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Ligand Dependent Effect of Notch Signalization in Oligodendrocytes, its Role in SM

In our group we have been focusing on the following topics: genetic pathways of ligand expression, regulation mechanisms of receptor-ligand interaction and environmental factors that affect ligand expression. After looking for further literature, we have not found any answers to our previous questions. So we have decided to narrow the diversity of our research.

Three ligands play role in SM (contactin-3, jagged-1, delta-1). Results in discovering its effects on oligodendrocytes are highly controversial. We are interested in ***how different ligand ratios affect oligodendrocytes differentiation?*** We would like to test them in combination and in different ratios to figure out if there is any interaction between them.

We presented several regulating mechanisms regarding oligodendrocyte differentiation last time, now we have considered highlighting one. Which will be glycosylation. Because without oligosaccharide side chains receptor-ligand interaction is not formed. We are curious about if ***there is any difference in glycosylation patterns during SM, if so what causes it?***

The following factors have proven to be effectors of SM: temperature, melatonin, level of insolation, gut microbiome. We are planning to model these environmental factors in laboratory to separate its effects and to find if ***there is a main trigger factor***.