PORPHYRIN AND CHLOROPHYLL METABOLISM Ferritin-Fe Transferrin-Fe 1.16.1.2 -0 Uroporphyrin I **⁵O**°Fe K13624.. Coproporphyrin I Fe^T 4,5-Dioxopentanoate ିଠୀ ૽ઌ૽ૼ૽ Uroporphyrinogen 🍄 Apoferritin Apotransferrin Coproporphyrinogen I Uroporphyrin III Coproporphyrin III Fe-coproporphyrin III 2.6.1.43 spontaneous K00435 Uropor-HemD phyrinogen III HemE HemF HemY 5-Amino-HemH HemB HemC 5-Oxo-δ-bilirubin K00231 levulinate ' K07145 **PO** (3Z)-Phytochromobilin K02495 K00230 Protoporphyrin IX Protoheme Copropor-Porphobilinogen Hydroxymethyl-K08101 phyrinogen III HemN HemG (Heme) bilane Protopor-K00510.. Biliverdin phyrinogen IX cyoE рсуА (Anaerobic pathway) HemL (Aerobic pathway) 3Z)-Phycocyanobilin ho1 CysGSirohydrochlorin CysG ♥Precomin 2 **PH**eme O 🕩💇 Coenzyme F430 K02302... Peroxidase **1074** Siroheme ctaA P9301_06731 CbiK CbiX K00643 Mg-protoporphyrin IX 🎔 **►**O Myoglobin (3Z)-Phycoerythrobilin 15,16-Dihydro-்**ூ**Glutamate-°**∲**Co-Sirohydrochlorin ^cල්Heme A K00214... biliverdin **FO** 1-semialdehyde chIM cobl_cbiL cobl_cbiL CbiL Cytochrome a K08100 K01764 °♥Precorrin 3A ▼Mg-protoporphyrin IX ©°13-monomethyl ester **ී**Co-Factor 3 Cytochrome c K02229 CobG D-Urobilinogen L-Glutamyl-**----**084 (Aerobic (Anaerobic **O**Glycine tRNA(Glú) **FO** ©℃o-Precomin 3 Catalase pathway) pathway) c�Precorrin 3B Bilirubin D-Urobilin Bilirubin CbiH CobJ K04034 β-diglucuronide Ò Oxyhemoglobin Hemoglobin °♥Precomin 4 °Co-Precomin 4 FO I-Urobilinogen Zn-Bacterio--Glutamate cobM CbiF CobM chlorophyll a I-Urobilin og 13¹-Hydroxy-Mg-protoporphyrin IX 13-monomethyl ester °©Precorrin 5 °🍄 Co-Precomin 5A K04034 pniL34 CbiG **₽**O: L-Stercobilinogen L-Stercobilin ₆13¹-Oxo-Mg-protoporphyrin IX 13-monomethyl ester CobF Alanine, aspartate and °**©**°Co-Precomin 5B glutamate metabolism CbiD 12-Ethyl-8-isobutyl-3-vinyl-K04034 pniL34 bacterióchlorophyllide <u>d</u> °**Ç**⁴²Co-Precomin 6A ^с🍄 Р recorrin бА K13603 K19073 CobK K21231 Divinylproto-**₽**©Protochlorophyllide K13601 K04036 °🌣 Precorrin 6B °**Ç**°Co-Precorrin 6B 12-Ethyl-8-propyl-3-vinylobacteriochlorophyllide d K13603 CbiT cobL 🖒 Co-Precomin 7 Bacterio-K13601 chlorophyllide c Bacterio-K03399 CbiE 8,12-Diethyl-3-vinyl-bacteriochlorophyllide d K13605 K13603 chlorophyll c °**⊙**⁴5Co-Precomin 8X °**ॐ**Precomin 8X K13604 K13602 P9301_05681 P9301_0568⁴ CbiC CobH **⊭o**:Bacterio-chlorophyll d K13603 K13605 K21058 *Hydrogenobyrinate °♥³Cobyrinate Glycine, threonine Bacterio-8-Ethyl-12-methyl-3-vinyl-bacteriochlorophyllide d metabolism chlorophyllide d CbiA CobB Hydrogenobyrinate a,c diamide Geranylgeranyl-bacteriochlorophyllide b Bacterio-chlorophyllid<u>e b</u> 3-Hydroxyethyl-chlorophyllide a **⊭**⊘Bacterio-chlorophyll b CobNST K11336 Cob(II)yrinate a,c diamide 3-Hydroxyethyl-, bacterio<u>chloroph</u>yllide a **₽**©4 **⊭⊘**Bacterio-chlorophyll a K11337 3-Vinylbacterio-chlorophyllide a Bacterio-pheophytins K13786 Bacterio-Geranylgeranyl-bacteriochlorophyllide a cob(I)yrinate a,c diamide chlorophyllide a **PO 04** Pheophorbide a Chlorophyllide a CobA P9301_02681... BtuR CobO ►O² Red chlorophyll | catabolite K19073 K13071 Divinyl-chlorophyllide a Adenosyl cobyrinate K13600 K13600 cobQ CobQ CbiP Chloro-| phyllide b K13544 K13545 K13606 (R)-1-Amino-Adenosyl cobyrinate hexaamide propan-2-ol 7-Hydroxy-chlorophyllide a -L-SCO94 CobC CobD K08099 K08099 CbiB K08260 CbiZ protein α chlG chlG orimary fluorescent chlorophyll catabolite Pyro-pheophorbide a Adenosyl cobinamide 💝 🖛 9301_02681... <u>CO</u>74 7-Hydroxy-chlorophyll a (R)-1-Amino-propan-2-yl phosphate cobU CobU CobP Cobinamide L-Threonine ^{__}©്7Chlorophyll b K18010 K13606 phosphate Divinyl-chlorophyll a Adenosyl cobinamide Chlorophyll a cbiB K04720 L-Threonine CobP Cyanocob(III)alamin cobU Cobl O CobU α-Ribazole-5'-P α-Ribazole Adenosine-GDP-cobinamide Riboflayin Pheophytins K00768 K02226 metabolism 1.16.1.6 P9301_02931 Dimethyl- CobT benzimidazole CobC CobV CobS C0094 1.16.1.4 |1.16.1.5| Aquacob(III)alamin Vitamin B12s Vitamin B12 Vitamin B12r coenzyme 00860 3/30/17 (c) Kanehisa Laboratories