Title: Retinol metabolism Last modified: 10/17/2013 ^{3, 4} Organism: Rattus norvegicus 5, 16, 24 lutein beta-carotene ROL Abcg5 Cd36 Npc1l1 Scarb1 Abcg8 Bcmo1 beta-carotene chylomicron Enterocyte RE + dietary lipids RE + dietary lipids ◀ beta-carotene Lpl Blood RE + dietary lipids Scarb1 beta-cryptoxanthir MAPK beta-carotene ▶beta-10'-apocarotenal Bcdo2 cryptoxanthin Vitamin D3 1, 6, 10, 18, 20... alpha-carotene PPAR pathways Bcmo1 Bcmo1 Nucleus canthaxanthin 8, 17, 21, 24 zeaxanthin ARAT Nuclear receptors Aldh1a1 Lrat Dhrs3 astaxanthin Rxra Rara all-trans RAL all-trans RA RPE-specific Aldh1a2 RARb Rxrb Aldh1a3 Adh1 violaxanthin Rarg Rxrg Retsat Adh4 Rpe65 Rdh5 9-cis ROL 9-cis RAL 9-cis RA Rdh8 Cyp26a1 11-cis ROL Rdh10 Cyp26b1

Rdh12

13,14 dehydro ROL

ROL-binding proteins

Rbp1

Rbp2

Rbp4 Rbp7

11-cis binding protein

Rlbp1

Rdh5

Rdh12

11-cis RAL

► 13,14 dehydro RAL

Aldh1a1

Aldh1a2

Aldh1a3

Cyp2e1

Cytochrome P450 family

all-trans-4-oxo RA

all-trans-4-oxo dehydro RA

→ 13,14 dehydro RA

RA-binding proteins

Crabp1

Crabp2

Sult1a1

Sult2b1