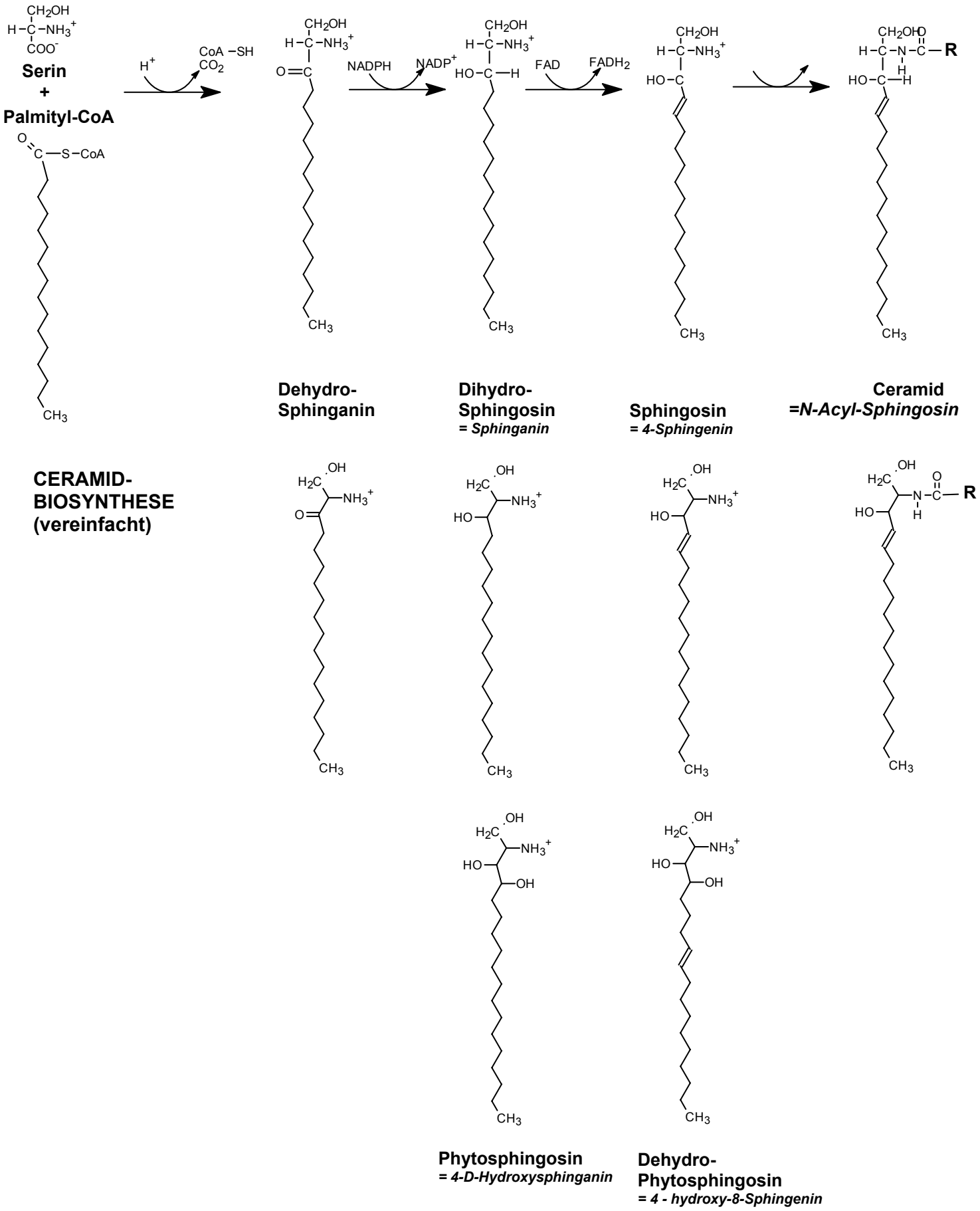
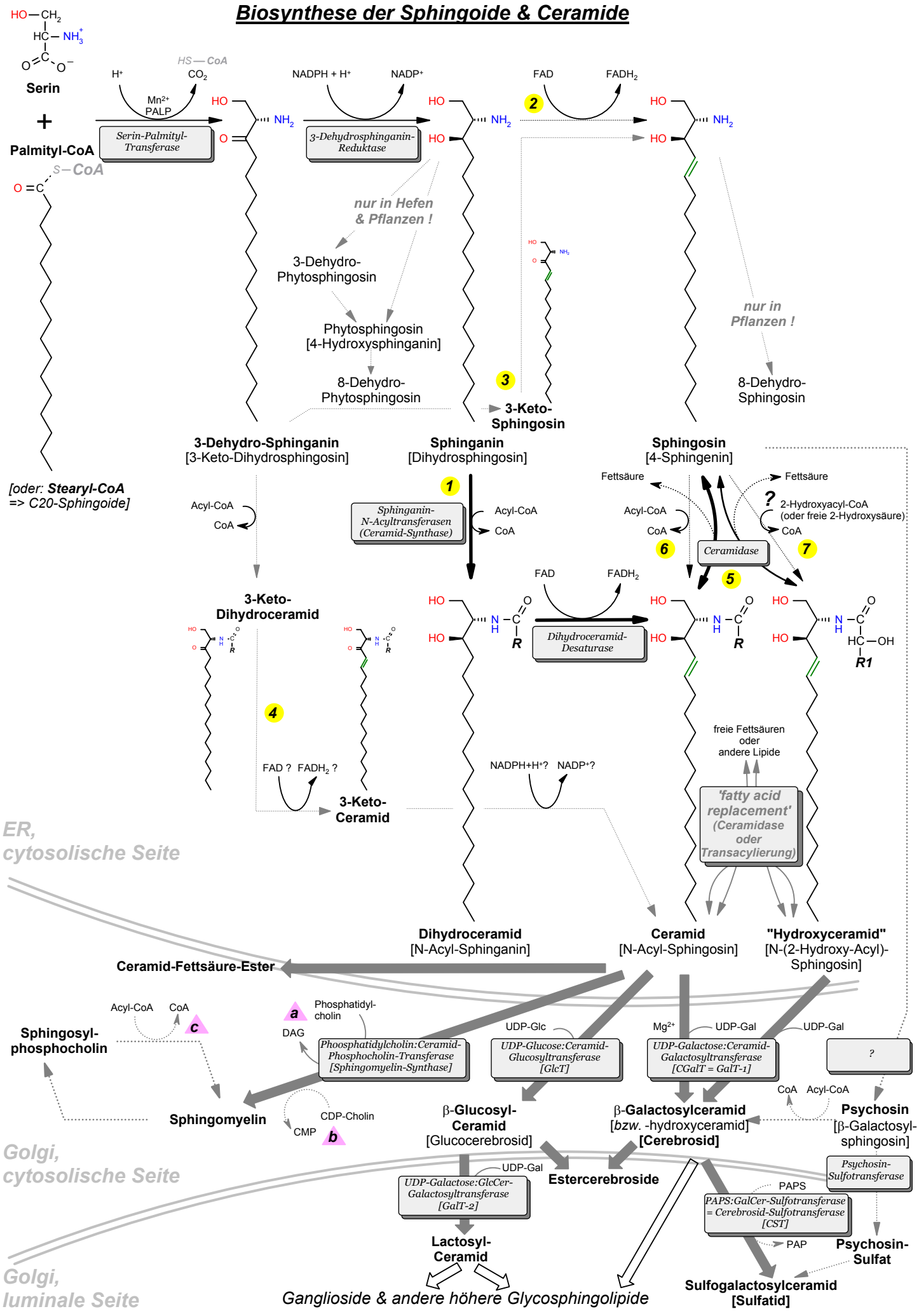
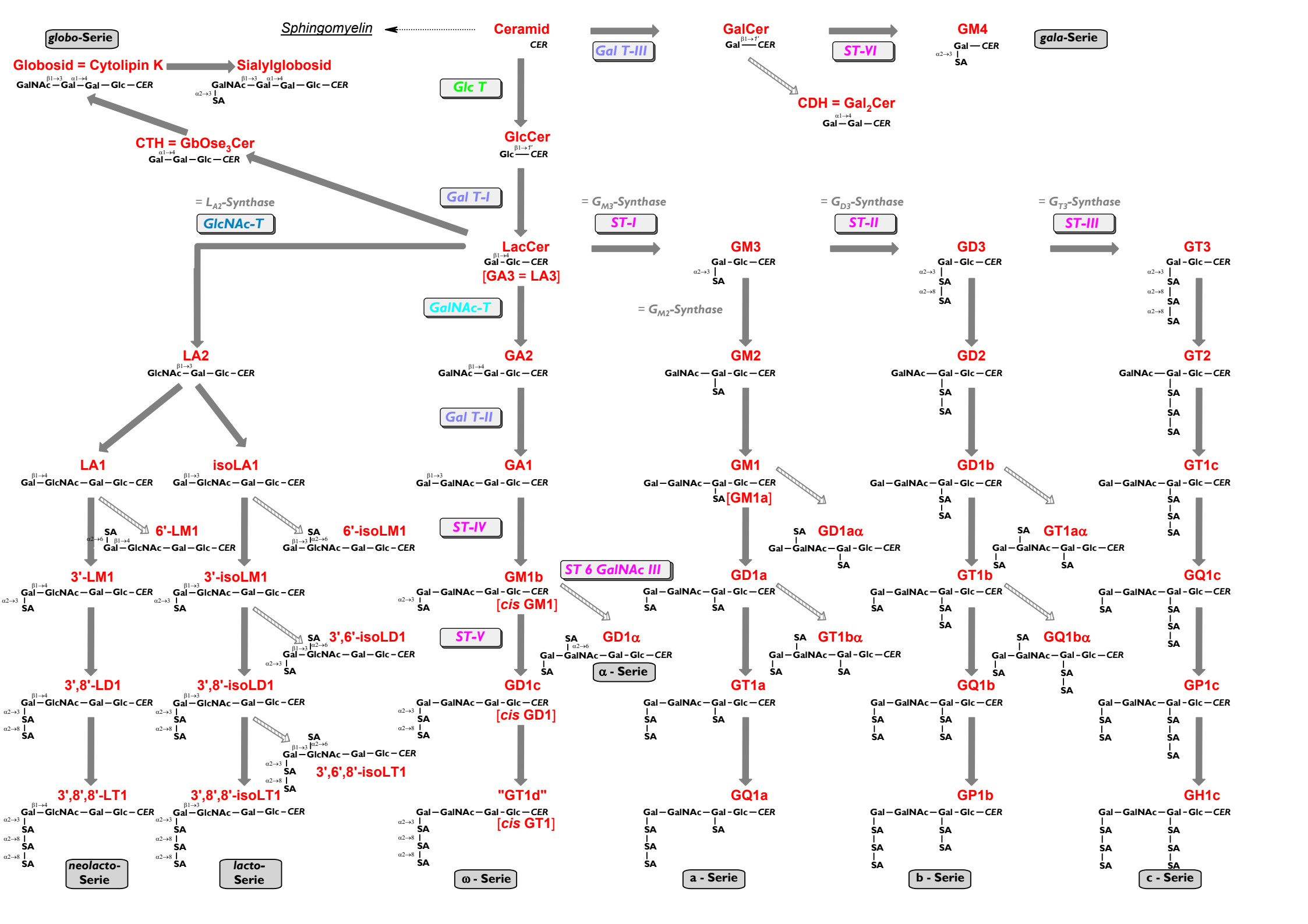
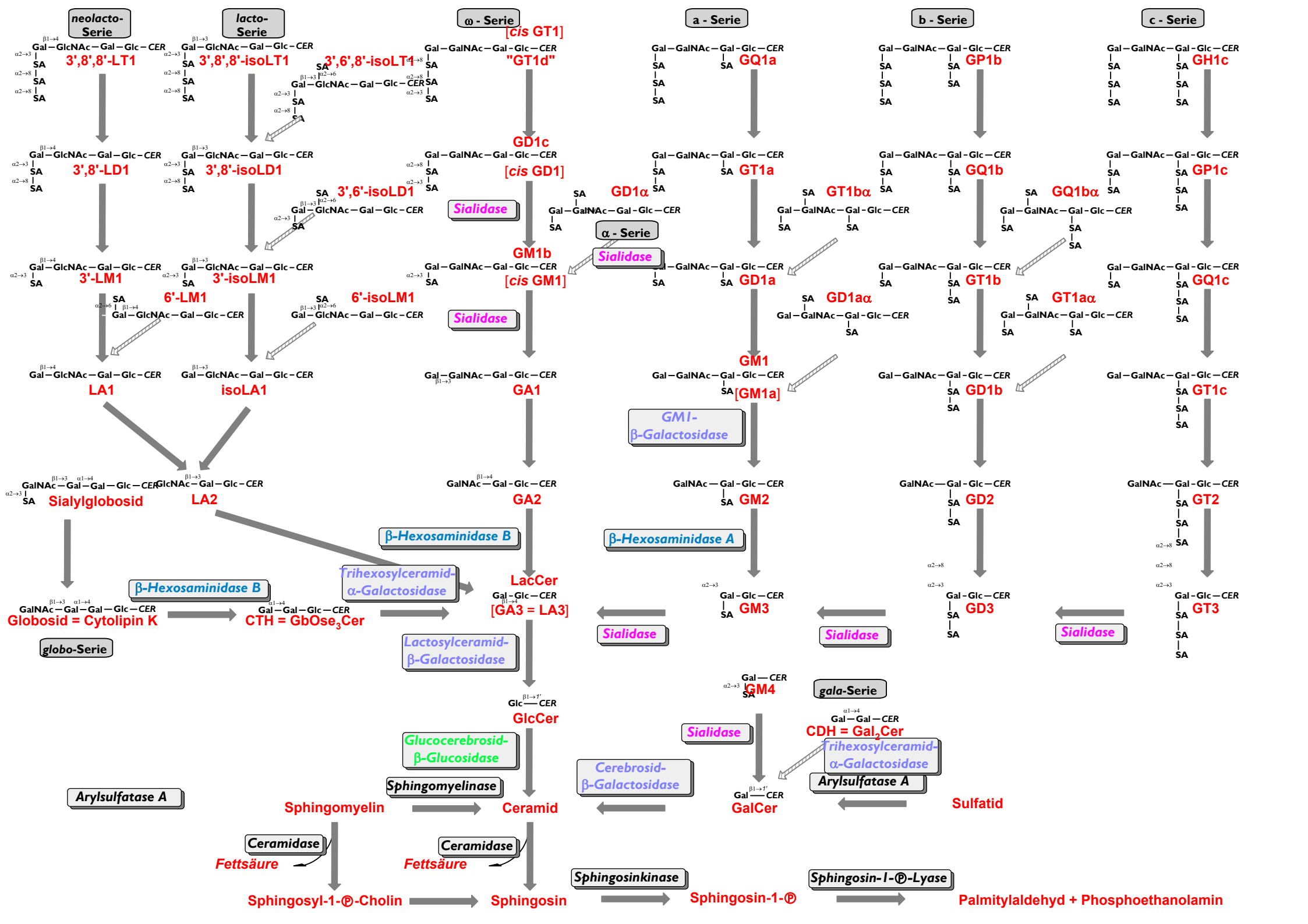
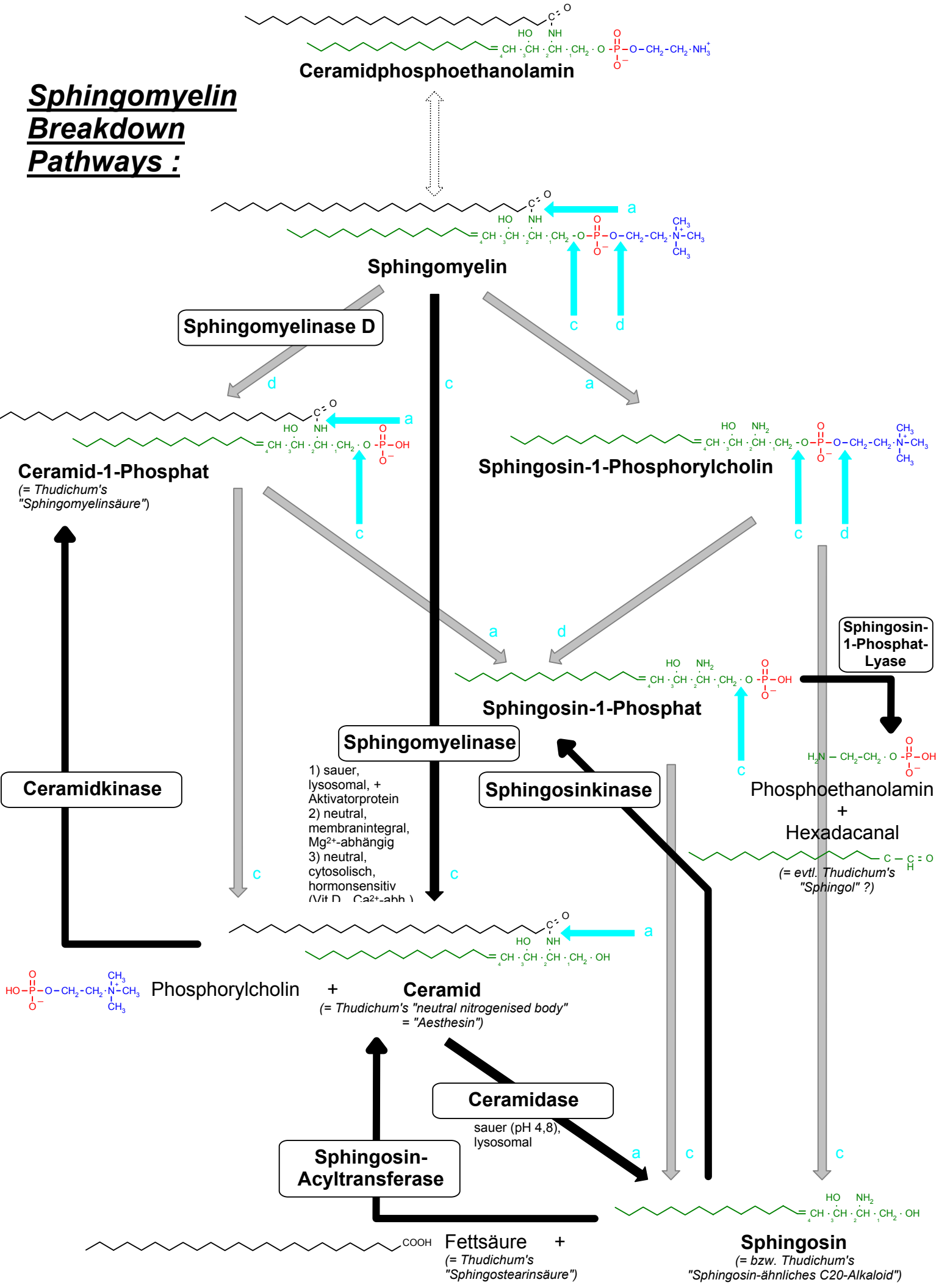

Serin
+
Palmityl-CoA
H+
CoA –SH
CO2
NADPH
NADP+
FAD
FADH2
Dehydro-Sphinganin
Dihydro-Sphingosin
= Sphinganin
Sphingosin
= 4-Sphingenin
Ceramid
=N-Acyl-Sphingosin
CERAMID-BIOSYNTHESE (vereinfacht)
Phytosphingosin
= 4-D-Hydroxysphinganin
Dehydro-Phytosphingosin
= 4 - hydroxy-8-Sphingenin

Biosynthese der Sphingoide & Ceramide




globo-Serie
Sphingomyelin
Ceramid
CER
Gal T-III
GalCer
ST-VI
GM4
gala-Serie
Globosid = Cytolipin K
Sialylglobosid
Glc T
CDH = Gal2Cer
GlcCer
CTH = GbOse3Cer
Gal T-I
= LA2-Synthase
GlcNAc-T
= GM3-Synthase
ST-I
= GD3-Synthase
ST-II
= GT3-Synthase
ST-III
LacCer
[GA3 = LA3]
GM3
GD3
GT3
GalNAc-T
= GM2-Synthase
LA2
GA2
GM2
GD2
GT2
Gal T-II
LA1
isoLA1
GA1
GM1
GD1b
GT1c
[GM1a]
GD1aα
GT1aα
6'-LM1
6'-isoLM1
ST-IV
3'-LM1
3'-isoLM1
GM1b
ST 6 GalNAc III
GD1a
GT1b
GQ1c
[cis GM1]
3',6'-isoLD1
ST-V
GD1α
GT1bα
GQ1bα
α - Serie
3',8'-LD1
3',8'-isoLD1
GD1c
GT1a
GQ1b
GP1c
[cis GD1]
3',6',8'-isoLT1
3',8',8'-LT1
3',8',8'-isoLT1
"GT1d"
GQ1a
GP1b
GH1c
[cis GT1]
neolacto-Serie
lacto-Serie
ω - Serie
a - Serie
b - Serie
c - Serie


neolacto-Serie
lacto-Serie
ω - Serie
a - Serie
b - Serie
c - Serie
3',8',8'-LT1
3',8',8'-isoLT1
3',6',8'-isoLT1
[cis GT1]
"GT1d"
GQ1a
GP1b
GH1c
3',8'-LD1
3',8'-isoLD1
3',6'-isoLD1
GD1c
[cis GD1]
GT1a
GQ1b
GP1c
Sialidase
GD1α
GT1bα
GQ1bα
α - Serie
3'-LM1
3'-isoLM1
6'-LM1
6'-isoLM1
GM1b
[cis GM1]
GD1a
GT1b
GQ1c
GD1aα
GT1aα
LA1
isoLA1
GA1
GM1
[GM1a]
GD1b
GT1c
GM1-β-Galactosidase
Sialylglobosid
LA2
GA2
GM2
GD2
GT2
β-Hexosaminidase B
β-Hexosaminidase A
Trihexosylceramid-α-Galactosidase
LacCer
[GA3 = LA3]
GM3
GD3
GT3
Globosid = Cytolipin K
CTH = GbOse3Cer
globo-Serie
Lactosylceramid-β-Galactosidase
GlcCer
GM4
gala-Serie
CDH = Gal2Cer
Glucocerebrosid-β-Glucosidase
Cerebrosid-β-Galactosidase
Arylsulfatase A
Sphingomyelinase
Sphingomyelin
Ceramid
GalCer
Sulfatid
Ceramidase
Fettsäure
Sphingosyl-1-Ⓟ-Cholin
Sphingosin
Sphingosinkinase
Sphingosin-1-Ⓟ
Sphingosin-1-Ⓟ-Lyase
Palmitylaldehyd + Phosphoethanolamin

Sphingomyelin Breakdown Pathways :