

Concept Sketch

COPD pathophysiology
Animation Scene 23-24



Action: Fast ride down trachea and bronchus to show normal micro-anatomy of respiratory epithelium.

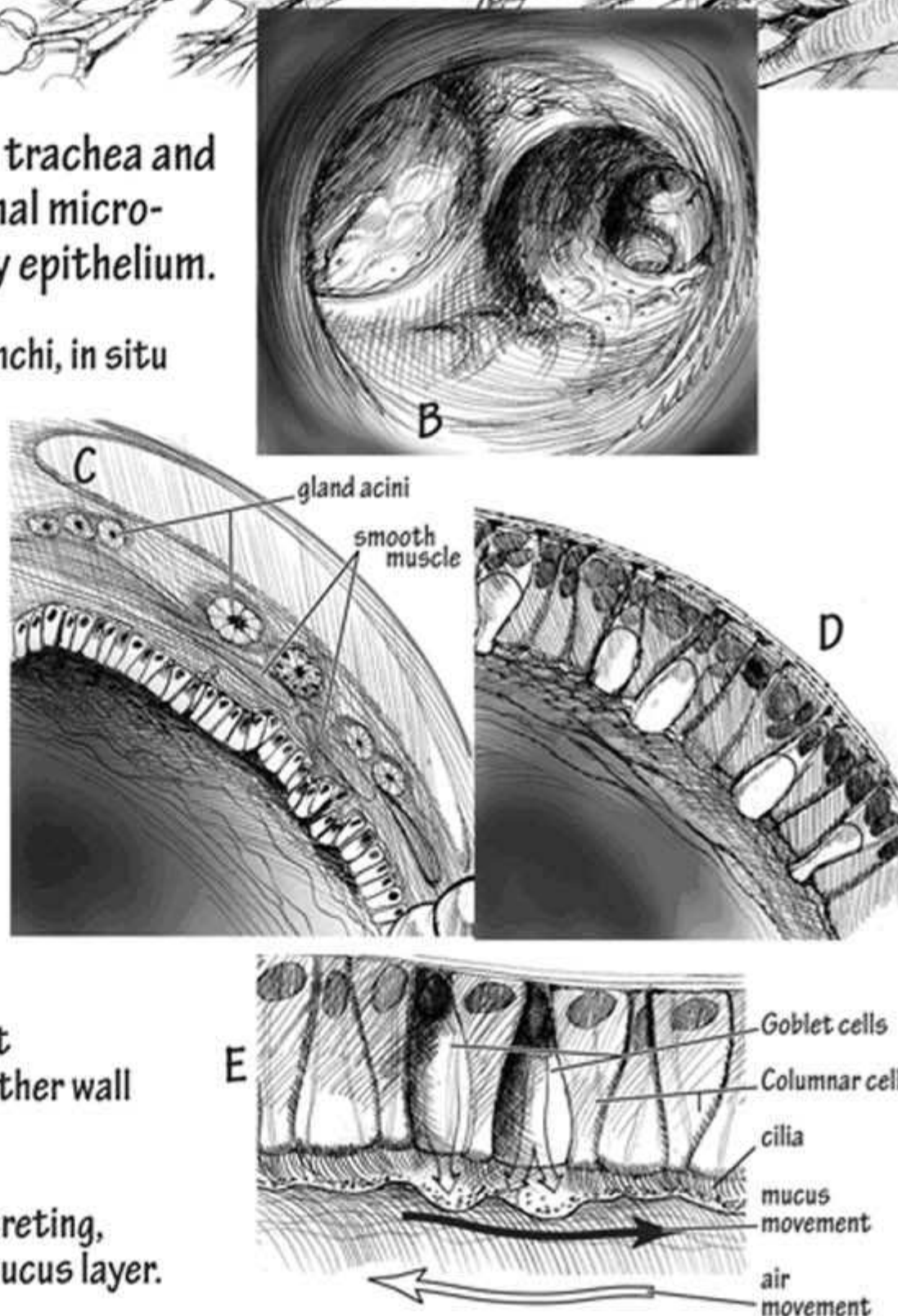
figure A. Overview of bronchi, in situ with bronchial vessels and alveoli.

figure B. Interior of branching bronchi, with coating of mucus.

figure C. Section thru wall of bronchus, showing cartilage, glands, columnar/goblet cells, and smooth muscle.

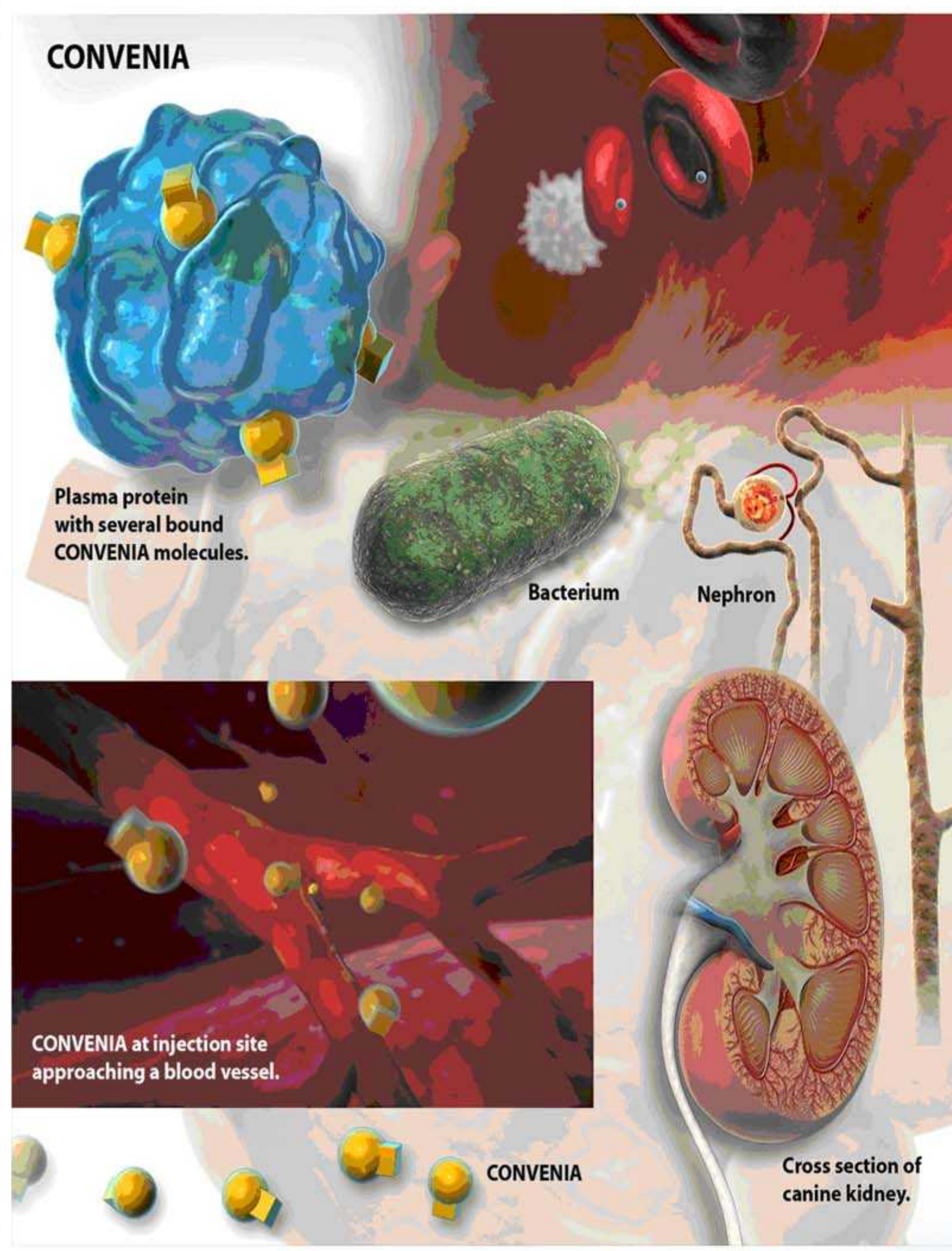
figure D. Columnar epithelium (dark) and goblet cells (clear) in closeup, other wall layers omitted.

figure E. Goblet cells secreting, adding to thickness of mucus layer.

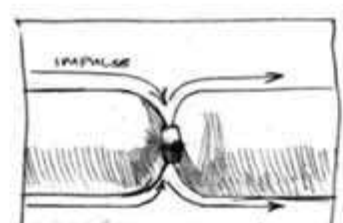


Character Study

CONVENIA



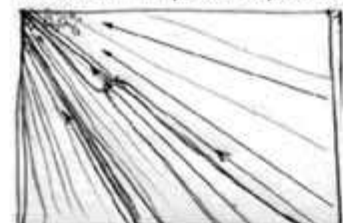
Rough Storyboard



Camera slows and moves for an extreme close-up detail view of node.



Camera pulls back to view both myelinated and unmyelinated axons. Focus on impulse speed comparison.



Camera floats as both axons carry impulses.



Camera turns away from axons to view environment.



View entire scene with large amounts and variety of glial cells.



Camera passes close by an Oligodendrocyte. Camera does quick move through and between cells, passing by astrocytes and microglia.



Camera moves to each mentioned glia.



...and on to a close-up of a microglia.

The myelin sheath does not completely cover each axon—there are also unmyelinated gaps called the nodes of Ranvier at intervals along the axon.

The current flow in a myelinated axon moves quickly because the electrical current flow leaps from node to node.

In an unmyelinated axon, electrical current flow is a continuous progression down the axon.

A variety of other types of cells, collectively called neuroglia or glia, are also part of the nervous system.

In fact, they represent almost 50% of the central nervous system cells.

Glial cells provide support to the neurons of the central nervous system.

The myelin sheaths of the central nervous system axons are produced by one type of neuroglial cell—the oligodendrocyte.

Other types of neuroglia that will be important to our discussion of the pathophysiology of MS include astrocytes and microglia.

Astrocytes are star-shaped cells that provide nutrients to neurons and help form the blood-brain barrier.

Microglia are small cells that engulf invaders and clear away debris. The phagocytes of the central nervous system.

Full Storyboard

Animation Visuals	Narration
<p>Moli binding to all alpha2 & alpha1.</p>	<p>VO:</p> <p>In vitro, Precedex binds to post-synaptic alpha-2 receptors and hyperpolarizes the post-synaptic neuron.</p> <p>This action blunts sympathetic activation by reducing signal transmission to peripheral tissues and effector organs.</p>
<p>weakened signal flows down post-synapse.</p>	<p>VO:</p> <p>And second, binding of Precedex to pre-synaptic alpha-2 receptors inhibits further release of norepinephrine from that neuron.</p> <p>This action inhibits sympathetic activation by reducing signal transmission between neurons within the sympathetic nervous system.</p>
<p>Precedex binding to alpha2 causes weakened norepinephrine release & reduced flash strength.</p>	<p>VO:</p> <p>The unique action of Precedex is made possible by the 1620-fold greater affinity for alpha-2 relative to alpha-1 adrenergic receptors.</p>
<p>just a trickle of norepinephrine.</p>	<p>VO:</p> <p>The unique action of Precedex is made possible by the 1620-fold greater affinity for alpha-2 relative to alpha-1 adrenergic receptors.</p>
<p>Precedex will rain down onto receptors.</p>	<p>VO:</p> <p>The unique action of Precedex is made possible by the 1620-fold greater affinity for alpha-2 relative to alpha-1 adrenergic receptors.</p>
<p>As moli bind, scene becomes calming blue.</p>	<p>VO:</p> <p>The unique action of Precedex is made possible by the 1620-fold greater affinity for alpha-2 relative to alpha-1 adrenergic receptors.</p>

For more information contact Rich Kushner at (610) 834-9333 ext.19, Rich@3FX.com or visit our website at www.3FX.com for a 3D Life Science Animation & Effects experience!