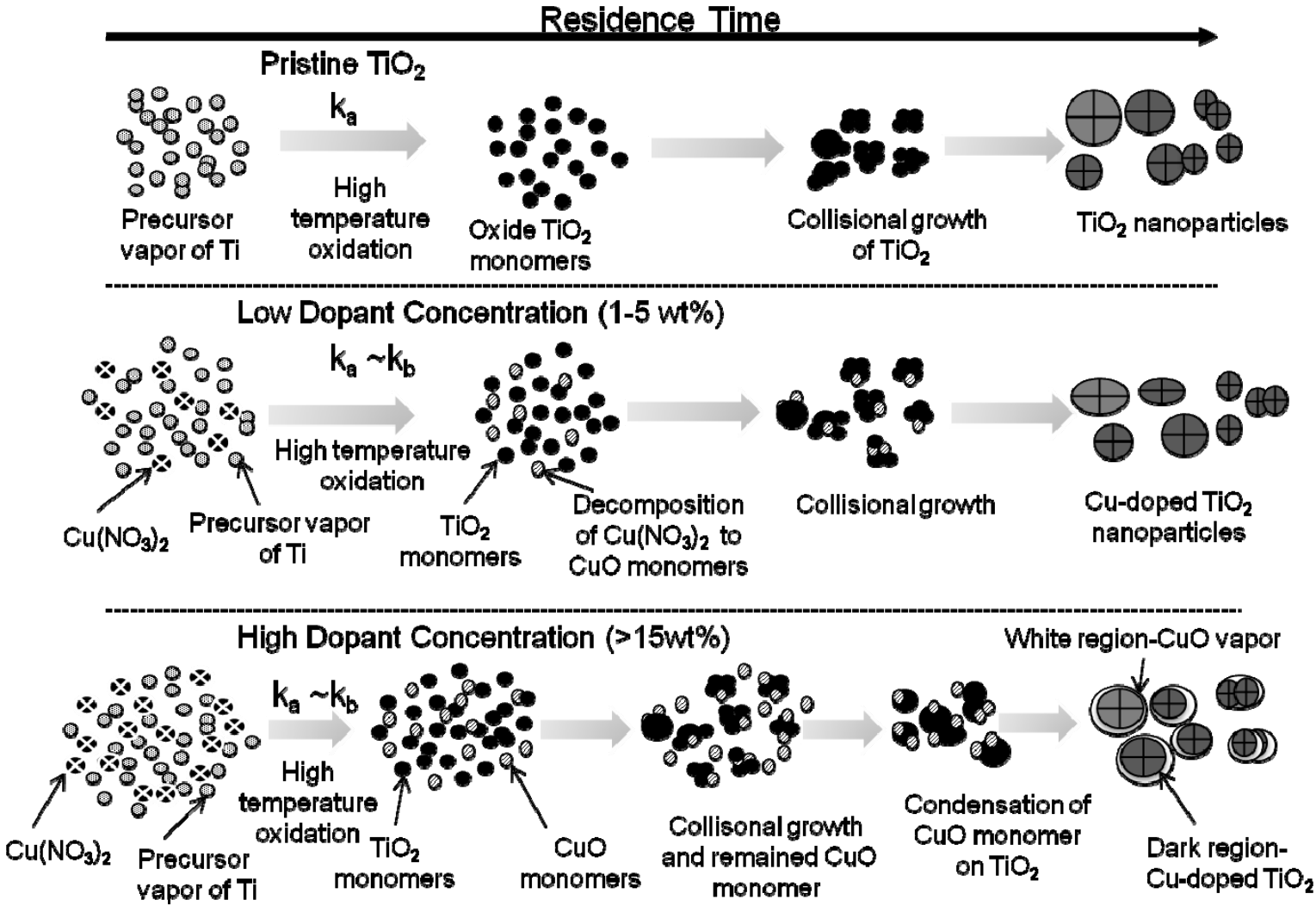
Residence Time
Pristine TiO_2
k_a
Precursor vapor of Ti
High temperature oxidation
Oxide TiO_2 monomers
Collisional growth of TiO_2
TiO_2 nanoparticles
Low Dopant Concentration (1-5 wt%)
$k_a \sim k_b$
High temperature oxidation
$Cu(NO_3)_2$
Precursor vapor of Ti
TiO_2 monomers
Decomposition of $Cu(NO_3)_2$ to CuO monomers
Collisional growth
Cu-doped TiO_2 nanoparticles
High Dopant Concentration (>15wt%)
White region-CuO vapor
$k_a \sim k_b$
High temperature oxidation
$Cu(NO_3)_2$
Precursor vapor of Ti
TiO_2 monomers
CuO monomers
Collisonal growth and remained CuO monomer
Condensation of CuO monomer on TiO_2
Dark region-Cu-doped TiO_2