UBIQUINONE AND OTHER TERPENOID-QUINONE BIOSYNTHESIS 2-Methyl-6-solanyl-1,4-benzoquinol K12501 K12502... **⊭**®⁵Plastoquinol-9 olanesyl-PP 4-Hydroxy-4-Hydroxyphenylphenyllactate pyrúvate Terpenoid backbone biosynthesis Homogentisate δ-Tocopherol β-Tocopherol Phytyl-PP K00815.. K12502.. K09833 2,3-Dimethyl-5-phytylquinol α-Tocopherol (Vitamin E) 2-Methyl-6-phytylquinol y-Tocopherol Phenylpropanoid biosynthesis 6-Geranylgeranyl-2-methylbenzene-6-Geranylgeranyl-2,3-dimethylbenzeney-Tocotrienol ,4-dioÍ L-Tyrosine **►'©**³α-Tocotrienol (Vitamin E) 🕶💇 4-Coumarate trans-Geranylgeranyl-PI Cinnamate K05928 δ-Tocotrienol β-Tocotrienol Terpenoid backbone biosynthesis K01904 Phenylalanine, tyrosine and tryptophan biosynthesis UbiC MenF Chorismate Isochorismate 4-Coumarovl-4-Hydroxy-benzoyl-CoA CoA MenD 2-Succinyl-5-enolpyruvyl-6-hydroxy-3-cyclohexene-1-carboxylate MqnA 4-Hydroxybenzoate 241.194 MenH3.2.1.-4-Hydroxybenzoate-GPP Polyprenyl-PP (1R,6R)-2-Succinyl-6-hydroxy-2,4-cyclohexadiene-, 3-[(1-Carboxy-vinyl)oxy]benzoate O-glucoside Terpenoid backbone · [%] biosynthesis 1-carboxylate K03179 K06125 MenCMqnE 3-Polyprenyl-4-hydroxybenzoate Geranyl-hydroxybenzoate 2-SuccinyIbenzoate ၧီဗ်-Amino-6-deoxy-UbiD UbiX futalosine K01911.. MenE Spirodilactone Geranyl-hydroquinone 3-Polyprenyl-▼ 4,5-dihydroxybenzoate ♥ 2-Polyprenyl-phenol \overline 2-Succinylbenzoyl-CoA 1.1413116 Coq3 Dihydro-shikonofuran 3"-Hydroxy-geranyl-hydroquinone MenB °*****Futalosine 2-Polyprenyl-6-hydroxyphenol o 4,4-Dihydroxy-2-naphthoyl-CoA 3-Polyprenyl-4-hydroxy o 5-methoxybenzoate MqnB Olhydro-echinofuran UbiG ODeoxyshikonin 2-Polyprenyl-6-methoxyphenol **⊭**Dehypoxanthinefutalosine Terpenoid backbone biosynthesis Shikonin MqnC Octaprenyl-PP Phytyl-PP — (>**©**™ 2-Polyprenyl-6-methoxy-1,4bénzoquinone Cyclic dehypo-xanthinefutalosine MenA MenA K06127 K03183 2-Phytyl-1,4-naphthoquinone ₁₈2-Demethylmenaquinone MqnD 2-Polyprenyl-3-methyl-6-methoxy-1,4-benzoquinone UbiE MenG K03183 MenG ♥ Phylloquinone **-≿**X.Menaquinone 1,4-Dihydroxy-6-naphthoate 2-Polyprenyl-3-methyl-5-hydroxy-6-methoxy-1,4-benzoquinone Vitamin K cycle K00591 K00568 ° Menaquinol Phylloquinof 🍑 3 Ubiquinone-n Complement and coagulation cascades Phylloquinone epoxide Menaquinone Oxidative phosphorylation epoxide 00130 5/13/15 (c) Kanehisa Laboratories