMMUNITY

NK - Lymphocytes



NATURAL CYTOTOXICITY AGAINST
CANCER CELLS AND VIRUS-INFECTED CELLS

Immune cells

- B lymphocyte—produce antibodies (humoral immunity) innate immune system at birth
- T lymphocyte – cd4 ,cd8, nk cells ,helper T cells, suppresor T cells etc (cellular immunity) adaptive immune system, developes after birth in response to stimuli

- **Subsets of B and T lymphocytes**
- They exist with distinct phenotypic and functional characteristics. The major subsets of B cells are follicular B cells, marginal zone B cells, and B-1 cells, each of which is found in distinct anatomic locations within lymphoid tissues. The two major T cell subsets are CD4+ helper T lymphocytes and CD8+ CTLs, which express antigen receptors called $\alpha\beta$ T cell receptors (TCRs), and function as the mediators of cellular immunity. CD4+ regulatory T cells are a third subset of T cells expressing $\alpha\beta$ receptors; their function is to inhibit immune responses.
- **Natural killer (NK) cells** are lymphoid cells that are closely related to B and T cells. However, they do not express antigen-specific receptors and are considered part of the innate immune system.

- **Cellular Immunity**

- Cellular immunity includes delayed hypersensitivity reactions, graft rejection, graft-versus-host reactions, defense against intracellular organisms, and probably defense against neoplasms. Cellular immunity is mediated by lymphocytes, which we called T-cells.
- T cells secrete chemical messengers called cytokines, which stimulate the differentiation of B cells into plasma cells, thereby promoting antibody production. Regulatory T cells act to control immune reactions, hence their name. Cytotoxic T cells, which are activated by various cytokines, bind to and kill infected cells and cancer cells.

Basic lab testing

- Ana –titer plus reflex cascade
- Cbc
- Urinalysis
- Chem basic
- CRP
- Sed rate
- Uric acid
- Thyroid studies

Basic lab testing

- Vit D
- Ferritin
- Anti-ccp
- Aldolase
- Lyme titer
- LIVER FUNCTION

The ANA cascade

			Antibody					
	ds DNA	ss DNA	Histone	Nucleoprotein	Sm	RNP	Ro	La
SLE								
Sen	70%	80	30-80	58	25-30	45	40	15
Spec	95%		50	mod	mod	99	87-94	
Drug LE								
Sen	1-5%	80	95	50	1%		low	low
Spec		50	high	mod				
RA								
Sen	1%	mod	low	25	1%	47	low	low
Spec		mod		low				
Scleroderma								
Sen	<1%		<1%	<1%	<1%	20		
Spec		low						
PM/DM								
Sen	<1%		<1%	<1%	<1%		low	
Spec		low						
Sjögren's								
Sen	1-5%	mod	low	mod	1-5%	5-60	8-70	14-60
Spec		mod	low	mod			87	98

SLE



Butterfly rash

BUTTERFLY RASH



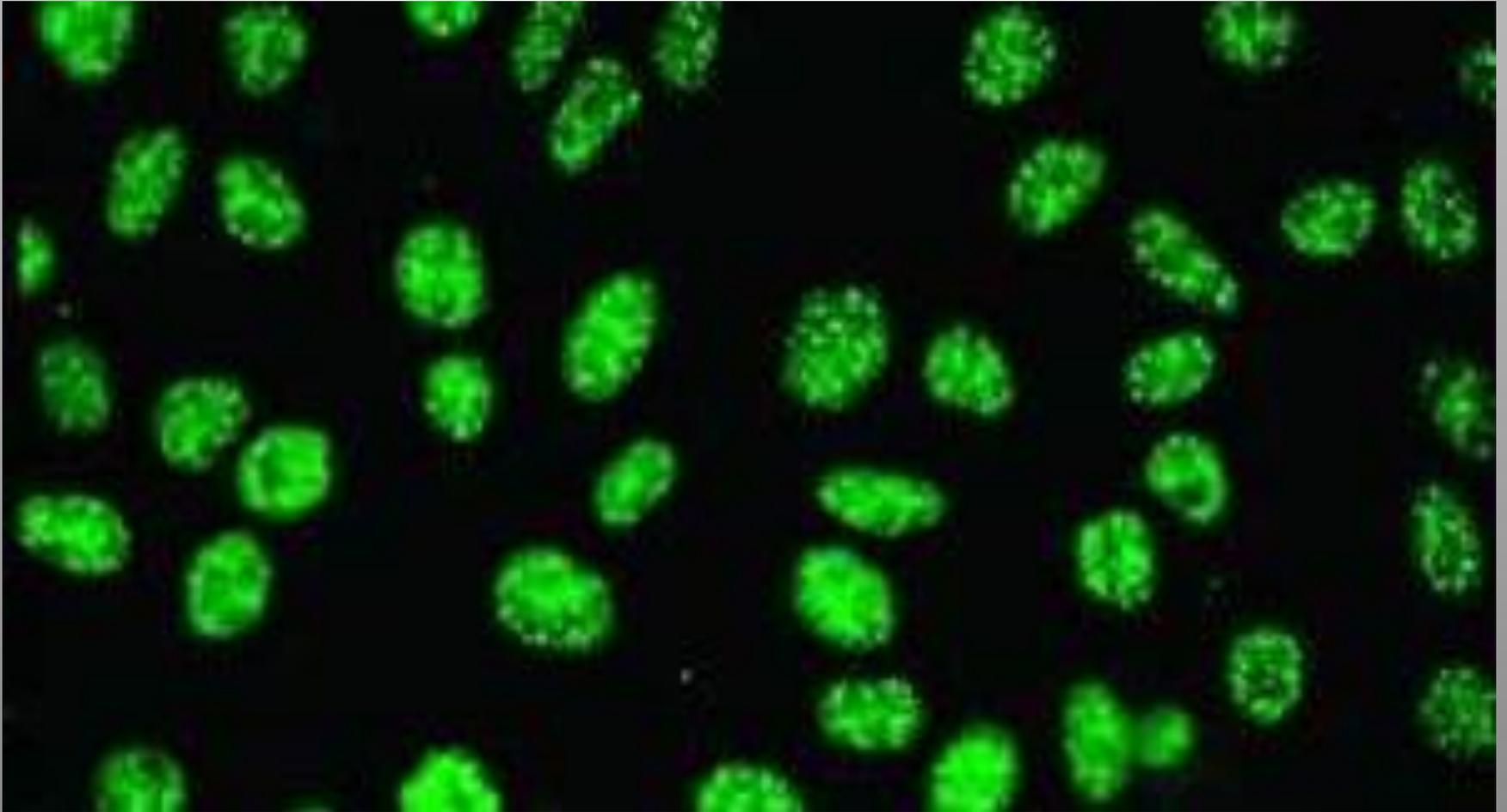
Mucocutaneous aphthous ulcers



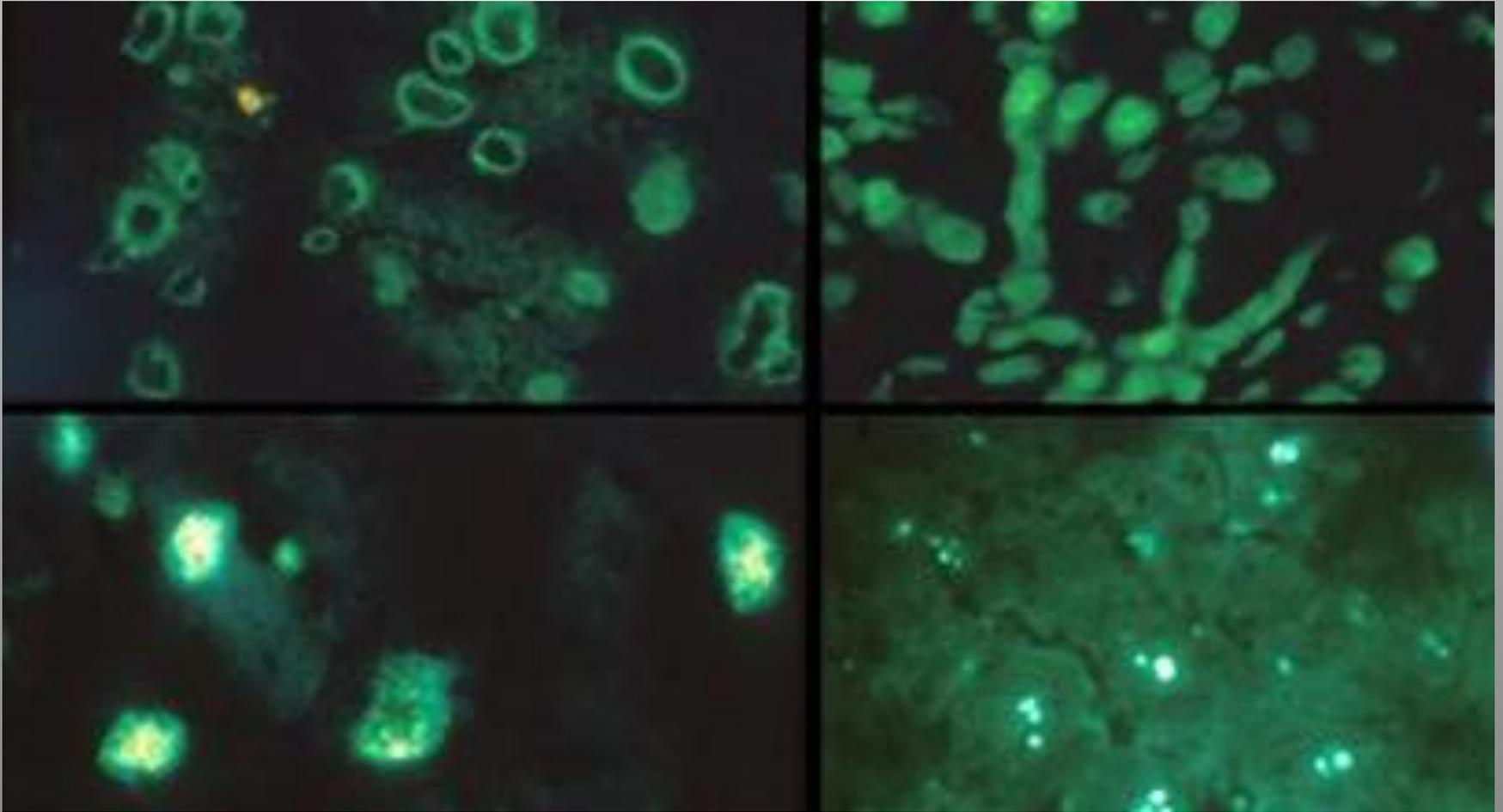
Helpful Lab markers for SLE

- dsDNA (40-60%)
 - Chromatin (anti-histone) SLE 48-97% ,
drug induced SLE (90%)
- Ribosomal P SLE 10-20%
- Sm (anti-smith) SLE 15-30%
- Compliment C3, C4, CH50 (decrease levels = increase activity)
- Elevated ESR, C-reactive protein

Centromere (crest syndrome)



Peripheral,diffuse,nucleolar,speckeled



Ankylosing spondylitis



uveitis



Markers for Sero negative arthropathies

- Ankylosing spondylitis, Reiters syndrome, Psoriatic arthritis, Enteric arthropathy
- HLA-B27
- ANA negative
- Anti-ccp negative
- Increase acute phase reactants (ESR, CRP)

Blue color cartilage discoloration



Intervertebral disk involvement



Ohcronosis

- Urine turns dark in light, defect in homogenistic acid production
- Alkaptanuria

Sicca/sjogrens



Tongue in sjogrens



Parotid glands of sjogrens



Sjogren's



SJOGRENS SYNDROME

- SSA (RO) 40-70% also seen in SLE 25-35% and seen in neonatal lupus 100%
- SSB (LA) 30% SLE only 10%
- ESR,CRP,CBC, Chem profile, LFT's

Symmetrical mcp and pip involvement of RA



Rheumatoid nodules at extensor surface of elbow



RA nodule



Bilateral knee involvement of RA



Rheumatoid Arthritis

- ANA-can be positive
- Anti-CCP
- Rheumatoid factor
- ESR, CRP
- CBC
- Thyroid studies
- Lyme titer
- Ferritin levels

Heliotropic rash



dermatomyocytis/polymyositis

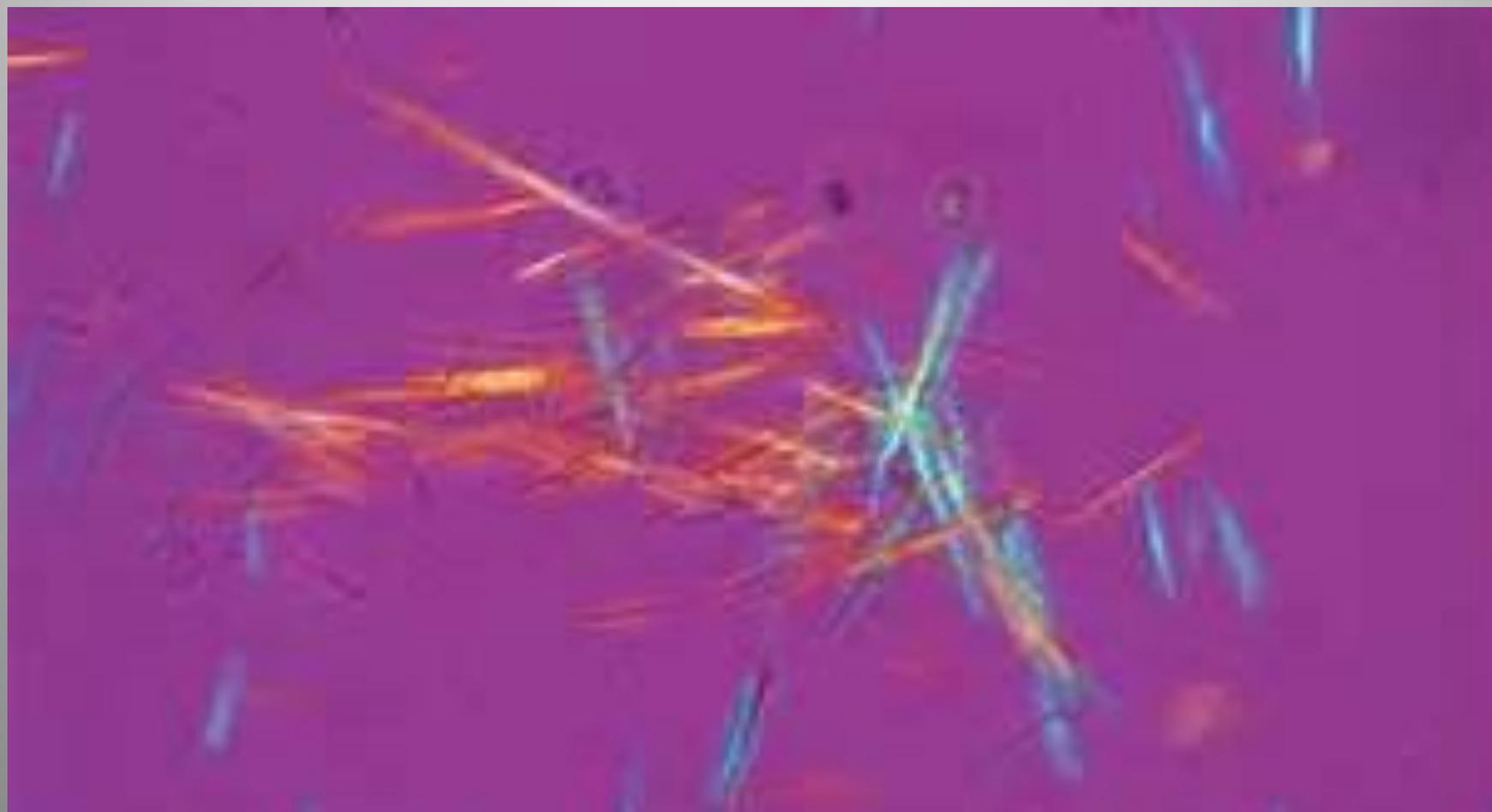
- Jo-1 (20-40%)
- Anti-ribonucleoprotein 20%
- Aldolase
- Myoglobin
- ESR, CRP,CBC,Urine,LFT's,Chem pofile

Mtp joint hot and swollen

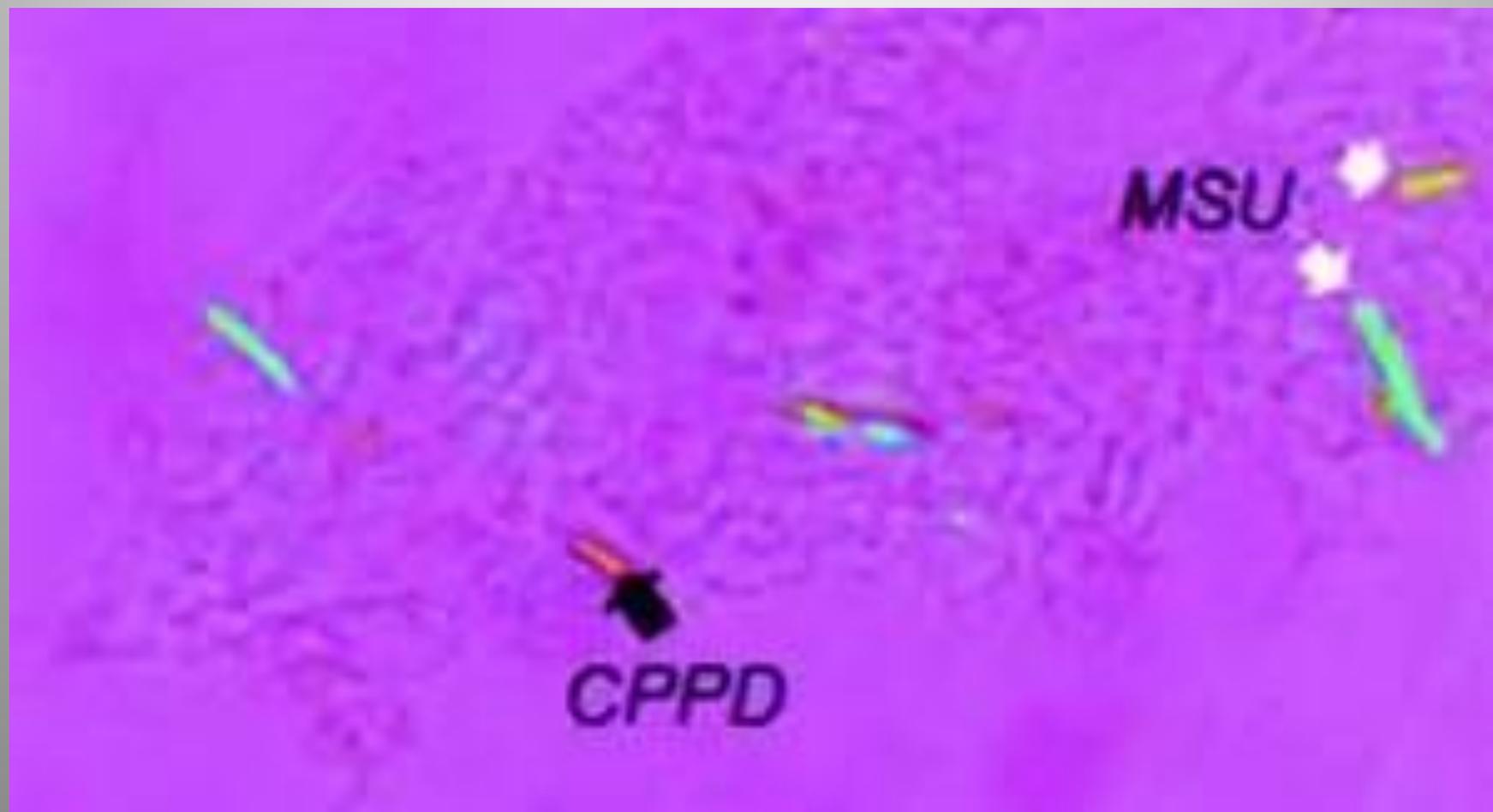


Gout and Pseudogout

- Serum uric acid
- ESR ,CRP
- CBC, Urine, Chem profile
- Synovial fluid crystals, needle shaped for gout, rhomboid shaped for cppd
- Possible to run 24 hr urinary uric acid







chonrocalcinosis



Purse lips with telangiectasis



sclerodactyl digits with ulceration of scleroderma



Fingertip necrosis in pss



Telangectasis lesion of skin



Scleroderma and Crest syndrome

- ANA
- Scl-70 20-35%
- Centremere B- crest variant 80%
- Ua, CBC, Chem Profile ,ESR,CRP

Raynauds

- Test for autoimmune diseases,thyroid,etc.
- Test for cryoglobulins,(globulins that precipitate when cooled, clumps up and blocks blood flow.

raynauds



raynauds



PMR

- ESR, CRP, CBC, etc., ANA with reflex titer

RHUPUS

- Symptoms of lupus and Ra
- Test for SLE and Rheumatoid arthritis

MCTD

- Use testing for SLE, Scleroderma, and polymyositis
- Ana cascade positive for anti-rnp

Hypermobile joints



Elastic skin



Ehlers-Danlos syndrome

- Hereditary , no real lab studies of significance,
- You win the Grand Prize if you got it right.

THE END

- Questions will now be taken if any?
- Thank you for the privilege of speaking with you today.