PORPHYRIN AND CHLOROPHYLL METABOLISM Ferritin-Fe Transferrin-Fe 1.16.1.2 Uroporphyrin I K13624... **Po**°Fe 4,5-Dioxopentanoate Coproporphyrin I ^ე Uroporphyrinogen 🎾 Apoferitin Apotransferrin Coproporphyrinogen I Uroporphyrin III Coproporphyrin III Fe-coproporphyrin III 2.6.1.43 spontaneous K00435 Uropor-HemD phyrinogen III HemE HemY HemF 5-Amino-HemH HemB HemC 5-Oxo-δ-bilirubin levulinate 🔻 K00231 K07145 **PO** (3Z)-Phytochromobilin K00230 Protoporphynin IX Protoheme Porphobilinogen Hydroxymethyl-Copropor K08101 phyrinogen III HemN HemG (Heme) bilane cysG Protopor-K00510... Biliverdin phyrinogen IX cyoE hemL HemL (Anaerobic pathway) рсуА (Aerobic pathway) 3Z)-Phycocyanobilin ho1 Siroheme <u>CysG</u> Sirohydrochlorin CysG ▼Precomin 2 **P**Heme O → O Peroxidase K00643 CONctaA P9301_06731 pebB ്**്**41Glutamate-CbiK Mg-protoporphyrin IX **►O** Myoglobin 1-semialdehyde (3Z)-Phycoerythrobilin 15,16-Dihydro-්**ී**Heme A °**©**°Co-sirohydrochlorin P9301_06731 K00214... biliverdin **₽**0° cobl_cbiL cobl_cbiL HemA CbiL CobI Cytochrome a K08100 Glycine O Co-factor 3 K01764 Ni-sirohydro-catoo °ФРтесотіп ЗА ▼ Mg-protoporphyrin IX ©°13-monomethyl ester _Glutamyl_c tRNA(Glú) Cytochrome c K02229 CobG D-Urobilinogen **▶**034 (Aerobic (Anaerobic **PO** Catalase pathway) ்**ூ**©o-precomin 3 ©Precomin 3B pathway) cobB D-Urobilin Bilirubin Bilirubin cobJ CbiH CobJ K04034 pniL34 β-diglucuronide Co-precomin 4 Ni-sirohydro- thlorin chlorin Ò Oxyhemoglobin Hemoglobin L-Glutamate 00002 °🍄 Precomin 4 FO I-Urobilinogen Zn-Bacterioa,c-diamide cobM cobM chlorophyll a CbiF CobMI-Urobilin og 13¹-Hydroxy-Mg-protoporphyrin IX 13-monomethyl ester K21610.. °**©**'Precorrin 5 🍄 Co-precomin 5A Alanine, aspartate and K04034 pniL34 glutamate metabolism CbiG **FO** L-Stercobilinogen L-Stercobilin c. 43¹-Oxo-Mg-protoporphyrin IX 13-monomethyl ester CobF 15,17³-Seco-F 430-17³-acid ♥ °♥³Co-precorrin 5B CbiD 12-Ethyl-8-isobutyl-3-vinyl-bacteriochlorophyllide <u>d</u> K04034 pniL34 K21612 °**Ç**º²Co-precomin 6A. °🍄 Precomin 6A K13603 K19073 CobKDivinylproto-chlorophyllide **≠**©°Protochlorophyllide K13601 Ó °**Ò**"Co-precorrin 6B °©Precorrin 6B K04036 Coenzyme F430 12-Ethyl-8-propyl-3-vinyl-bacteriochlorophyllide d K13603 CbiT cobL 🗘 Co-precomin 7 Bacterio-K13601 chlorophyllide c K03399 CbiE 8,12-Diethyl-3-vinyl-K13605 **PO** K13603 bacteriochlorophyllide d Bacterio-°**⊙**•Co-precomin 8X °**ூ**Precomin 8X chlorophyll c K13604 K13602 P9301_05681 P9301_05681 CbiC CobH K13603 K13605 **₽**0° K21058 °**⊘**Hydrogenobyrinate °♥°Cobyrinate Glycine, threonine Bacterio-Bacterio-8-Ethyl-12-methyl-3-vinylmetabolism chlorophyllide d chlorophyll d CbiA CobB bacteriochlorophýllide d Geranylgeranyl-bacteriochlorophyllide b Hydrogenobyrinate Bacterio-3-Hydroxyethyl-chlorophyllide a chlorophyllid<u>e</u> b **-12**43 cobN CobNST Cob(II)yrinate a,c diamide Bacterio-chlorophyll b K11336 **₽**054 3-Hydroxyethyl-bacteriochlorophyllide a **₽©** K11337 3-Vinylbacterio-chlorophyllide a Bacterio-pheophytins K13786 Bacterio-Geranylgeranyl-bacteriochlorophyllide a Bacteriochlorophyllide a Cob(I)yrinate a,c diamide chlorophyll a K11333... **►**O 04 Pheophorbide a Chlorophyllide a CobA BtuR P9301_02681... CobO K19073 K13071 **→**©² Red chlorophyll catabolite Divinyl-Adenosyl cobyrinate chlorophyllide a K13600 K13600 cobQ CobQ CbiP K13544 K13545 Chloro-K13606 (R)-1-Amino-Adenosyl cobyrinate hexaamide phyllide b propan-2-ol 7-Hydroxy-chlorophyllide a _ **(\$©**⁰⁴ K08099 K08099 CbiB CobD CbiZPyro-pheophorbide a protein α chIG chIG Primary fluorescent chlorophyll catabolite Adenosyl cobinamide 7-Hydroxy-chlorophyl<u>l a</u> 9301_02681... (R)-1-Amino-propan-2-yl phosphate CobU CobP Cobinamide L-Threonine ^{⊆©7}Chlorophyll b K18010 04 phosphate Adenosyl cobinamide Divinyl-Chlorophyll a Ó phosphate chloróphyll a L-Threonine CobP Cyanocob(III)alamin cobU CobU CobU α-Ribazole-5'-P α-Ribazole co-Adenosine-GDP-Riboflavin Pheophytins K02226 1.16.1.6 metabolism P9301_02931 Dimethyl- CobT benzimidazole CobC CobV P9301_02681 C00944 1.16.1.4 1.16.1.5 Aquacob(III)alamin Vitamin B12 Vitamin B12s Vitamin B12r coenzyme 00860 4/26/17 (c) Kanehisa Laboratories