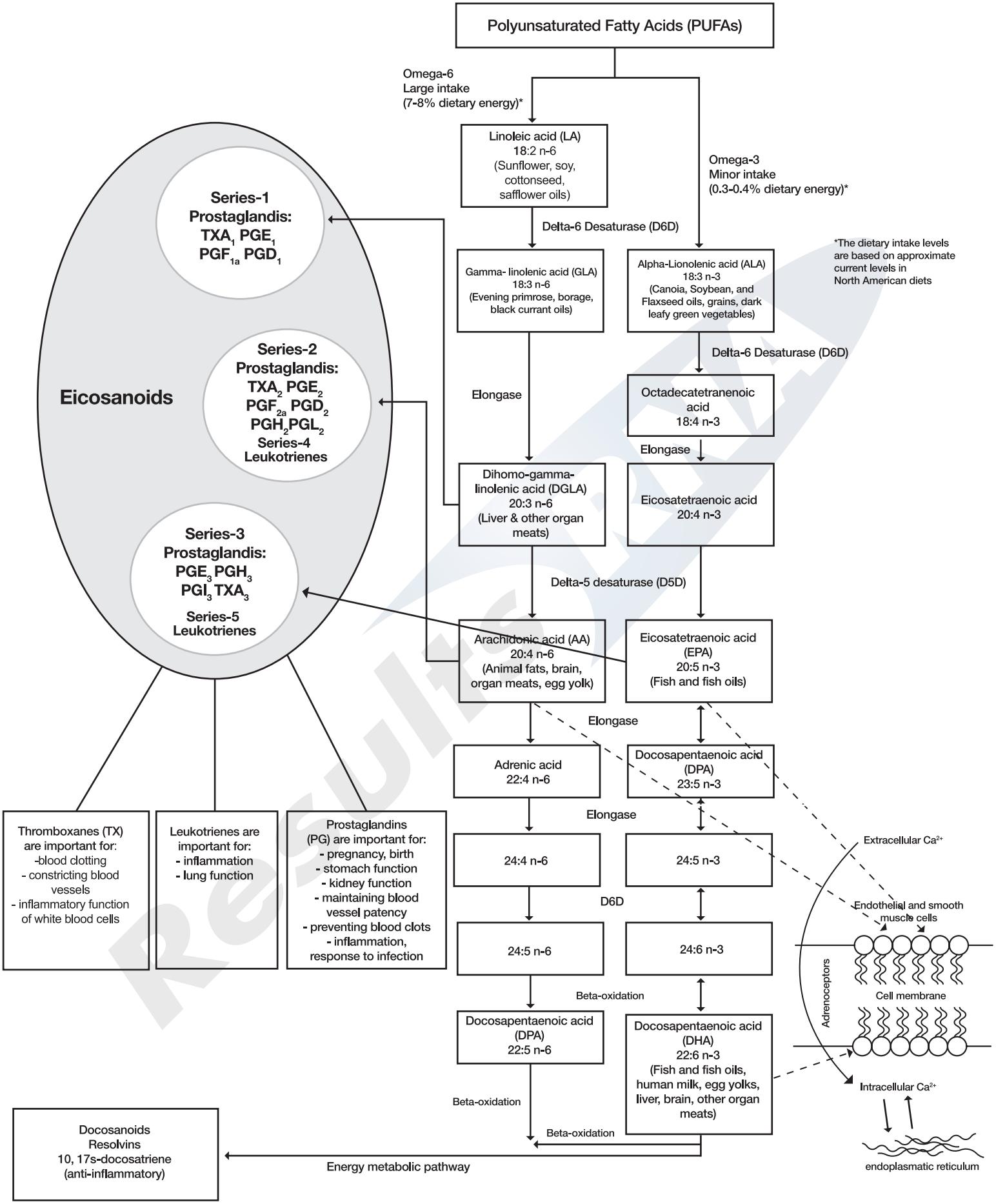
Polyunsaturated Fatty Acids (PUFAs)
Omega-6
Large intake
(7-8% dietary energy)*
Omega-3
Minor intake
(0.3-0.4% dietary energy)*
Linoleic acid (LA)
18:2 n-6
(Sunflower, soy, cottonseed, safflower oils)
Delta-6 Desaturase (D6D)
Gamma- linolenic acid (GLA)
18:3 n-6
(Evening primrose, borage, black currant oils)
Alpha-Lionolenic acid (ALA)
18:3 n-3
(Canoia, Soybean, and Flaxseed oils, grains, dark leafy green vegetables)
*The dietary intake levels are based on approximate current levels in North American diets
Delta-6 Desaturase (D6D)
Elongase
Octadecatetranenoic acid
18:4 n-3
Elongase
Dihomo-gamma-linolenic acid (DGLA)
20:3 n-6
(Liver & other organ meats)
Eicosatetraenoic acid
20:4 n-3
Delta-5 desaturase (D5D)
Arachidonic acid (AA)
20:4 n-6
(Animal fats, brain, organ meats, egg yolk)
Eicosatetraenoic acid (EPA)
20:5 n-3
(Fish and fish oils)
Elongase
Adrenic acid
22:4 n-6
Docosapentaenoic acid (DPA)
23:5 n-3
Elongase
24:4 n-6
24:5 n-3
D6D
24:5 n-6
24:6 n-3
Beta-oxidation
Docosapentaenoic acid (DPA)
22:5 n-6
Docosapentaenoic acid (DHA)
22:6 n-3
(Fish and fish oils, human milk, egg yolks, liver, brain, other organ meats)
Beta-oxidation
Beta-oxidation
Energy metabolic pathway
Eicosanoids
Series-1
Prostaglandis:
TXA1 PGE1
PGF1a PGD1
Series-2
Prostaglandis:
TXA2 PGE2
PGF2a PGD2
PGH2PGL2
Series-4
Leukotrienes
Series-3
Prostaglandis:
PGE3 PGH3
PGI3 TXA3
Series-5
Leukotrienes
Thromboxanes (TX) are important for:
-blood clotting
- constricting blood vessels
- inflammatory function of white blood cells
Leukotrienes are important for:
- inflammation
- lung function
Prostaglandins (PG) are important for:
- pregnancy, birth
- stomach function
- kidney function
- maintaining blood vessel patency
- preventing blood clots
- inflammation, response to infection
Docosanoids
Resolvins
10, 17s-docosatriene
(anti-inflammatory)
Extracellular Ca2+
Endothelial and smooth muscle cells
Adrenoceptors
Cell membrane
Intracellular Ca2+
endoplasmatic reticulum