Mécanismes physiopathologiques des atteintes respiratoires et systémiques liées à la pollution

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INFLAMEX

fire

ASSISTANCE PUBLIQUE HÔPITAUX DE PARIS

Immunologie, hématologie, pneumologie

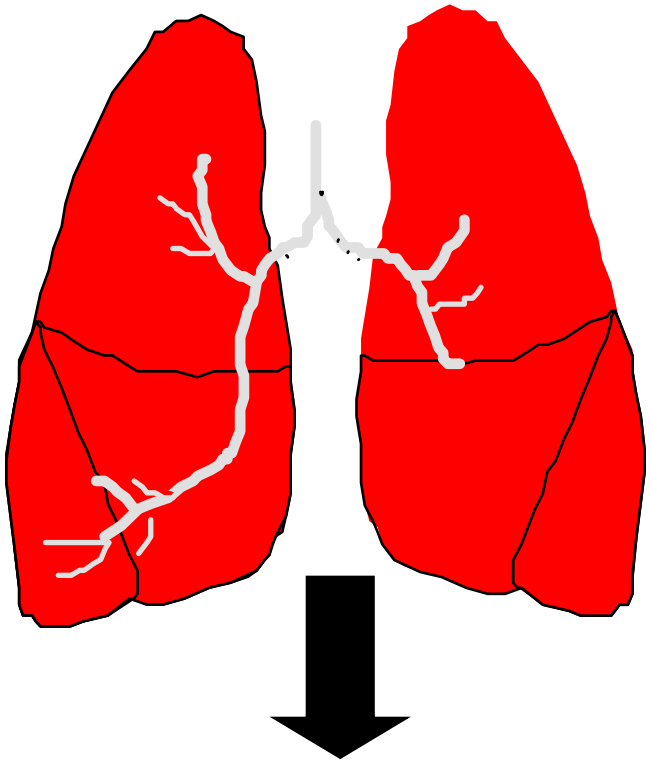
Inserm
Institut national de la santé et de la recherche médicale

10 to 14 000 L air / jour

Surface d’échange : 100 m^2

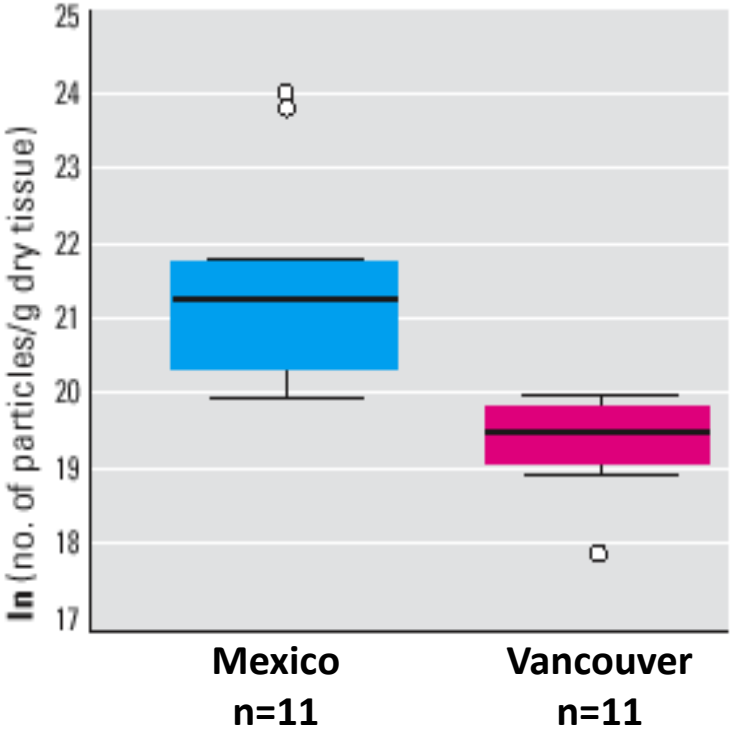
Polluants

Urbanisation
Consommation d’énergie
Augmentation des émissions
(transports, industries)

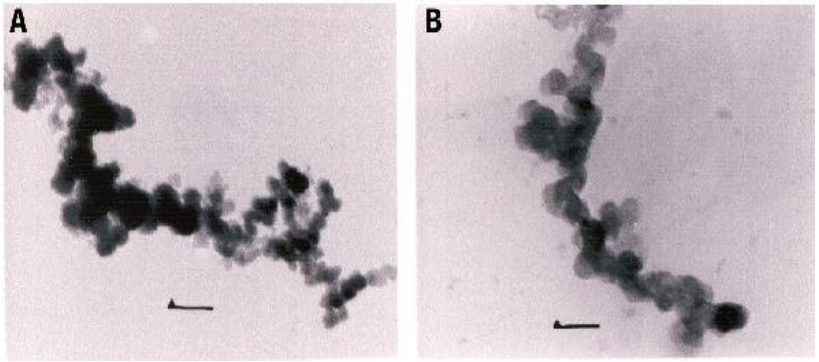


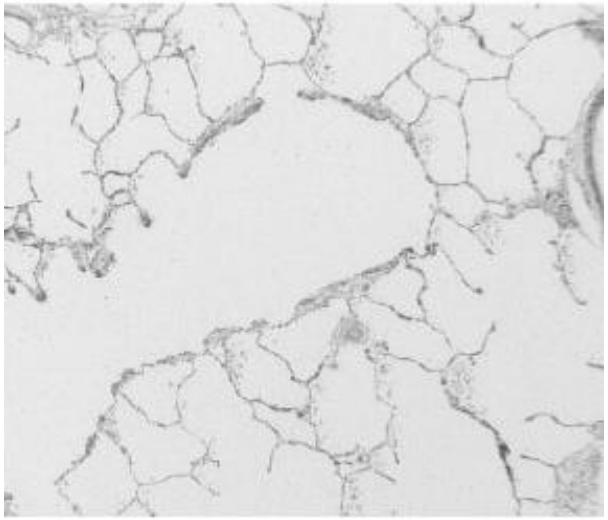
Asthme

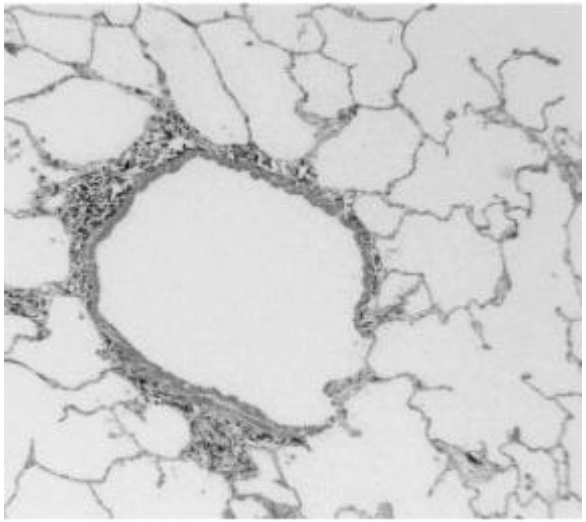
Maladies cardiovasculaires

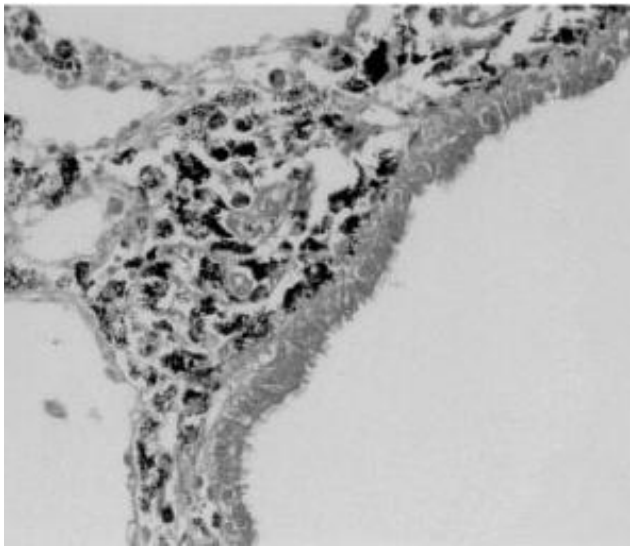


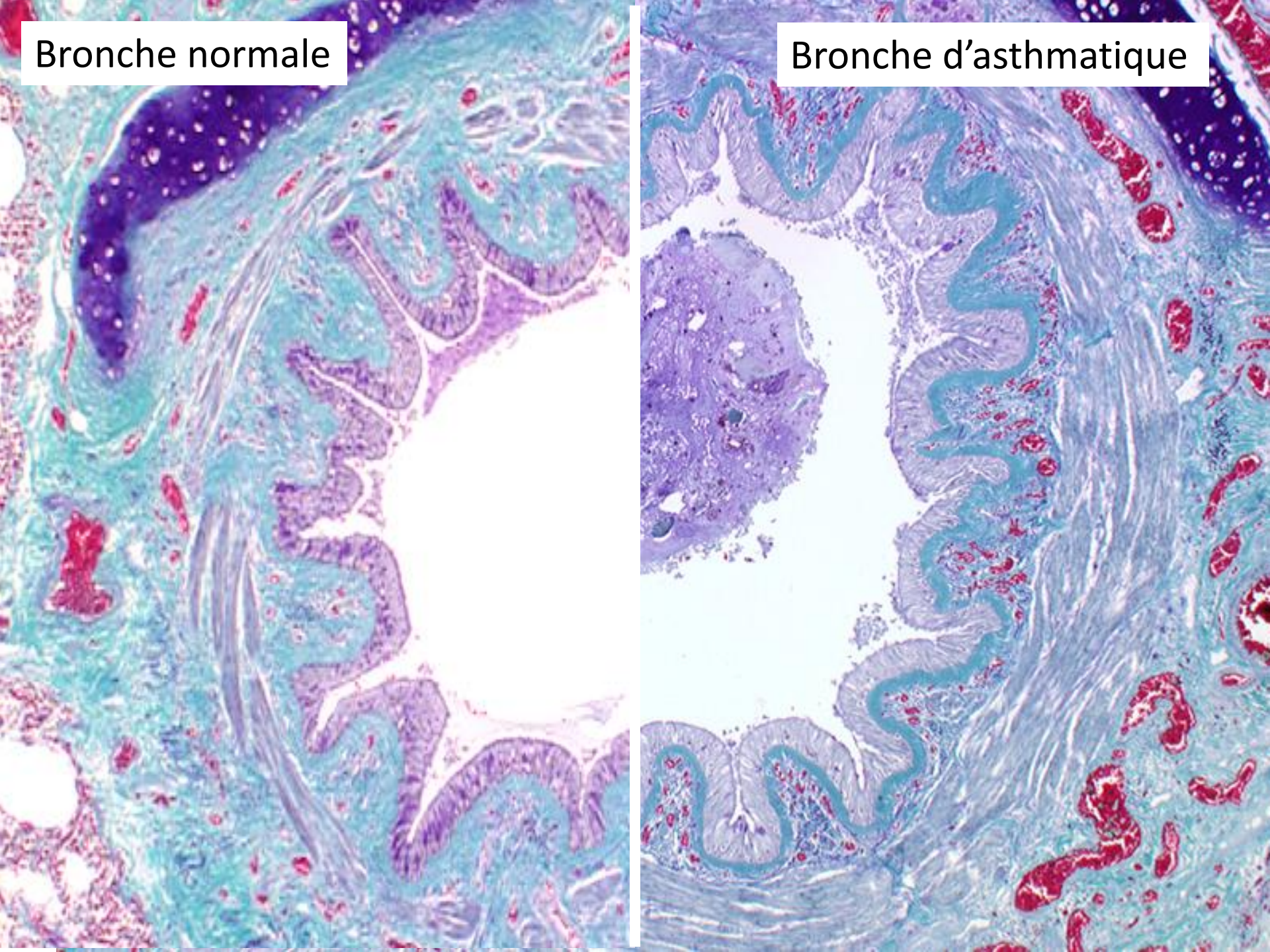
Exposition chronique (Churg et coll. 2003)



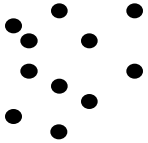


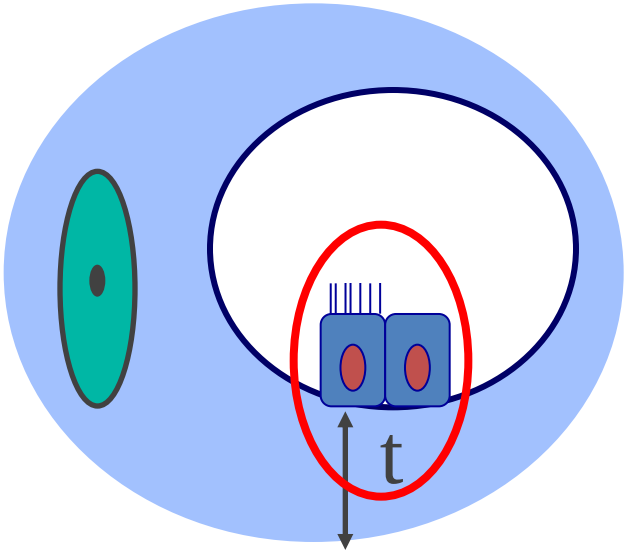


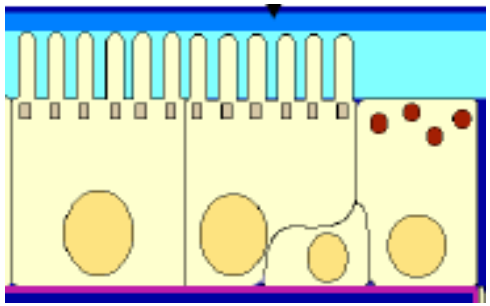



Bronche normale
Bronche d’asthmatique

Les cellules épithéliales sont les premières cibles







mucus

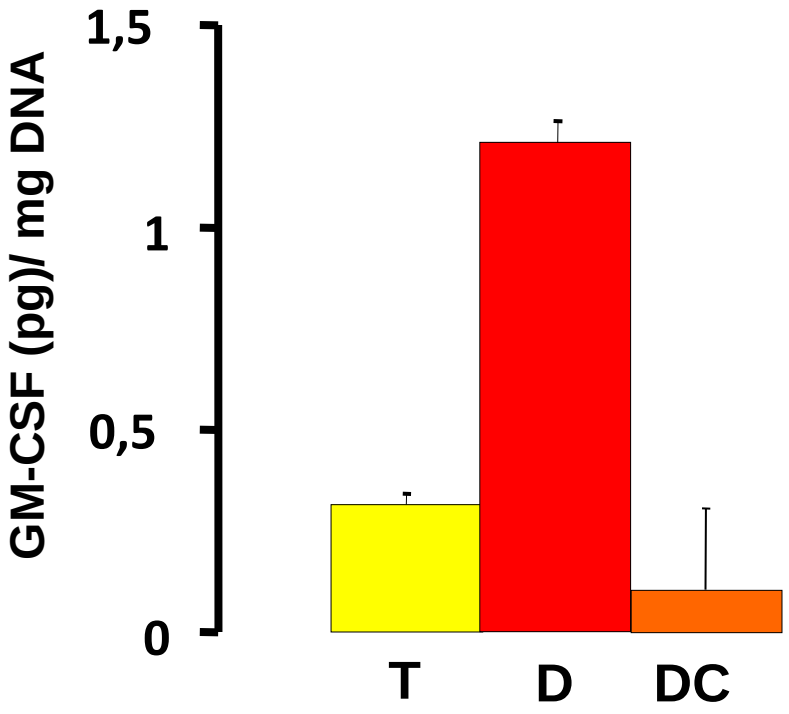
Cellules épithéliales

Membrane basale

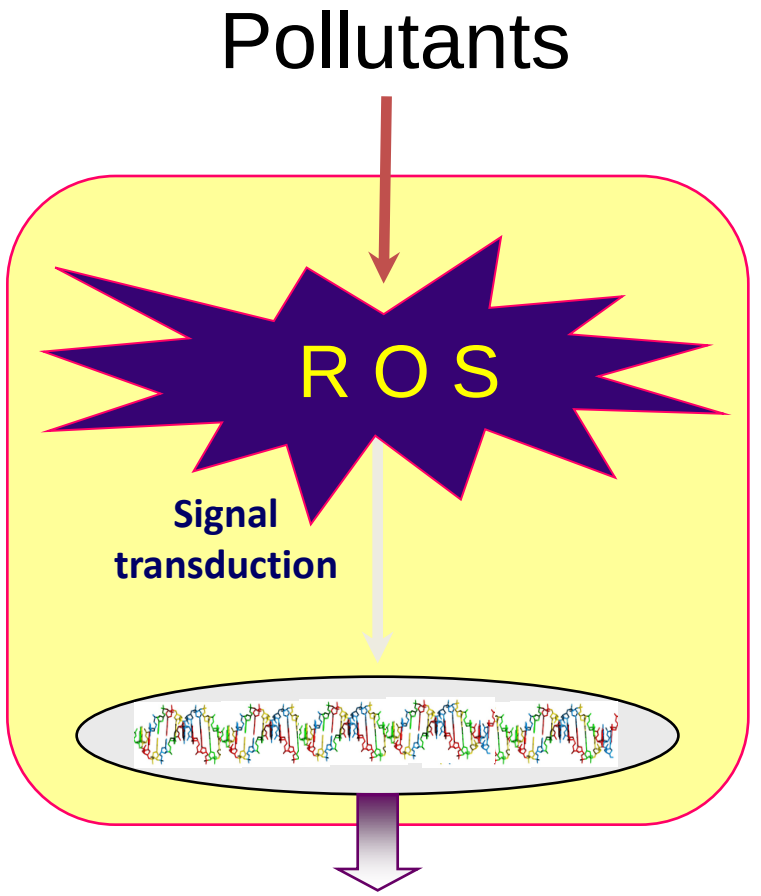
Induction d'une réponse inflammatoire

Induction d'une réponse immune

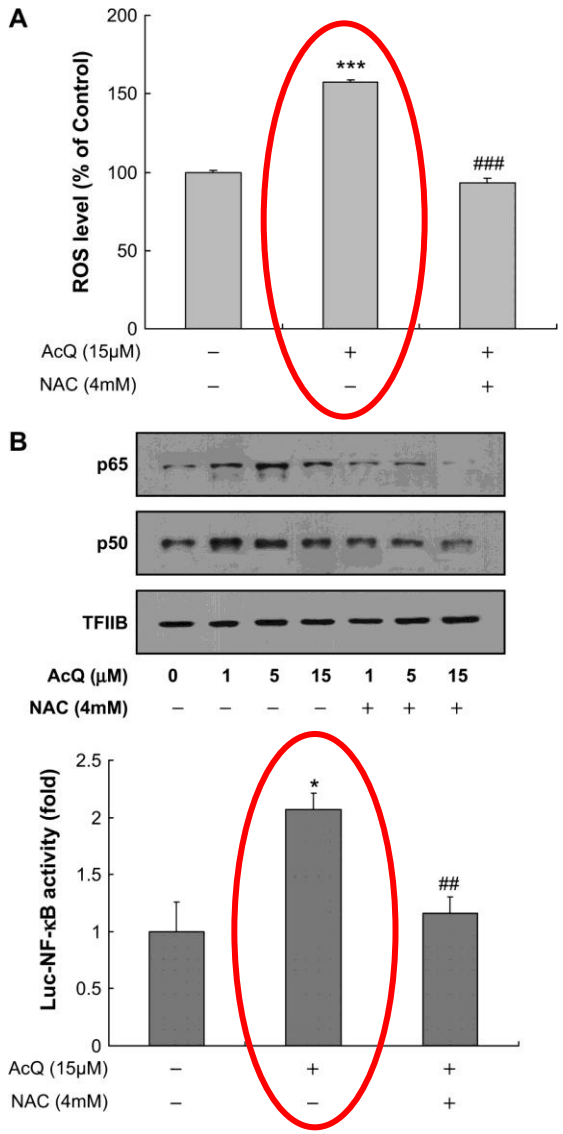
Les cellules épithéliales induisent une réponse inflammatoire



Boland et al, Am J Physiol. 2000



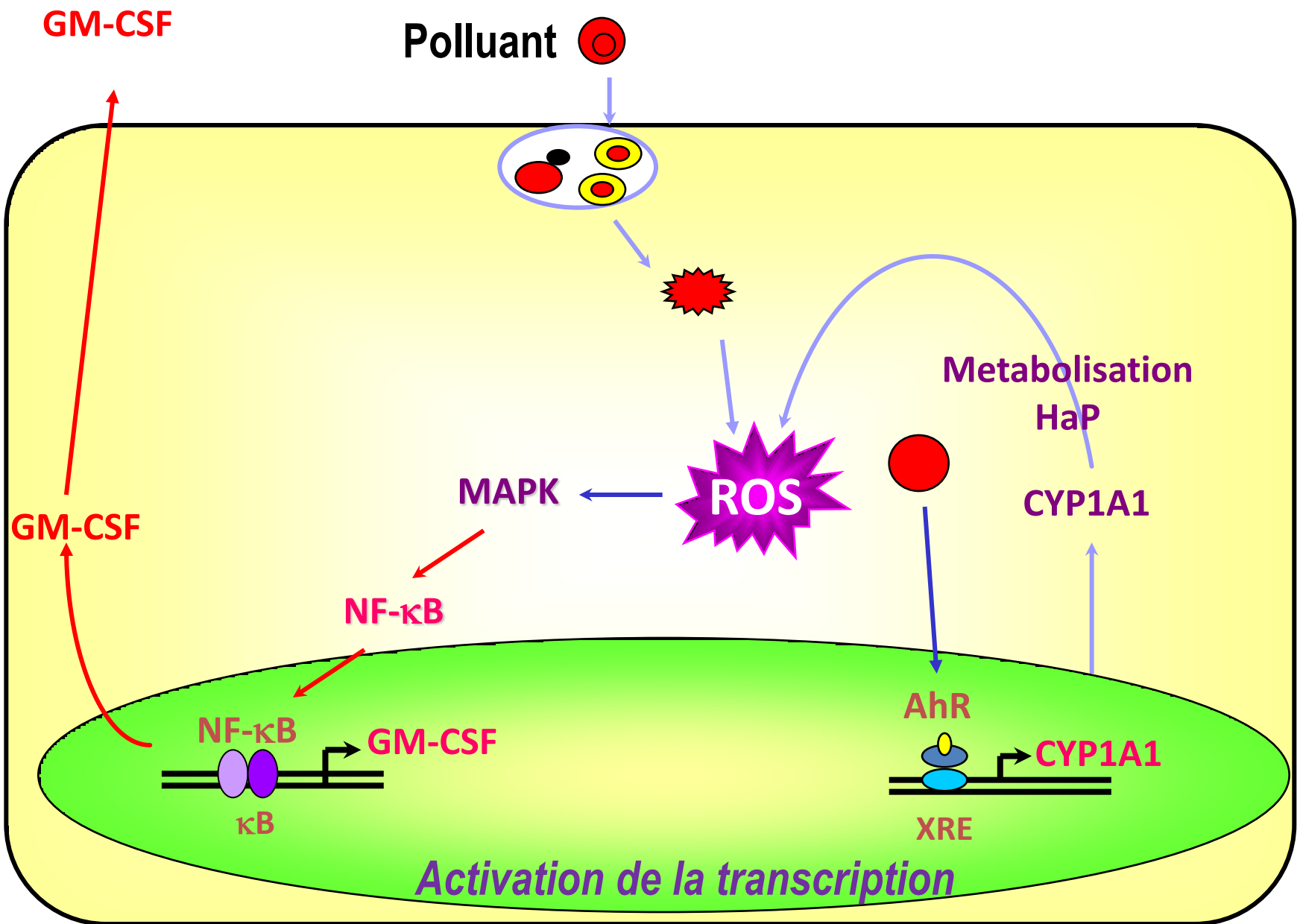
Les HAP induisent la production de ROS dans les CE



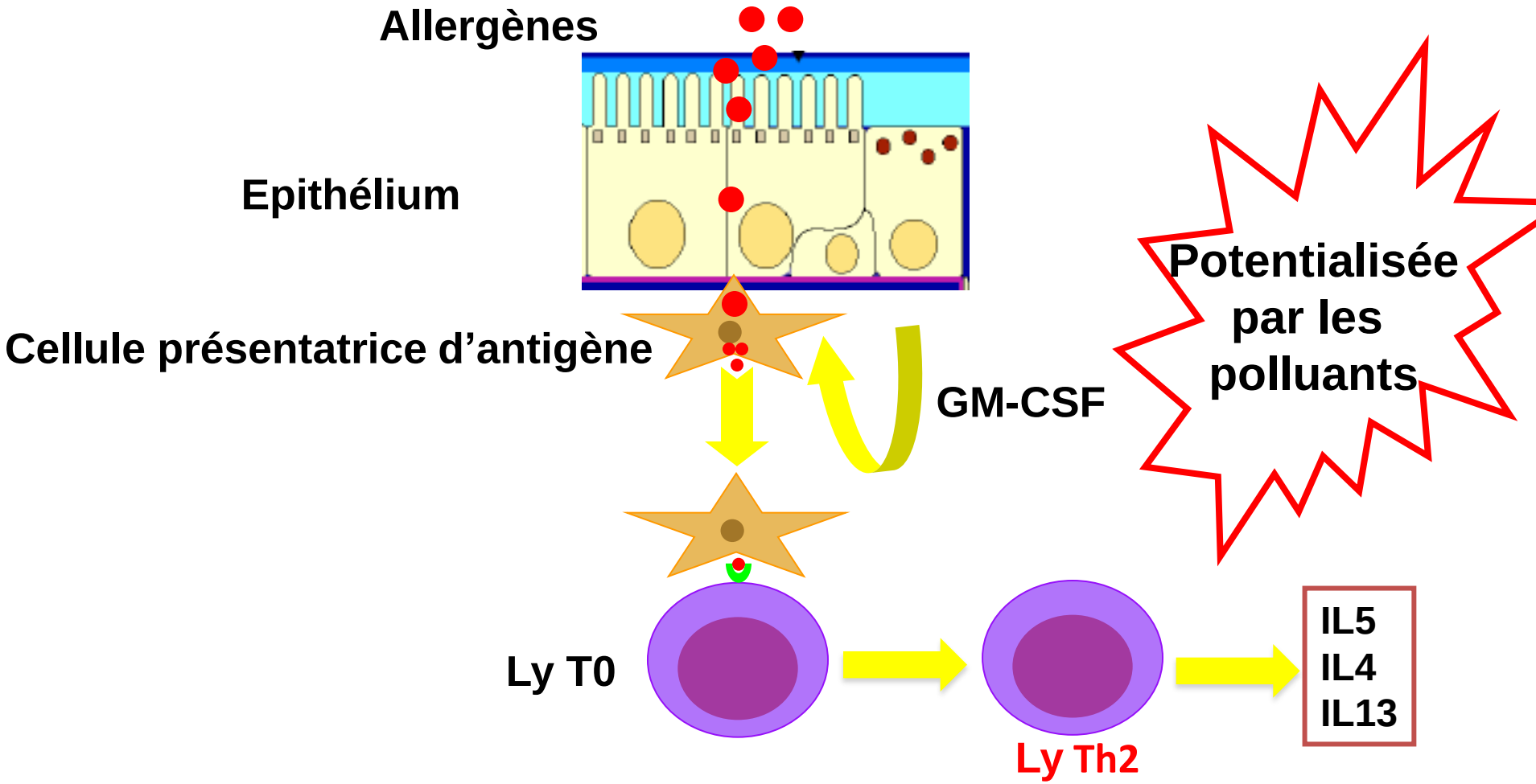
et augmentent l'activité du facteur de transcription NF-κB

Chung, S. W. et al. Toxicol. Sci. 2007 95:348-355

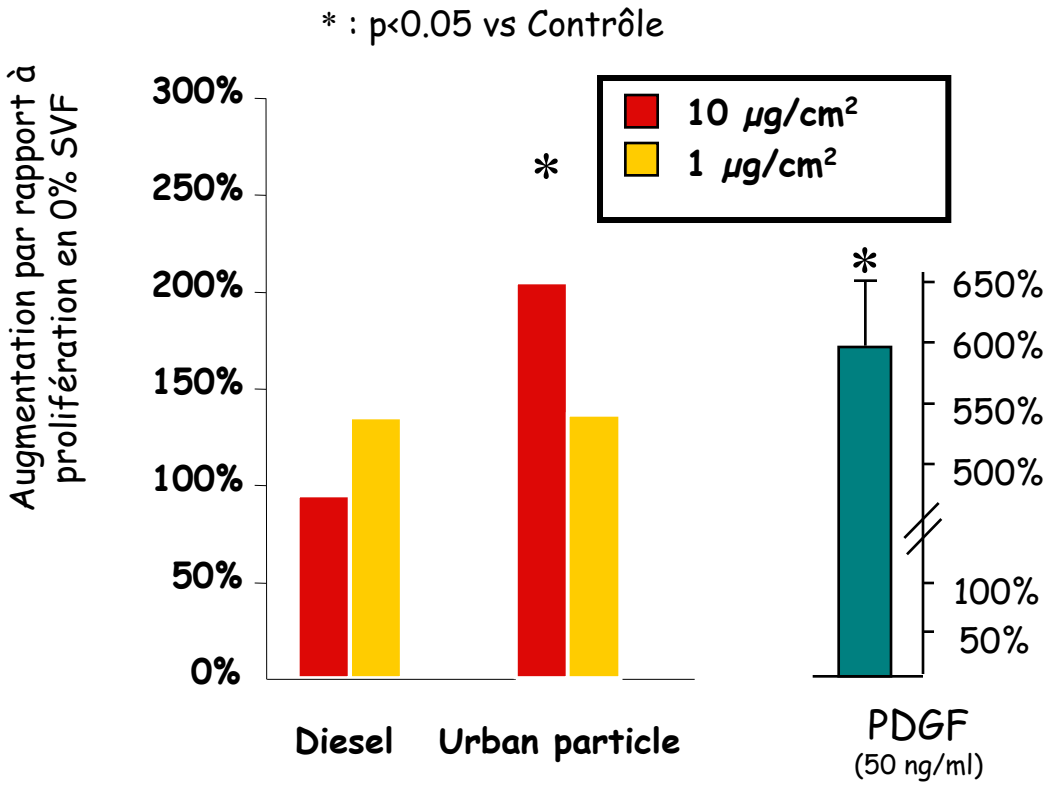
Mécanismes d'action moléculaires

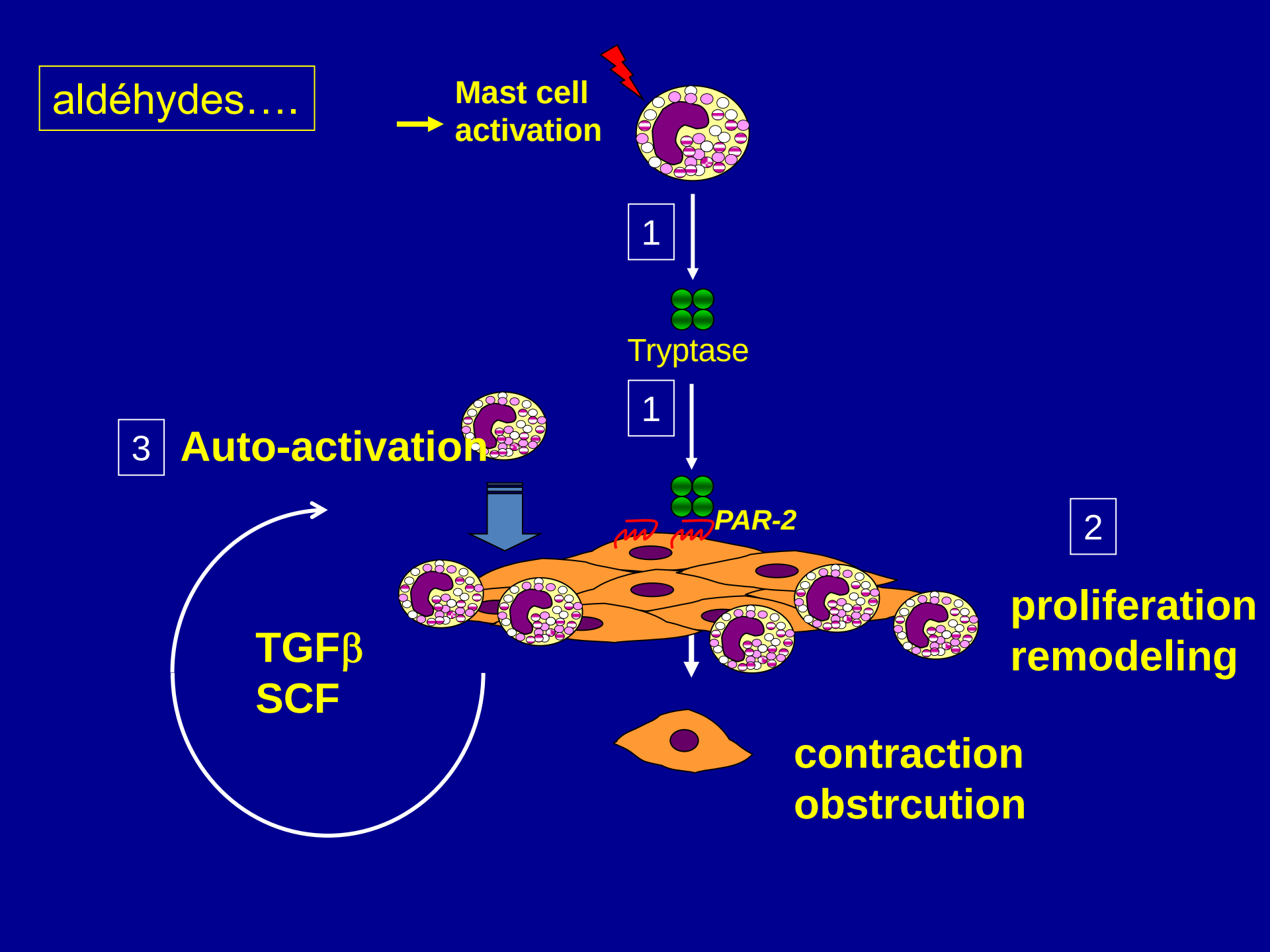


Induction d'un réponse immune : physiopathologie de l'asthme

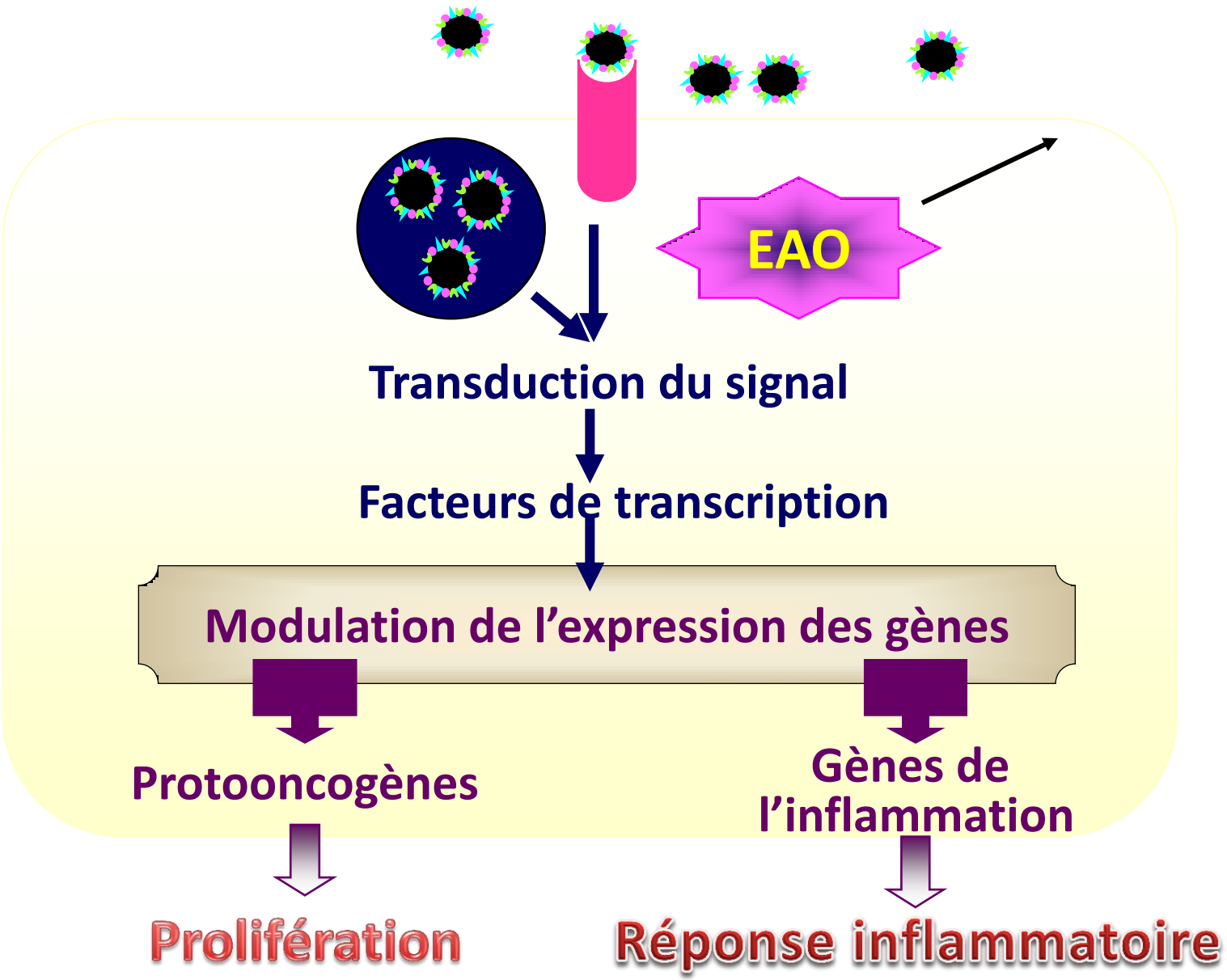


Les particules font proliférer le muscle lisse *in vitro*

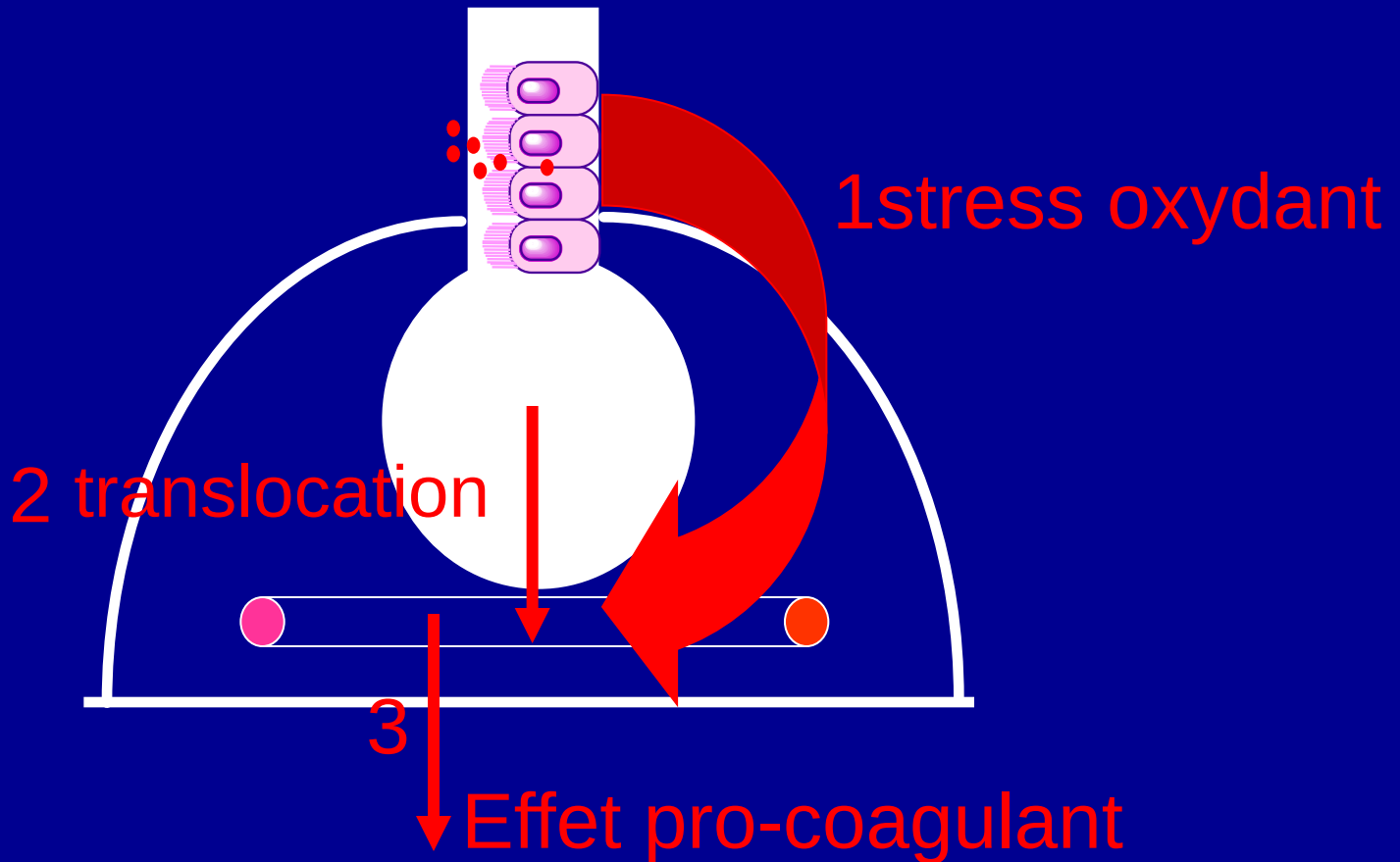



aldéhydes….
Mast cell activation
1
Tryptase
1
3
Auto-activation
PAR-2
2
proliferation
remodeling
TGFβ
SCF
contraction
obstrcution

Le "stress particulaire"

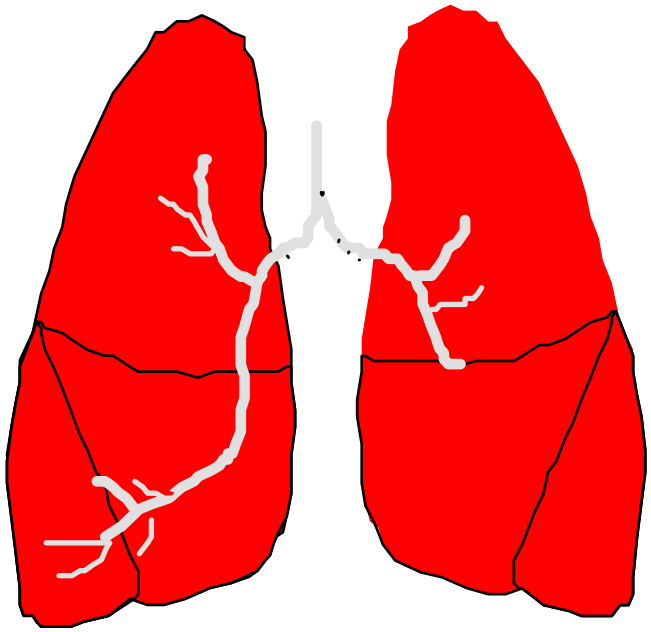


Effets cardiovasculaires : hypothèses



Conclusions

Polluants →



Activation épithéliale
- inflammation
- réponse immune

Asthme

Translocation
- Inflammation systémique
- hypercoagulabilité

Maladies cardiovasculaires

Mécanisme commun : ROS

Merci