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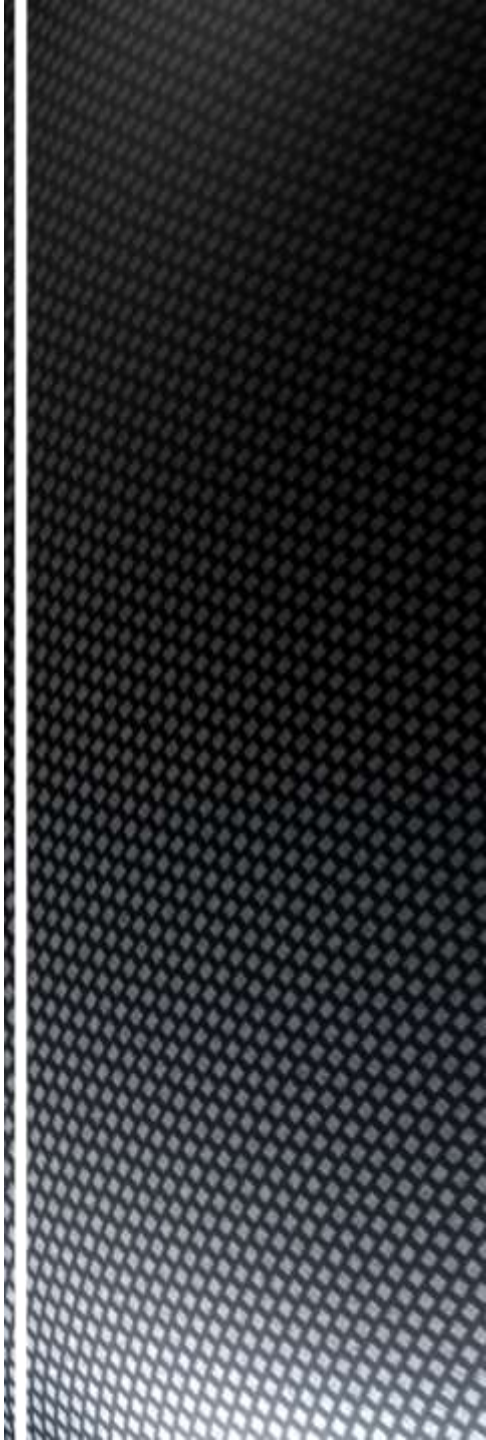
Hector O Ventura

EB PPT

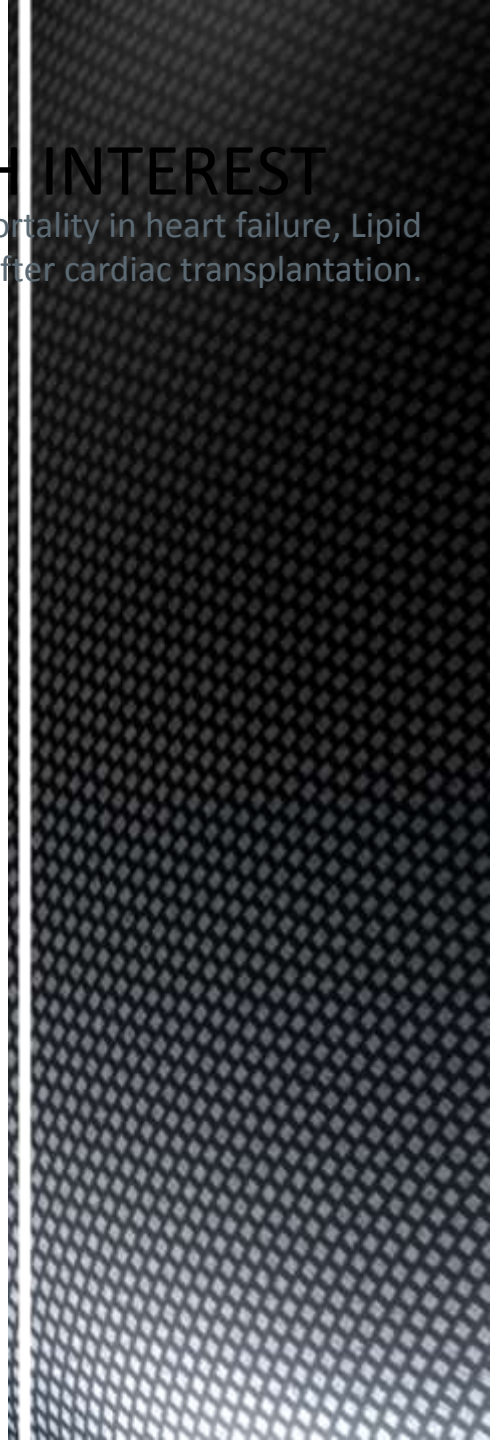


BIOGRAPHY

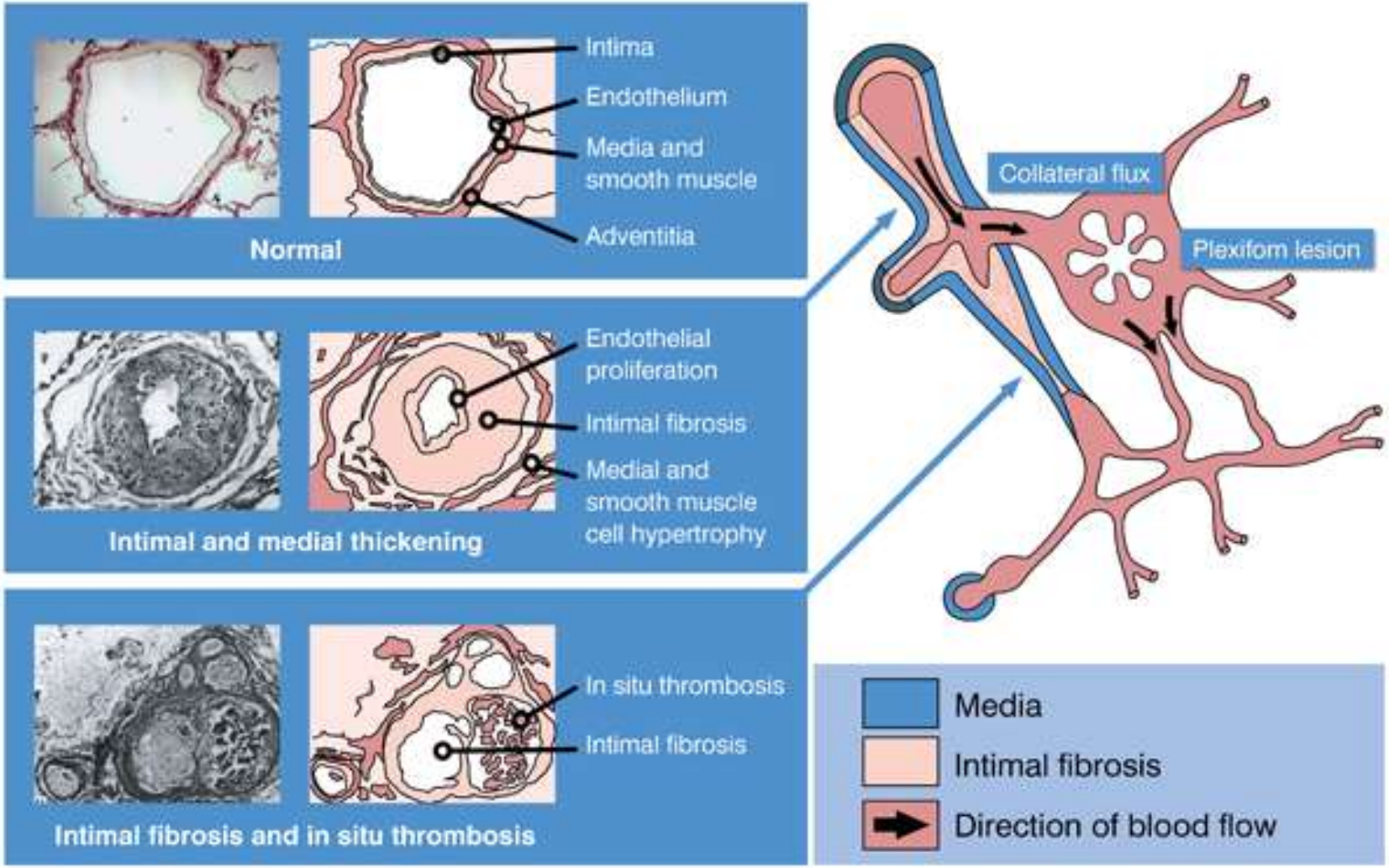
Dr. Hector O. Ventura, MD is the Section Head, Cardiomyopathy and Heart Transplant Center at the Ochsner Clinic Foundation, New Orleans, Louisiana. He is also a Professor, Cardiology, University of Queensland School of Medicine, Ochsner Clinical School, Brisbane, Australia as well as a Professor of Medicine at the Tulane University School of Medicine in New Orleans. He completed an internship and residency at the Central Military Hospital in Buenos Aires, followed by research fellowships in arterial hypertension and cardiovascular diseases, an internship, and an internal medicine residency at the Ochsner Medical Institutions in New Orleans.

RESEARCH INTEREST

Arterial hypertension following cardiac transplantation, the effect of digitalis on mortality in heart failure, Lipid profiles after cardiac transplantation.



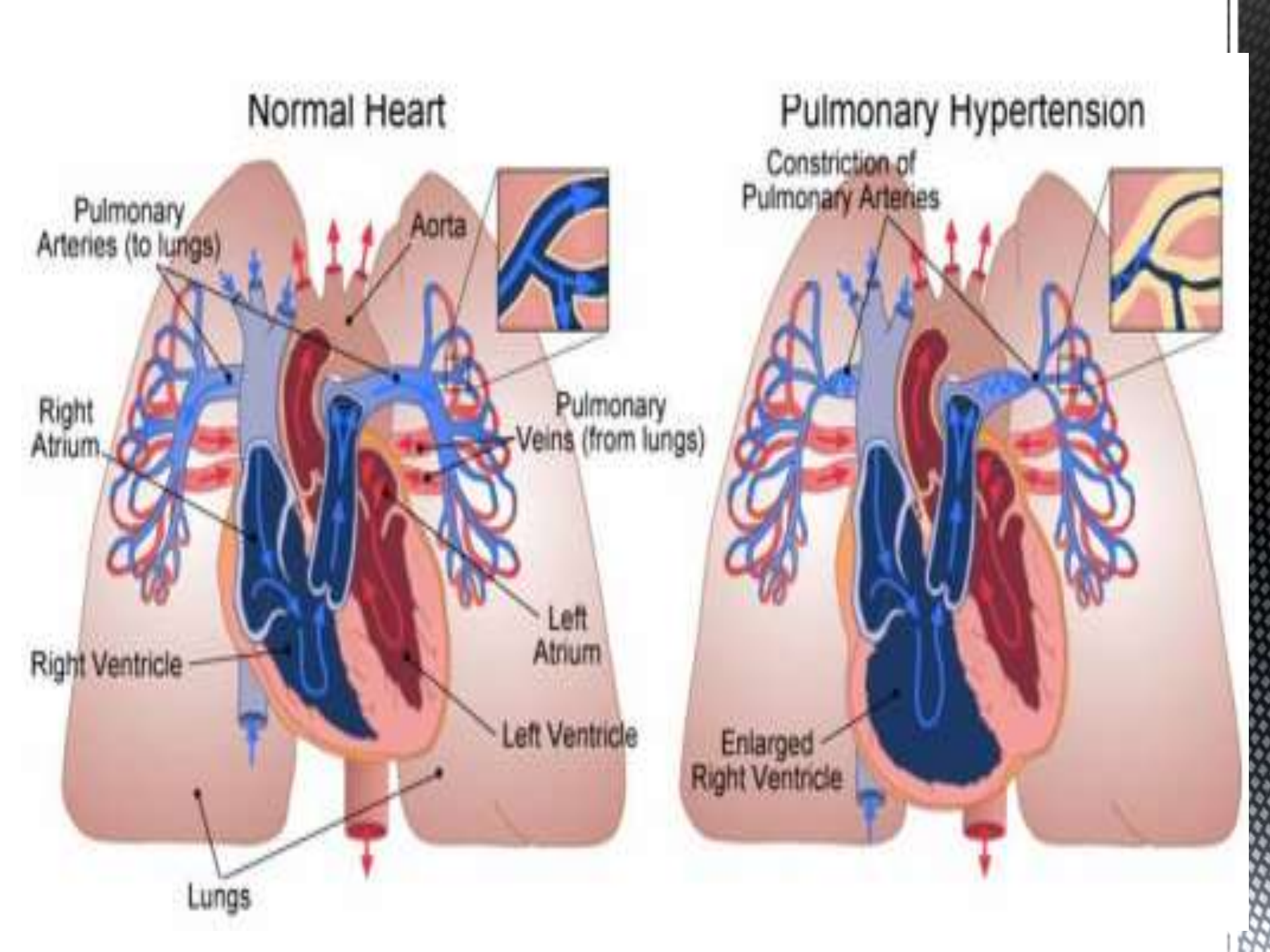
Pulmonary Arterial Hypertension: histopathological features



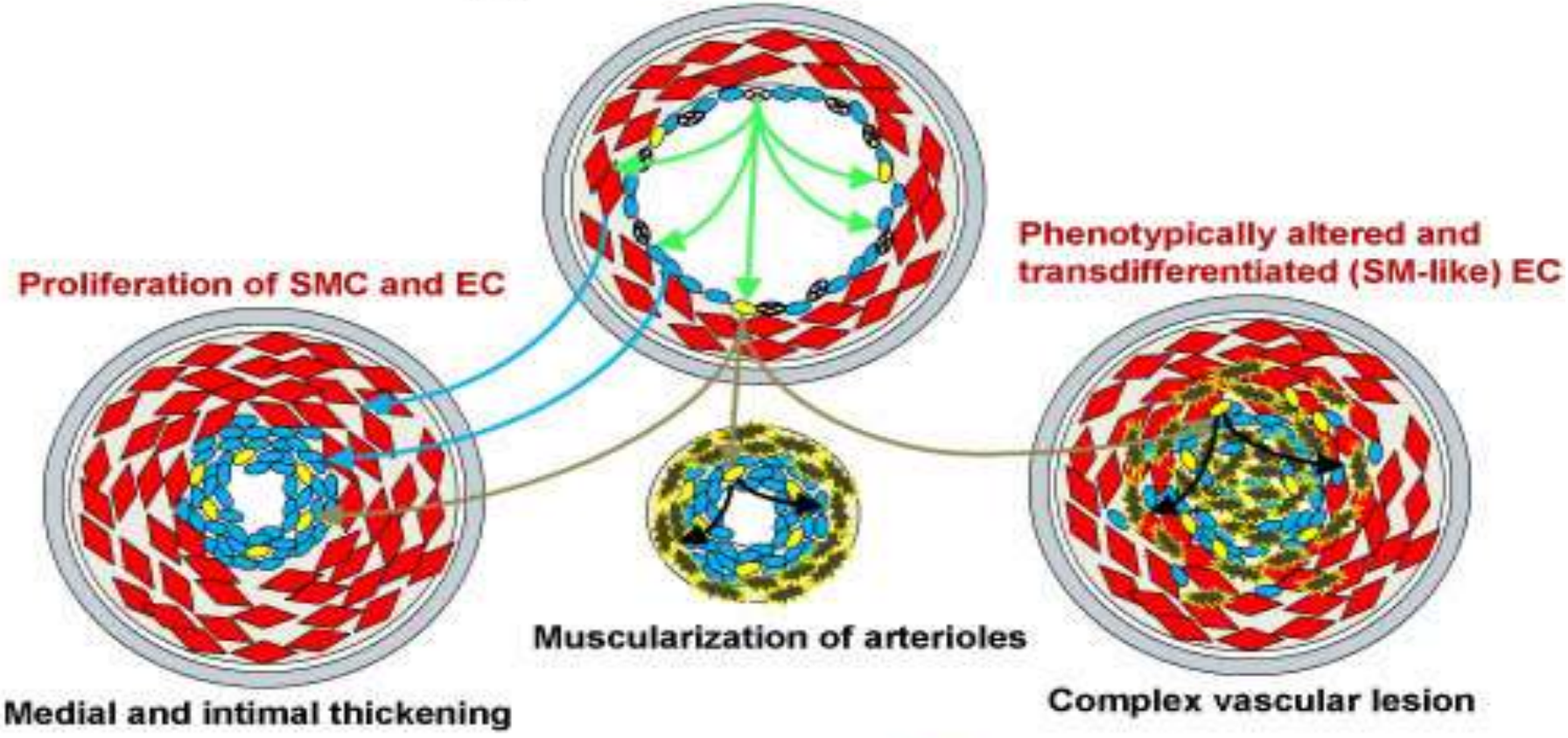
Pulmonary Arterial Hypertension

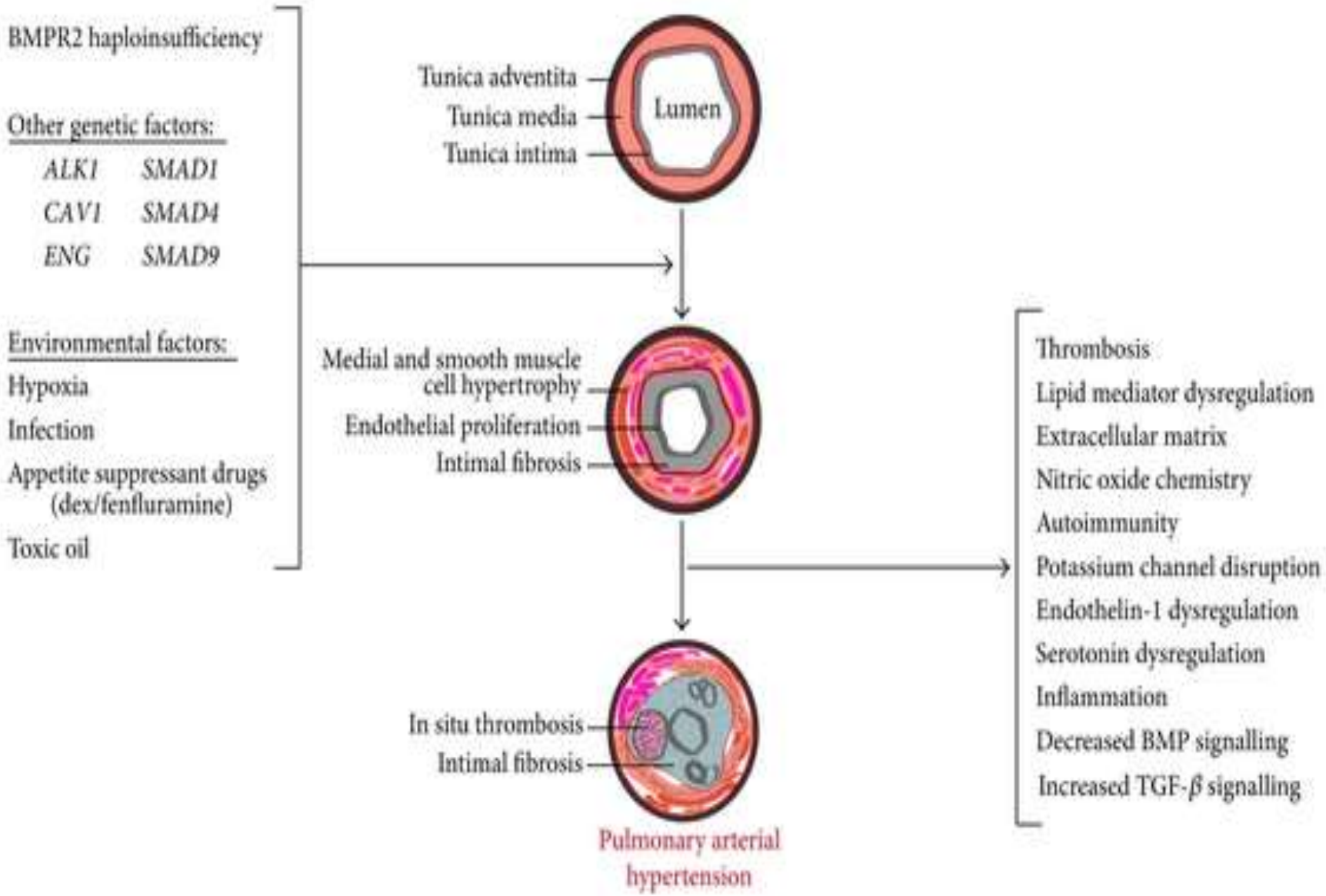
Primary Pulmonary Hypertension (PPH)
- Sporadic
- Familial

Pulmonary Hypertension Associated with:
- Collagen Vascular Disease
- Congenital Systemic to Pulmonary Shunts
- Drugs/Toxins
- Portal Hypertension
- HIV Infection


Normal Heart
Pulmonary Arteries (to lungs)
Aorta
Right Atrium
Pulmonary Veins (from lungs)
Left Atrium
Right Ventricle
Left Ventricle
Lungs
Pulmonary Hypertension
Constriction of Pulmonary Arteries
Enlarged Right Ventricle

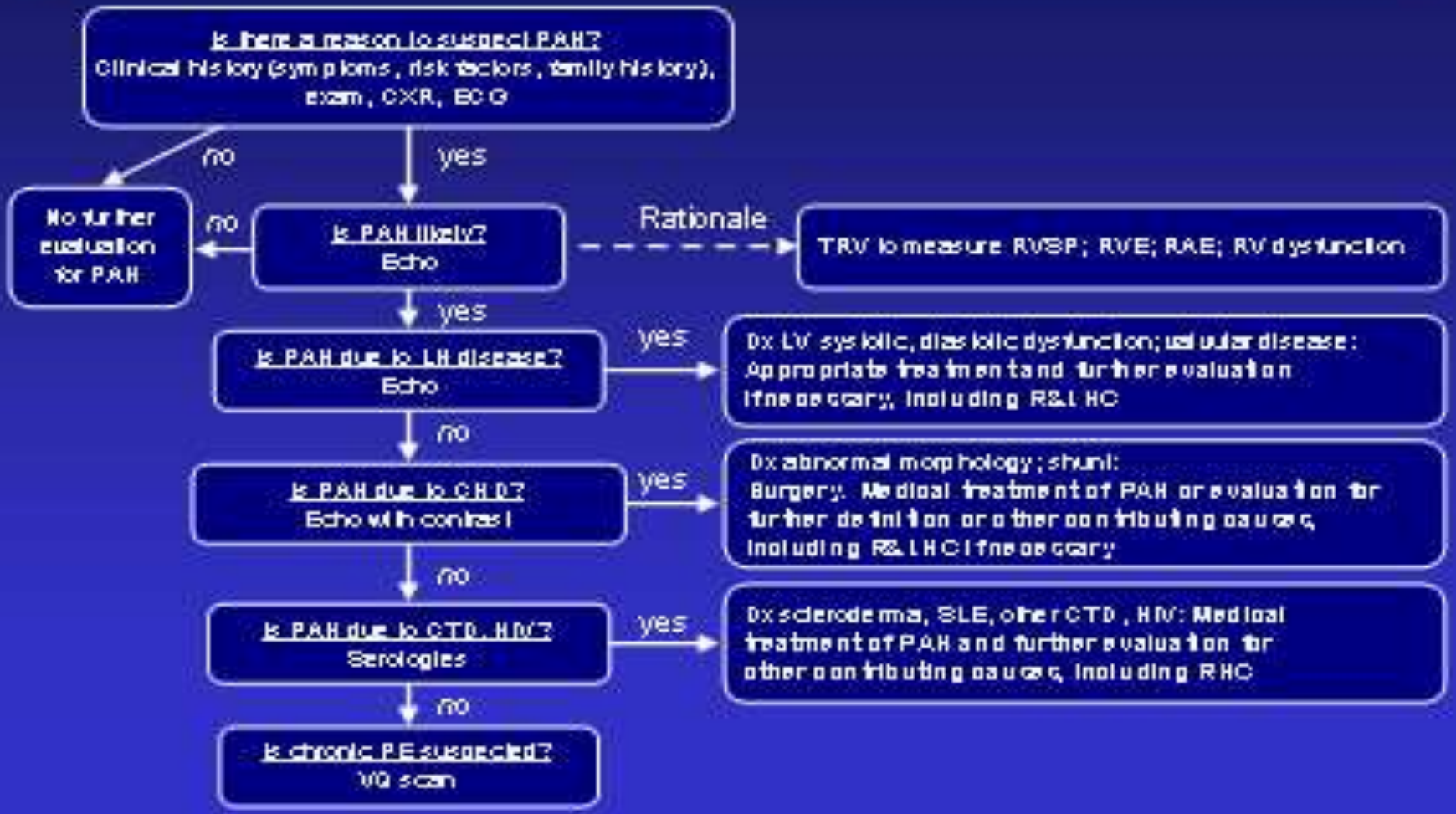
Pulmonary arterial hypertension
- a hypothetical mechanism -



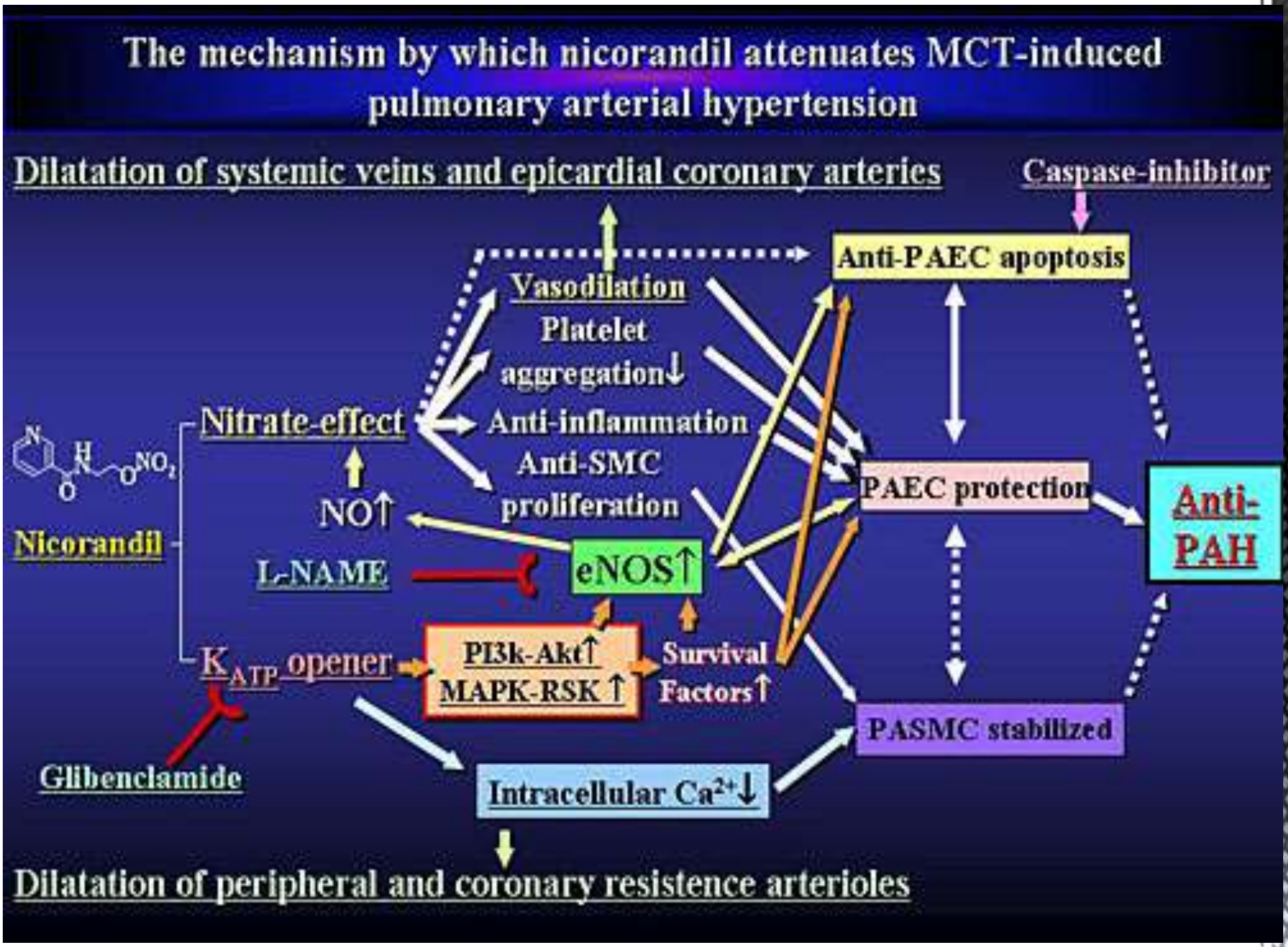

BMPR2 haploinsufficiency
Other genetic factors:
ALK1 SMAD1
CAV1 SMAD4
ENG SMAD9
Environmental factors:
Hypoxia
Infection
Appetite suppressant drugs (dex/fenfluramine)
Toxic oil
Tunica adventita
Tunica media
Tunica intima
Lumen
Medial and smooth muscle cell hypertrophy
Endothelial proliferation
Intimal fibrosis
In situ thrombosis
Intimal fibrosis
Pulmonary arterial hypertension
Thrombosis
Lipid mediator dysregulation
Extracellular matrix
Nitric oxide chemistry
Autoimmunity
Potassium channel disruption
Endothelin-1 dysregulation
Serotonin dysregulation
Inflammation
Decreased BMP signalling
Increased TGF-β signalling

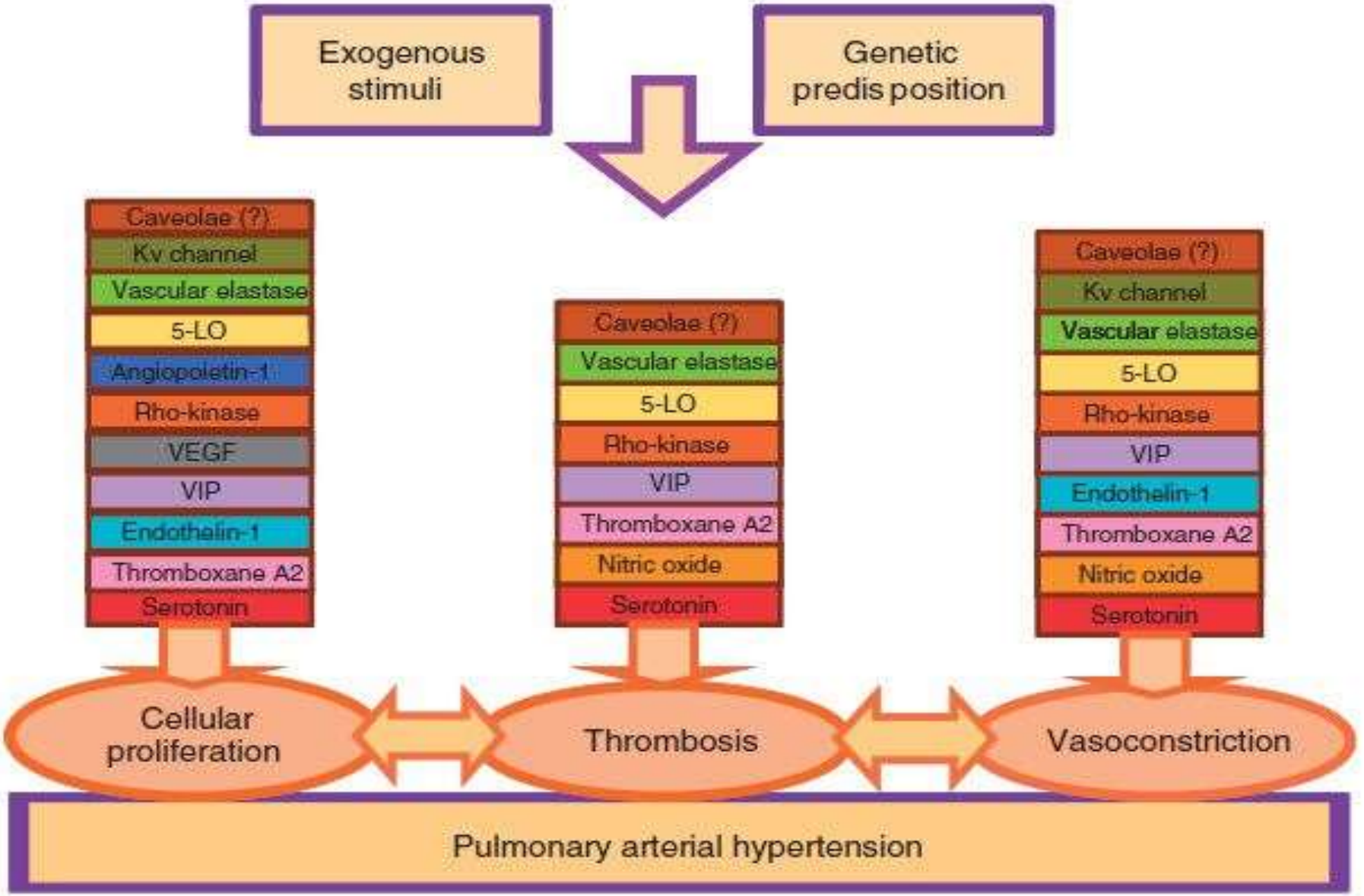
Pulmonary Arterial Hypertension

Detection and Diagnosis

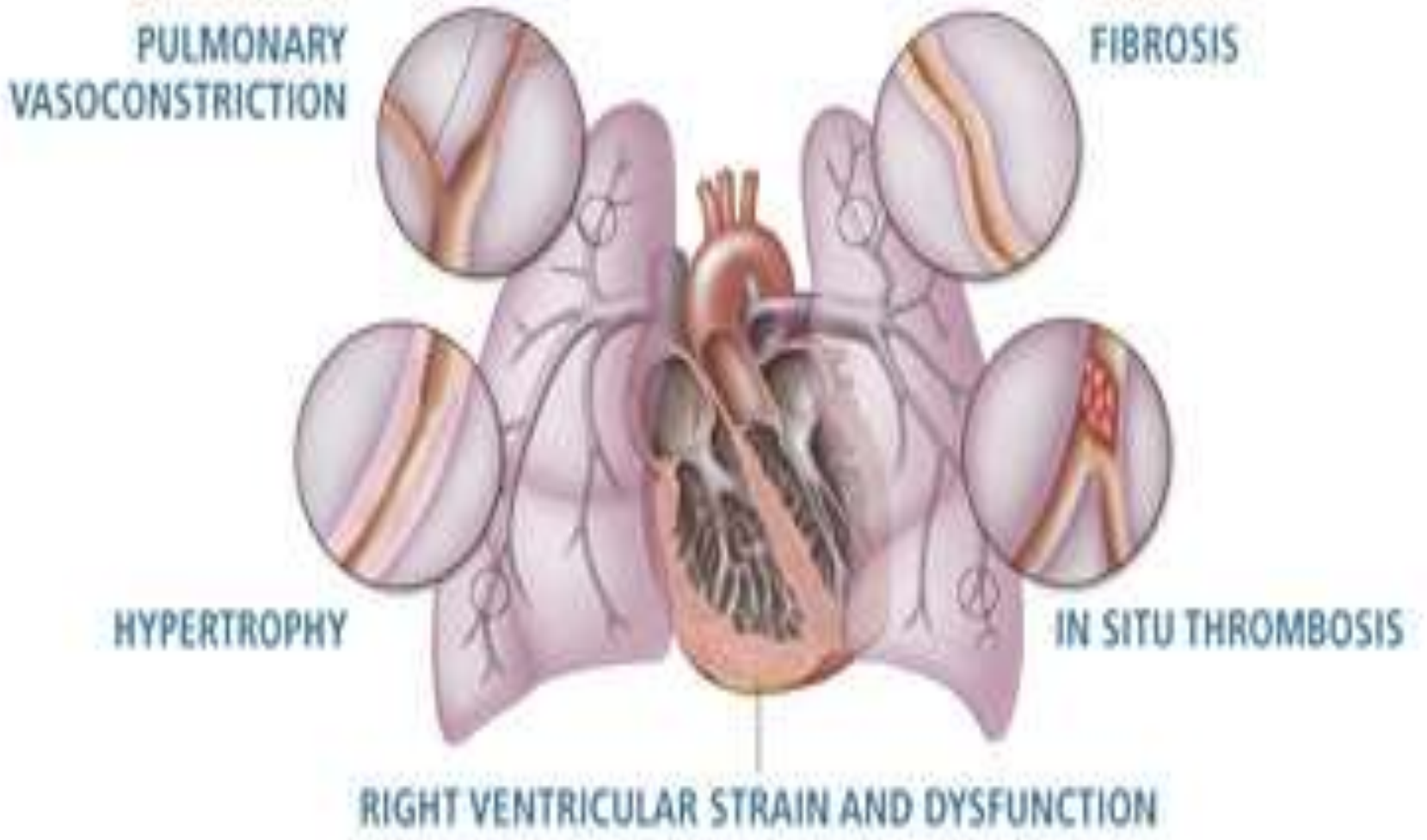


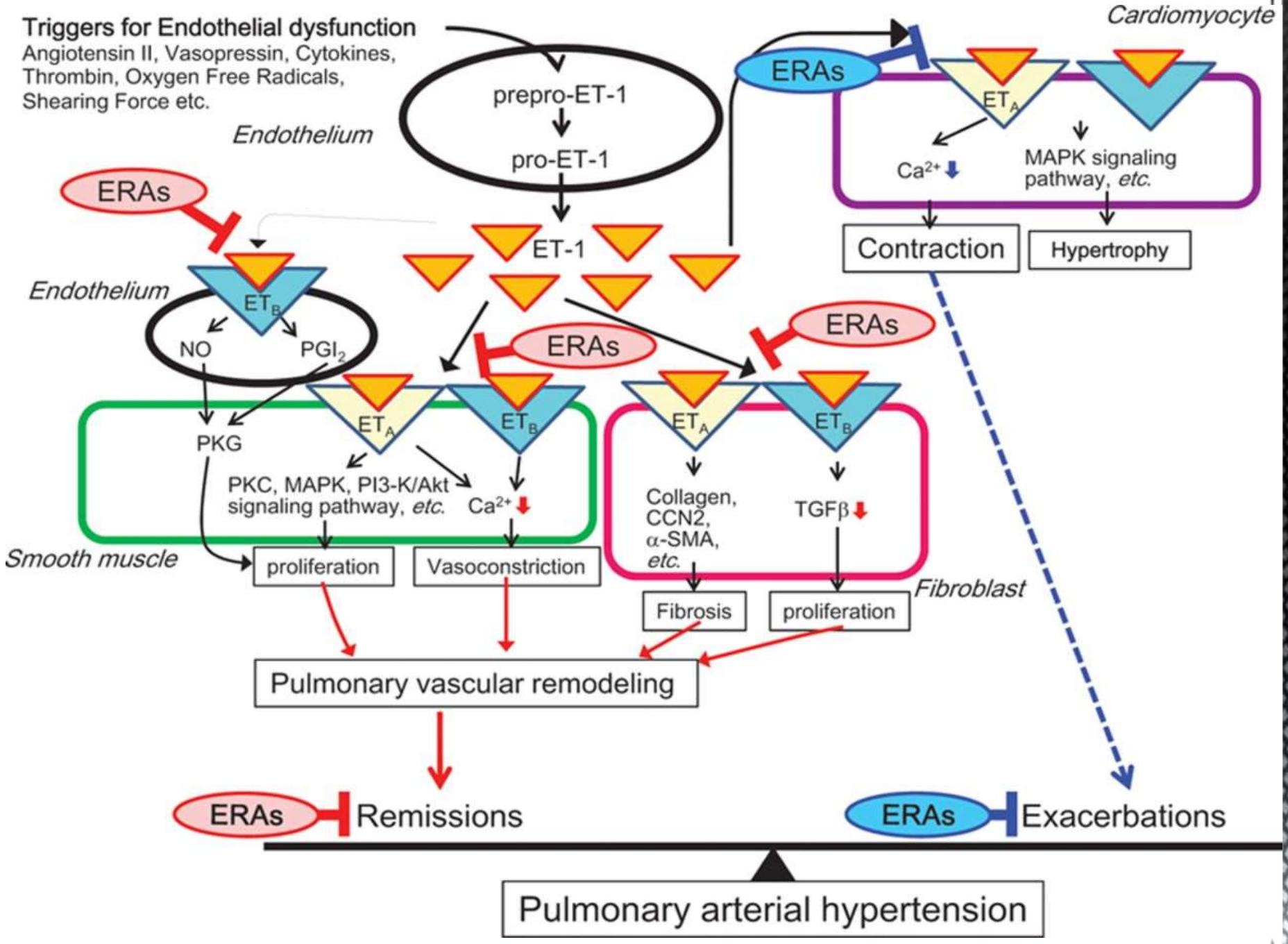
Adapted from McGoon M, Gutterman D, Steen V, et al. *Chest*. 2004;126:14S-34S.


The mechanism by which nicorandil attenuates MCT-induced pulmonary arterial hypertension
Dilatation of systemic veins and epicardial coronary arteries
Caspase-inhibitor
Anti-PAEC apoptosis
Vasodilation
Platelet aggregation↓
Anti-inflammation
Anti-SMC proliferation
Nitrate-effect
NO↑
Nicorandil
L-NAME
eNOS↑
PAEC protection
Anti-PAH
K_ATP opener
PI3k-Akt↑
MAPK-RSK↑
Survival Factors↑
PASMC stabilized
Glibenclamide
Intracellular Ca2+↓
Dilatation of peripheral and coronary resistence arterioles

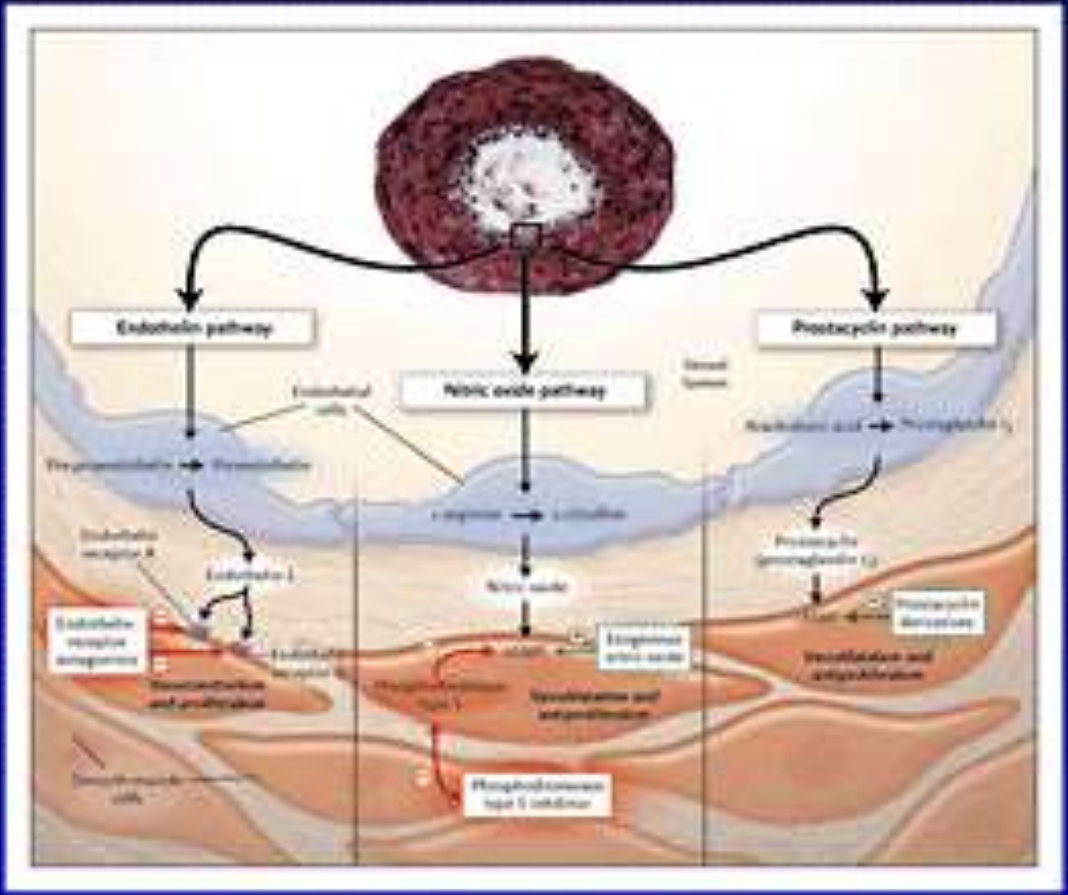


Diverse Pathophysiology of Pulmonary Arterial Hypertension




Triggers for Endothelial dysfunction
Angiotensin II, Vasopressin, Cytokines, Thrombin, Oxygen Free Radicals, Shearing Force etc.
Endothelium
prepro-ET-1
pro-ET-1
ET-1
ERAs
Cardiomyocyte
ET$_A$
Ca^{2+}
MAPK signaling pathway, etc.
Contraction
Hypertrophy
Endothelium
ET$_B$
NO
PGI$_2$
PKG
ET$_A$
ET$_B$
PKC, MAPK, PI3-K/Akt signaling pathway, etc.
Ca^{2+}
Smooth muscle
proliferation
Vasoconstriction
Collagen, CCN2, α-SMA, etc.
TGFβ
Fibrosis
proliferation
Fibroblast
Pulmonary vascular remodeling
Remissions
Exacerbations
Pulmonary arterial hypertension

Targets for Current or Emerging Therapies in Pulmonary Arterial Hypertension



Humbert M et al. *N Engl J Med.* 2004;351:1425-1436.

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SIGNATURE

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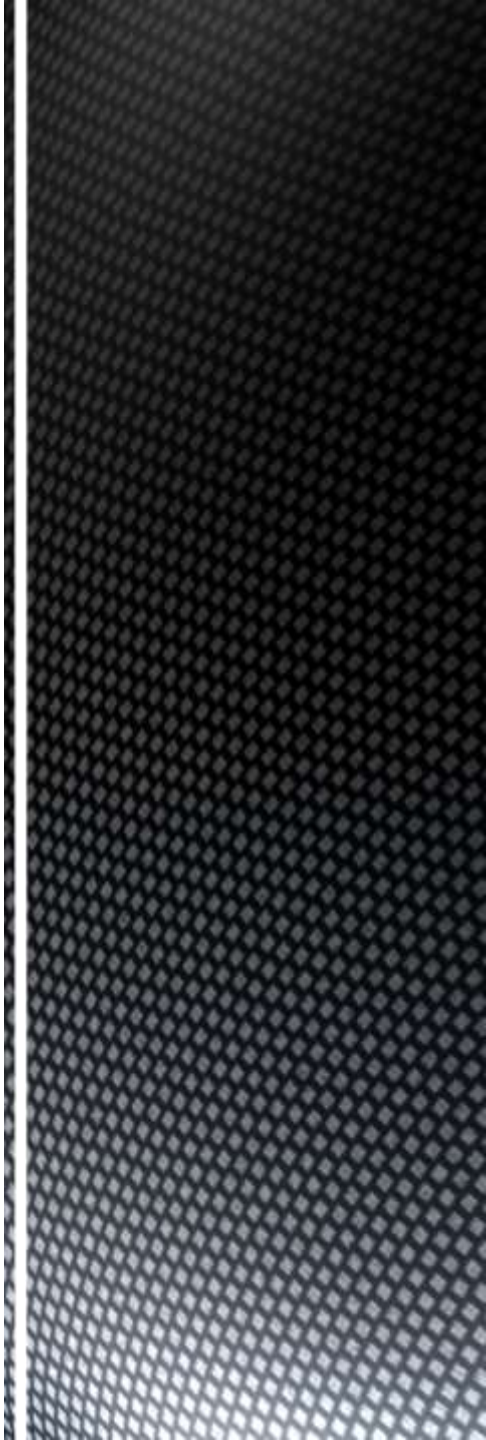

Drug Designing

Drug Metabolism & Toxicology

Bioequivalence & Bioavailability

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