

## Early Atherosclerosis

(Thick lines:  
induced in early  
atherosclerosis)

(Fig. 1) ← Aortic Pla2g4c & Pla2g7↑

Aortic LPC↑

**Aortic  
Endothelial Cell**

(Fig. 3)  $\text{Ca}^{2+}$  ← Ruthenium Red

**Mitochondria**

$\text{Ca}^{2+}$   
(Fig. 4)

Unchanged  
Membrane  
Potential ( $\Delta\Psi_m$ )

Increased  
 $\text{O}_2$   
reduction

Increased  
Proton  
Leak

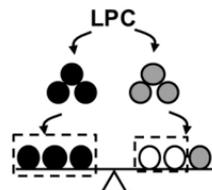
Unchanged  
ATP  
Synthesis

$\text{O}_2$

(Fig. 2)  $\text{mtROS}$  ← MitoTEMPO

(Fig. 6) **Nucleus**  
AP-1 → ICAM-1 and other Endothelial  
Activation Genes (Fig. 5 and 7)

- $\text{O}_2$  reduction
- Proton Leak
- ATP Synthesis



LPC equally induces  
 $\text{O}_2$  reduction and  
proton leak.

↑ mtROS ↔ ATP



LPC induces mtROS  
by activating electron  
transport chain,  
which is uncoupled  
from ATP synthesis.

Anterograde  
Signaling

Retrograde  
Signaling