UBIQUINONE AND OTHER TERPENOID-QUINONE BIOSYNTHESIS 2-Methyl-6-solanyl-1,4-benzoquinol **⊭**©⁵Plastoquinol-9 🎔 Solanesyl-PP 4-Hydroxy-4-Hydroxyphenylphenyllactate pyrúvate K18606 Terpenoid backbone biosynthesis Homogentisate δ-Tocopherol β-Tocopherol Phytyl-PP K00815. 2,3-Dimethyl-5-phytylquinol 2-Methyl-6-phytylquinol α-Tocopherol (Vitamin E) y-Tocopherol Phenylpropanoid biosynthesis 6-Geranylgeranyl-2-methylbenzene-6-Geranylgeranyl-2,3-dimethylbenzeney-Tocotrienol 4-dio1.,4-diol **⊁⊙**3α-Tocotrienol (Vitamin E) ²L-Tyrosine K00487 **₩**�4Coumarate trans-Geranylgeranyl-PP 🎔 Cinnamate **F 4 5** 4 δ-Tocotrienol β-Tocotrienol Terpenoid backbone biosynthesis Phenylalanine, tyrosine and tryptophan biosynthesis UbiC MenF Chorismate Isochorismate K03181. K01075 K01851... 4-Coumaroyl-4-Hydroxy-benzoyl-CoA CoA MenD 2-Succinyl-5-enolpyruvyl-6-6-hydroxy-3-cyclohexene-1-carboxylate K11782 MgnA 4-Hydroxybenzoate ♥♥ 2.41.194 MenH 3.2.1.-4-Hydroxybenzoate-Polyprenyl-PP (1R,6R)-2-Succinyl-6-hydroxy-2,4-cyclohexadiene-1-carboxylate GPP c. ₹23-[(1-Carboxy-vinyl)oxy]benzoate O-glucoside Terpenoid backbone -{>**-**Obiosynthesis K13565 K03179 MenC K18285 MqnE 3-Polyprenyl-4-hydroxybenzoate c Geranyl-2-Succinylbenzoate hydroxybenzoate ან-Amino-6-deoxy-UbiD UbiX futalosine MenE Spirodilactone Geranyl-3-Polyprenyl- 🔻 4,5-dihydroxybenzoate 🍑 2-Polyprenyl-phenol hydroquinone K18286 ¥2-Succinylbenzoyl-CoA 1.1413116 K18800 Coq3 3"-Hydroxy-geranyl-hydroquinone MenB 5 Dihydro-5 Shikonofuran $^{\circ}$ Futalosine K18284 2-Polyprenyl-6-hydroxyphenol a,4-Dihydroxy-2-naphthoyl-CoA 3-Polyprenyl-4-hydroxy: 5-methoxybenzoate K11783 MqnB K12073... Ö ⁴Dihydro-echinofuran UbiG 🍑 Deoxyshikonin 2-Polyprenyl-6-methoxyphenol 1,4-Dihydroxy-2-naphthoate ► Dehypoxanthine-futalosine Terpenoid backbone biosynthesis O²Shikonin K06126 K11784 MqnC Octaprenyl-PP ,—-©€1 — — -Phytyl-PP 2-Polyprenyl-6-methoxy-1,4-bénzoquinone ිරුවාද dehypo-xanthinefutalosine MenA MenA K06127 K03183 2-Phytyl-1,4-naphthoquinone _{:s}2-Demethylmenaquinone MqnD 2-Polyprenyl-3-methyl-6-methoxy-1,4-benzoquinone UbiE MenG MenG ▼ Phylloquinone K06134 K03184 -**⊵-**X.。Menaquinone 1,4-Dihydroxy-6-naphthoate 2-Polyprenyl-3-methyl-5-hydroxy-6-methoxy-1,4-benzoquinone Vitamin K cycle K00591 ်**တို** Menaquinol K05357 Phylloquinof 💇 Ubiquinone-n Complement and coagulation cascades യ Phylloquinone epoxide Menaquinone Oxidative phosphorylation epoxide 00130 5/13/15 (c) Kanehisa Laboratories