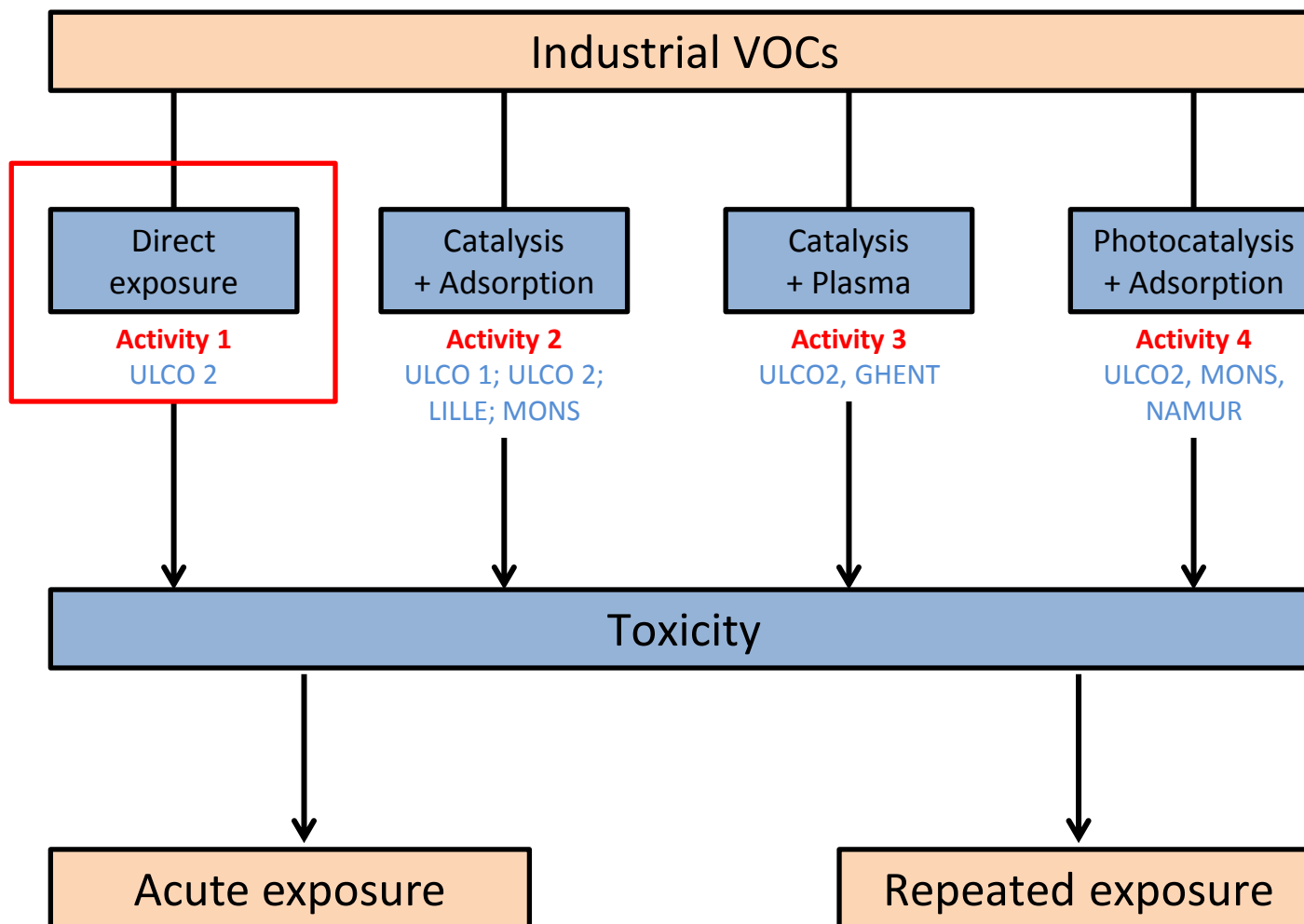


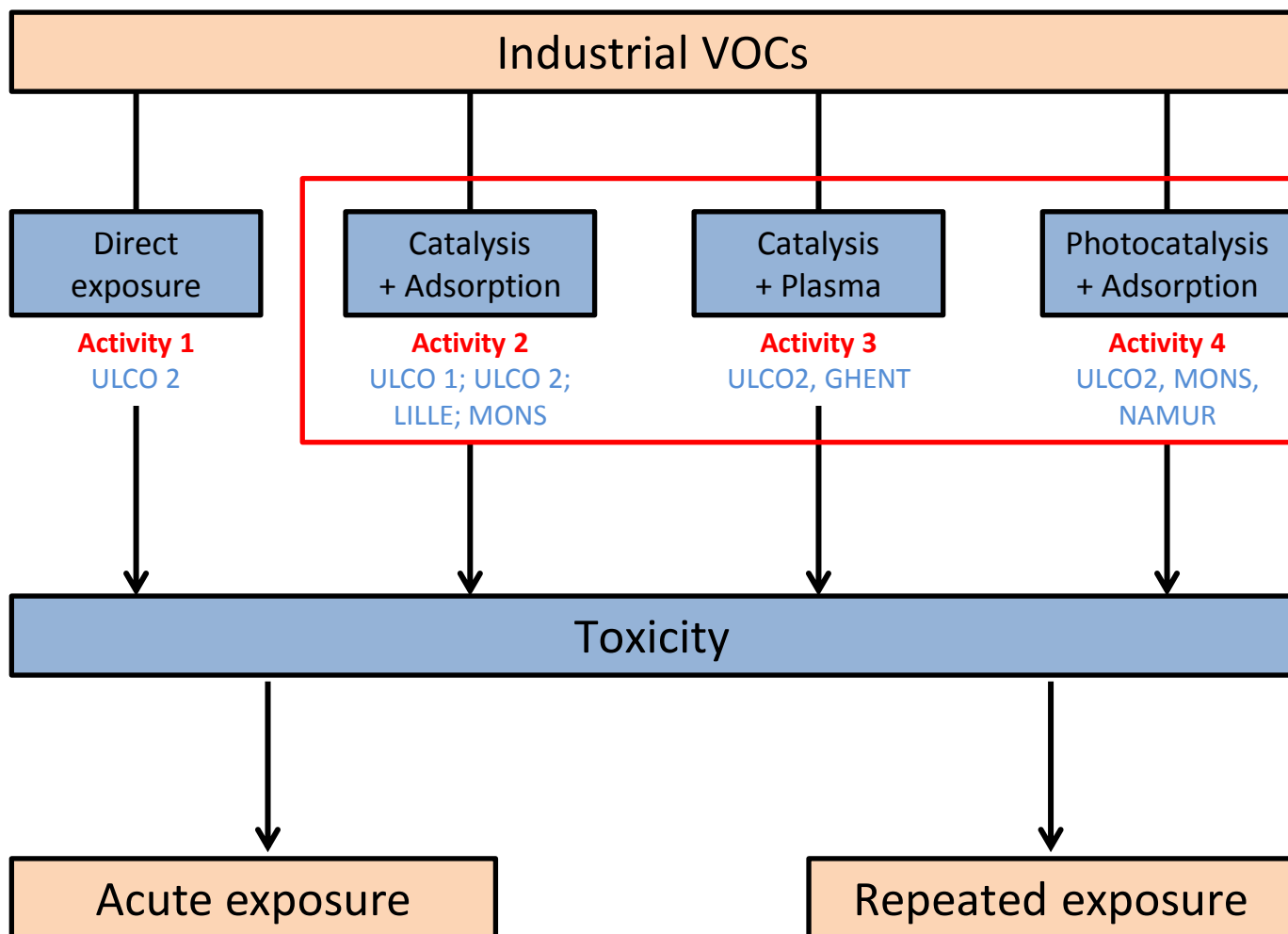
# Contribution of toxicology to the development of methods for VOCs catalytic degradation and identification of by-products.

Clémence MÉAUSOONE

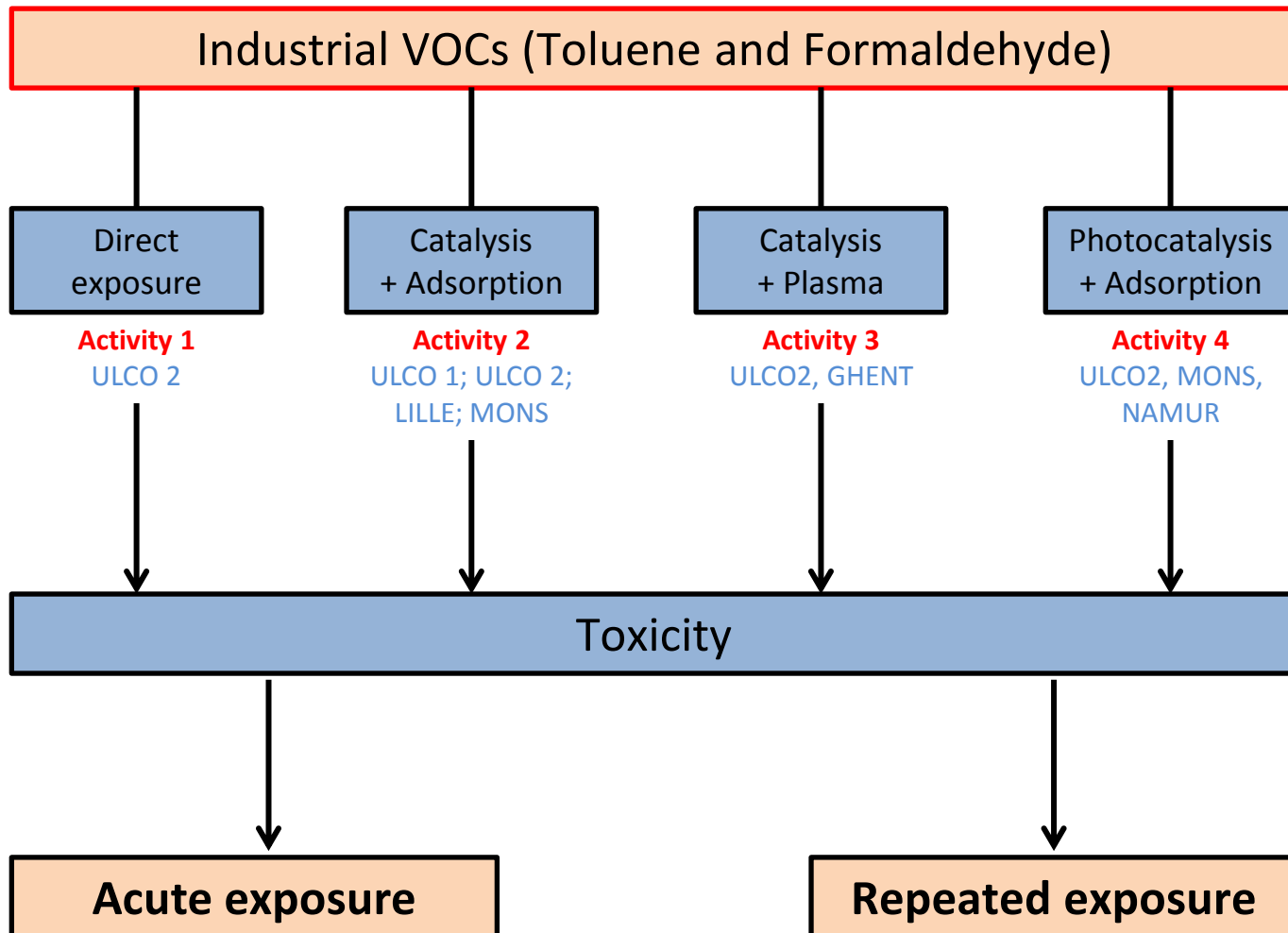
# Work Modul 3 : Toxicology



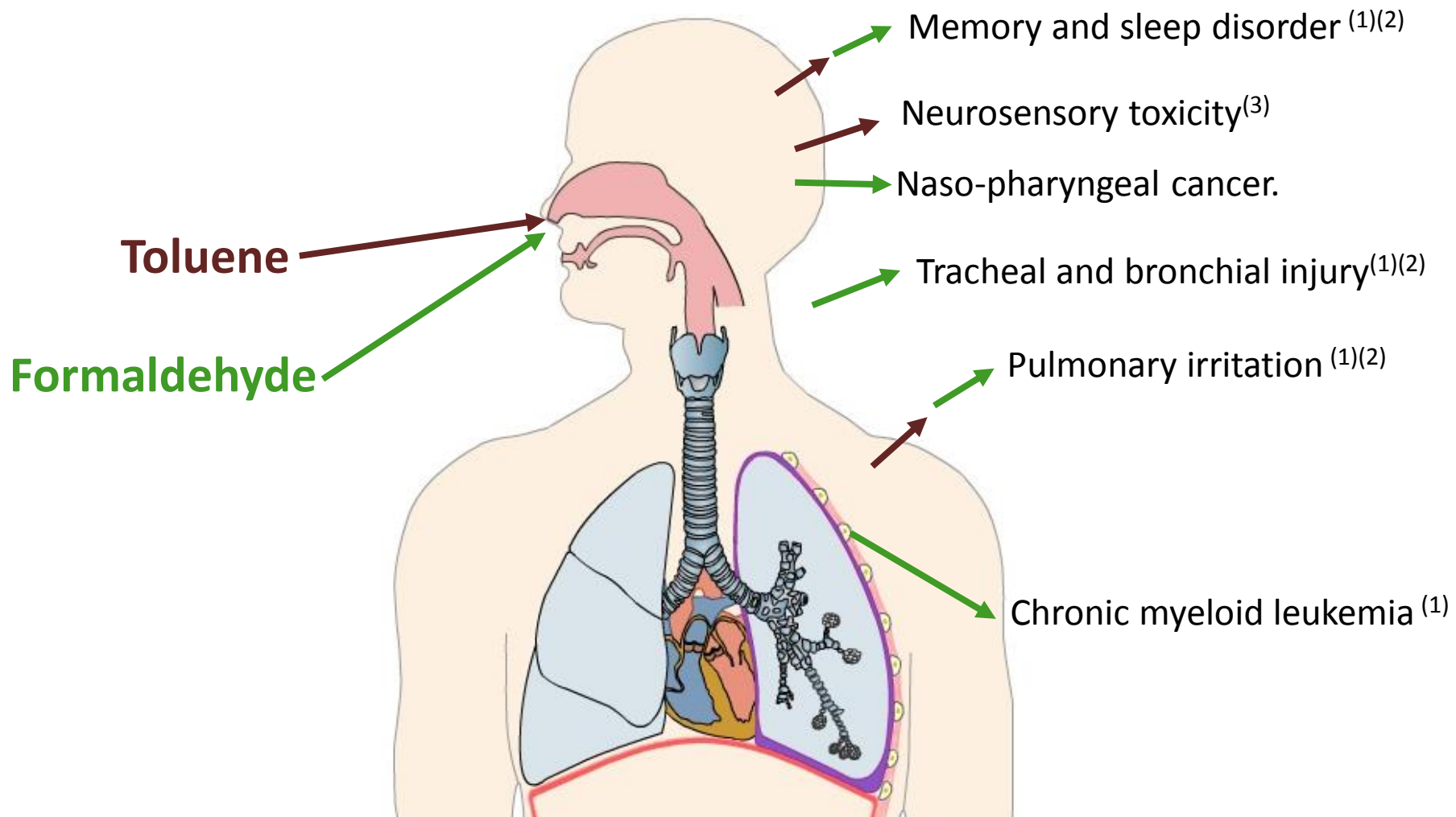
# Work Modul 3 : Toxicology



# Work Modul 3 : Impact on human health

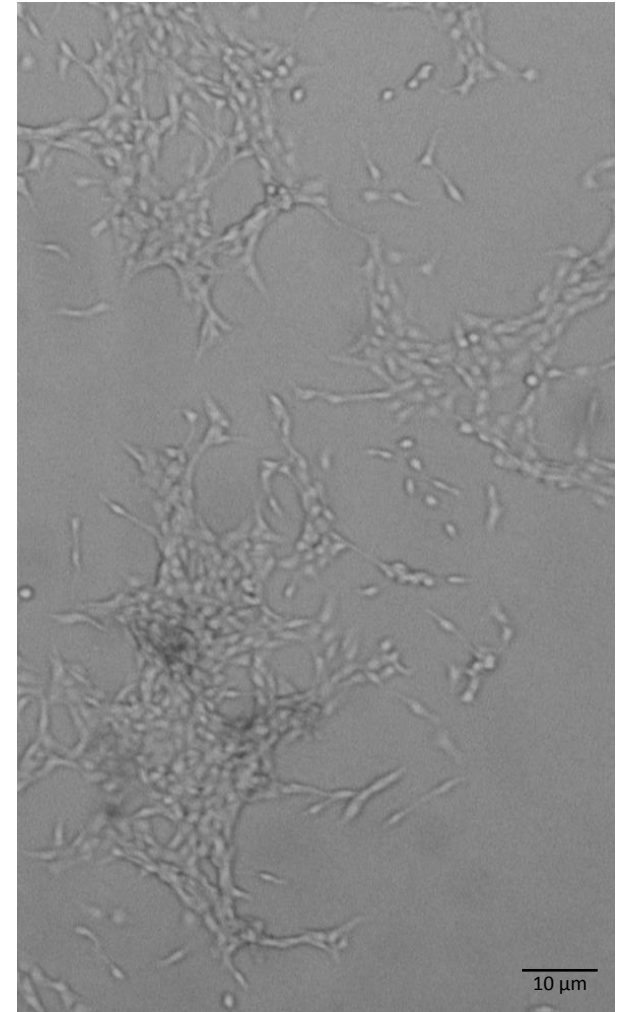


# Scientific Context



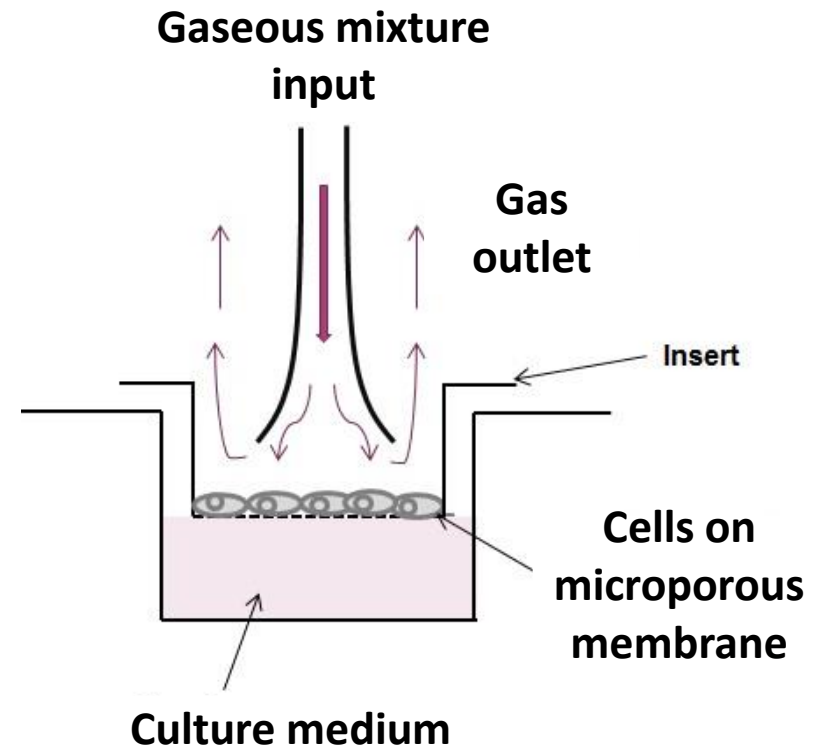
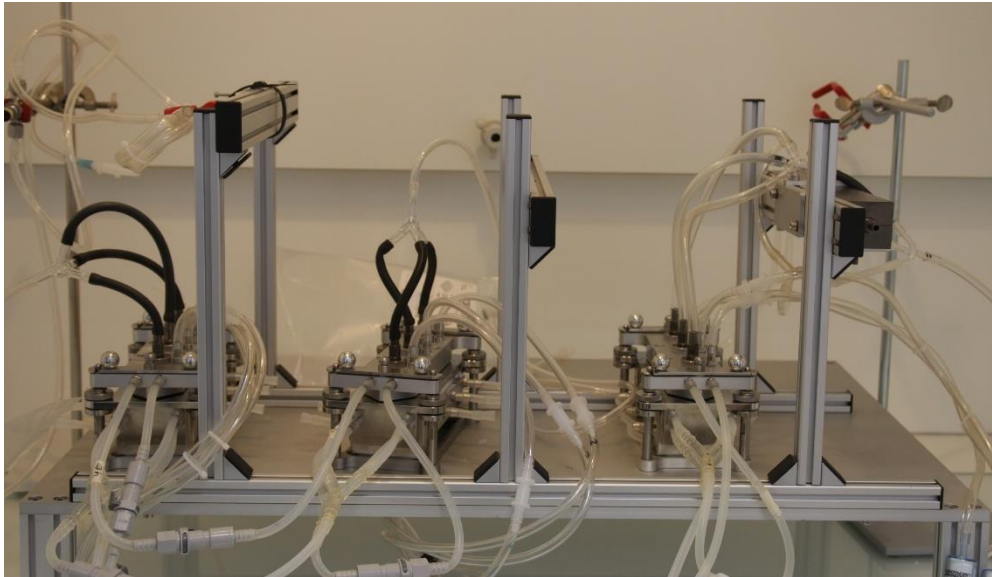
## BEAS-2B cells

- Respiratory system : target organ for air pollutants.
- Human bronchial epithelial cells isolated from a healthy donor.
- Adhesive cells
- Possibility of repeated exposures<sup>(4)</sup>

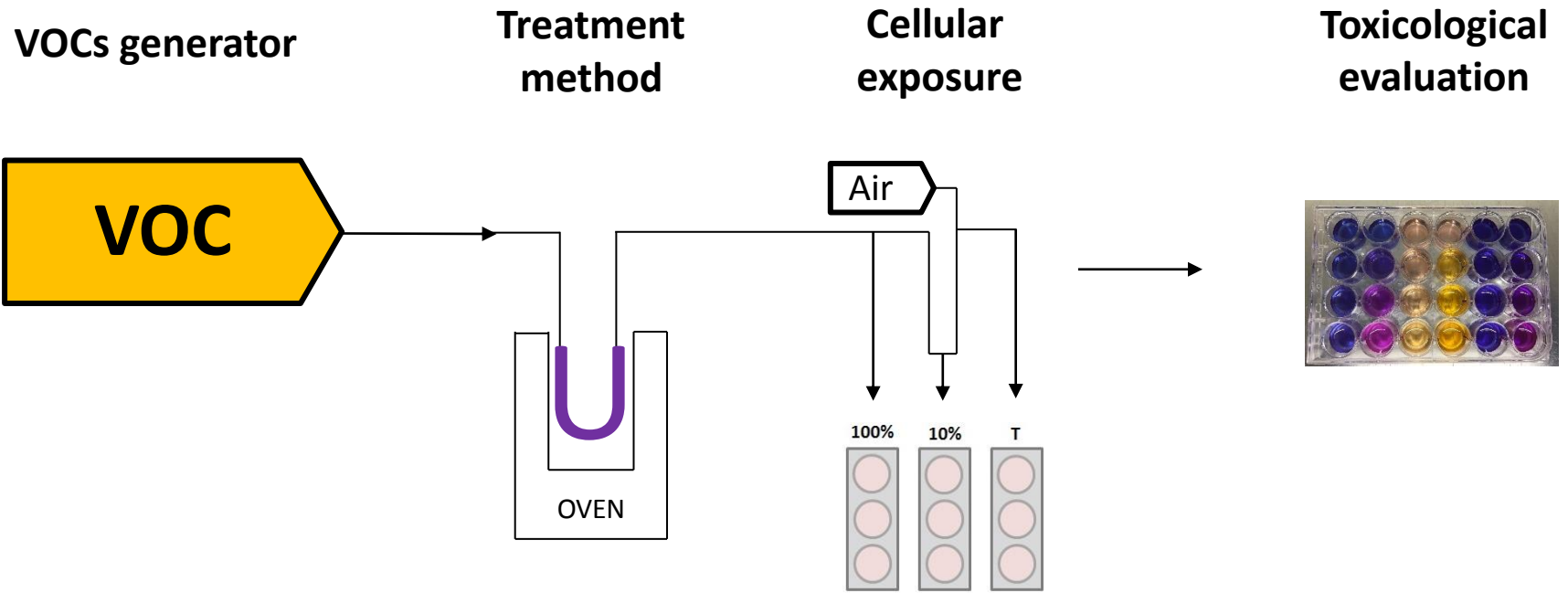


# Exposure system

## Air-Liquid Interface exposure system : Vitrocell®

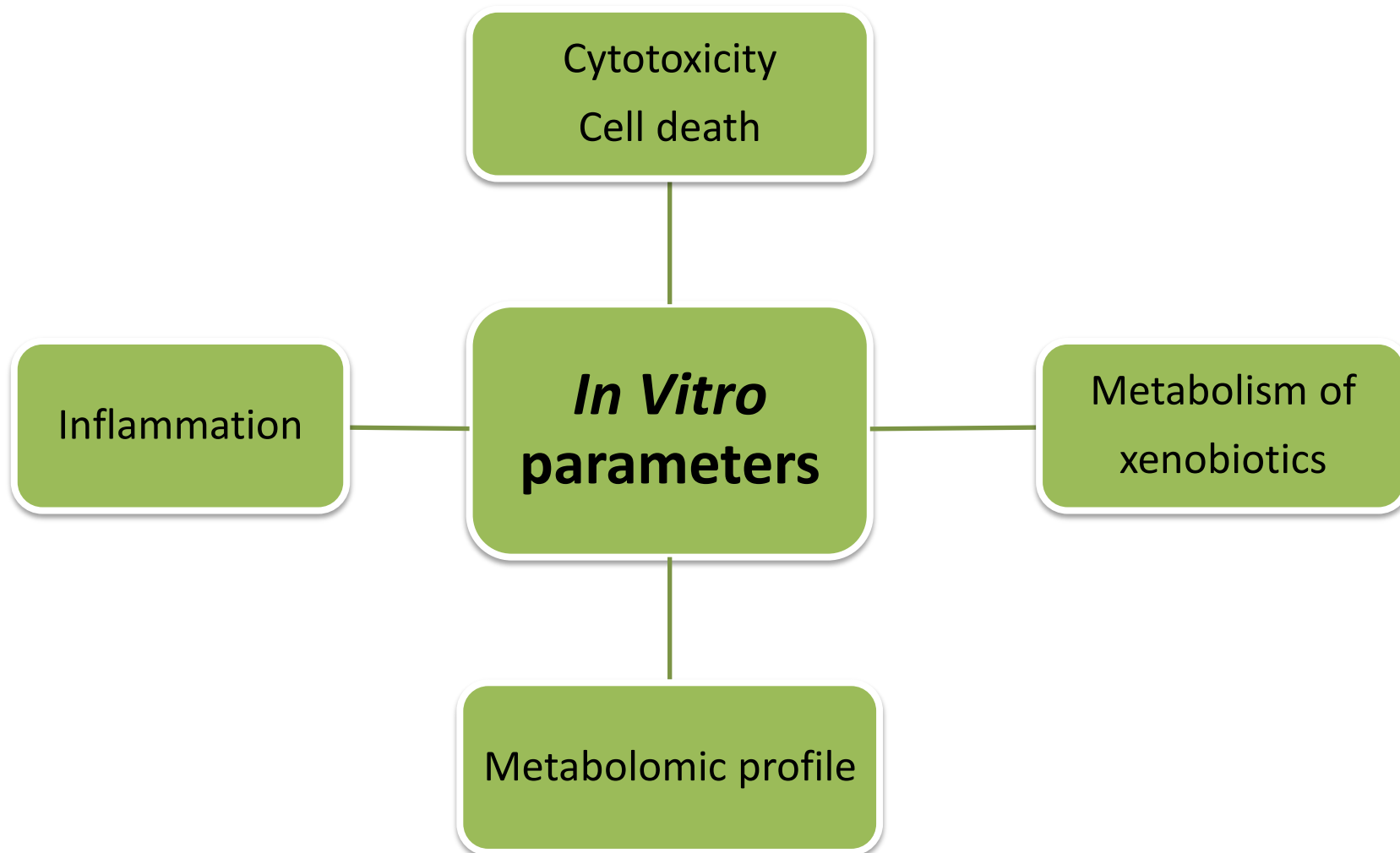


# Experimental design



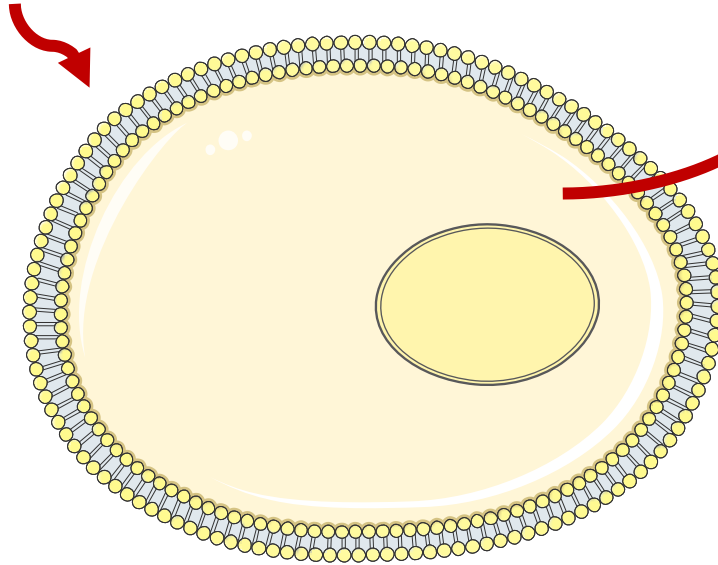


# What are we going to evaluate ?



# What are we going to evaluate ?

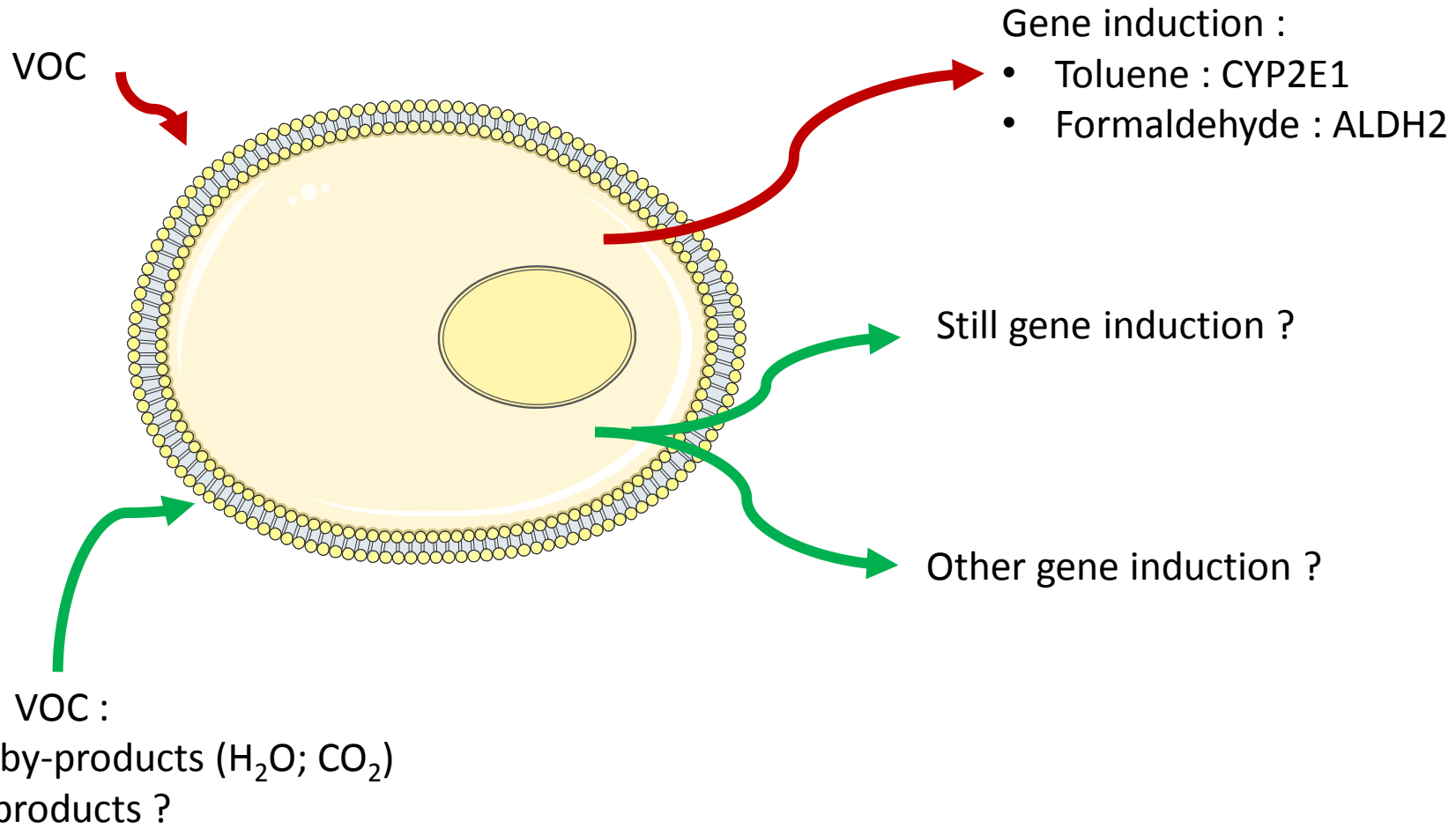
VOC



Gene induction :

- Toluene : CYP2E1
- Formaldehyde : ALDH2

# What are we going to evaluate ?



# Conclusion

- Some questions ?
  - Is the depollution method really safe ?
  - What is the nature of by-products ?

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Usefulness of toxicological validation of VOCs catalytic degradation by air-liquid interface exposure system



Margueritta Al Zallouha, Yann Landkocz, Julien Brunet, Renaud Cousin, Eric Genty, Dominique Courcot, Stéphane Siffert, Pirouz Shirali, Sylvain Billet\*

(5) Al Zallo

# Conclusion

- Some questions ?
  - Is the depollution method really safe ?
  - What is the nature of by-products ?
- Toxicology : useful tool for assesment of new catalytic system<sup>(5)</sup> :
  - Complementary of chemical analysis to verify the efficiency of degradation
  - Sensitive method to detect by-products

# Contribution of toxicology to the development of methods for VOCs catalytic degradation and identification of by-products.

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