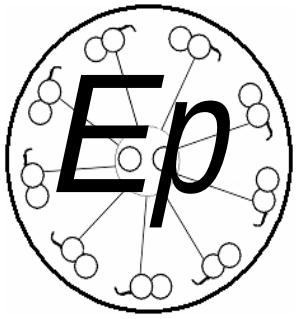

Epithelix

Provider of reconstituted in vitro tissues

Innovative R&D Solutions for Respiratory Diseases and Chemicals Testing

Ludovic Wiszniewski, CEO

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Problems

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- There is no *in vitro* model to test the long term effets of particles/chemicals on airways (today, only animal models are avalaible)

- The chemical industry is progressively forced to test the toxicity of chemicals without using animals (enforced by New European REACH LEGISLATION)

- The bio-pharmaceutical industry needs for faster and more efficient new drug entities discovery, screening and testing techniques

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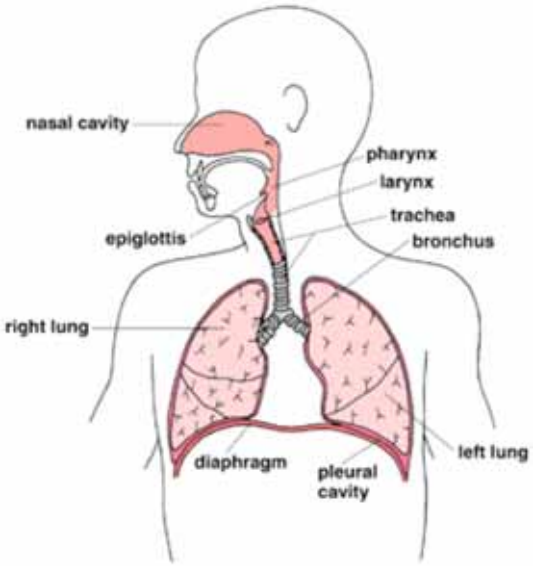
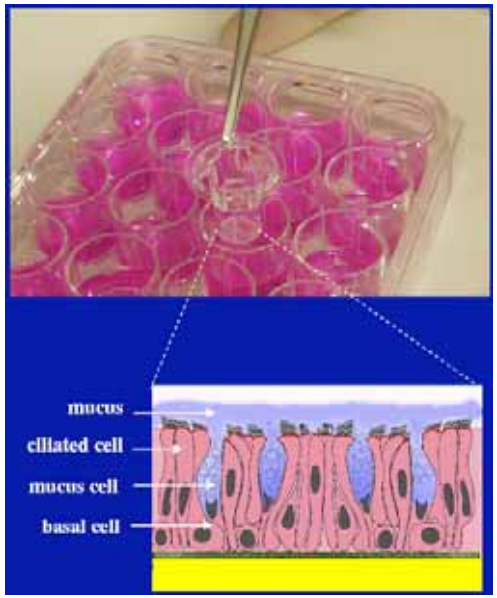
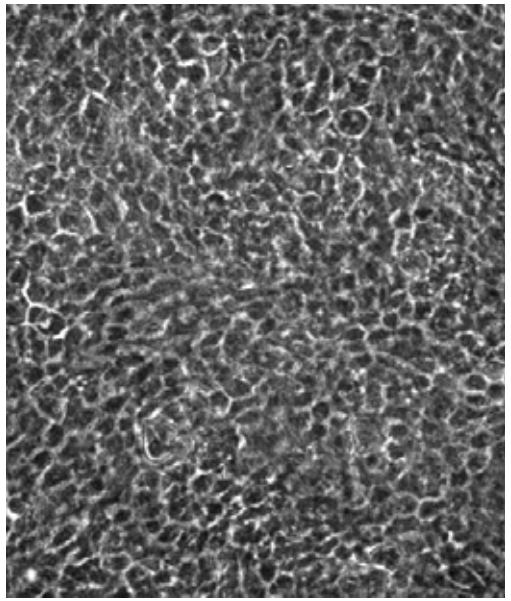
We produces and sells
An *in vitro* cell model of human airway epithelium

Proliferation / Dedifferentiation

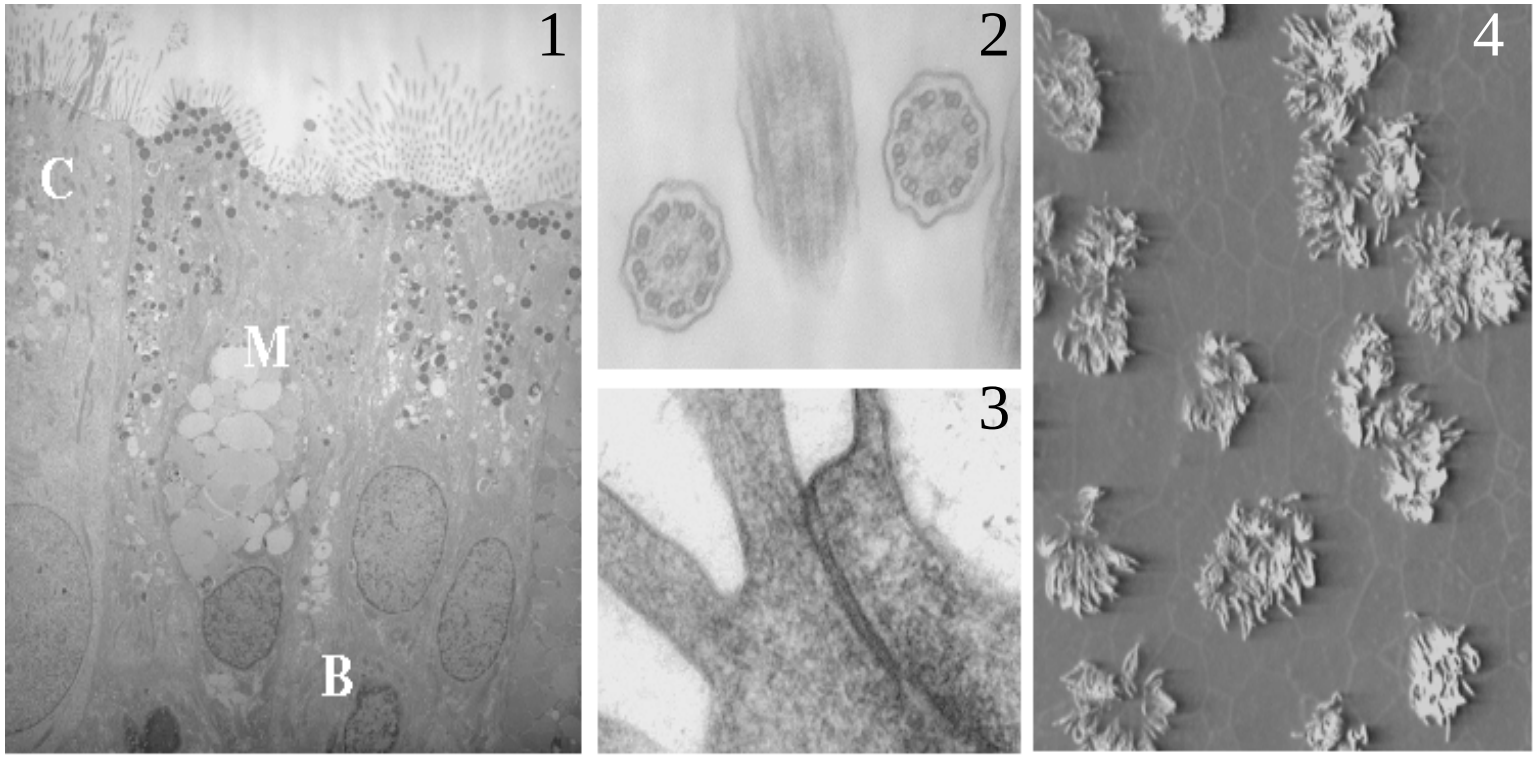




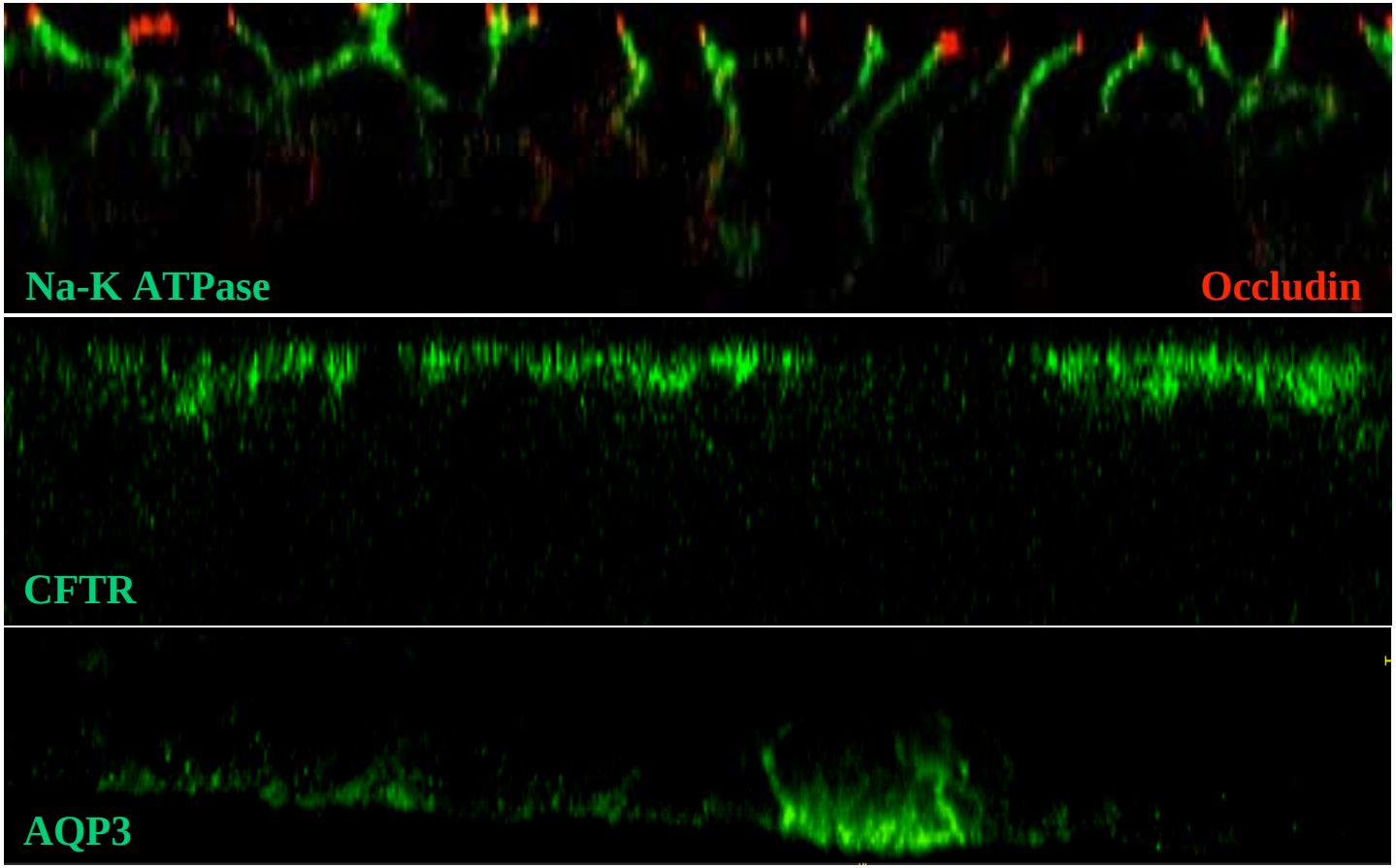


Differentiation

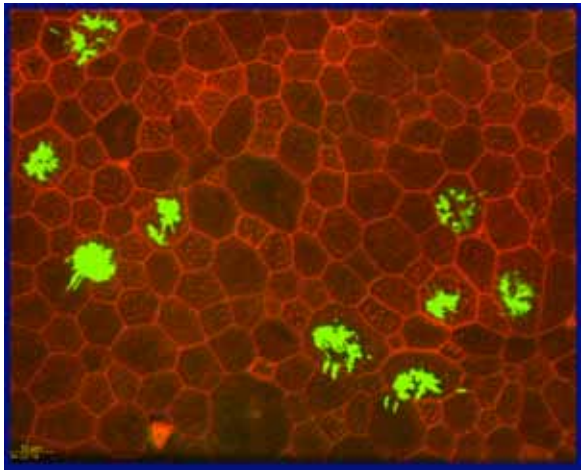
Similar, if not identical, ultra-structures as in the native tissues

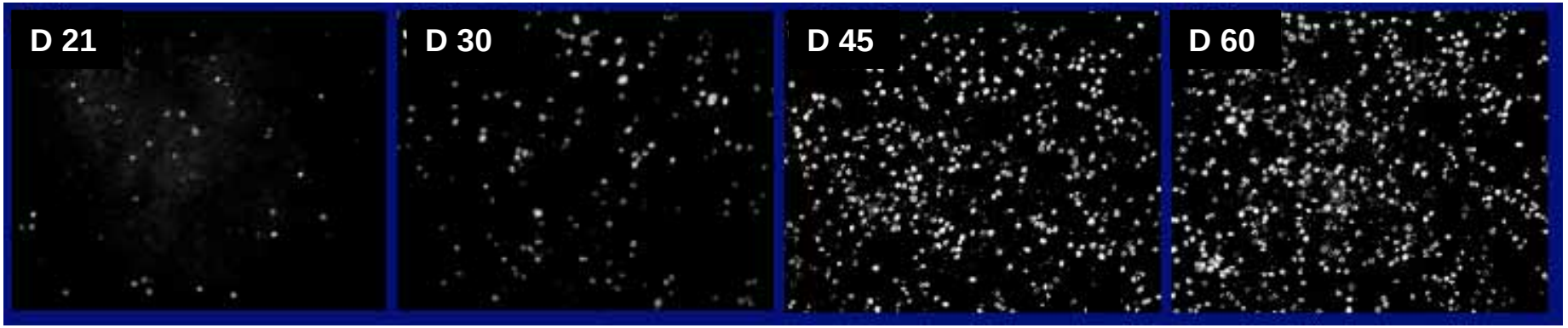


The distribution of markers and ions channels is identical to that observed in vivo



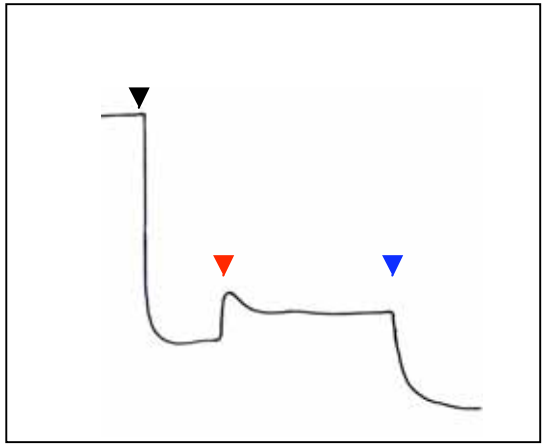
A time course of cilia formation monitored by anti-β-tubilin antibody





MUCILAIR show typical electrophysiological responses to ion channel inhibitors and activators

Current measurement in Ussing chamber



▼ **Amiloride**

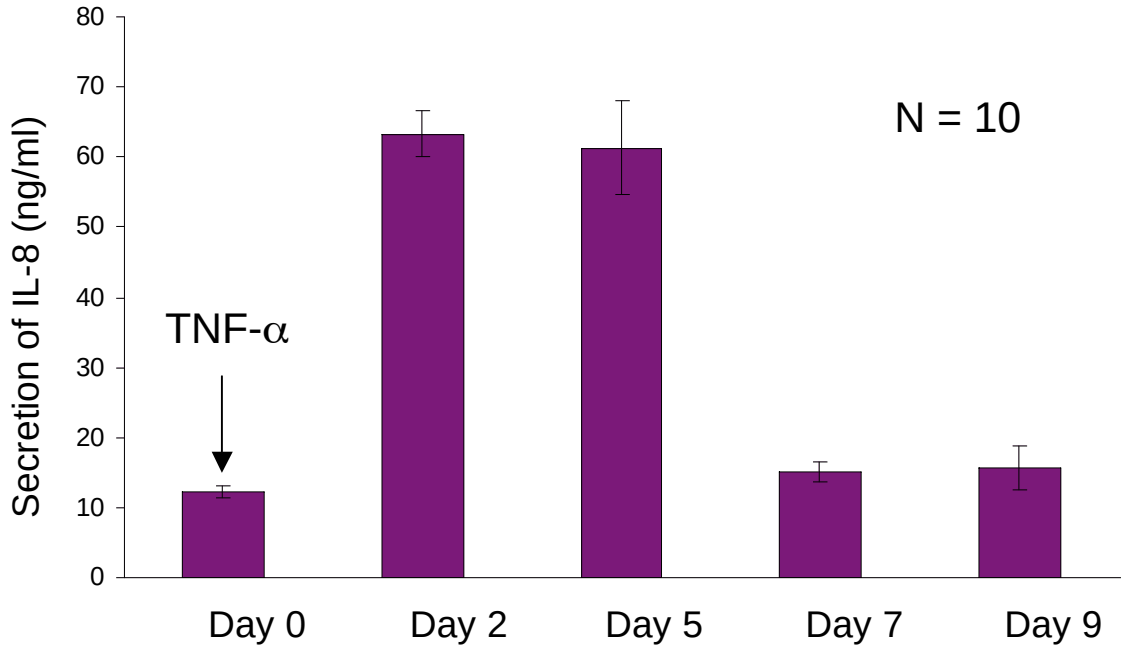
▼ Isoproterenol

▼ Bumetanide

R(Ω.cm²) (resistance)
438 ± 18 (N=203)

- Amiloride (sodium channel inhibitor) reduces the current.
- Isoproterenol, a CFTR activator (chloride channel) increases current.
- Bumetanide, a general channel blocker, abrogates the total channel current activities.

MUCILAIR responds to pro-inflammatory mediators (TNF-α) in a physiological manner



A time course of IL-8 secretion (an inflammatory marker) after 30 minutes of TNF-α stimulation on a 3 months old epithelium. Note that this same epithelium can be reused several days later for other experiments

The main characteristics of MucilAir

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- It closely **mimics** the morphology and functions of the normal human airway epithelium.
- It has a unique shelf-life of **one year**.
- It is **easy** to handle and maintain.
- It can be adapted to **high-throughput** screening and testing.

Cytotoxicity effect of Acrolein on Mucilair

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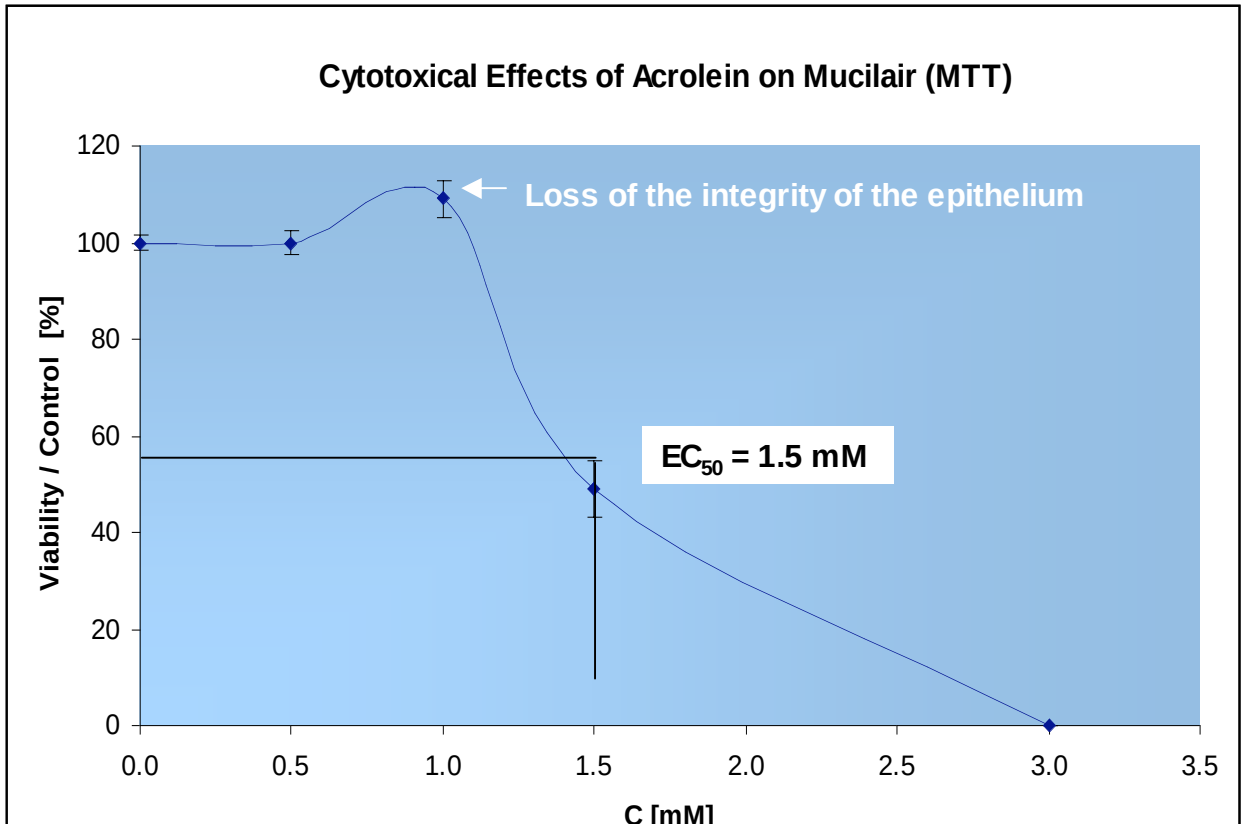

N = 24

- Incubation time: 24h
- «*dose-effect*» response: 0.5-30 mM

Indicators of Toxicity

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- Barrier function: TER
- LDH release
- MTT test
- Inflammatory mediator release
- Cilia beating
- Mucin secretion
- Intracellular ATP/ADP content
- etc.

Many valuable applications

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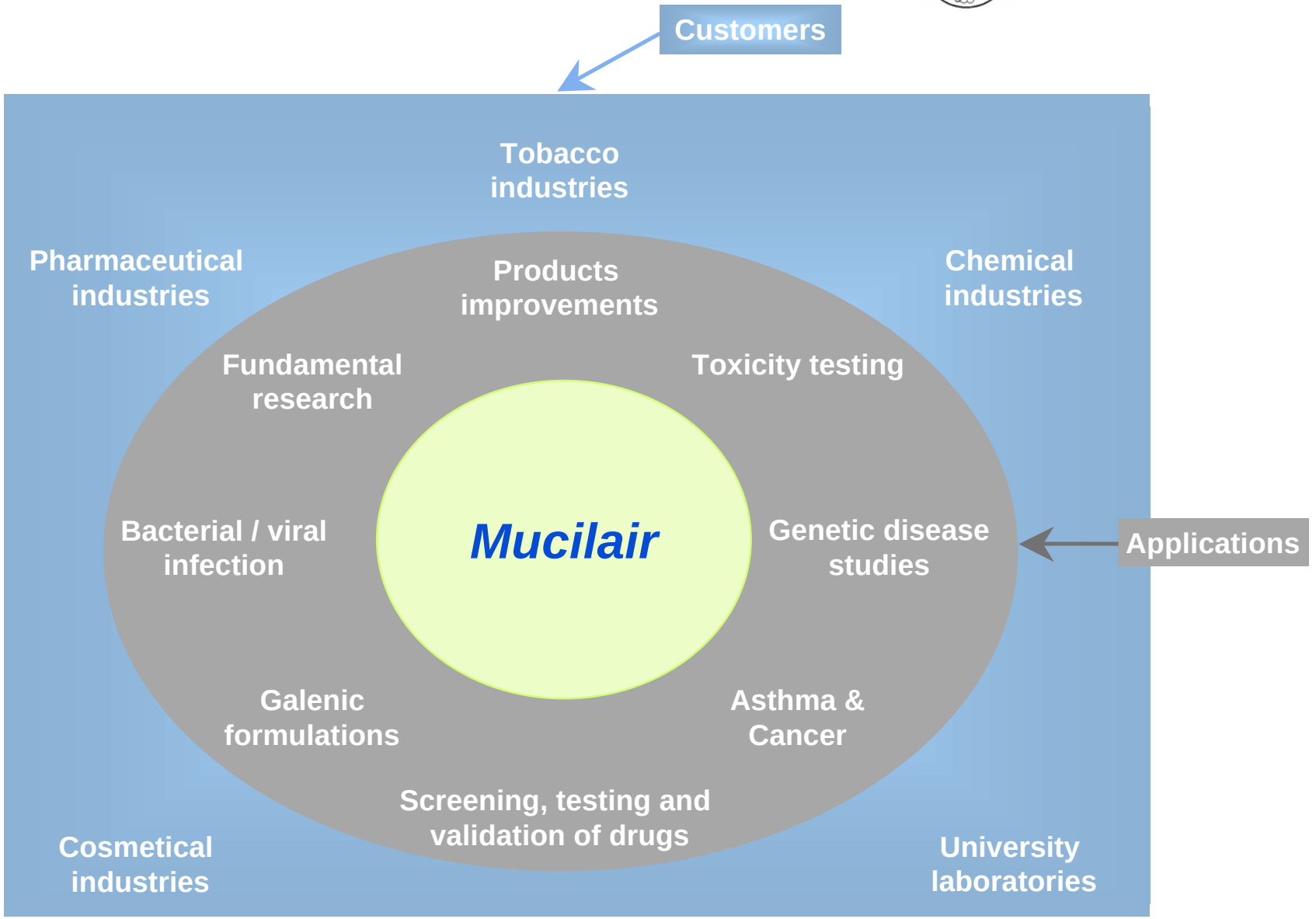

Team

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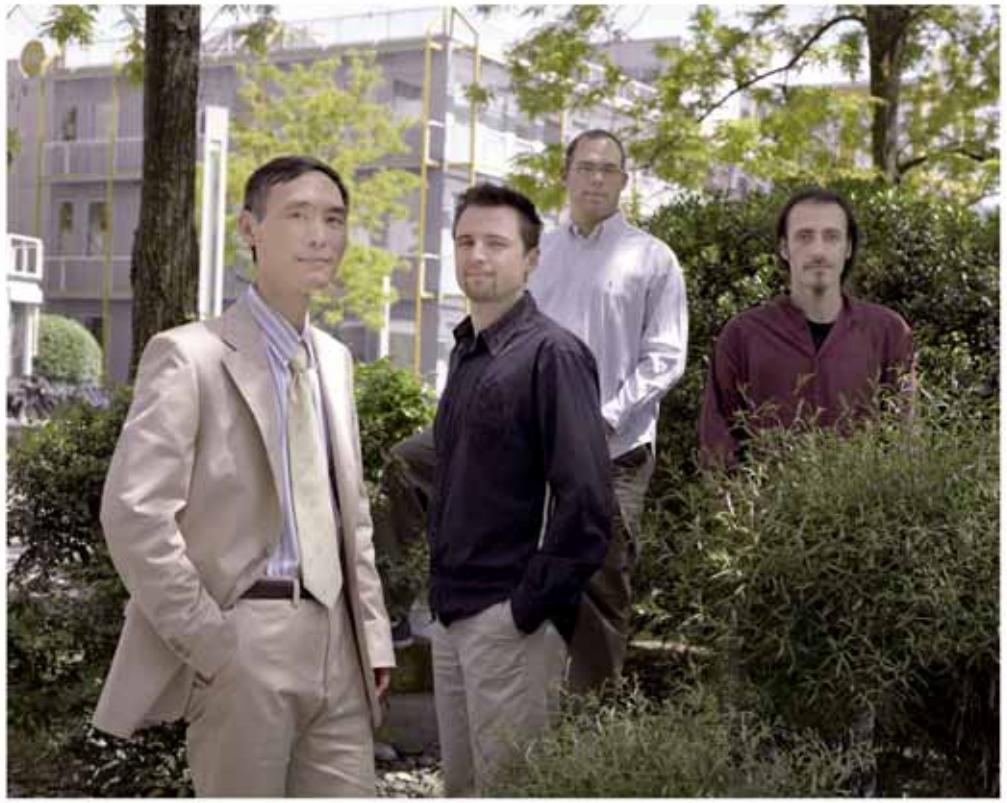

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