

# **Rheumatology**

**Dr Nick Shenker PhD FRCP**

Consultant Rheumatologist  
Addenbrooke's Hospital, Cambridge

RCP Liaison Psychiatry 15.05.2019

# Dr Nick Shenker FRCP

- 2001-2005 PhD, Bath
- Consultant Rheumatologist, NHS, Addenbrooke's 2007. Clinical Director since 2009.
- Chair, MSK Pain SIG, British Society for Rheumatology
- Heberden Committee, BSR, Pain Rep
- ARUK QST Network
- Chief Investigator – CRPS UK Registry
- Chair – Steering Committee for CRPS UK Registry
- Member, MD Committee, Univ of Cambridge

What you don't know lands you in the...



# Next 60 minutes

- What do you want to get out of this?
- Diagnostic reasoning
- Rheumatology conditions
- Blood tests

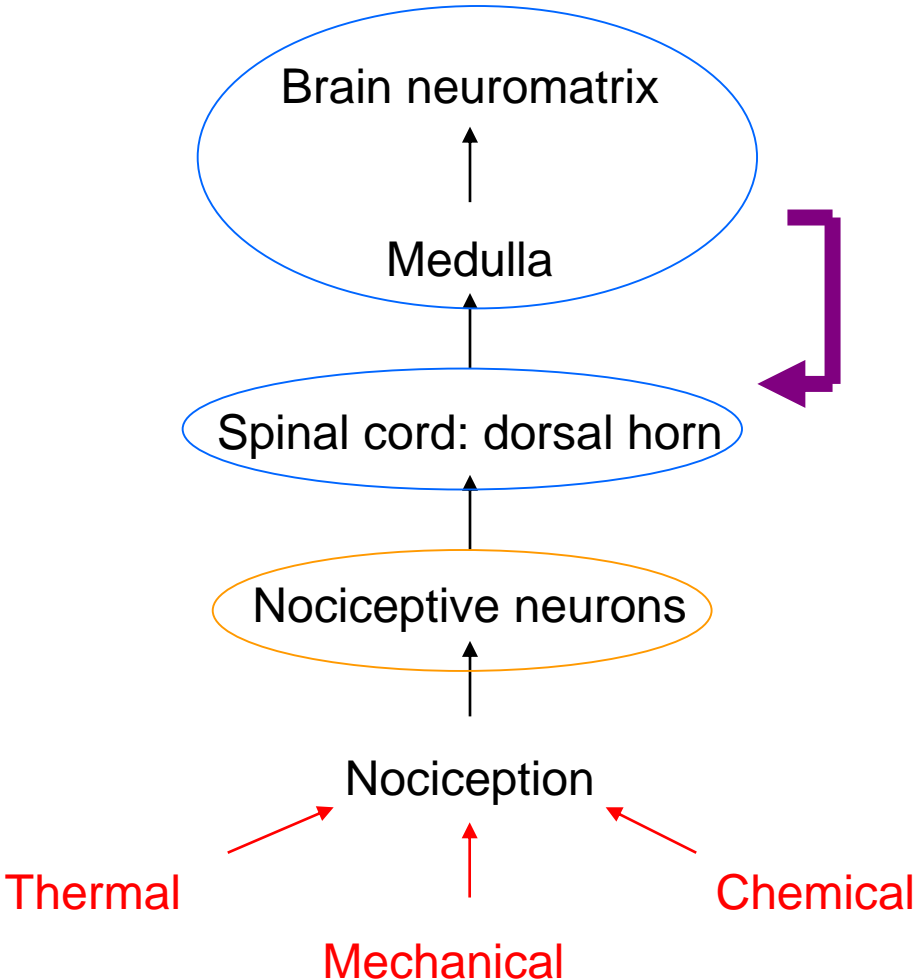


# Why get interested in Pain?

- 87% of patients presenting to Rheumatology clinics are in pain (Arthritis Care)
- Chronic pain is a Specialty in its own right
- Pain management across NHS is poor (NRAS, Pain Coalition, Parliamentary report)
- Patients appreciate your expertise!

# Structured approach to the patient in chronic pain

## *Anatomy*



# Structured approach to the patient in chronic pain

Hague, Shenker, BERH, 20

## *Physiology*

## *Anatomy*

Learning  
Neuroplasticity

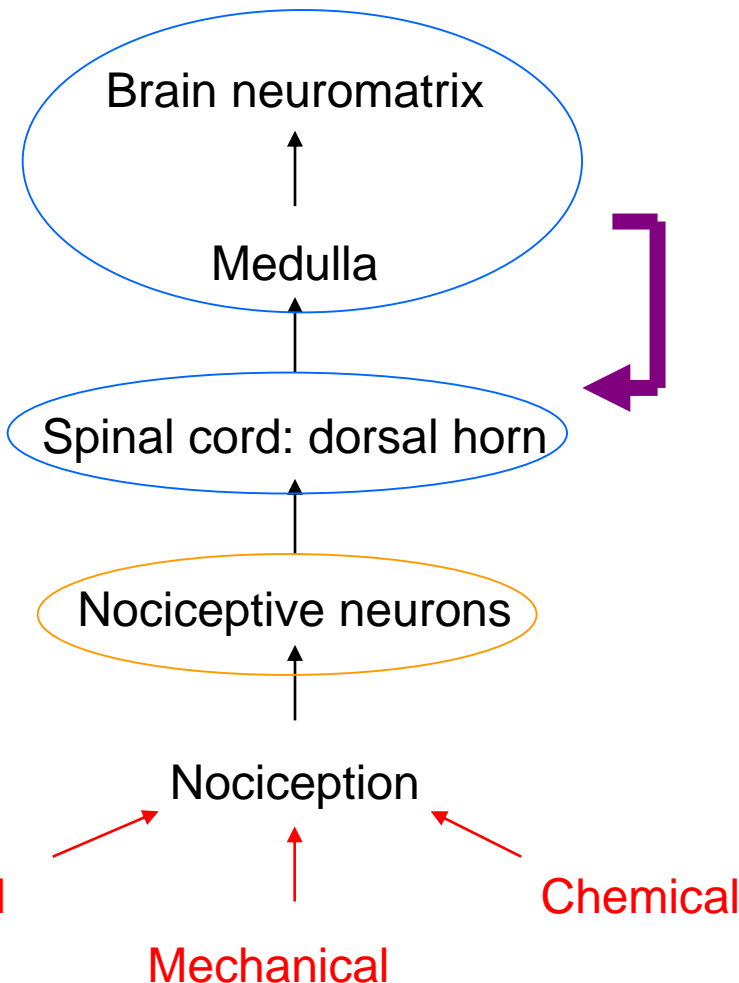
↕  
Central sensitisation

↕  
Central sensitisation

↕  
Peripheral sensitisation

↕

Injury Thermal



Chemical

Mechanical



# Figure 2. Structured approach to the patient in chronic pain

## Physiology

Learning  
Neuroplasticity

Central  
sensitisation

Central  
sensitisation

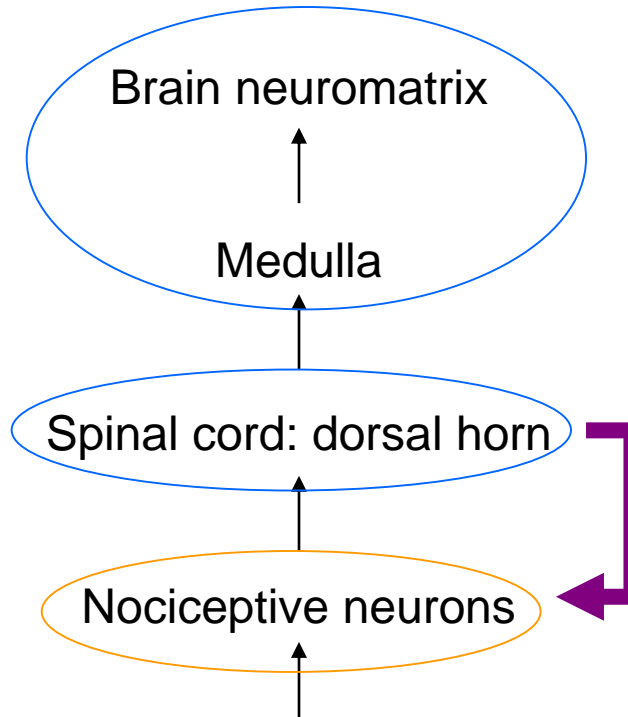
Peripheral  
sensitisation

Thermal

Mechanical

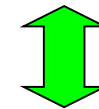
Chemical

## Anatomy

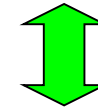


## Clinical Assessment

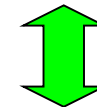
Sleep, Depression, Anxiety



Alterations in body scheme, functional status



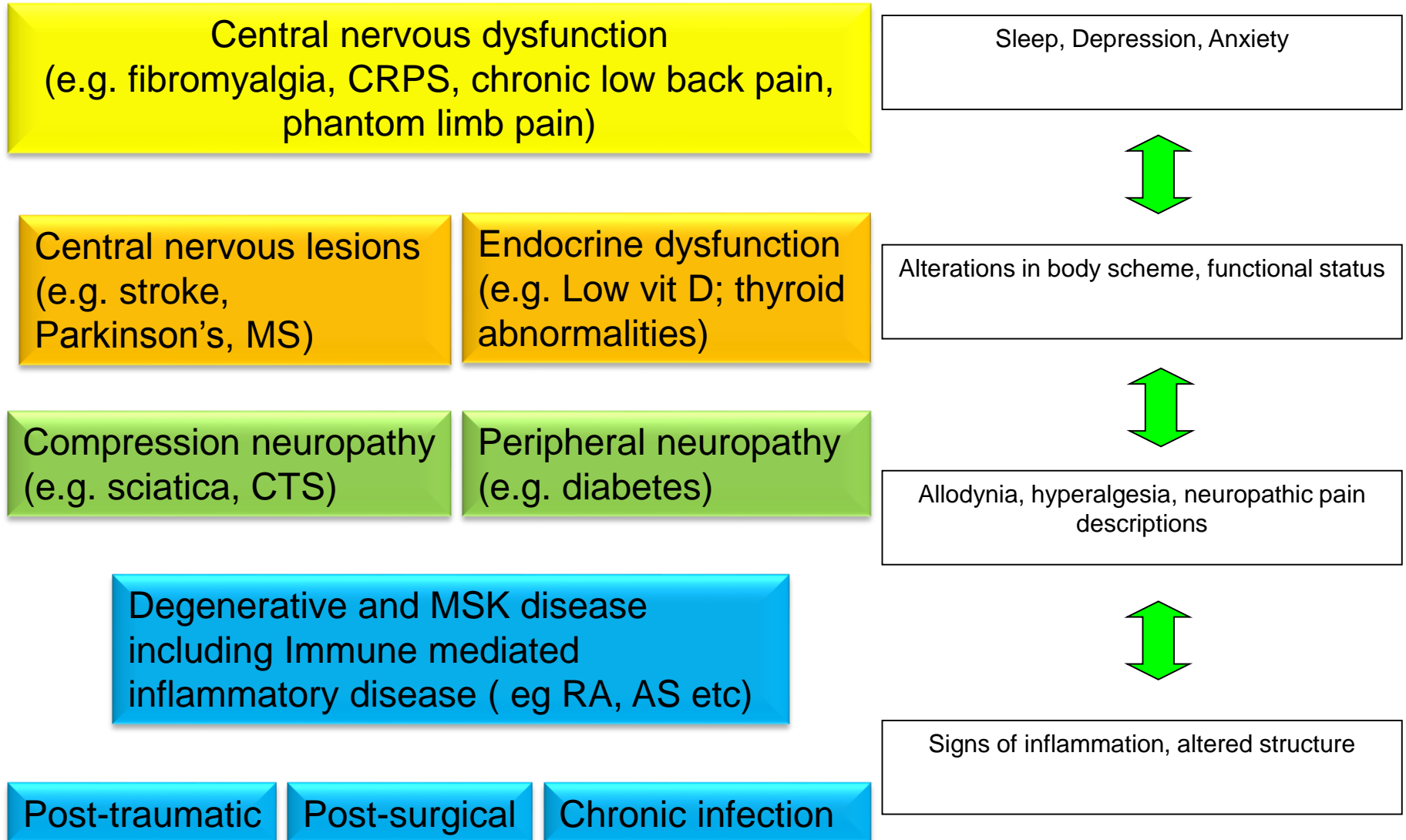
Allodynia, hyperalgesia, neuropathic pain  
descriptions



Signs of inflammation, altered structure

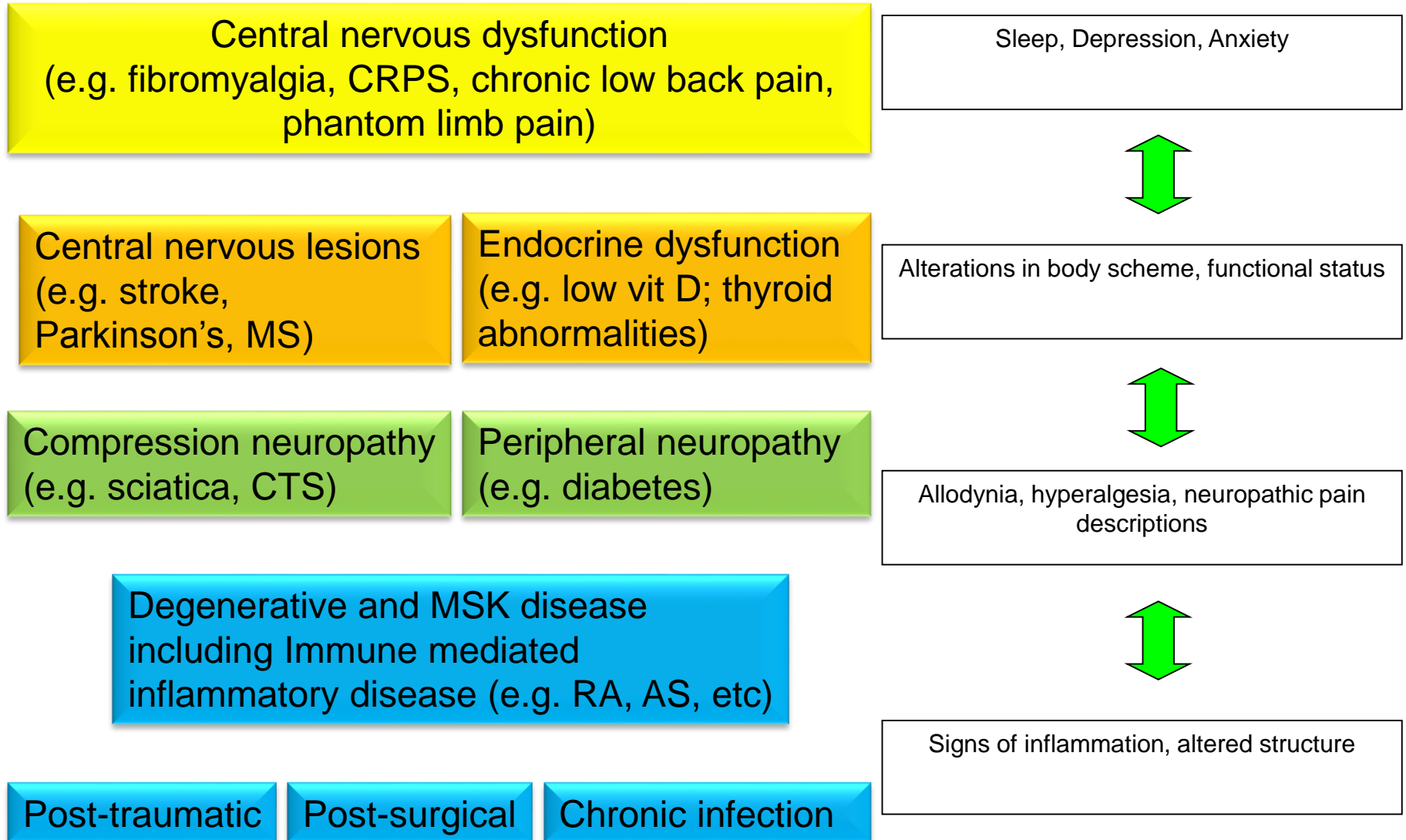
# Figure 3. Diagnoses associated with chronic pain

## ***Clinical Assessment***



# Figure 3. Diagnoses associated with chronic pain

## ***Clinical Assessment***



# NO EARLY MORNING STIFFNESS

# EARLY MORNING STIFFNESS

DIFFUSE PAIN

Chronic pain syndromes  
Malignancy

Polymyalgia rheumatica  
Inflammatory myositis

JOINT PAIN

No Joint swelling

Joint swelling

LOCALIZED PAIN

Osteoarthritis/arthropathy  
Tendinopathy  
Bursitis

Monoarticular

Polyarticular

Sepsis  
Crystals  
Reactive  
Spondyloarthritis

Rheumatoid  
Viral <6 weeks  
SLE  
Spondyloarthritis  
Crystals

# Have you got... The **S** factor?

## **S**tiffness

Early morning joint stiffness lasting over 30 minutes

## **S**welling

Persistent swelling of one joint or more, especially hand joints

## **S**queezing

Squeezing the joints is painful in inflammatory arthritis



Endorsed by

PCR  
PRIMARY CARE  
RHEUMATOLOGY SOCIETY

RCGP  
Royal College of  
General Practitioners

## This could be inflammatory arthritis

See your doctor now!  
Delay can cause long term disability

For further information see [www.arthritisresearchuk.org](http://www.arthritisresearchuk.org)

**Arthritis**  
Research UK

Providing answers today and tomorrow  
With recognition and special thanks to the  
Rheumatology Futures Project Group

# Referral form for suspected RA

**Referral Criteria (2 out of 3 criteria must be present for the patient to be eligible for referral)**

- 1) Symptom onset in the last 3 months
- 2) Objective swelling of at least 1 joint
- 3) Early morning stiffness  $\geq 30$  minutes

**Please request:** FBC, LFT, U&E, CRP, ESR, Rheumatoid factor, anti-CCP and ANA antibodies.  
If any of the wrist / hand / feet joints are affected, please request bilateral radiographs of these sites.

Date requested 25/02/2019 ..... (Patient may be referred with these test results pending)

**Note:** normal ESR/CRP and Rheumatoid factor does not exclude a diagnosis of Inflammatory Arthritis

**Please complete all details below as accurately as possible (failure to do so may cause delays)**

Approximate date of onset: .....

Early morning stiffness duration: .....30.....minutes or .....hours

Personal history of psoriasis: Yes  No

Family history of skin psoriasis: Yes  No

Personal history of gout / pseudogout: Yes  No

**GP signature:** ..... **Date:** 09-Apr-2019 .....

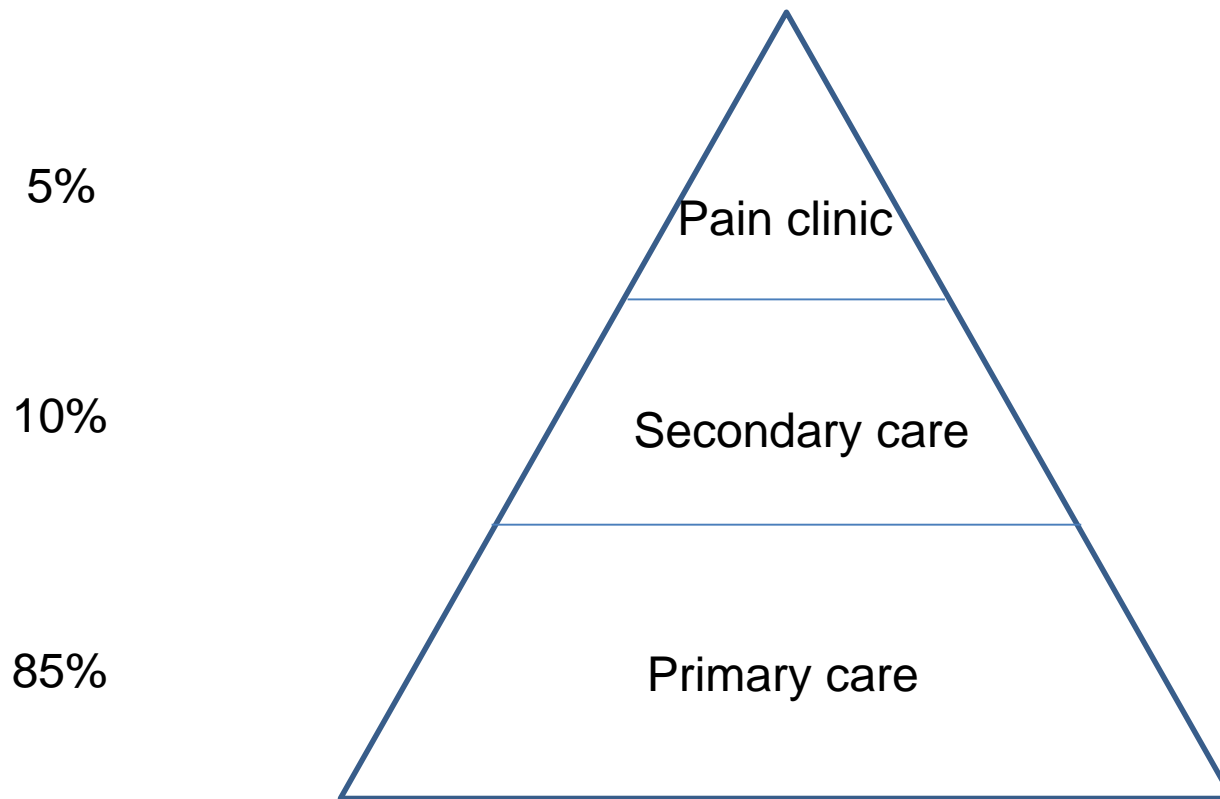
Date: 20/07/2016

One-page form

# Chronic Pain Syndromes

- Regional
- Widespread
- Back

# Stratification model





# Diagnostic Reasoning

Clinical Problem

Pattern  
Recognition

Analytical  
Reasoning

Working Diagnosis

Ix

Rx

Time

Final Diagnosis

# Bias

- Availability bias
  - Salient fact skews view (e.g. 22 people died in planes last year)
- Anchor bias
  - First facts skews view
- Framing bias
  - Half empty, half full
- Confirmation bias

# Hypothesis generation - pathology

Vascular  
Infective  
Traumatic  
Autoimmune/inflammatory  
Metabolic  
Iatrogenic/drugs  
Neoplastic  
Congenital  
Degenerative  
Environmental  
Functional

or idiopathic



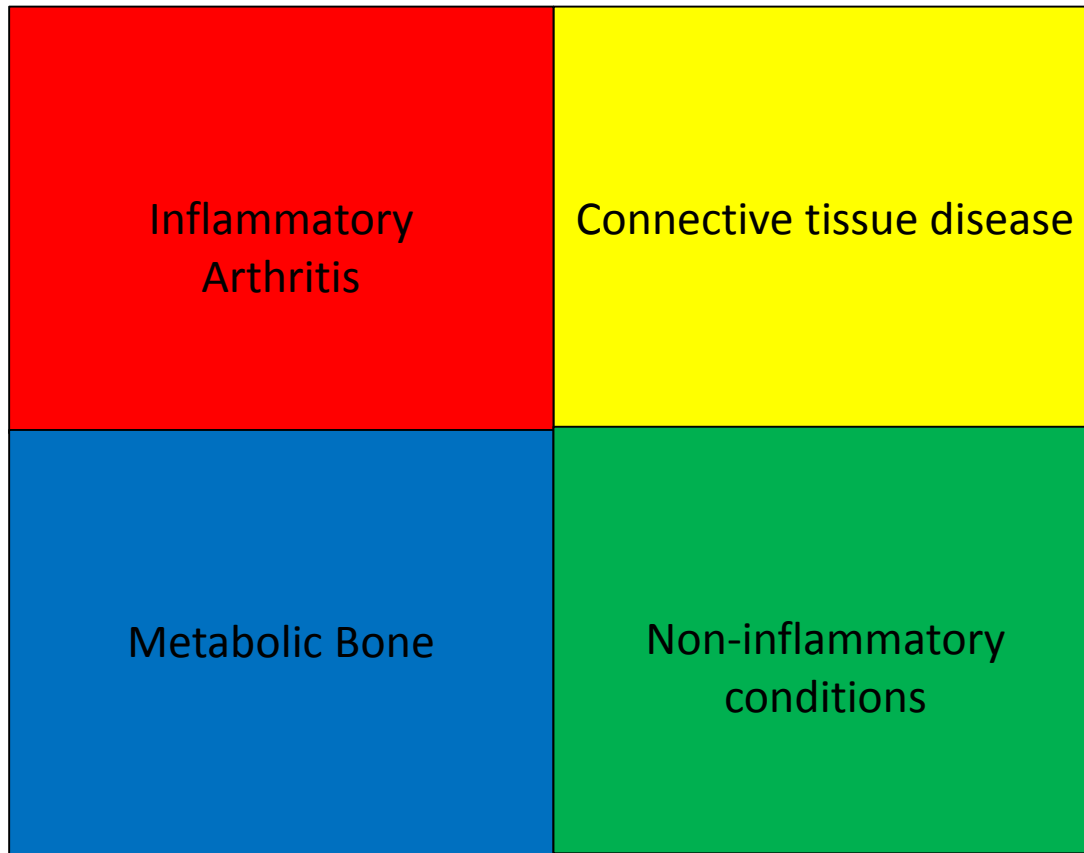
VITAMIN CDEF

## Confirmation Bias/Premature closure

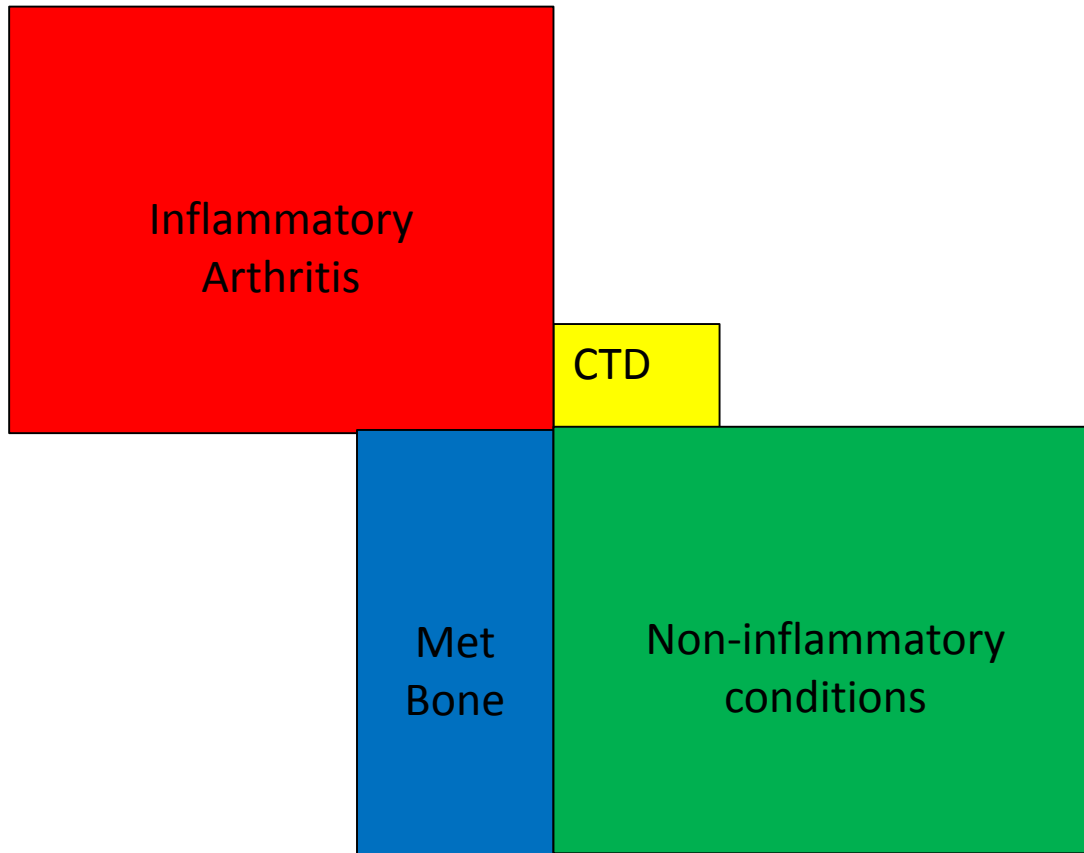
**PEOPLE GENERALLY  
SEE WHAT THEY LOOK  
FOR AND HEAR WHAT  
THEY LISTEN FOR**

HARPER LEE, TO KILL A MOCKING BIRD

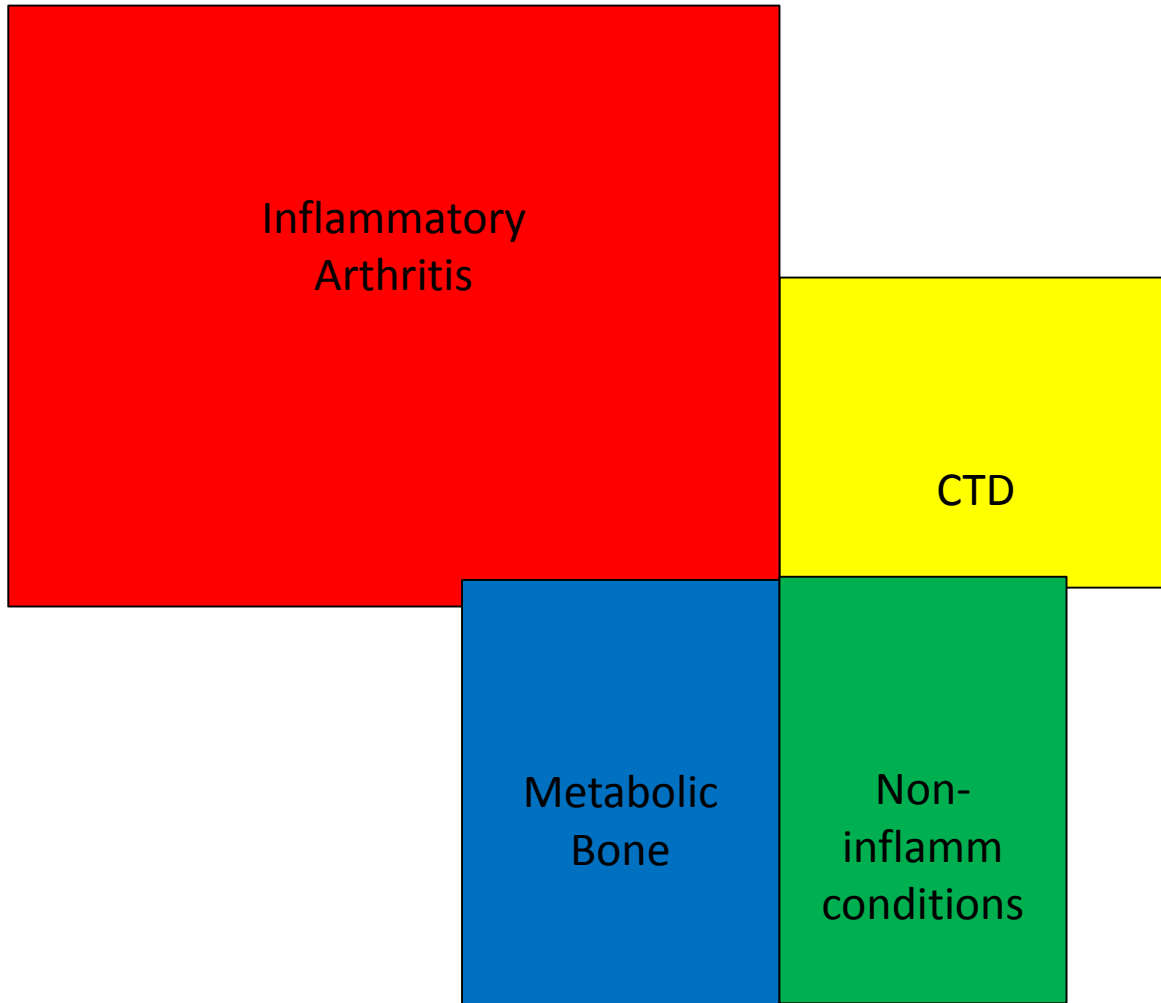
# Rheumatology conditions



# Rheumatology New referrals



# Rheumatology conditions – Follow up









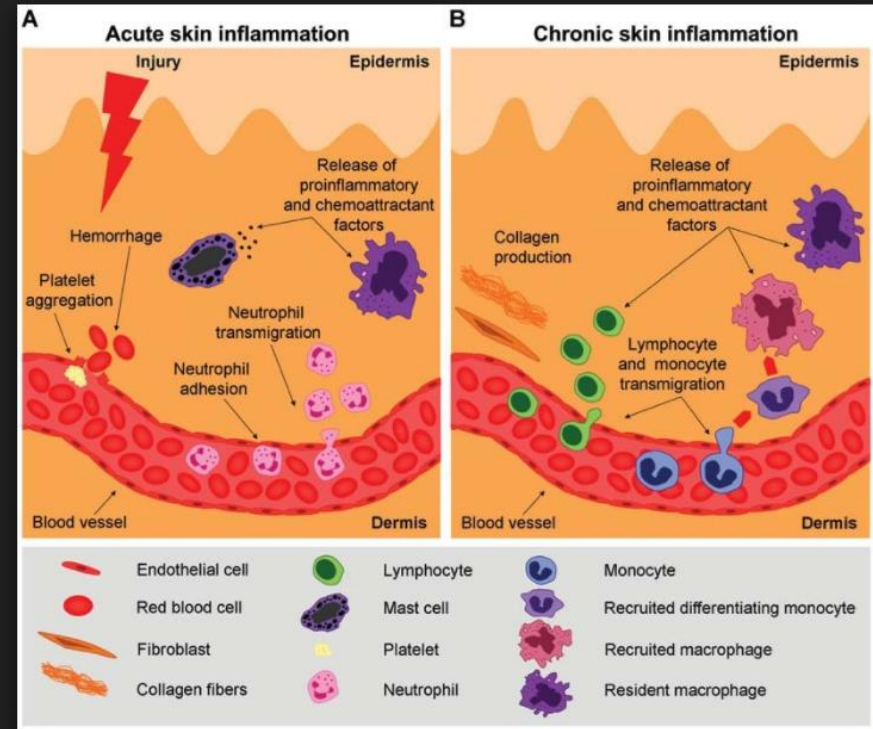
# Innate Immune system

## SIGNS OF INFLAMMATION

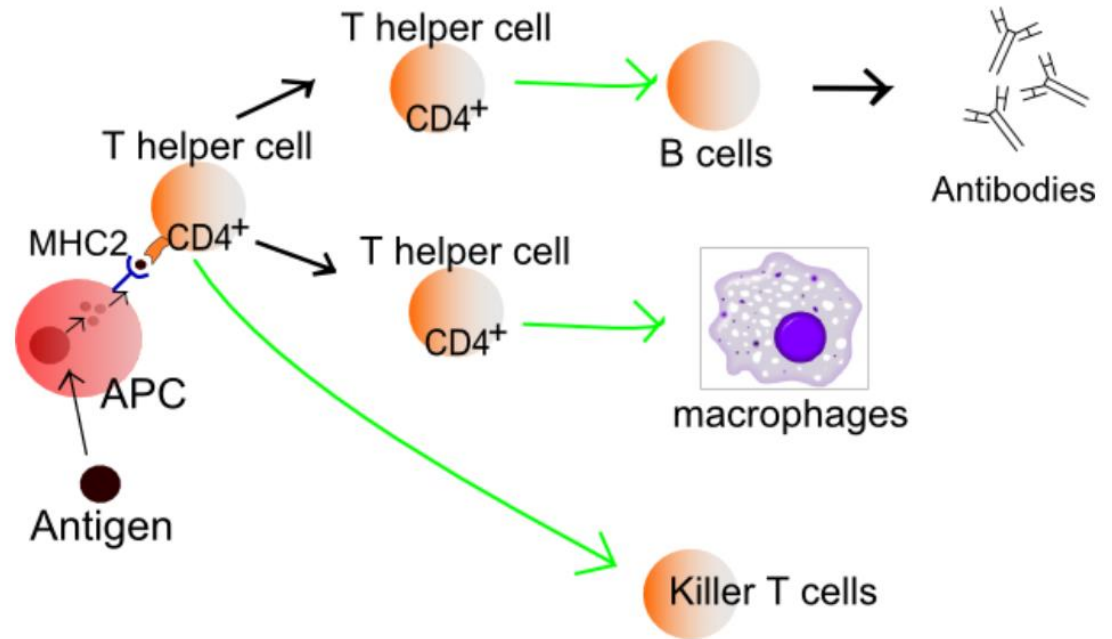
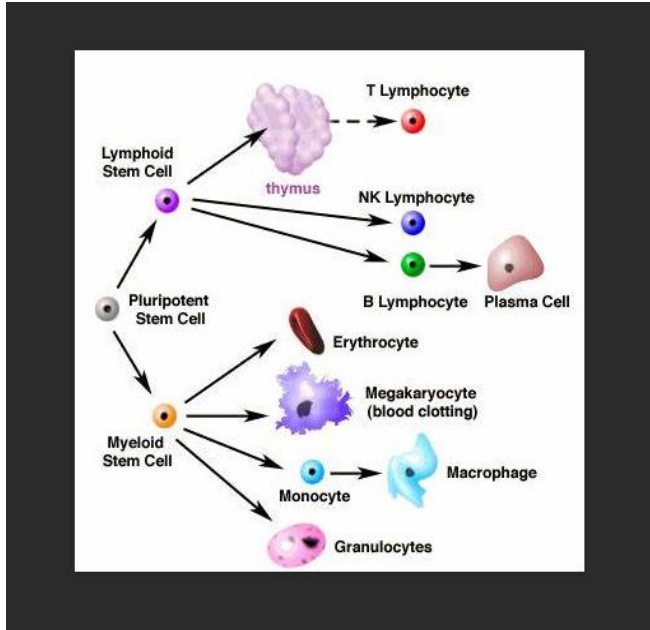
- 4 cardinal signs (Celsus)
  - rubor (redness);
  - tumor (swelling);
  - calor (heat);
  - dolor (pain)
- 5<sup>th</sup> sign *functio laesa* (loss of function) - Virchow



facebook.com/trigemclasses



# Adaptive Immunity



Prof Philip Hench  
Mayo Clinic  
1896-1965  
Nobel Laureate, 1950

Steroids



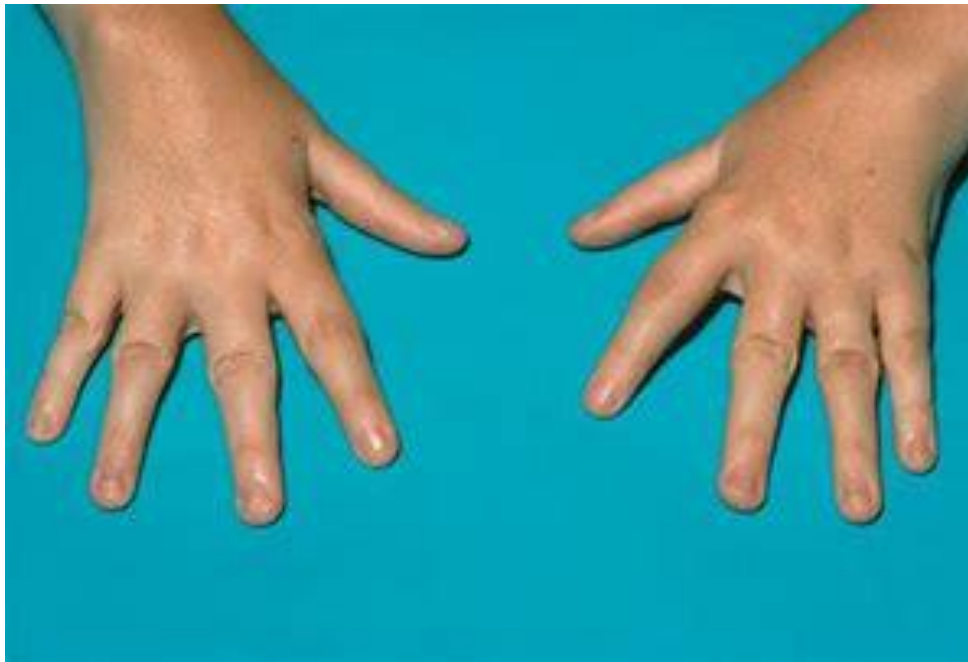
Prof John Vane  
London

Nobel Laureate, 1982

NSAIDs

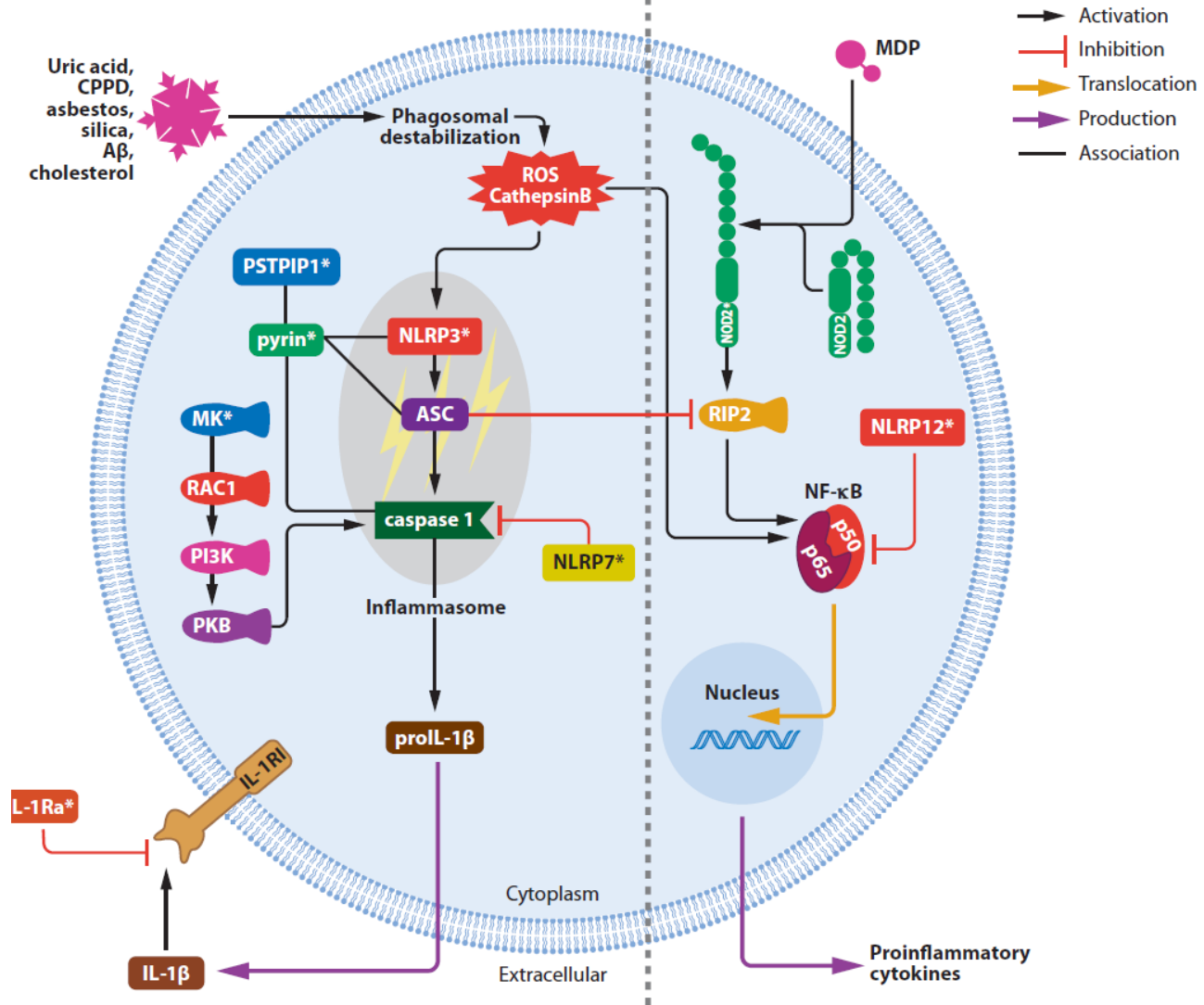


# Inflammatory arthrtis



## IL-1 $\beta$ activation disorders

## NF- $\kappa$ B activation disorders







# Rheumatology Drugs

- Methotrexate
  - Sulfasalazine
  - Leflunomide
  - Hydroxychloroquine
  - Gold
  - Penicillamine
  - Ciclosporin
  - Azathioprine
  - Mycophenolate
  - Steroids
  - Biological agents
  - Bisphosphonates
- Need to be started by Rheumatologist
  - Require monitoring once commenced
  - Decreased monitoring once stable

# Biologics/Small molecules

• Infliximab	Remicade	Drip
• Etanercept	Enbrel	Injection
• Adalimumab	Humira	Injection
• Certolizumab	Cimzia	Injection
• Golulimab	Simponi	Injection
• Rituximab	Mabthera	Drip
• Belilumab	Belysta	Drip
• Alemtuzumab	CAMPATH	Drip
• Denosumab	Xgeva/Prolia	Injection
• Abatacept	Orencia	Drip / Inj
• Tocilizumab	Actemra/Roactema	Drip/Inj
• Secukinumab	Cosentyx	Inj
• Ustekinumab	Stelara	Inj
• Tofacitinib	Xeljanz	Tablet
• Baricitinib	Olumiant	Tablet

Apremilast / Biosimilars / IV & S/c Ig



# Rheumatology 2013

Medicine

Vasculitis

Chest

Met Bone

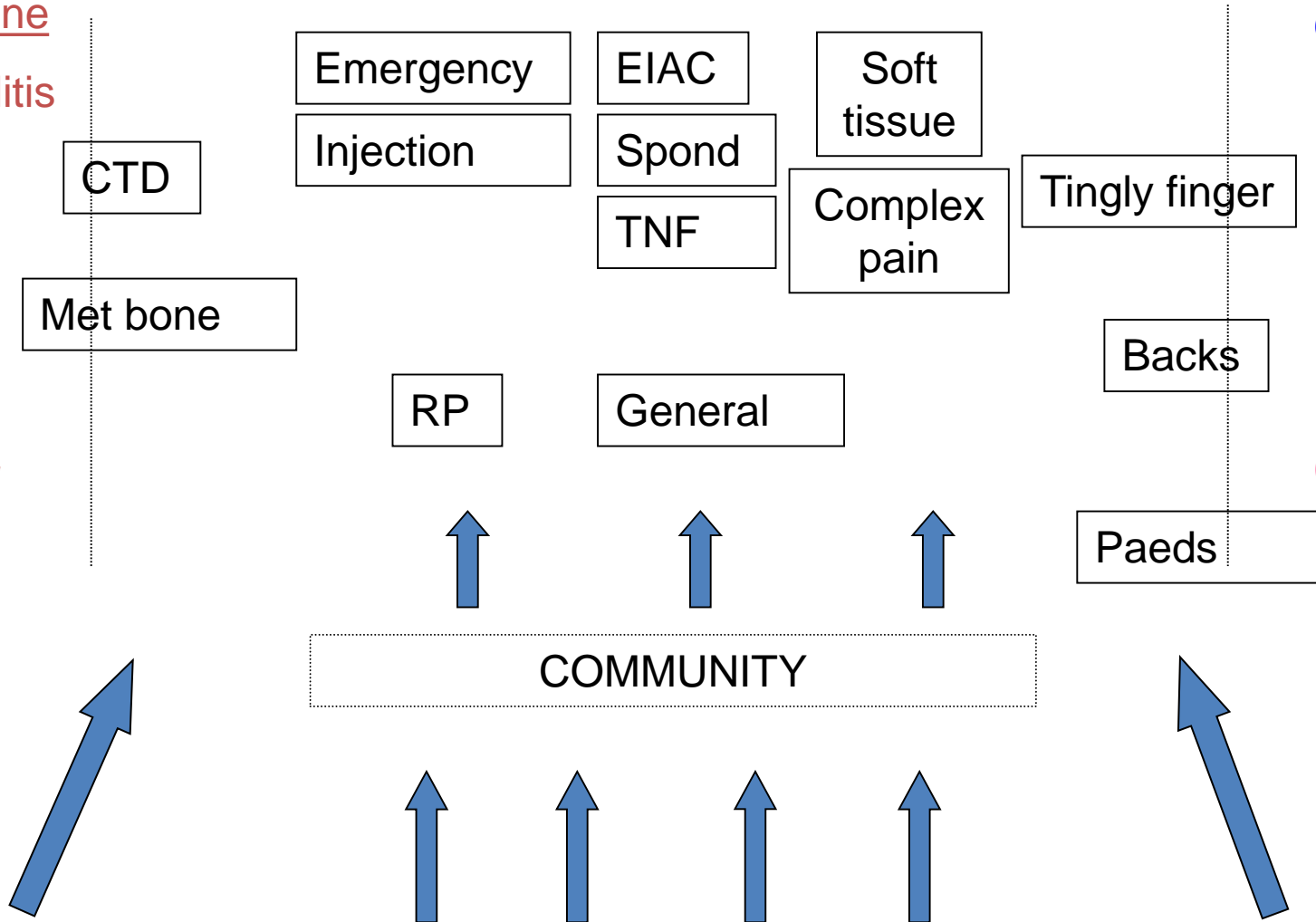
[Eyes]

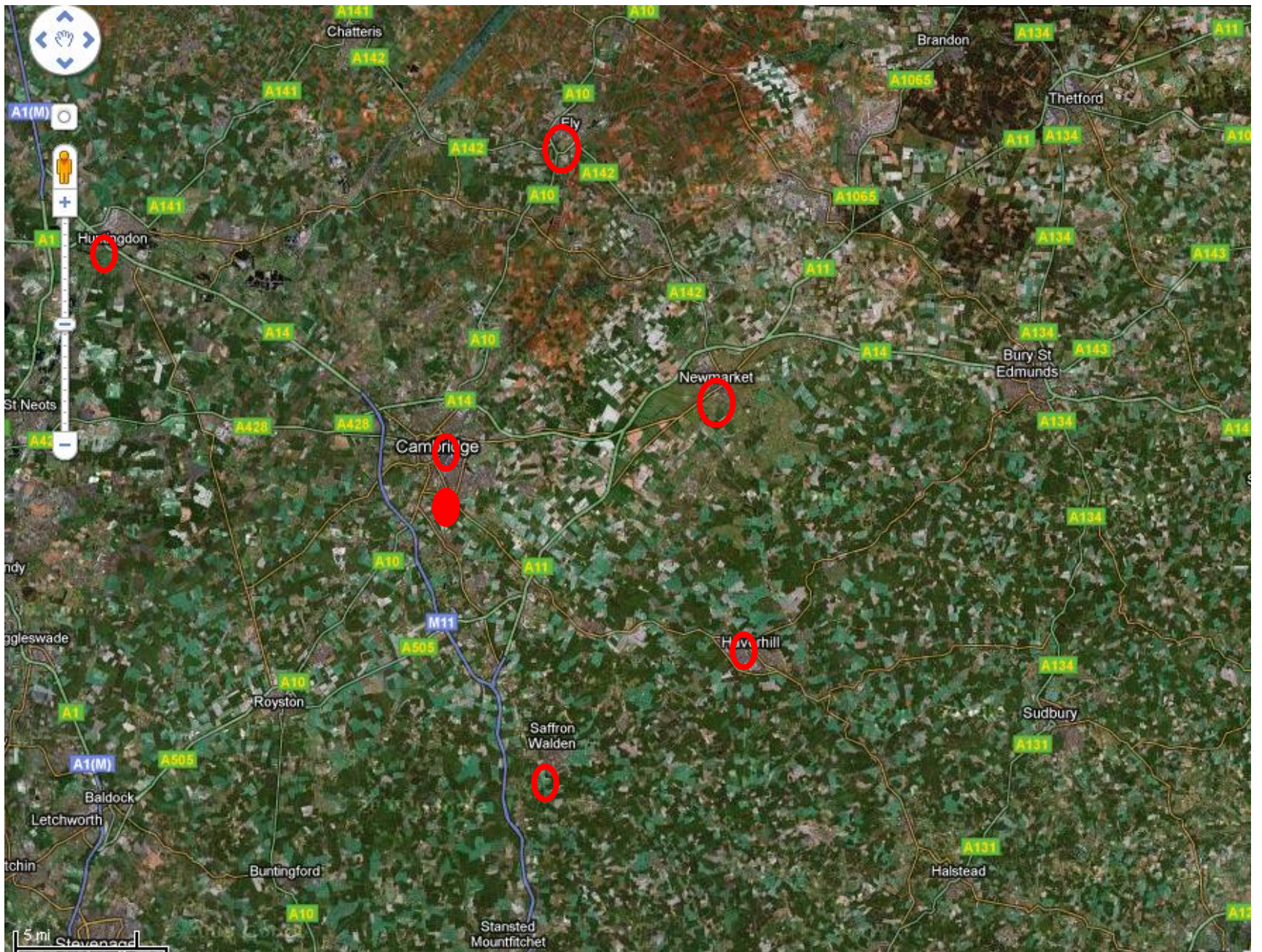
Ortho  
Plastics

Neuro

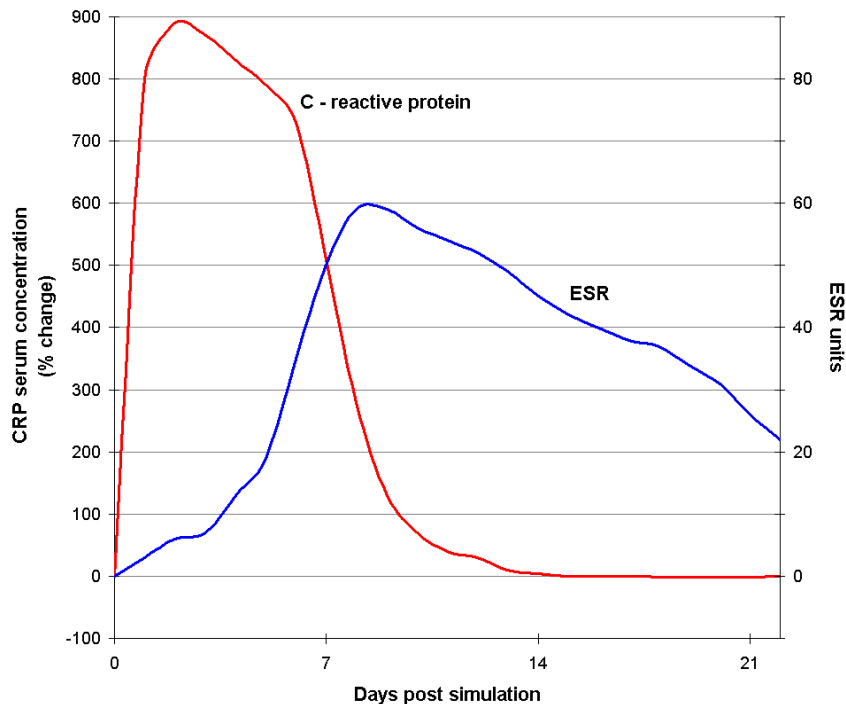
Pain  
Clinic

Paeds





# Normal CRP, High ESR



- Resolved infection / inflammation
- Active SLE / CTD
- Haematological malignancies
- Pregnancy, renal failure, age, anaemia

# Immune tests

- Rheumatoid factor
- CCP antibody
  
- ANA
- ENAs

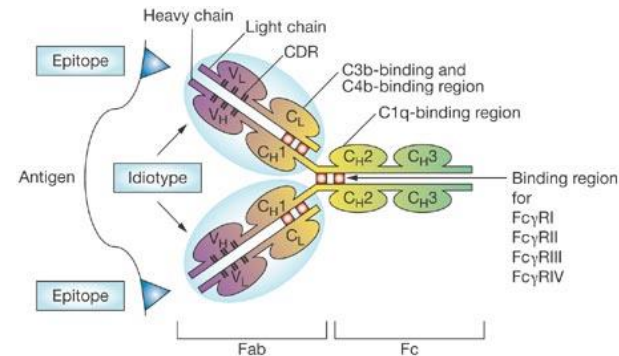
# Other immune tests

- ANCA
- C3/C4; ds DNA
- Anti-cardiolipin antibodies
- $\beta$ -2GPI antibodies
- Lupus anticoagulant
- Cryoglobulins
- Anti-synthetase / myositis / scleroderma antibodies
- Anti-neuronal antibodies (Rheumatology, May 2019)



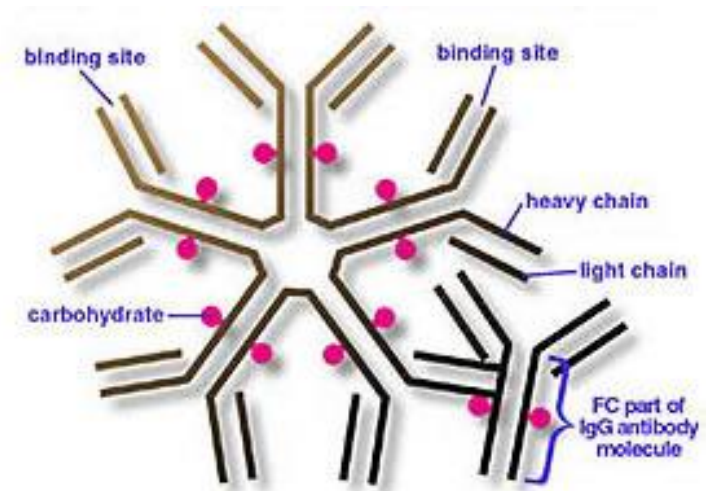
# Rheumatoid Factor

## Immunoglobulin G



- Autoantibody to Fc portion of IgG
- Present in 10-15% elderly & unwell
- 70-80% Rheumatoid “seropositive”
- Important prognosis, NOT diagnosis
- No need for serial measurements!
- Measured by immunofluorescence or ELISA

## IgM against IgG



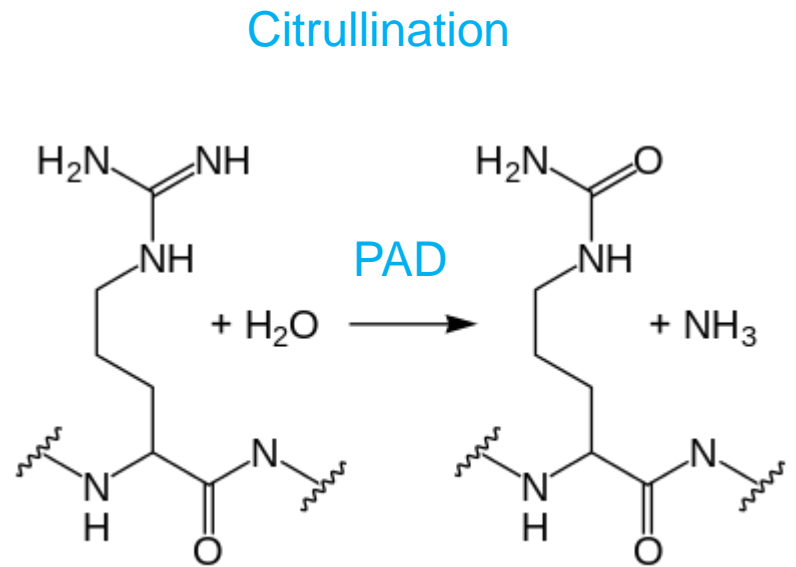
# RF testing

- YES if you think synovitis
  - Needs referral to rheumatology
  - Provides information for clinic appointment
- NO if unsure of diagnosis
  - Not diagnostic test

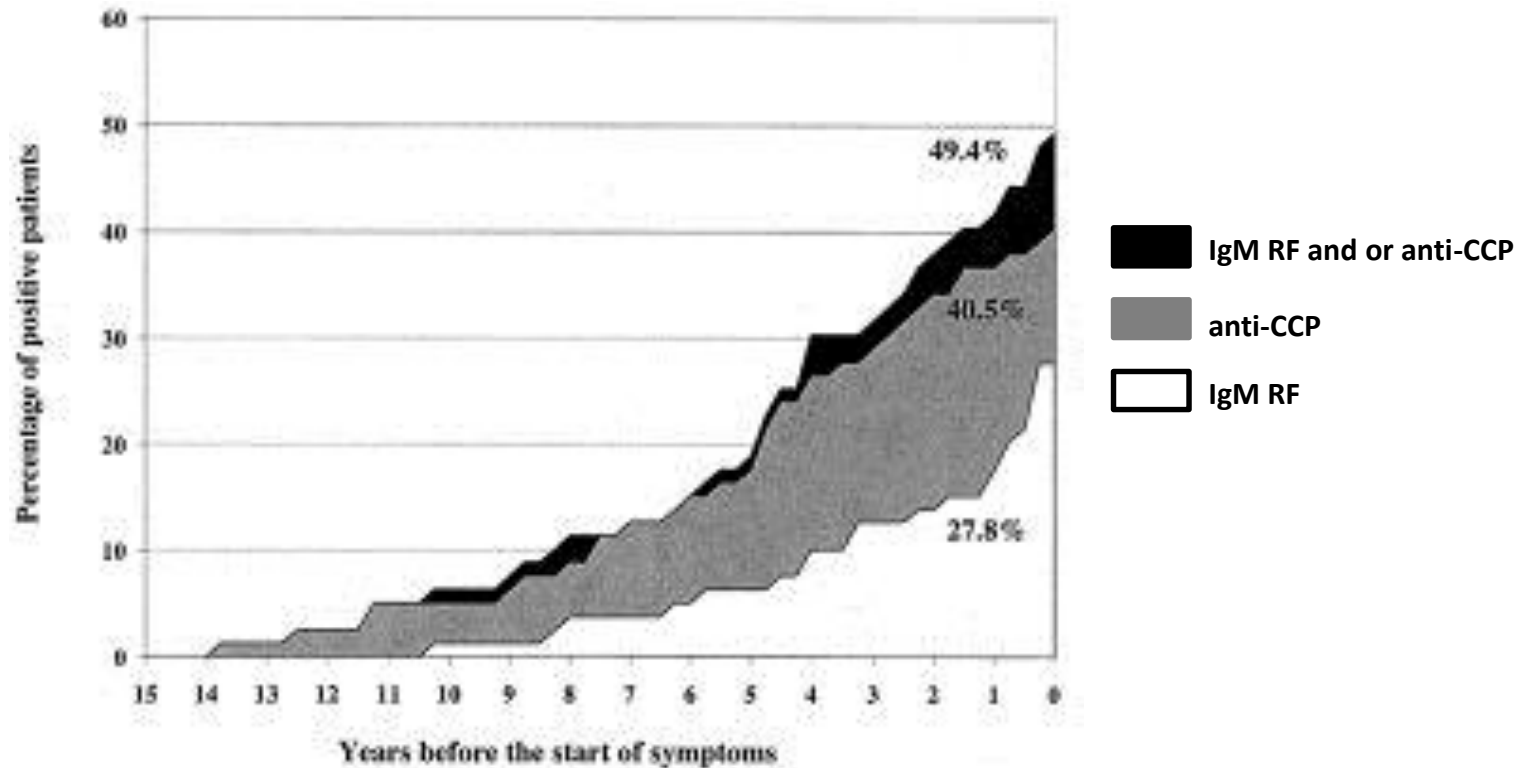


# CCP antibodies

- Vimentin, fillagrin, keratin proteins
- Citrullination biological process
- Charge changes
  - Structural, functional changes
- Smoking



# Blood donors antibodies before RA



Nielen, A&R, 2004

# CCP has a very high specificity

- 85-99% specificity
- **SpPIn** High **Sp**ecificity tests that are **P**ositive rule **IN** the condition
- **SnNOUT** High **Sn**sitivity tests that are **N**egative rule **OUT** the condition

# SLE - [www.uklupus.co.uk](http://www.uklupus.co.uk)

- Rash
- Joint pain
- Raynaud's
  - [www.raynauds.org.uk](http://www.raynauds.org.uk)

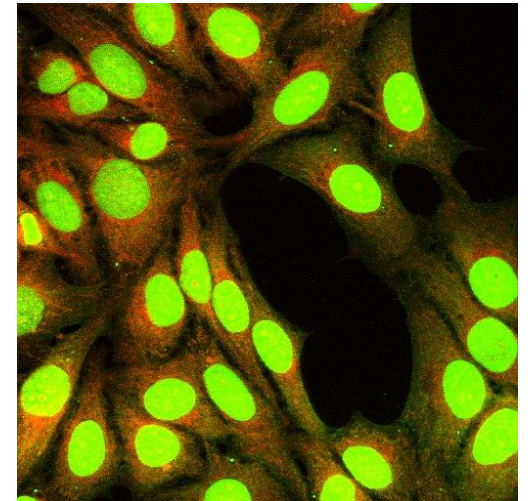


- ANA blood test



# ANA

- Immunofluorescence test
  - Anti-centromere, speckled etc.
- Positive 5% normal population
  - Higher in “unwell” population
- Dilution 1:160 ‘significant’ cut-off



# ENA panel (ELISA)

dsDNA

Ro

La

Sm

RNP

Scl70

Centromere

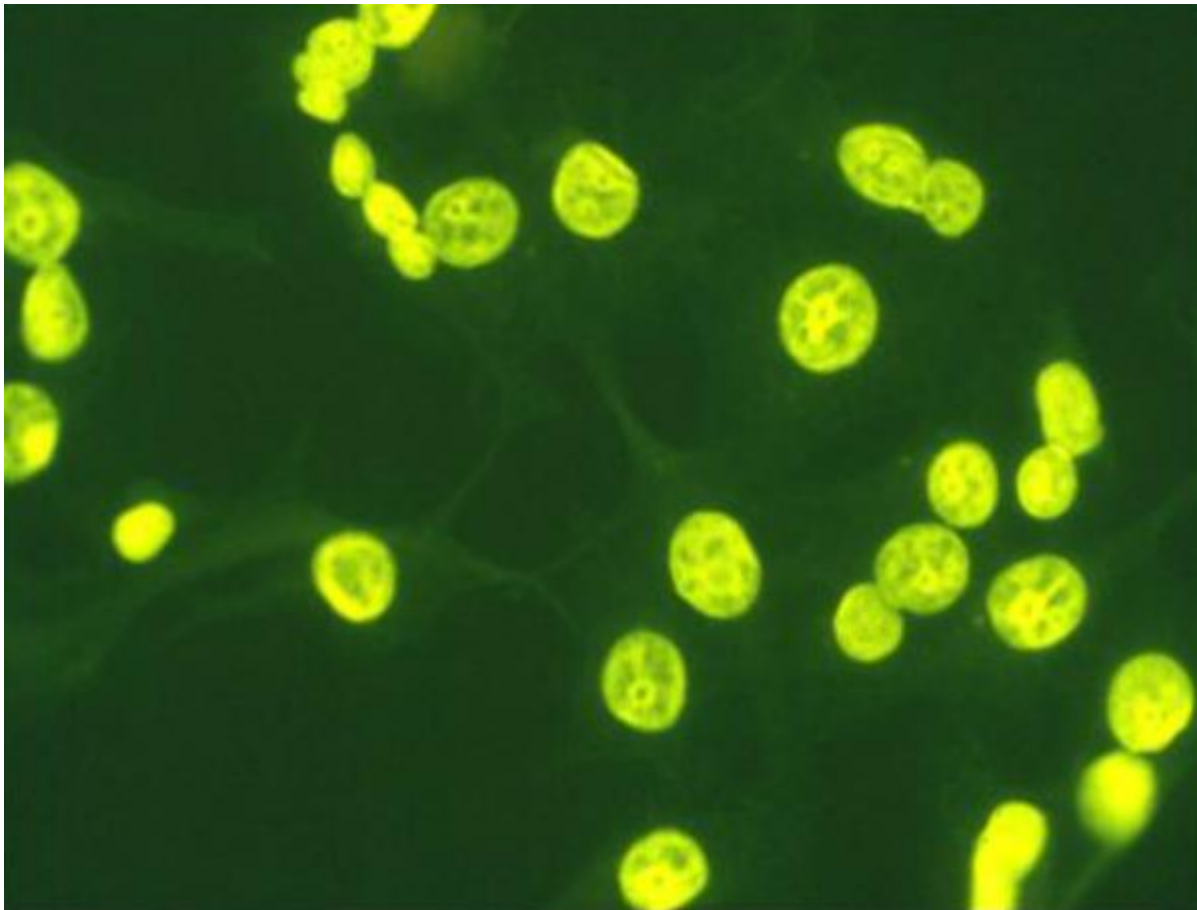
Jo-1

Pm-Scl



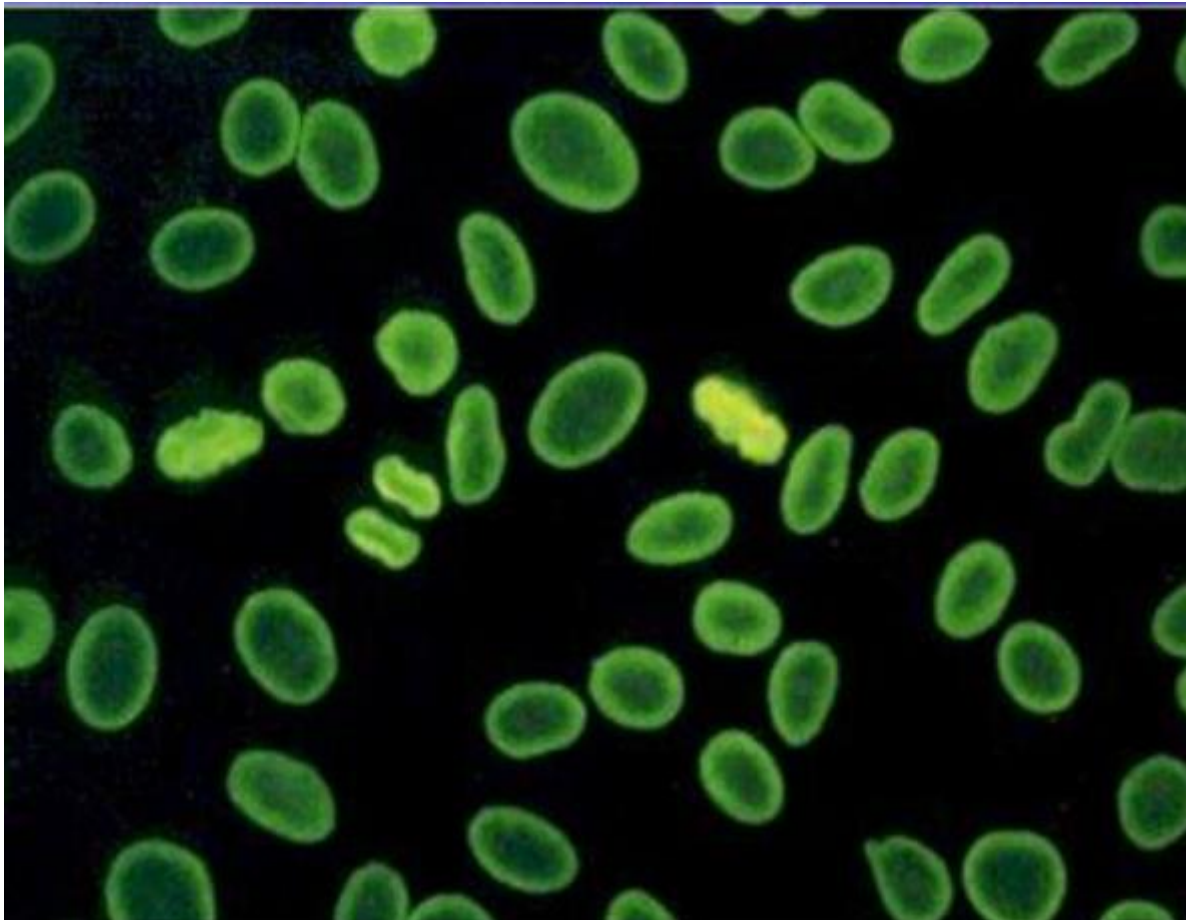
# Homogenous pattern

- SLE, Drug reactions



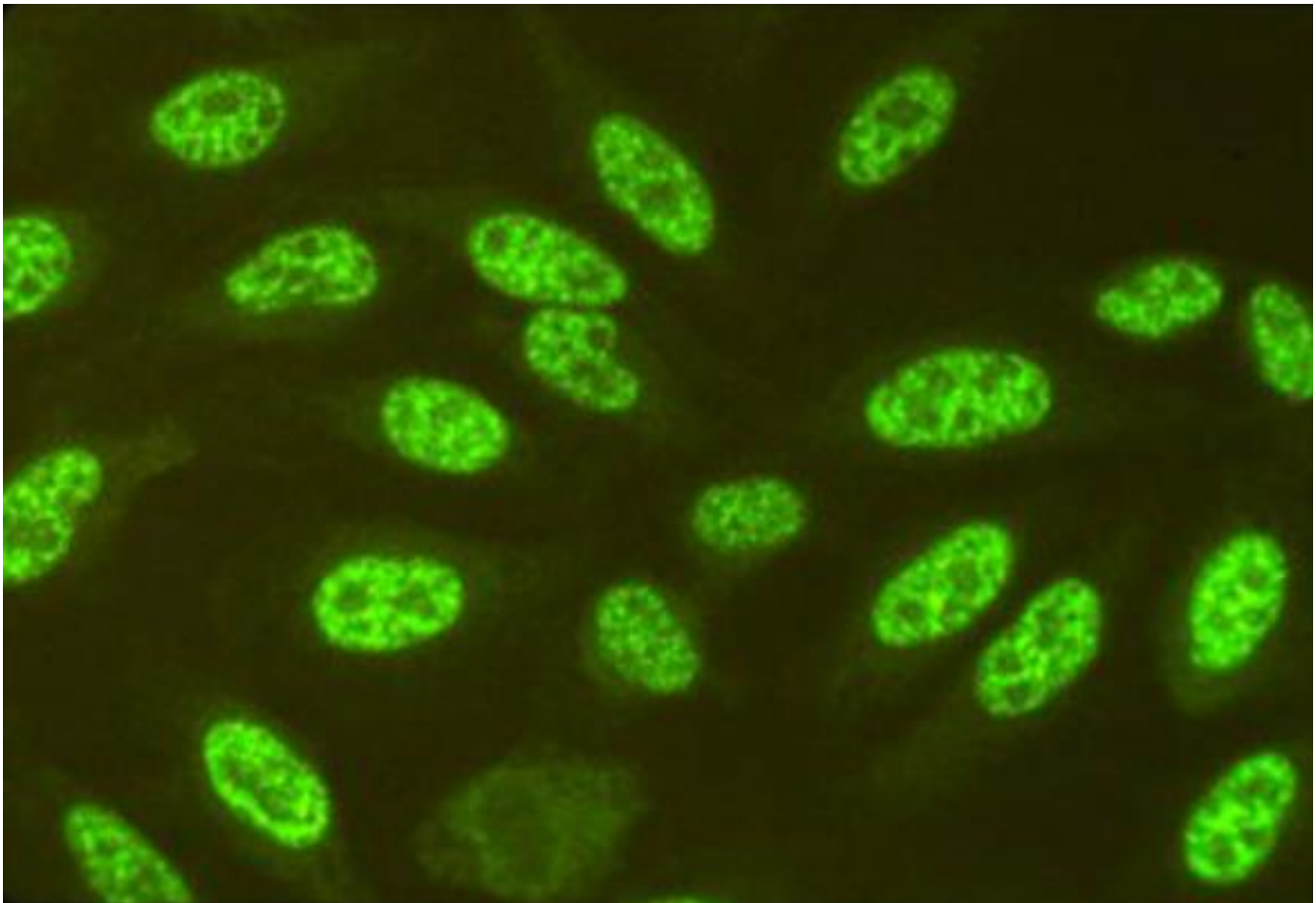
# Rim

- SLE, autoimmune hepatitis



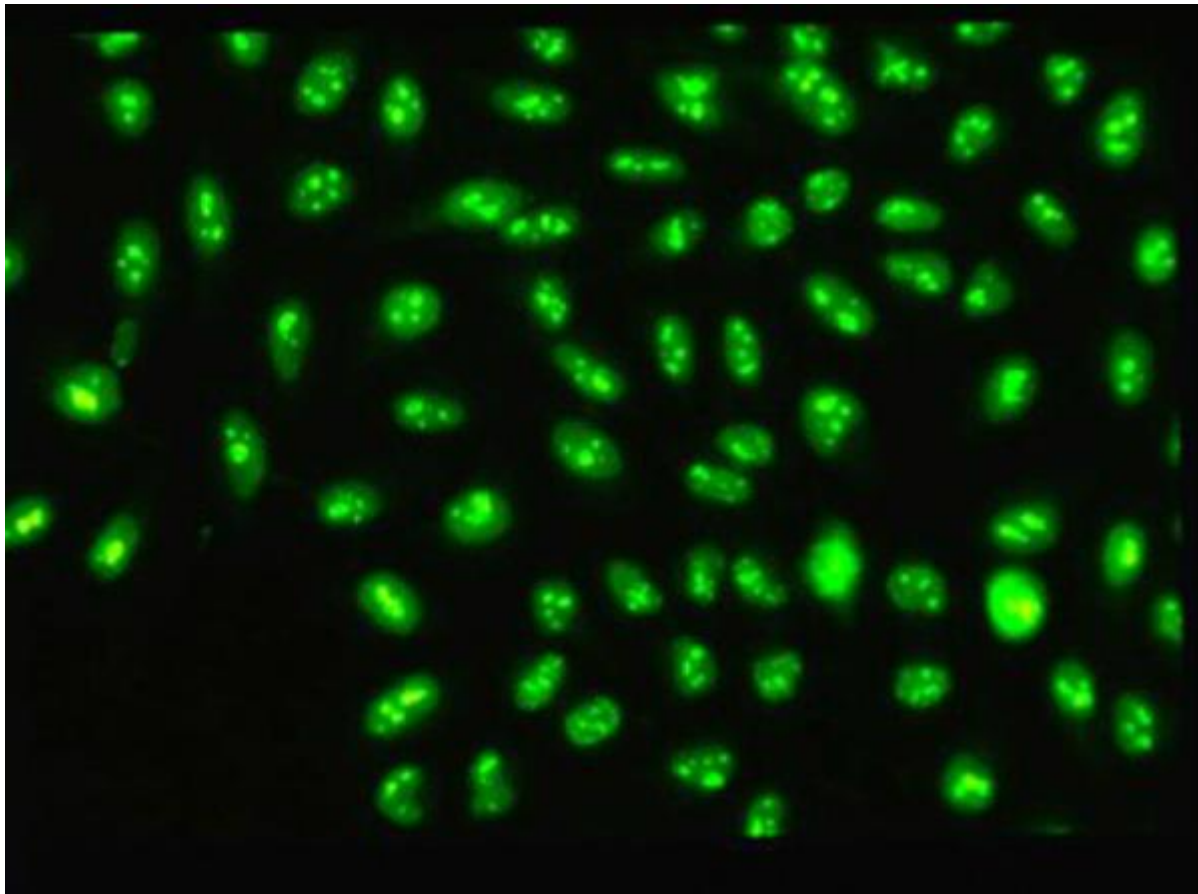
# Speckled

- SLE, Scleroderma, MCTD, Sjogren's

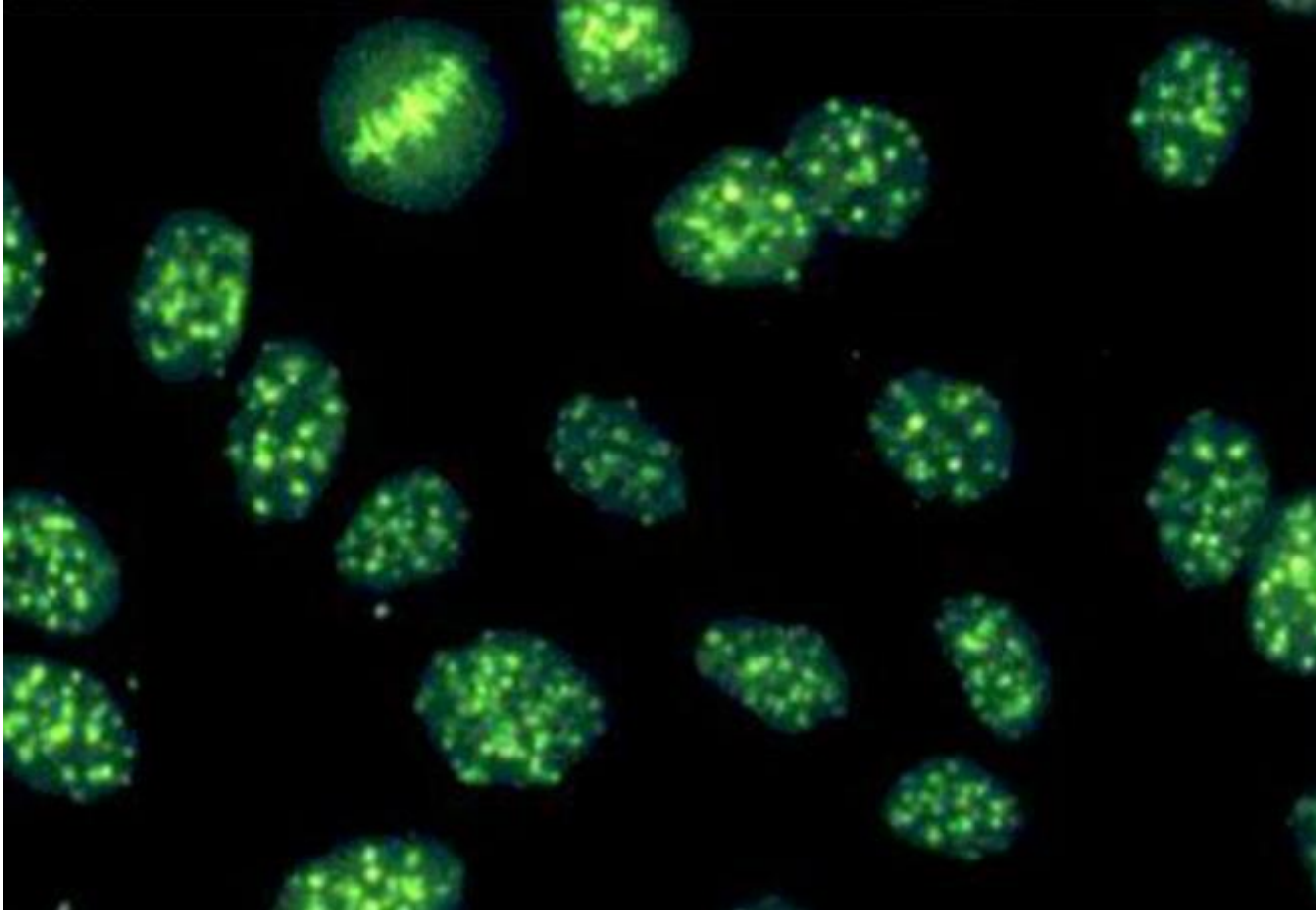


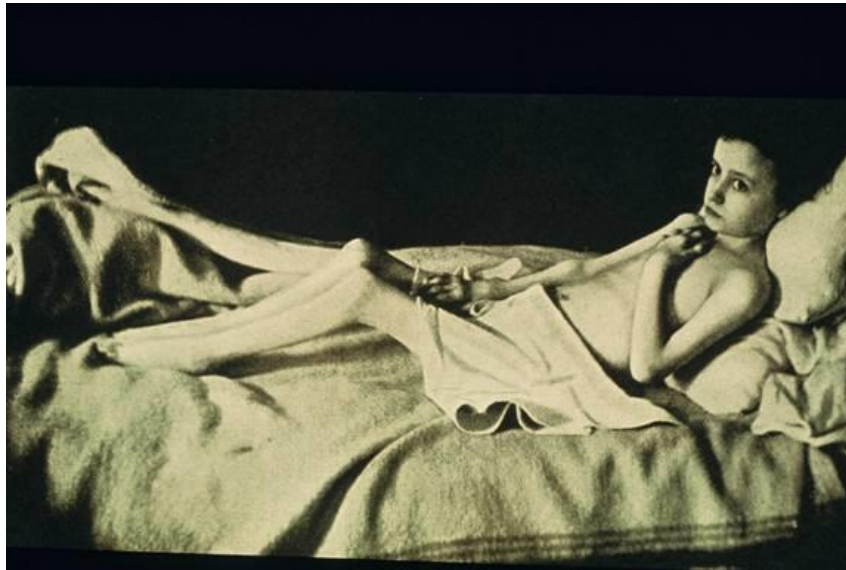
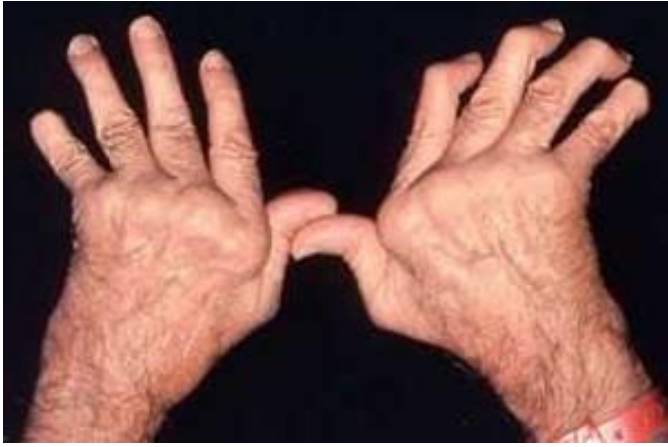
# Nucleolar

- SLE, scleroderma, hepatocellular carcinoma

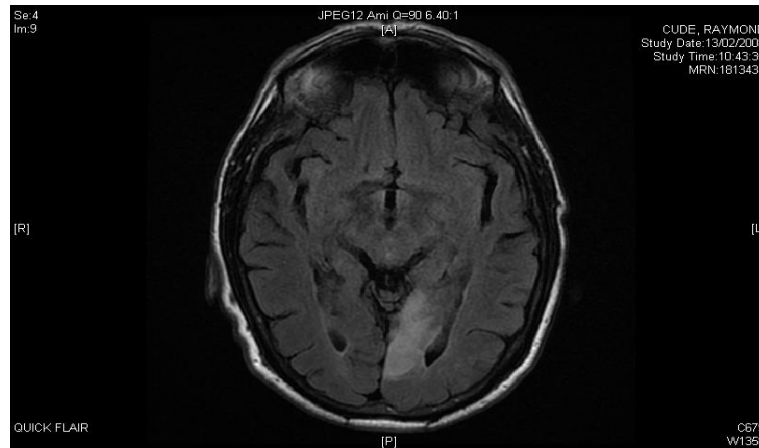
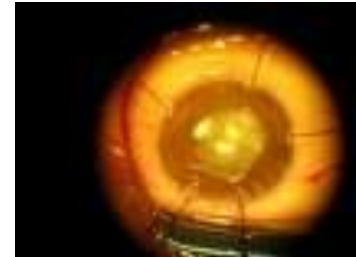
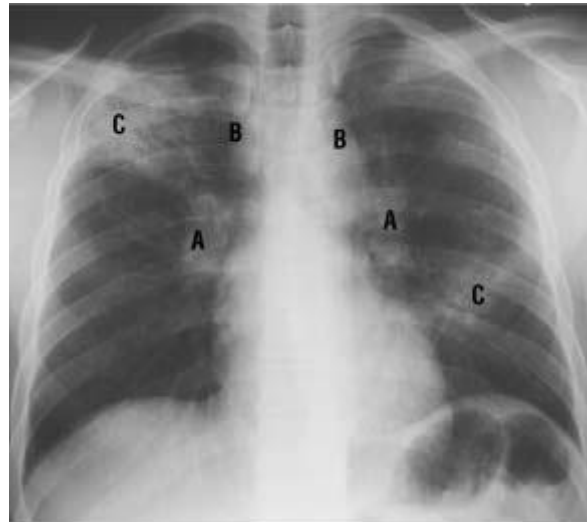


# Centromere - CREST





# Multisystem diseases



# Complications

- Renal
- Brain
- Pulmonary
- Cardiac
- Haematological

NEED ACCESS TO EXPERT HELP



# Scleroderma

- Raynauds
- Swallowing difficulty
- Tight skin



# Scleroderma

- BLOOD PRESSURE
  - Angiotensin blockers/ACE inhibitors
- Renal
- Pulmonary

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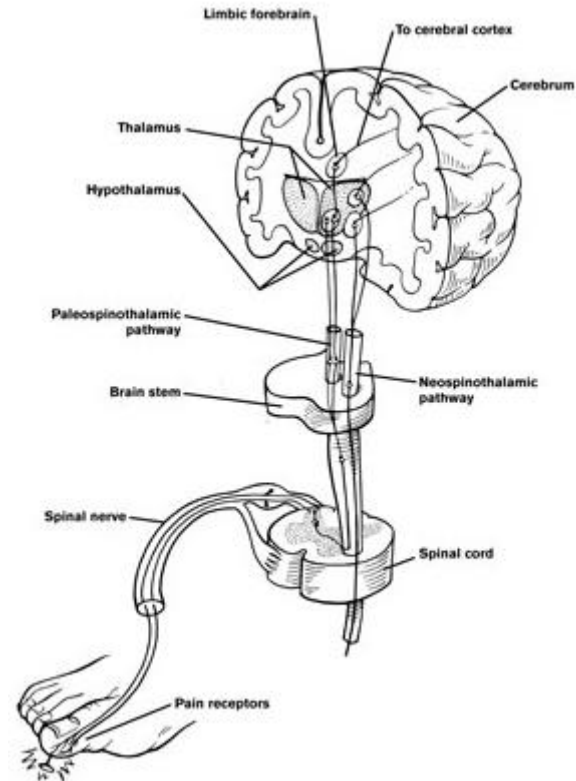
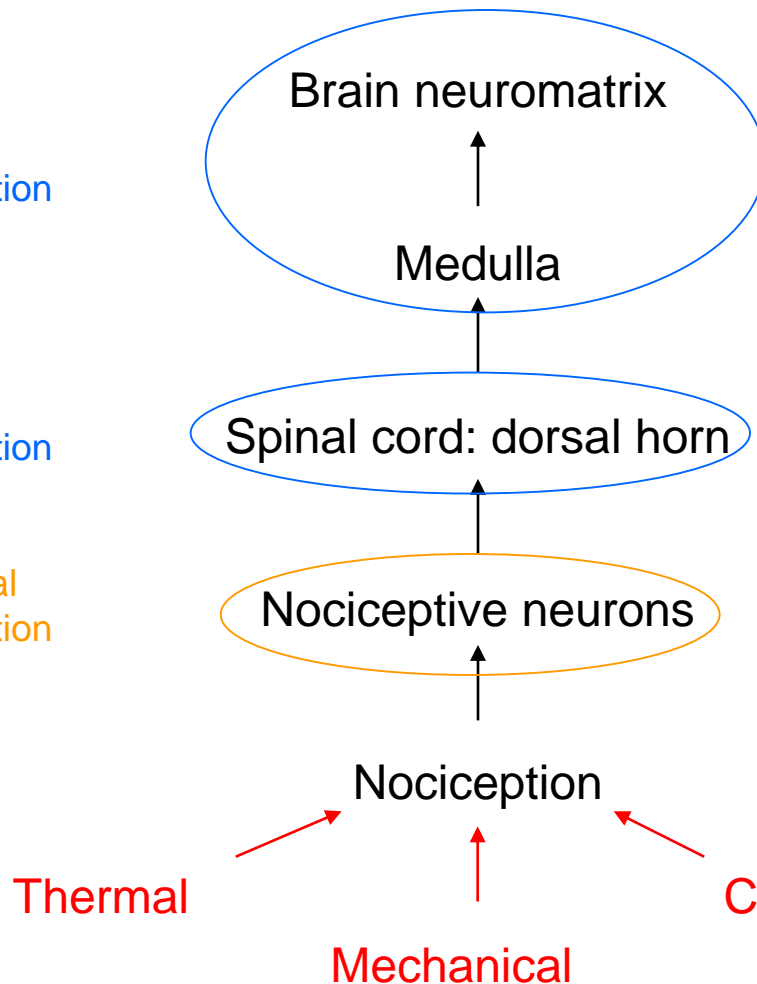
# Evaluation of pain / symptoms in Rheumatology clinics

Learning  
Neuroplasticity

Central  
sensitisation

Central  
sensitisation

Peripheral  
sensitisation



# Evaluation of pain / symptoms in Rheumatology clinics

Enter Patient ID (for printing):

**Joint Scores**

Tender:

Swollen:

To enter joint scores, I prefer to:

Use Mannequin

Type totals

**Additional Measures**

ESR:   
mm/hr  
must be between 1 and 150

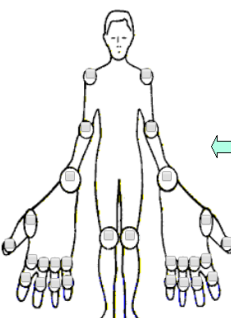
CRP:   
mg/l

Patient Global Health:  mm


0 - Best Worst - 100

**DAS28**

**Tender Joints**



**Swollen Joints**



Click affected joints

**RAID - RAID Rheumatoid Arthritis Impact of Disease**

Time taken:

**Pain**

Enter the number that best describes the pain you felt due to your rheumatoid arthritis (RA) during the last week

- Function Disability
- Fatigue
- Sleep
- Physical Wellbeing
- Emotional Wellbeing
- Coping
- Score

# **Rheumatology**

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# What is pain?

International Association for the Study of Pain (IASP)



‘An unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage.’



# 35 year old lady

- Presents with neck and lower back pain
- She's not been well for some time in a non-specific way.
- May well have stiffness in the morning
  - Usually less than 30 minutes however
- Her mood is low
- She does not sleep well. She goes to sleep at 10pm, wakes at 2am and can't get back to sleep
- She is tired during the day
- She is irritable and tearful

# 35 year old lady

- Presents with neck and lower back pain
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- Her mood is low
- She does not sleep well. She goes to sleep at 10pm, wakes at 2am and can't get back to sleep
- She is tired during the day
- She is irritable and tearful
- She has sacroiliitis