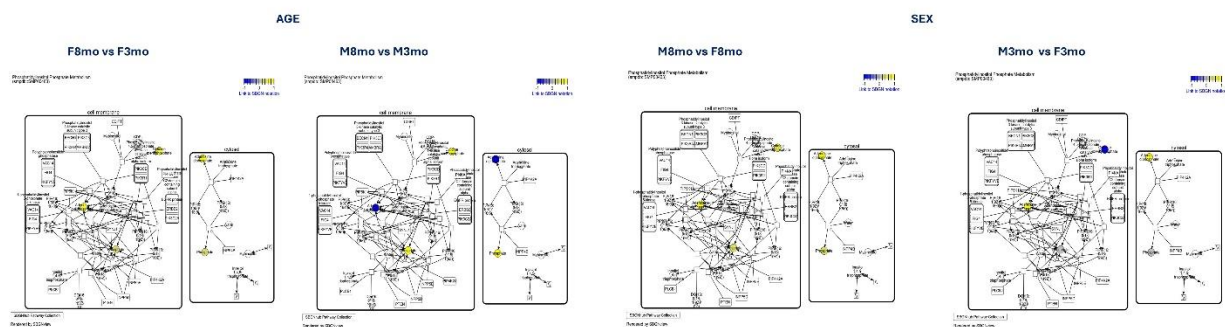
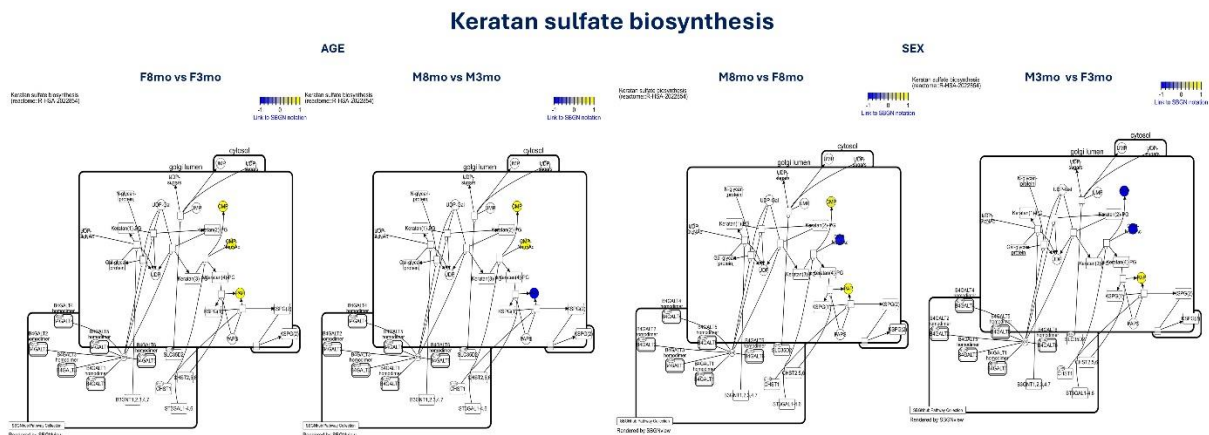


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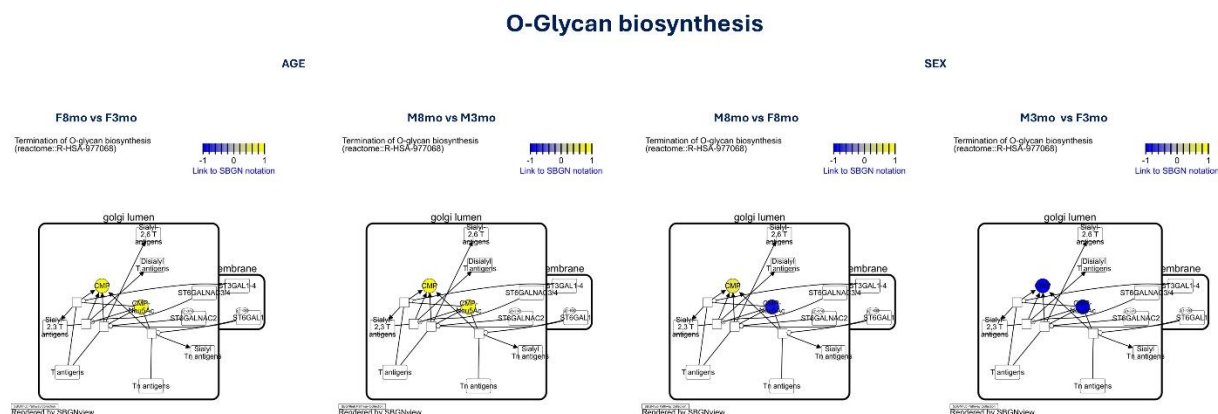
## Phosphatidylinositol phosphate metabolism



**Figure S2.** SBGN pathways mapping of Phosphatidylinositol phosphate metabolism for the sex and age comparison. Metabolite hits with a p-value less than or equal to 0.05 from both compound discoverer MS/MS identification and MetaboAnalystR peak list identification shows on a spectrum from blue =  $-\log_2$  fold change to yellow =  $\log_2$  fold change.

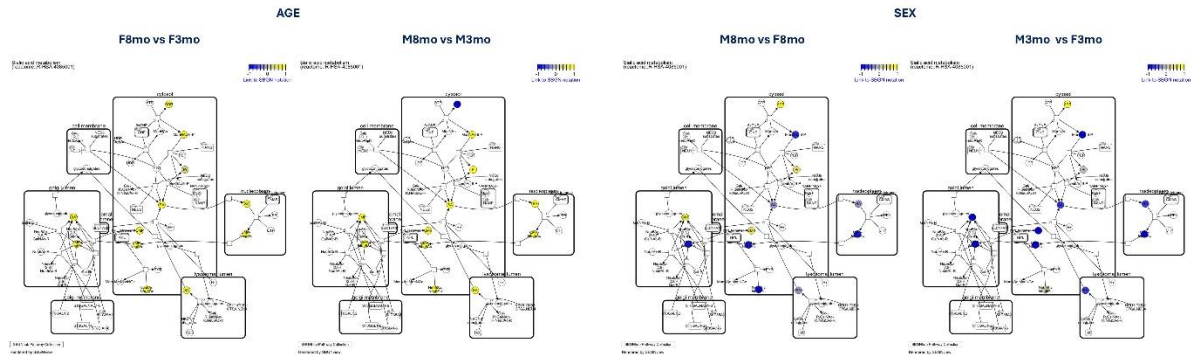


**Figure S3.** SBGN pathways mapping of Keratan sulfate biosynthesis for the sex and age comparison. Metabolite hits with a p-value less than or equal to 0.05 from both compound discoverer MS/MS identification and MetaboAnalystR peak list identification shows on a spectrum from blue =  $-1\log_2$  fold change to yellow =  $1\log_2$  fold change.



**Figure S4.** SBGN pathways mapping of O-Glycan biosynthesis for the sex and age comparison. Metabolite hits with a p-value less than or equal to 0.05 from both compound discoverer MS/MS identification and MetaboAnalystR peak list identification shows on a spectrum from blue =  $-1\log_2$  fold change to yellow =  $1\log_2$  fold change.

## Sialic acid metabolism



**Figure S5.** SBGN pathways mapping of Sialic acid metabolism for the sex and age comparison. Metabolite hits with a p-value less than or equal to 0.05 from both compound discoverer MS/MS identification and MetaboAnalystR peak list identification shows on a spectrum from blue =  $-1\log_2$  fold change to yellow =  $1\log_2$  fold change.