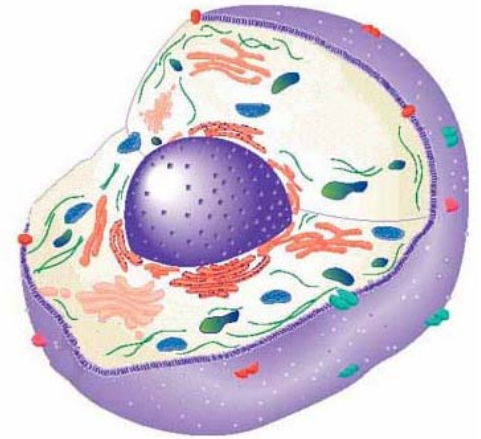
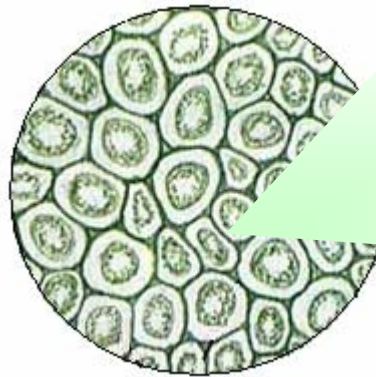


**Schematic Mode of Action of
Ethylene and SmartFresh™ (1-MCP)
During Ripening/Senescence of Fruits
and Vegetables**

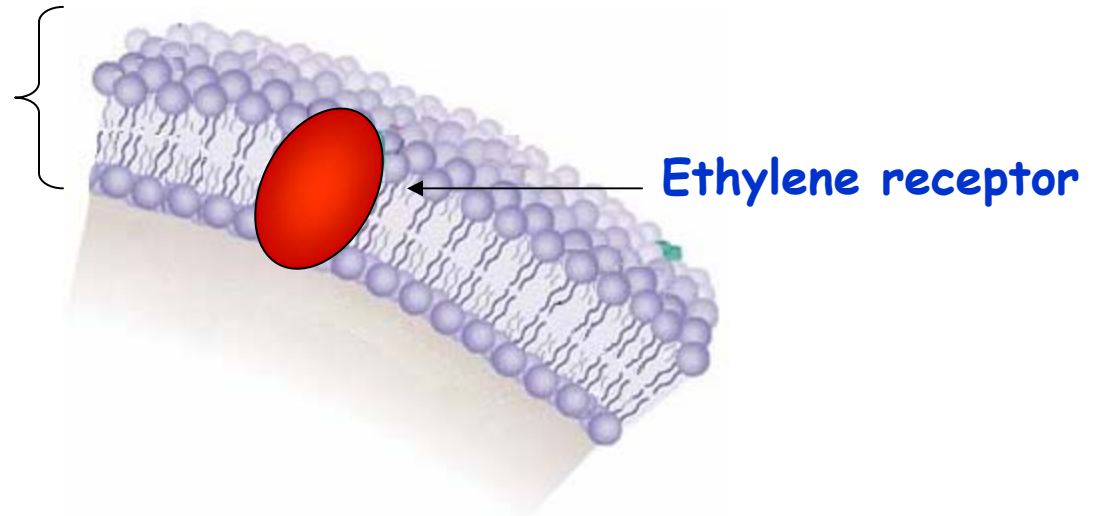
Courtesy of Dr. A. Nathan Reed, AgroFresh, Inc.

Both Ethylene and SmartFresh™ work at the cellular level

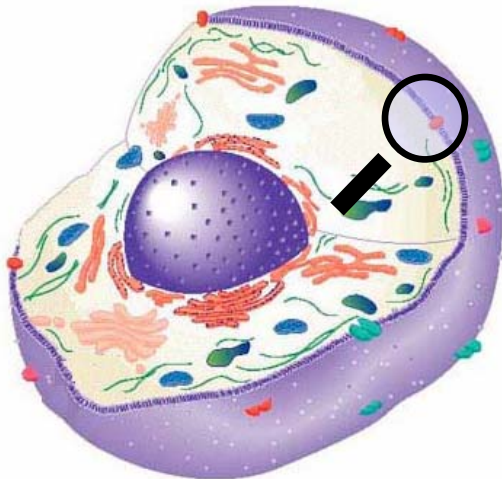


Mode of Action of Ethylene and SmartFresh™

Cell Membrane



Plant Cell

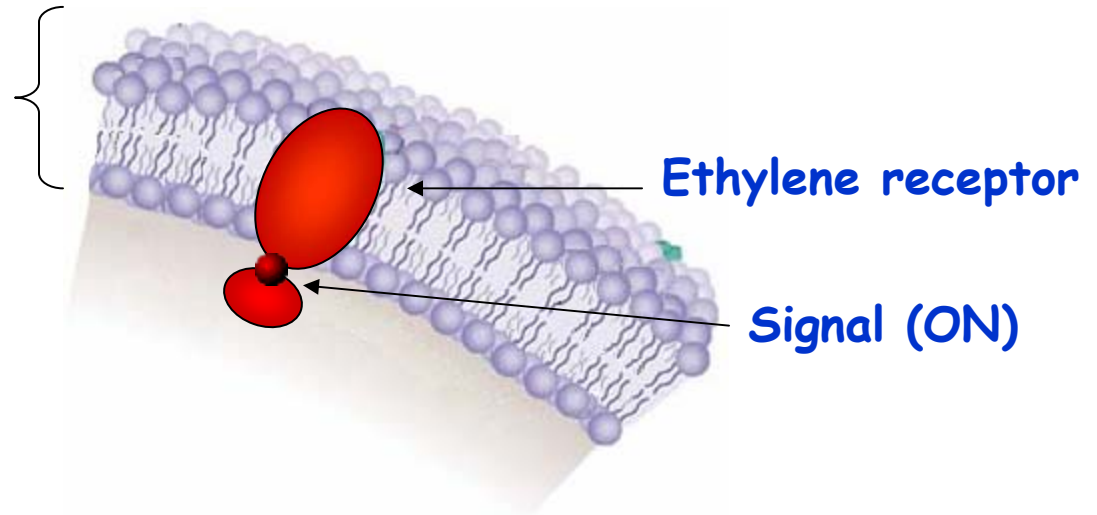


Scenarios:

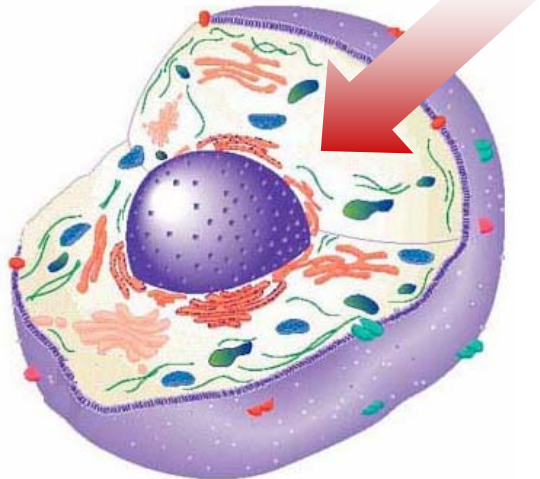
- Little or No Ethylene Present
- Ethylene Present
- SmartFresh™ Present
- Ethylene + SmartFresh™ Present
- Reversion of SmartFresh™ Effects

1. Little or No Ethylene Present

Cell Membrane



Plant Cell

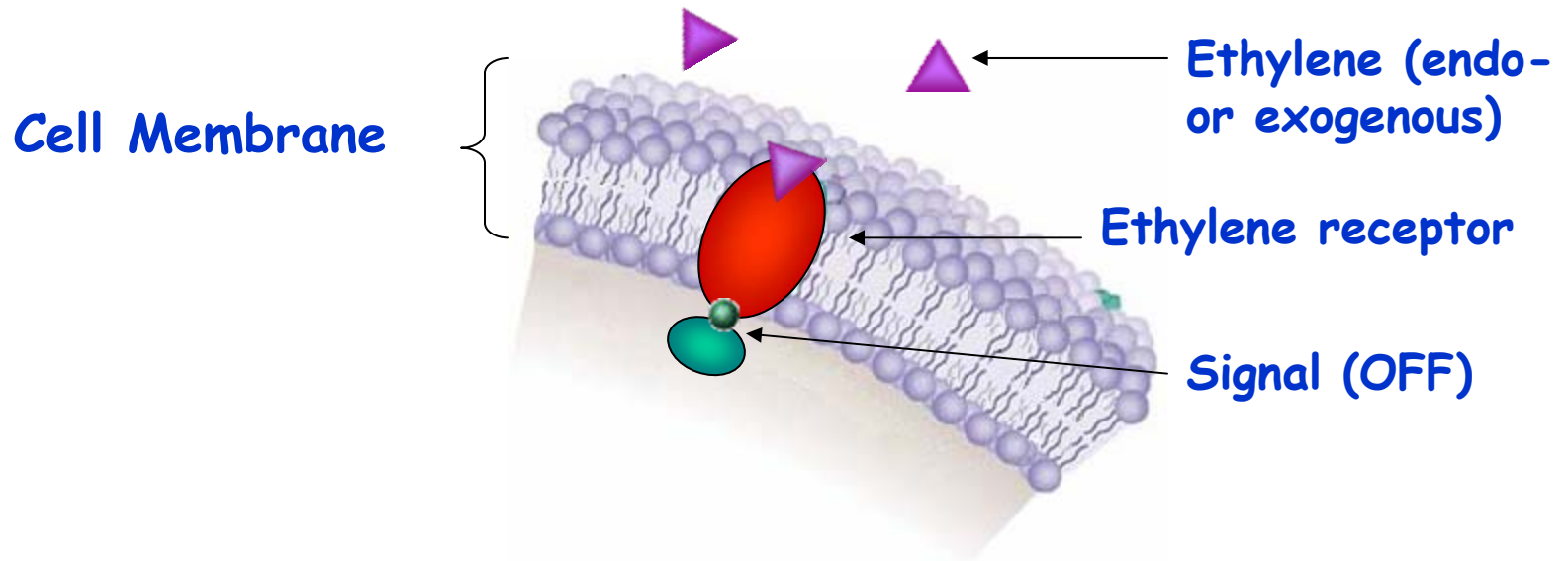


Blocks Synthesis of Ripening
Related Proteins and Enzymes



Ripening is Prevented:
Retention of Firmness, Color
and Compositional Changes

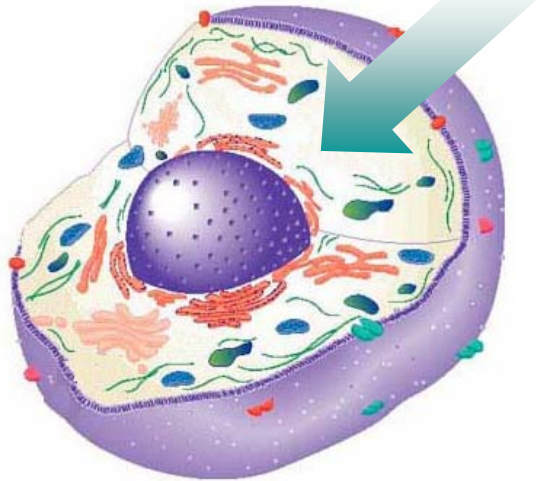
2. When Ethylene is Present



Plant Cell

 Signal (OFF)

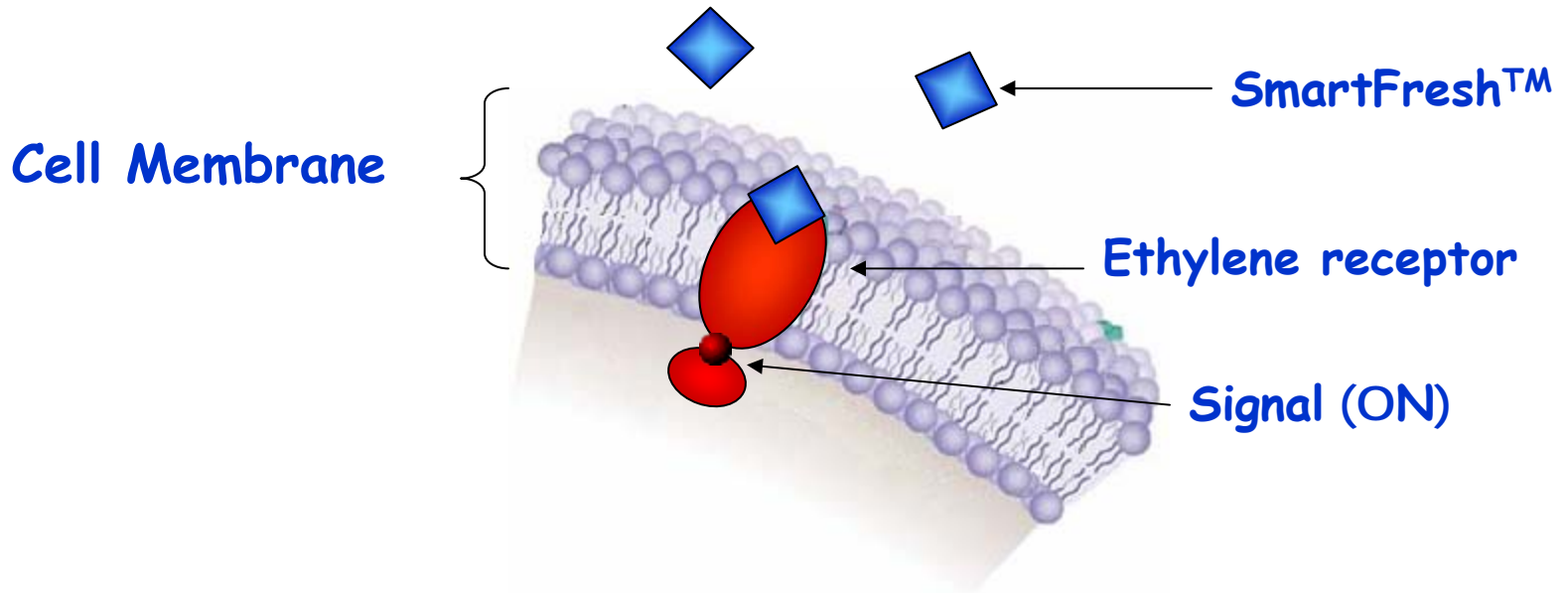
Allows Synthesis of Ripening-Related Proteins and Enzymes



On-set of Ripening:

Loss of Firmness, Changes in Color and Composition (Sugars, Acids, Aroma)

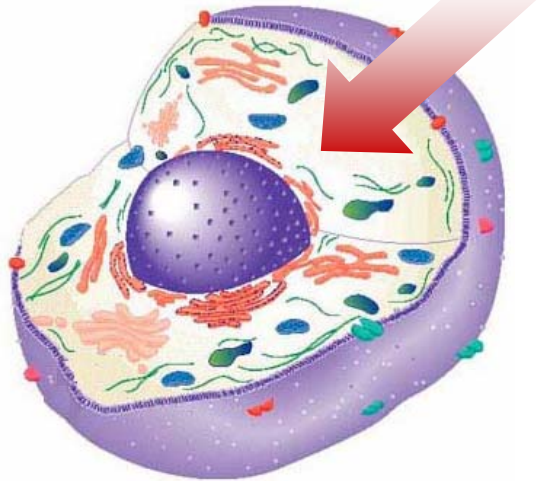
3. When SmartFresh™ is Present



Plant Cell

 Signal (ON - Temporary)

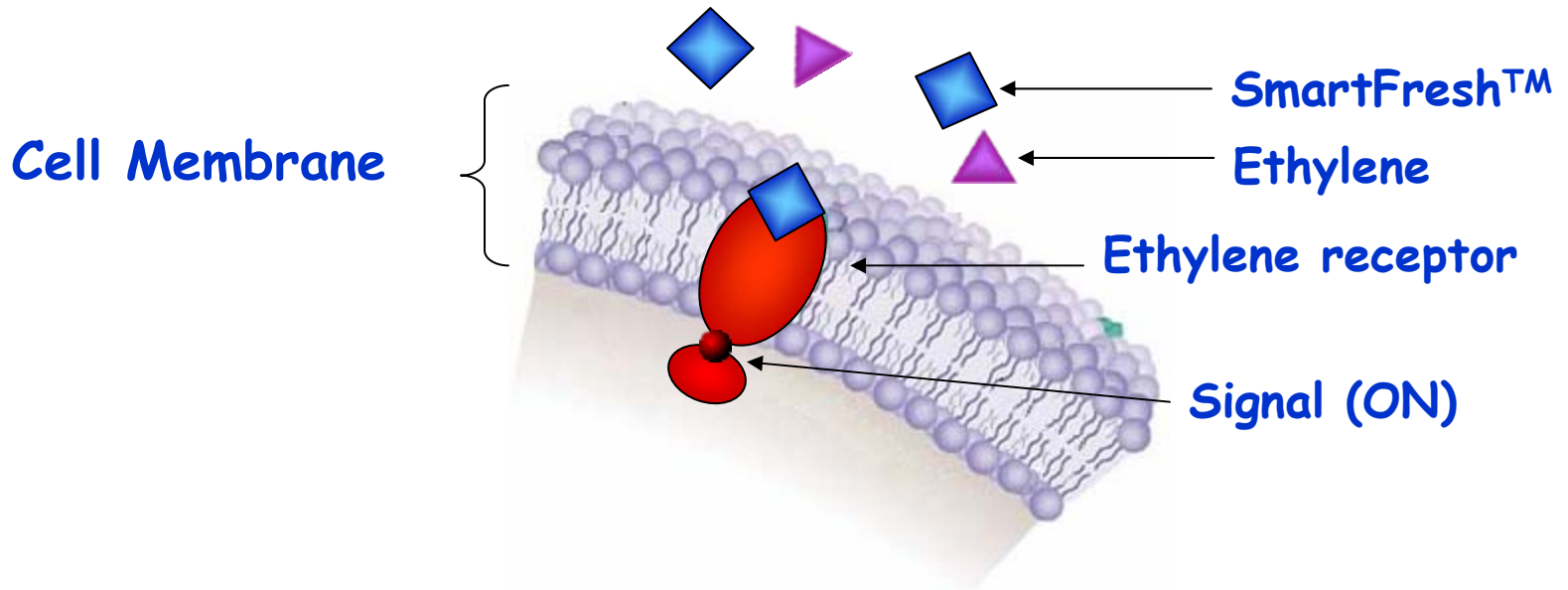
Temporarily Blocks Synthesis of Ripening Related Proteins and Enzymes



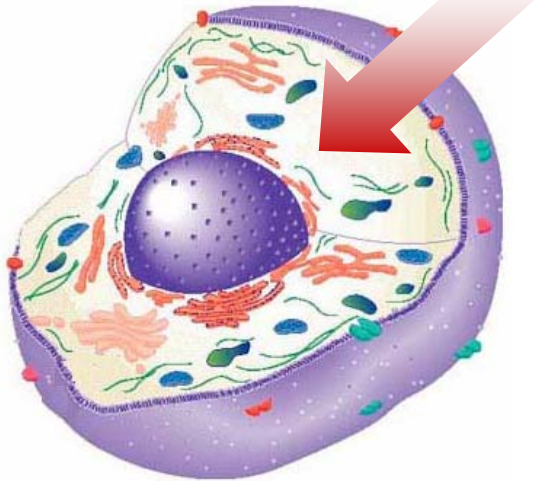
Ripening is Delayed:

Retention of Firmness, color and compositional changes

4. When SmartFresh™ and Ethylene are Present



Plant Cell



 Signal (ON - SmartFresh™ prevents Ethylene binding)

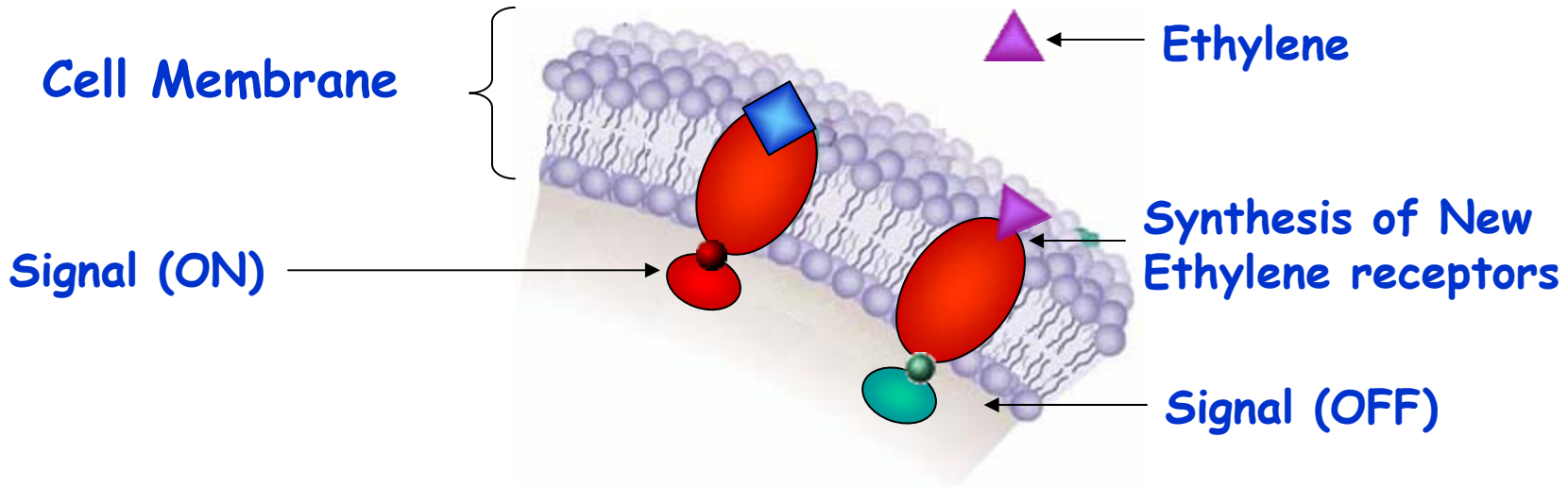
Temporarily Blocks Synthesis of Ripening Related Proteins and Enzymes



Ripening is Delayed:

Retention of Firmness, color and compositional changes

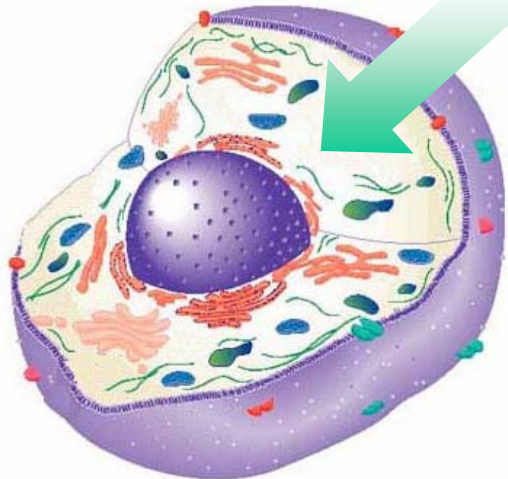
5. Reversion of SmartFresh™ Effects



Plant Cell

Signal (OFF)

Allows Synthesis of Ripening Related Proteins and Enzymes



On-set of Ripening:

Loss of Firmness, Changes in Color and Composition (Sugars, Acids, Aroma)