

MARCH 1, 2004

# TIME

BLOOD, GUTS  
AND "THE PASSION"  
THE E.U.'S IMMIGRATION FEARS

## THE SECRET KILLER

- The surprising link between **INFLAMMATION** and **HEART ATTACKS, CANCER, ALZHEIMER'S** and other diseases
- What you can do to fight it

# Science

11 January 2013 | \$10



INFLAMMATION

AAAS

downmagaz.ws

# ***What is inflammation?***

- ***Pain,***
- ***Heat,***
- ***Redness,***
- ***Swelling,***
- ***Loss of function.***



## ACUTE INFLAMMATION

Innate Immunity

**Stimulus**



Immune helper cells do  
their job of healing



End stimulus/ Healing

© 2014 Jedha Dening  
Good Food Eating.com

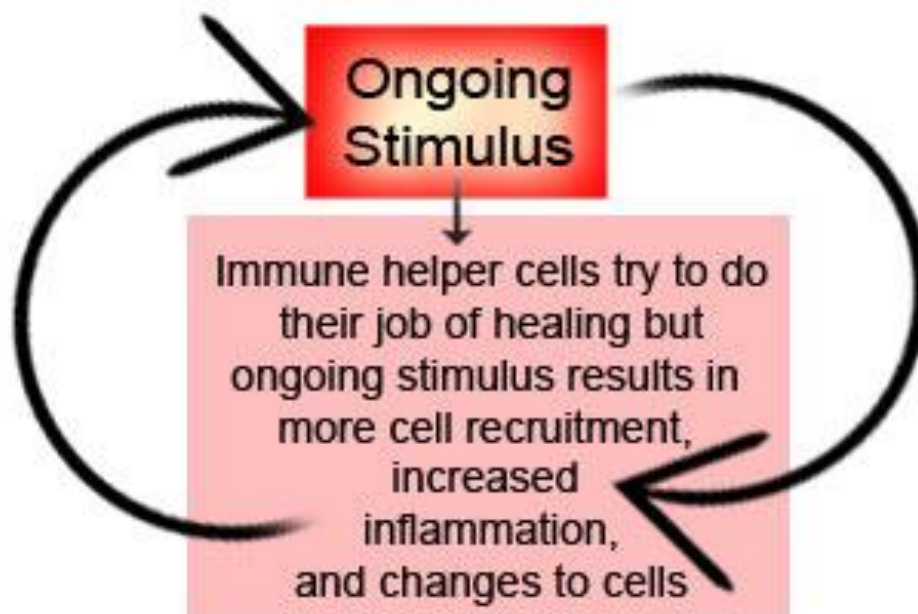
## CHRONIC INFLAMMATION

Adaptive Immunity

**Ongoing  
Stimulus**

Immune helper cells try to do  
their job of healing but  
ongoing stimulus results in  
more cell recruitment,  
increased  
inflammation,  
and changes to cells

Repetitive cycle  
Increased disease





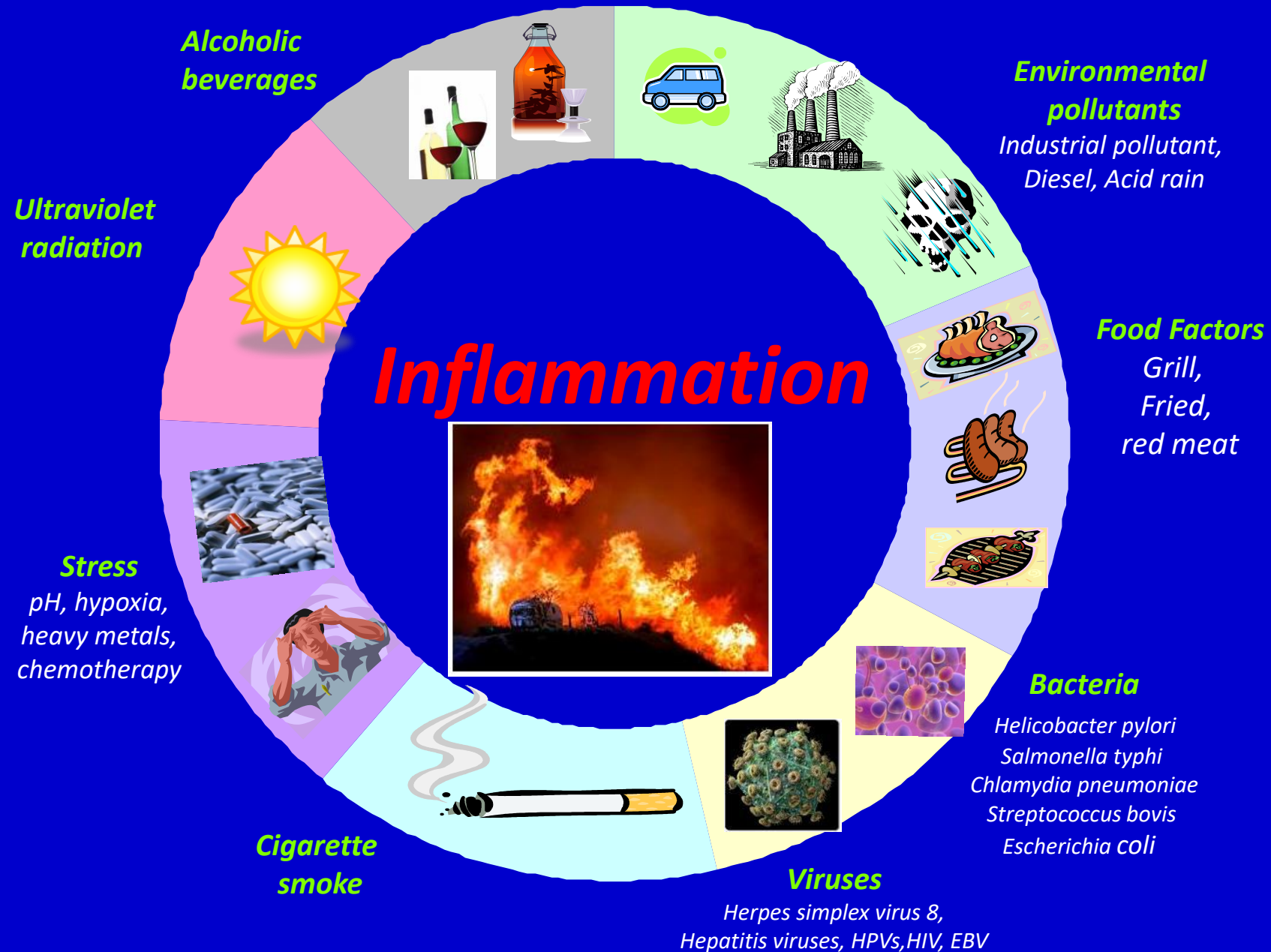
# Acute Inflammation



# Chronic Inflammation



# Potential Sources of Inflammation



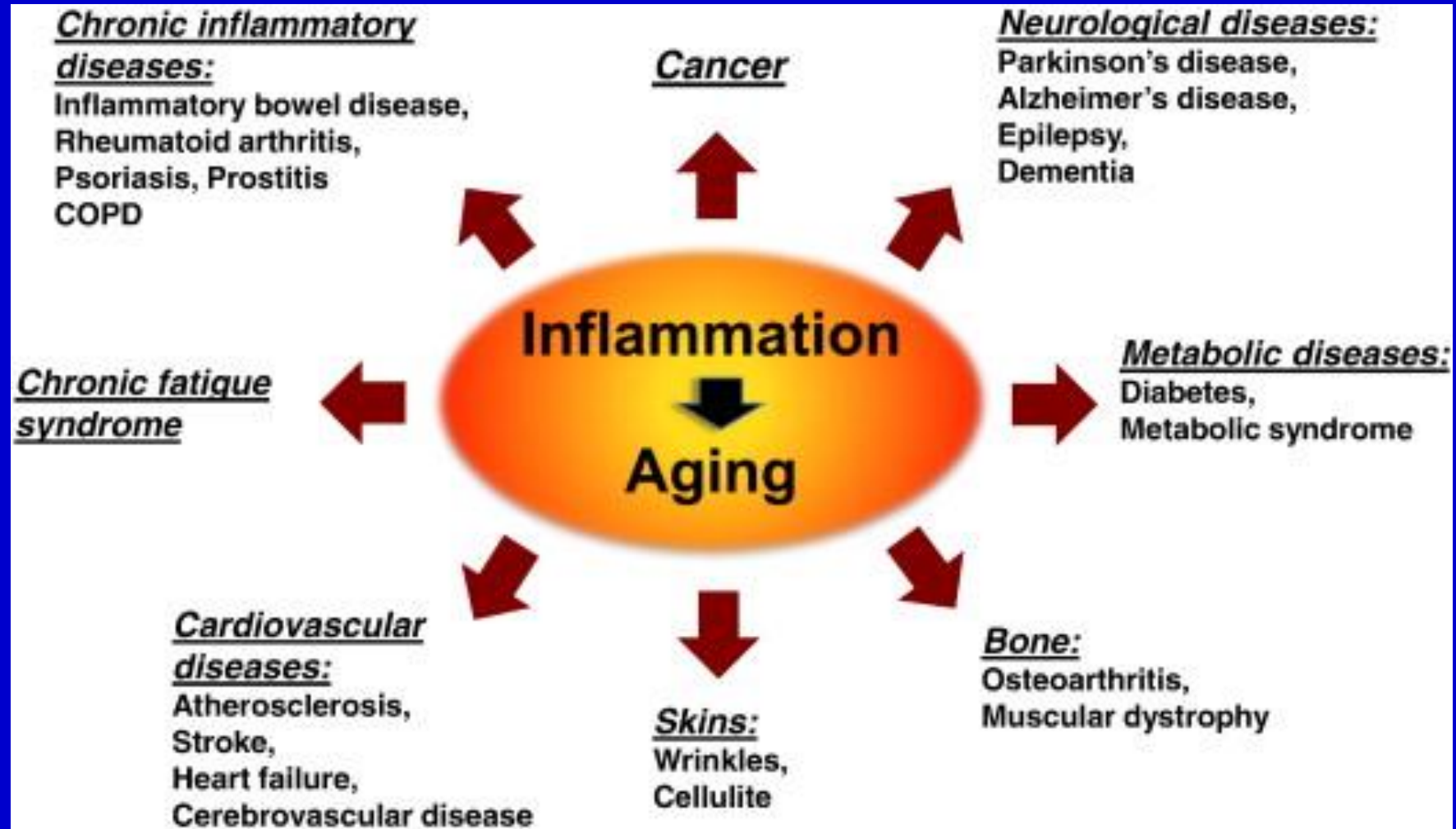
# Inflammation-mediated diseases

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Adenitis	Encephalitis	Jejunitis	Keratitis	Pancreatitis	Salpingitis
Adrenalitis	Endocarditis	Keratodermatitis		Panophthalmitis	Salpingo-oophoritis
Allergic rhinitis	Endotracheitis	Laminitis		Pansinusitis	Sialoadenitis
Appendicitis	Endometritis	Laryngitis		Paracolpitis	Sinusitis
Arachnoiditis	Enteritis	Lymphadenitis		Paraglottitis	Sphenoiditis
Arteritis	Enterocolitis	Lymphangitis		Paradenitis	Splenitis
Arthritis	Epididymitis	Mastitis		Parahepatitis	Spondylitis
Blepharitis	Epididymo-orchitis	Mastoiditis		Parametritis	Stomatitis
Bronchiolitis	Fibrositis	Meningitis		Paranephritis	Syndesmitis
Bronchitis	Epiglottiditis	Meningomyelitis		Parasalpingitis	Synovitis
Bursitis	Epiphysitis	Myelitis		Parodontitis	Tendonitis
Capsulitis	Episcleritis	Myeloencephalitis		Parotitis	Temporal arteritis
Carditis	Esophagitis	Myocarditis		Periadenitis	Tenosynovitis
Cellulitis	Ethmoiditis	Myositis		Periangitis	Thrombophlebitis
Cerebellitis	Fascitis	Myringitis		Periarteritis	Thyroiditis
Cerebritis	Fibromyositis	Nephritis		Periarthritis	Typhlitis
Cervicitis	Folliculitis	Neuritis		Pericarditis	Tonsillitis
Cheilitis	Funiculitis	Neuroretinitis		Periodontitis	Urethritis
Cholecystitis	Gastritis	Omphalitis		Peritonitis	Uveitis
Chondritis	Gastroenteritis	Onychitis		Pharyngitis	Vaginitis
Chorditis	Gingivitis	Oophoritis		Phlebitis	Valvulitis
Choroiditis	Glossitis	Oophorosalpingitis		Pleuritis	Vulvitis
Colitis	Glottitis	Ophthalmitis		Pneumonitis	Vulvovaginitis
Conjunctivitis	Glomerulonephritis	Orchitis		Poikilodermatomyositis	
Cystitis	Hepatitis	Osteochondritis		Proctitis	
Dermatitis	Hidradenitis	Osteitis		Pyelonephritis	
Dermatomyositis	Ileitis	Otitis		Retinitis	
Diverticulitis	Iritis	Optic neuritis		Rhinitis	
Duodenitis	Iridocyclitis	Osteoarthritis		Rheumatoid arthritis	

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# Inflammation leads to many chronic diseases

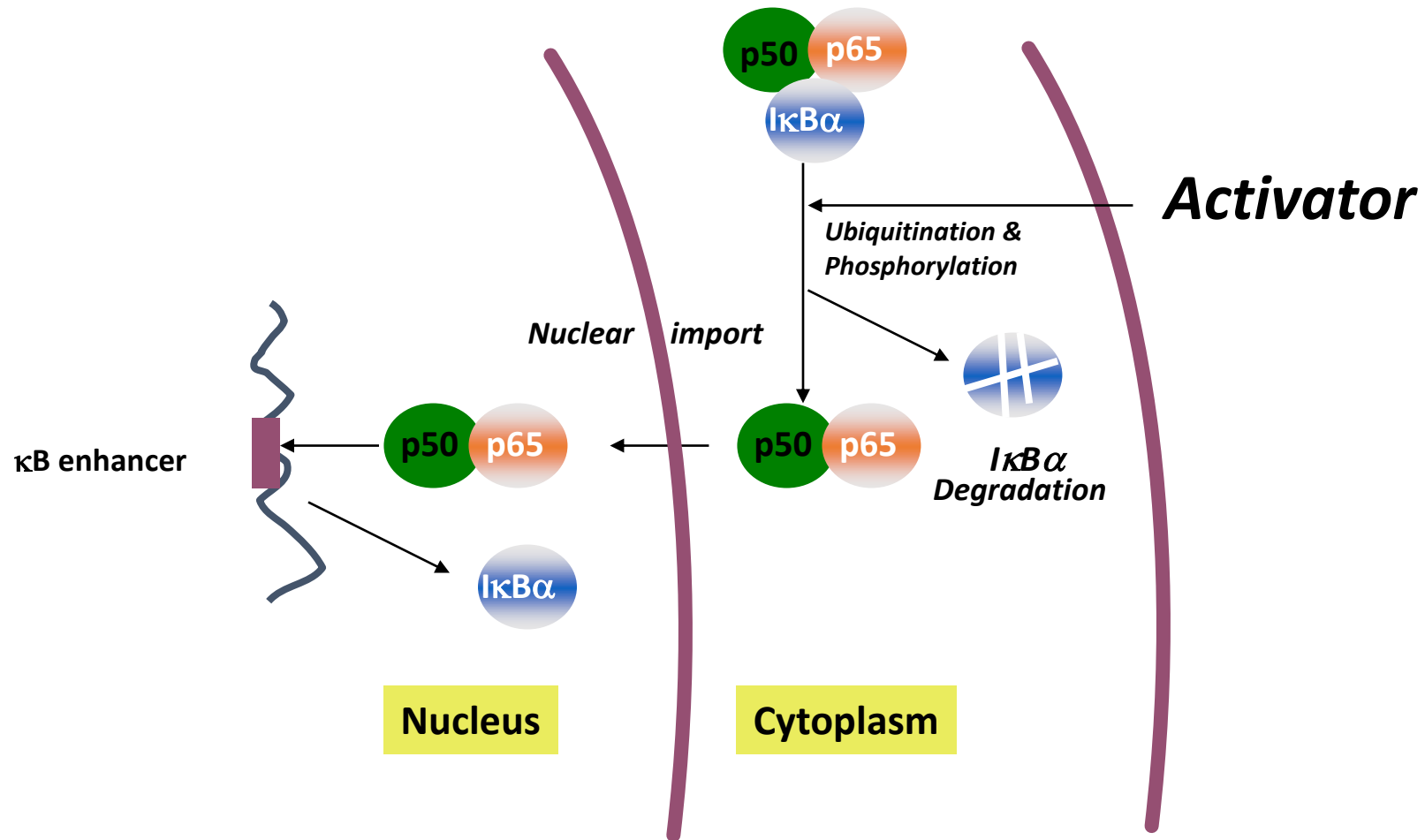




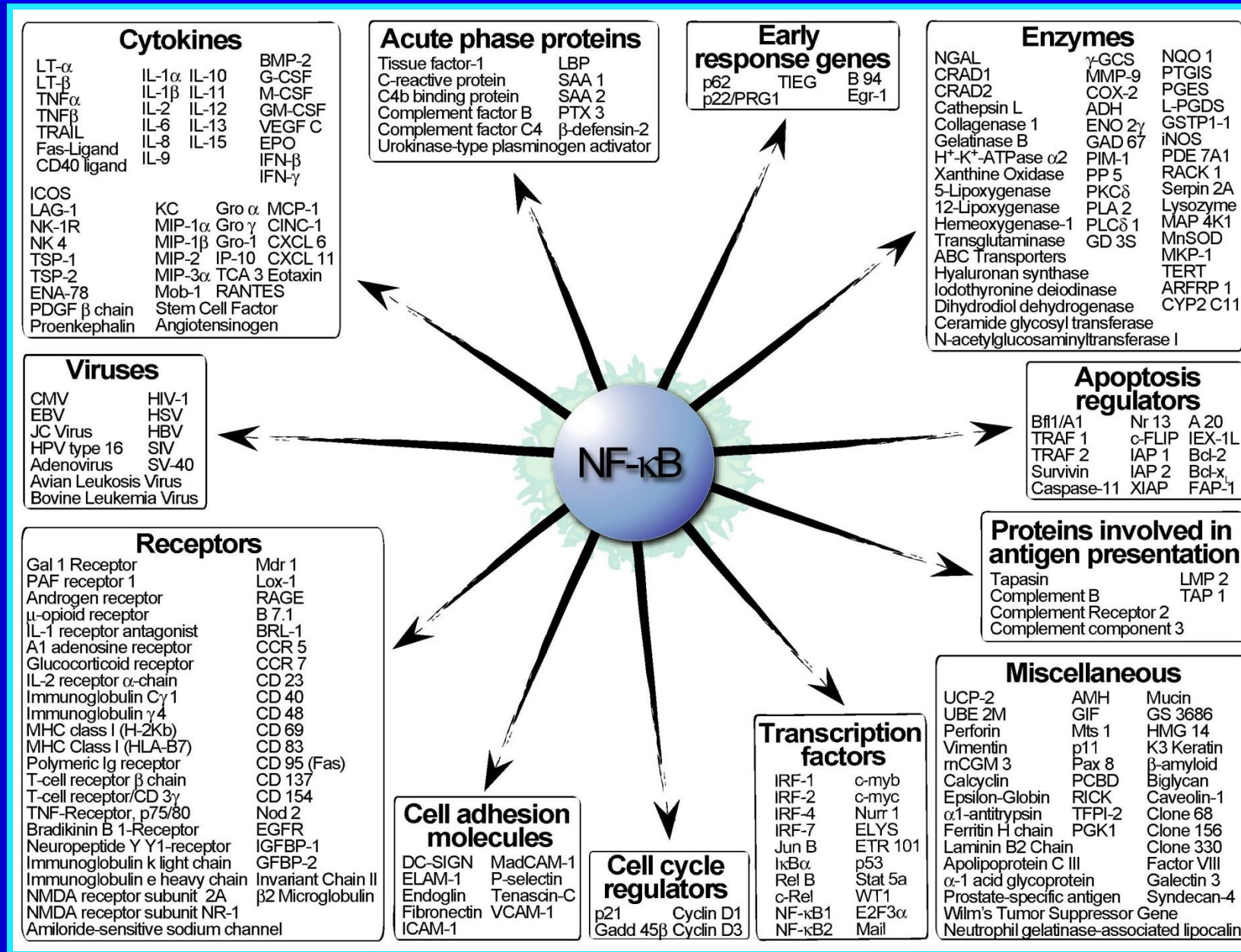
# NF- $\kappa$ B and the link between inflammation and Chronic Diseases.

DiDonato JA, Mercurio F, Karin M.  
Immunol Rev. 2012 Mar;246(1):379-400.

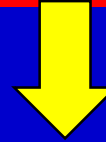
# What is NF- $\kappa$ B?



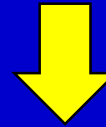
# NF-κB -regulated genes



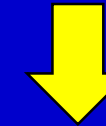
**Tumor Necrosis Factor- $\alpha$**



**NF- $\kappa$ B**



**Inflammatory Genes**



**Arthritis**

**Asthma**

**Cancer**

**COPD**

**Cystic Fibrosis**

**Diabetes**

**Heart Disease**

**Osteoporosis**





## The 2015 Nobel Prize in Physiology or Medicine



**William C. Campbell**

Born 1930, Ireland  
Drew University,  
Madison, New Jersey,  
USA



**Satoshi Ōmura**

Born 1935, Japan  
Kitasato University,  
Tokyo, Japan



**Youyou Tu**

Born 1930, China  
China Academy of  
Traditional Chinese  
Medicine, Beijing, China

Plants in the News  
October 9 2015

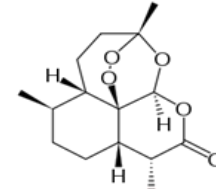


Nobel Prize in Physiology or  
Medicine awarded to Tu Youyou  
for the development of artemisinin

**Qinghao**



***Artemisia annua***



**Artemisinin, for  
the treatment of  
malaria**





# STATINS: Cholesterol Lowering Drugs

- ▶ Lovastatin
- ▶ Simvastatin
- ▶ Pravastatin
- ▶ Atorvastatin
- ▶ Fluvastatin
- ▶ Rosuvastatin
- ▶ Mevastatin
- ▶ Cerivastatin

HMG-CoA reductase Inhibitor



Chinese Red Yeast Rice

**Global market: Approximately \$30 billion**