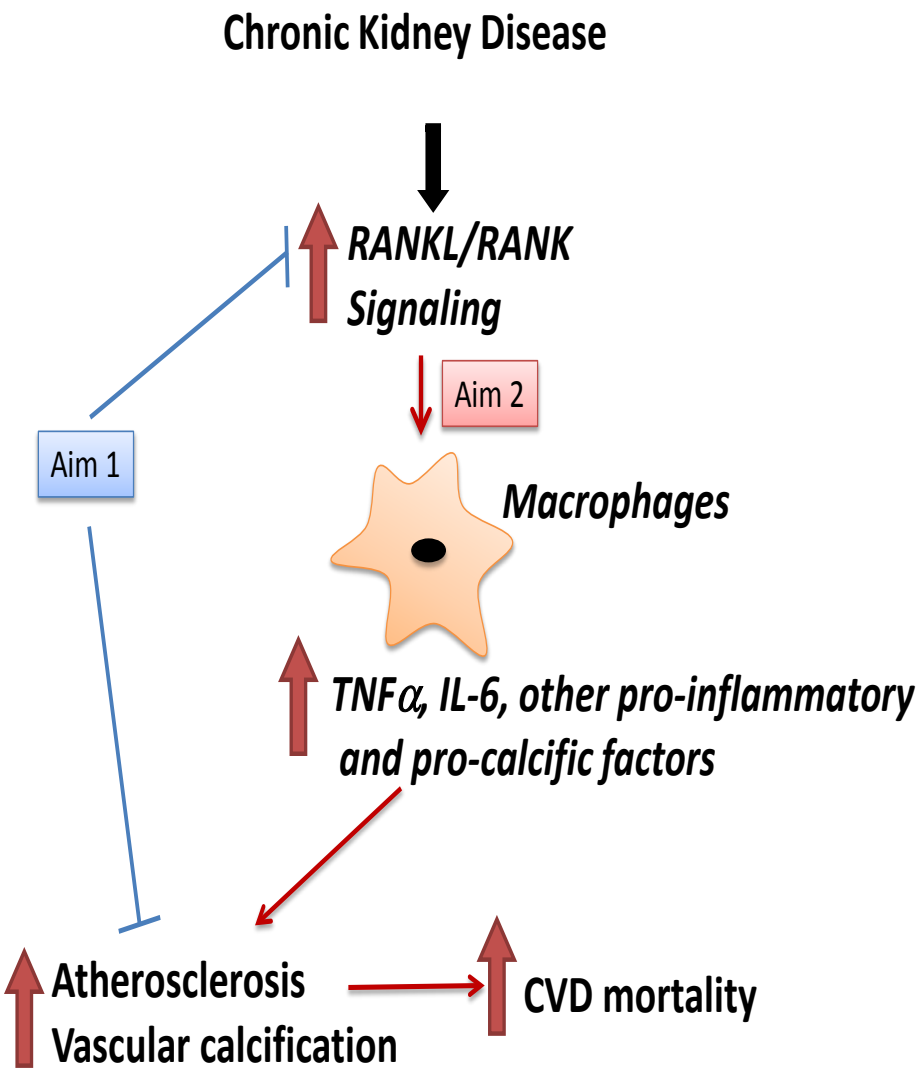
On-going Research Studies in the Rosenfeld Lab

*The role of RANK/RANKL in vascular complications of chronic kidney disease.

Effects of air pollution (diesel exhaust) on oxidation of lung phospholipids and the functional properties of HDL.

Effects of *in-utero* exposure to diesel exhaust on atherosclerosis in adulthood (Jenna Harrigan MS NSP, Divya Ravi MPH DEOHS, paper accepted for publication in *Cardiovascular Toxicology*).

*Studies of *Chlamydia pneumoniae* persistence in vascular cells.


Chronic Kidney Disease
RANKL/RANK
Signaling
Aim 2
Aim 1
Macrophages
TNFα, IL-6, other pro-inflammatory
and pro-calcific factors
Atherosclerosis
Vascular calcification
CVD mortality

Background:

1. *C. pneumoniae* is a very common cause of low grade respiratory infection.
2. *C. pneumoniae* DNA or protein has been found in ~ 50% of human atherosclerotic plaques.
3. Respiratory infection of mice and rabbits with *C. pneumoniae* accelerates the development of atherosclerosis
4. Clinical trials with antibiotics failed to reduce morbidity and mortality from CVD.

Hypothesis: Lipid uptake by *C. pneumoniae* infected cells in atherosclerotic plaques stimulates conversion of the *C. pneumoniae* to a “persistent” phenotype where the bacteria is metabolically active but not dividing. This makes the *C. pneumoniae* resistant to antibiotics.