Title: Retinol metabolism Last modified: 10/17/2013^{1, 13} Organism: Mus musculus 4, 20, 22 lutein beta-carotene ROL Abcg5 Cd36 Npc1l1 Scarb1 Abcg8 chylomicron Bcmo1 beta-carotene Enterocyte RE + dietary lipids RE + dietary lipids 🔫 Lpl beta-carotene Blood RE + dietary lipids Scarb1 beta-cryptoxanthin MAPK Bcdo2 beta-10'-apocarotenal beta-carotene cryptoxanthin Vitamin D3 3, 11, 12, 18, 19, 23... alpha-carotene lycopene PPAR pathways Bcmo1 Bcmo1 Nucleus canthaxanthin 6, 7, 21, 22 zeaxanthin ARAT Nuclear receptors / Aldh1a1 Lrat Dhrs3 astaxanthin Rxra Rara all-trans ROL <</p> all-trans RA RPE-specific all-trans RAL Aldh1a2 Rarb Rxrb Aldh1a3 Adh1 violaxanthin Rarg Rxrg Retsat Rpe65 Adh4 Rdh5 9-cis ROL ◀ → 9-cis RAL 9-cis RA Rdh8 Cyp26a1 11-cis ROL Rdh10 Cyp26b1 Aldh1a1 Rdh12 Cyp2e1 Sult1a1 13,14 dehydro ROL ◀ → 13,14 dehydro RAL -→ 13,14 dehydro RA Aldh1a2 11-cis binding protein Rdh5 Sult2b1 Cytochrome P450 family Aldh1a3 Rdh12 RA-binding proteins Rlbp1 **ROL-binding proteins** Crabp1 Rbp1 Crabp2 Rbp2 all-trans-4-oxo RA 11-cis RAL all-trans-4-oxo dehydro RA Rbp4 Rbp7 '------

.=retinol; RAL=retinaldehyde, RA = retinoic acid, RE = retinyl ester, RPE = retinal pigment epitheli