

Model Brief (basic): Lung

The Ultra-Thin Window (*Type I Pneumocyte*)

- **Your Identity:** The Structural Barrier.
- **Your Mission:** Enable breathing. You assemble into a flat single layer with other window cells, standing close together to form the structure of the tiny air sacs of the lung. These cells stay thin and flat to allow oxygen and carbon dioxide gas to effortlessly coast right through from the air sac interior to the blood flowing nearby.
- **Your Architecture:** You are an elongated, pancake-like cell. Because you do not make or export luxury goods, your blueprint library (nucleus) is squashed completely flat, and you should leave the cytoplasm almost entirely empty of internal assembly lines (ER) or shipping docks (Golgi). You form a partnership by providing a place for surfactant cells to rest.

The Surfactant Factory (*Type II Pneumocyte*)

- **Your Identity:** The Lung Protector.
- **Your Mission:** Prevent the lungs from collapsing. You must constantly manufacture and export a slippery, fatty protein mixture (Surfactant) that coats the interior of the air sacs so they don't stick together like a wet balloon.
- **Your Architecture:** You are a sturdy, boxy cell. To handle your heavy chemical workload, place your nucleus centrally, and pack the surrounding space with protein factories (ER) and shipping centers (Golgi). Cluster your circular storage vaults (vesicles) tightly near the ceiling, ready for constant export. You nestle against the window cells in the air sacs.

"The Devouring Sentinel" (*Macrophage*)

- **Your Identity:** The Mobile Defense Tank.
- **Your Mission:** Clean up the front lines. Unlike your neighbors (window and surfactant cells), you do not lock arms to form a stationary barrier. You are a roaming security guard that actively patrols the air sac surfaces, hunting for inhaled dust, debris, viruses or bacteria.
- **Your Architecture:** You are a completely separate entity with an indistinct, flexible shape. To show your defensive mission, use your outer membrane tracks to physically reach out around an enemy, trapping it inside an internal bubble (vesicle) so your cellular incinerators can destroy it.