Data visualization for large zebrafish screen

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CNB Young Researchers Abroad 2018

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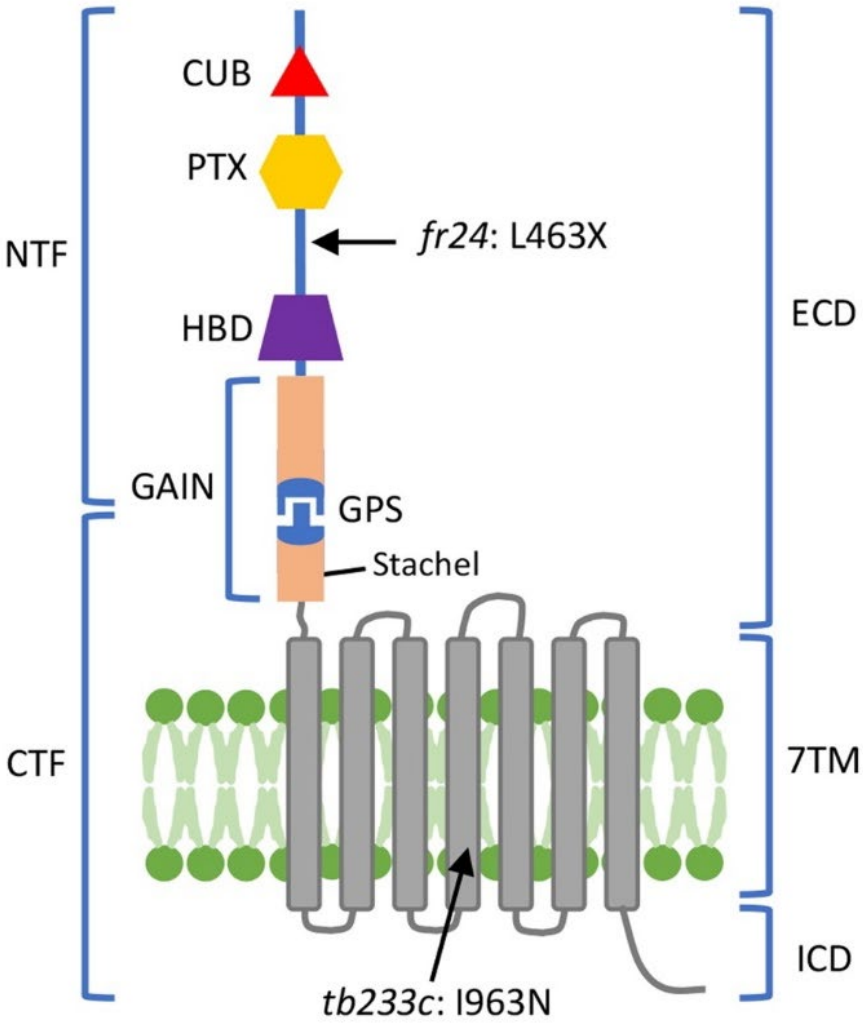
Introduction

Zebrafish (*Danio rerio*)

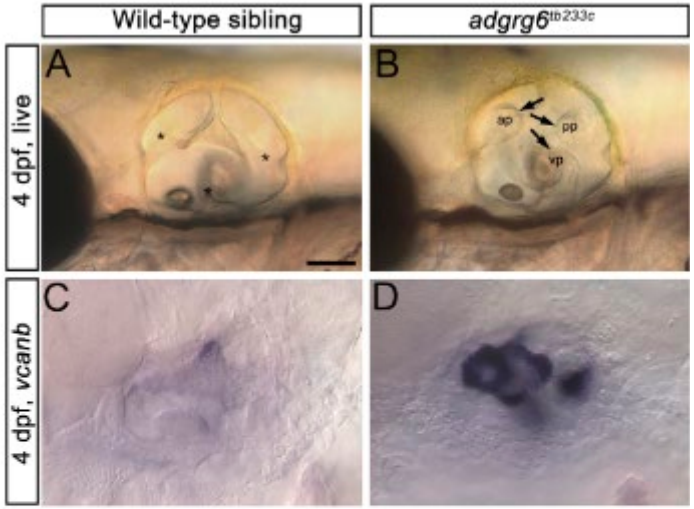
https://you.stonybrook.edu

Tanya Whitfield
Dpt. of Biomedical Science

Adgrg6


CUB
PTX
fr24: L463X
HBD
NTF
ECD
GAIN
GPS
Stachel
CTF
7TM
ICD
tb233c: I963N

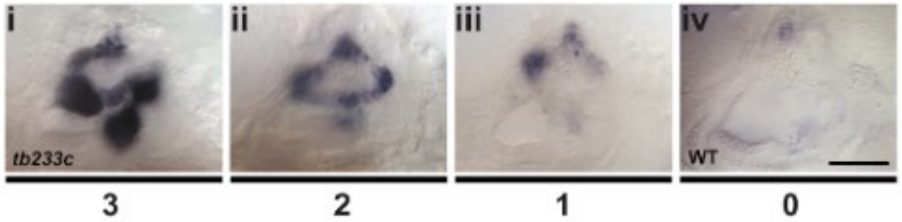
Effects of *adgrg6* mutation

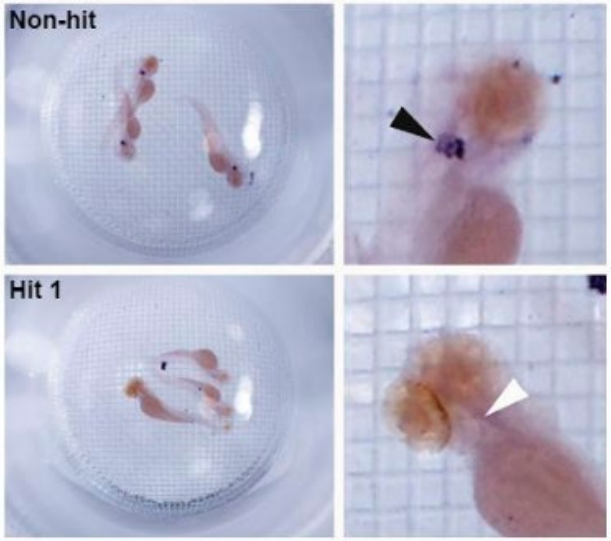


Over expression of vcanb

vcanb assay

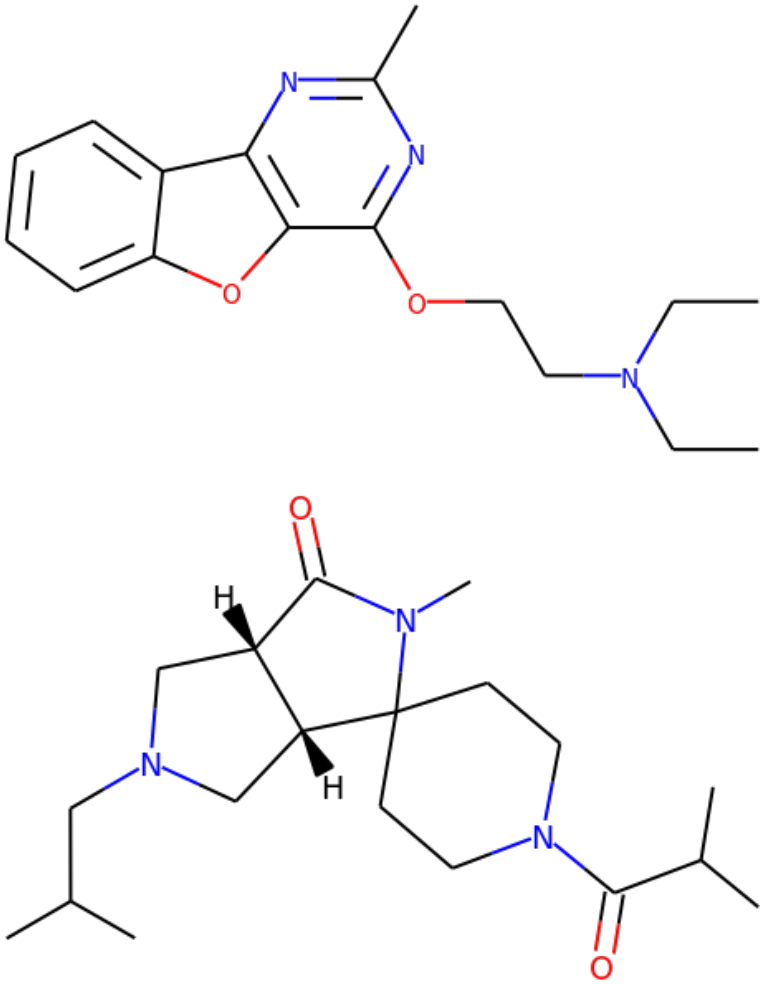
3120 compounds tested





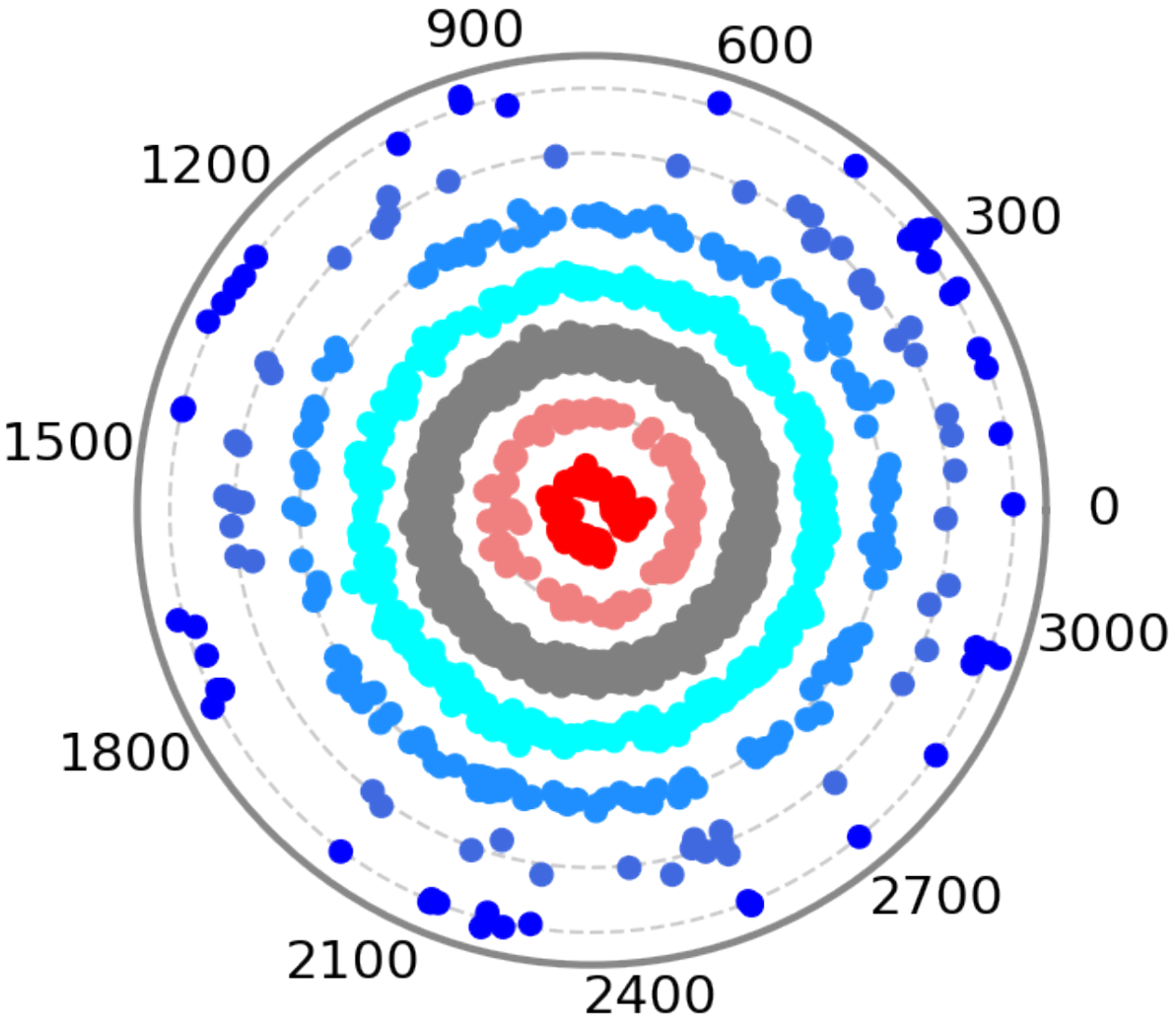
Category	Vcanb score sum
A	0-2
B	3-4
C	5-6
D	7
E	8-9
F	Abnormal
G	No fish

Chemoinformatics visualization



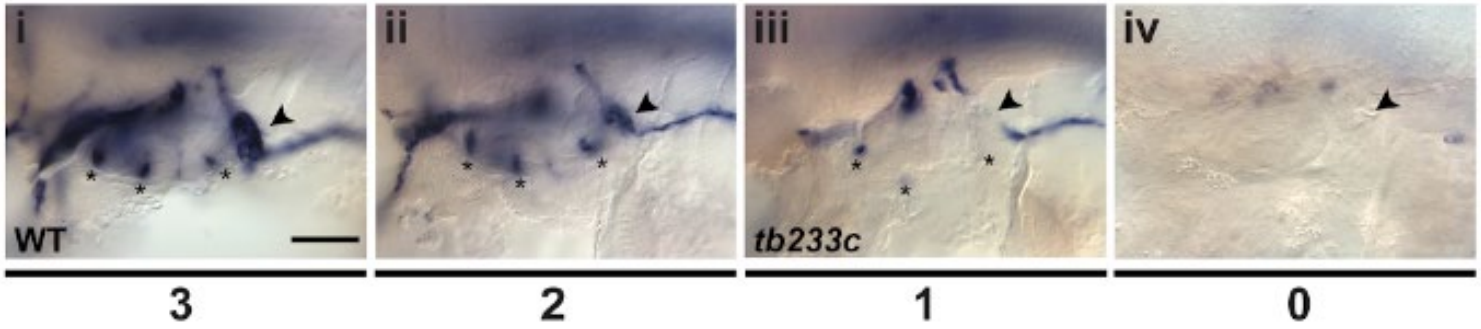
Properties:
Activity
Solubility
Absorption

Polar scatterplot



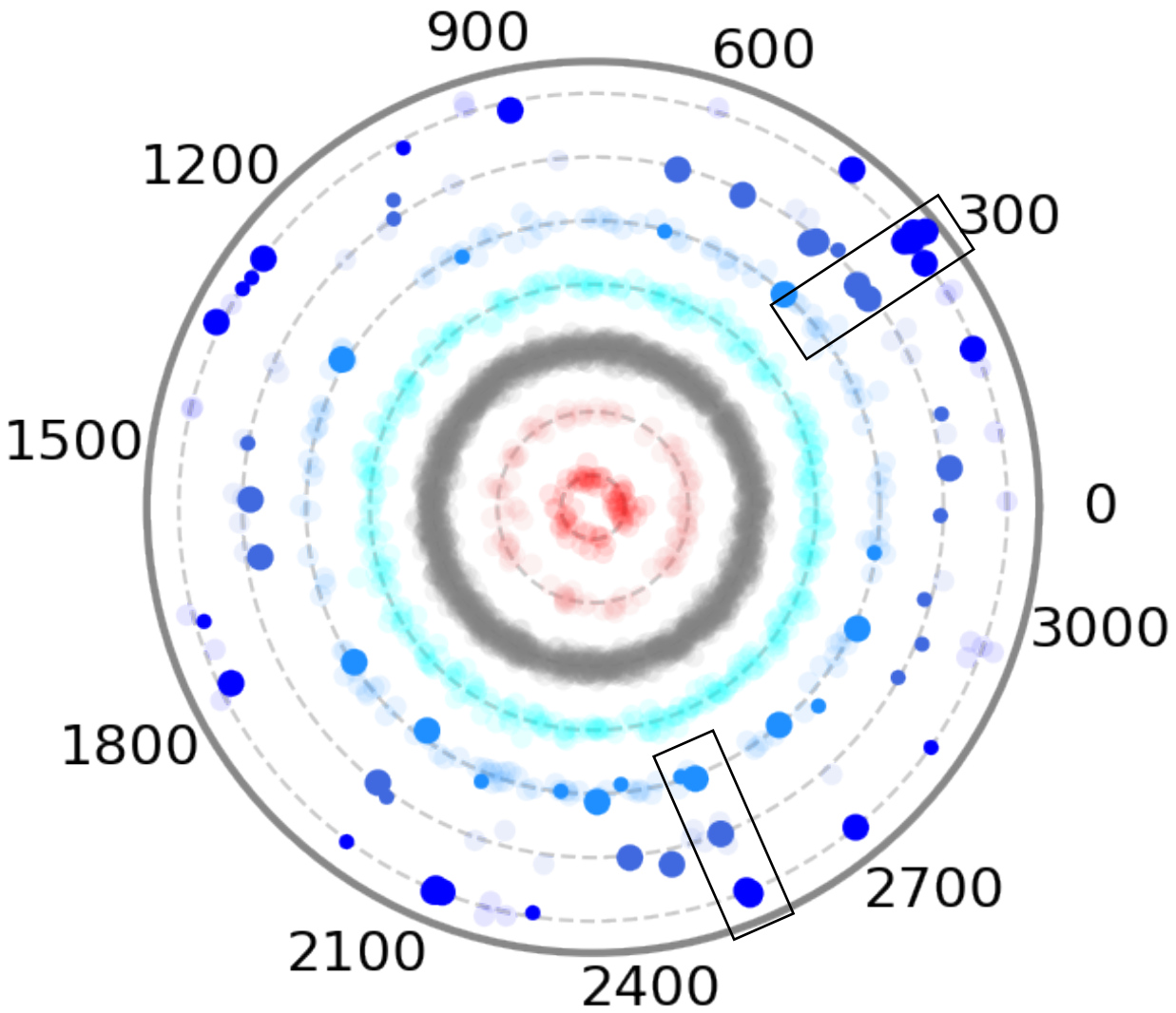
mbp assay

91 compounds tested on mbp assay

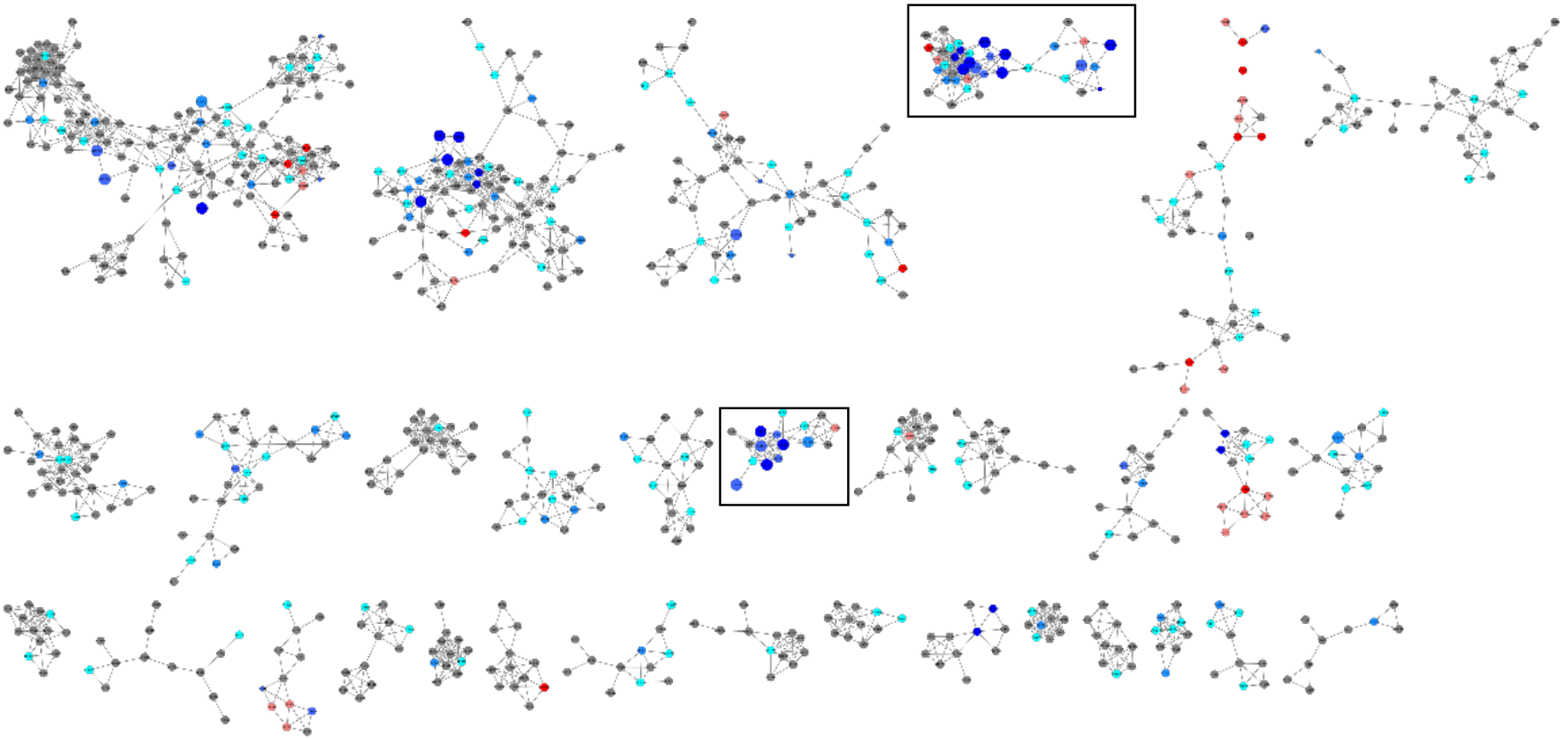


Category	*mbp* score sum
Rescue	>3.5 - 9
No rescue	>1.5 – 3.5
mbp down	0 – 1.5

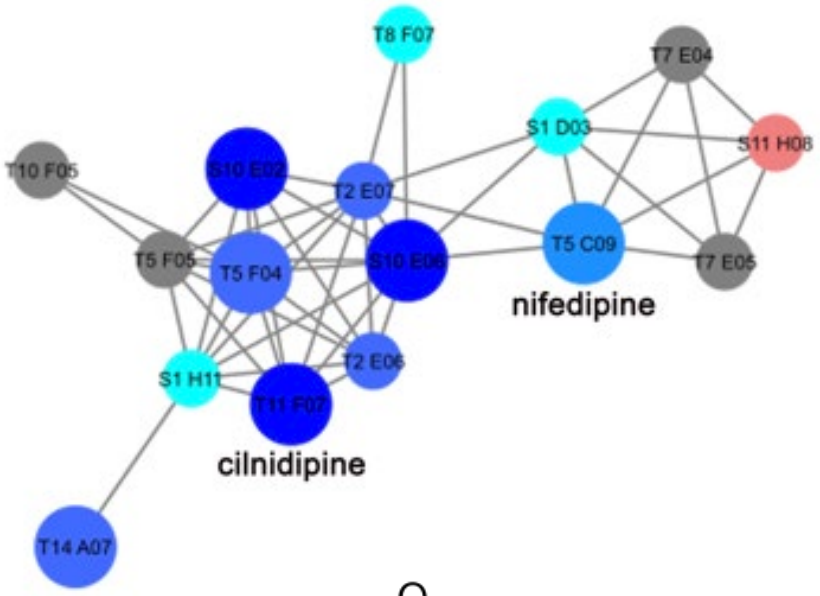
Final polar scatterplot

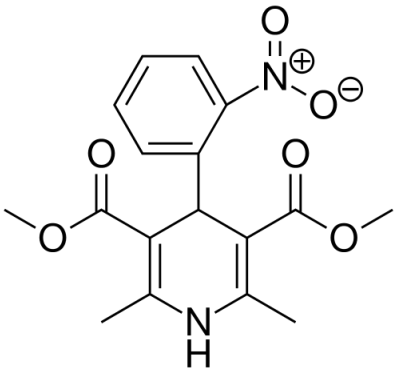


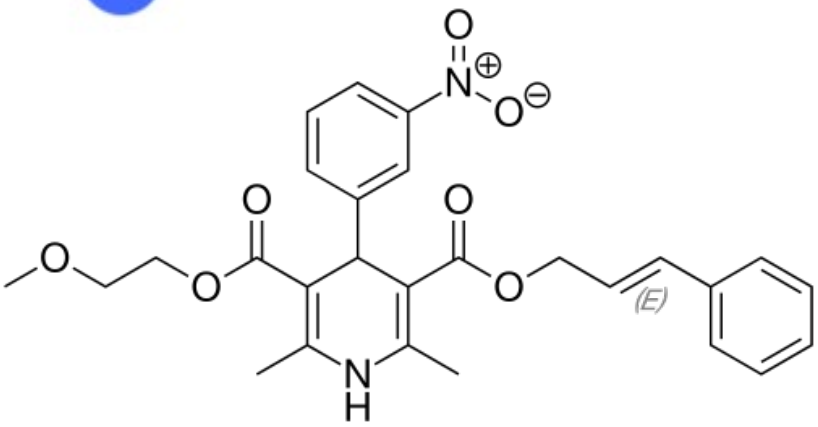
Compound network



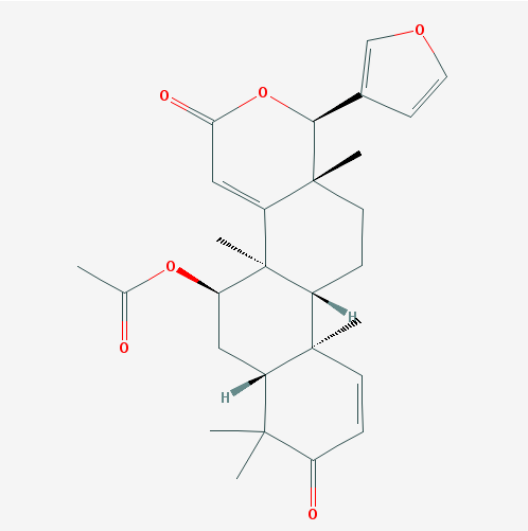
Dihydropyridine cluster

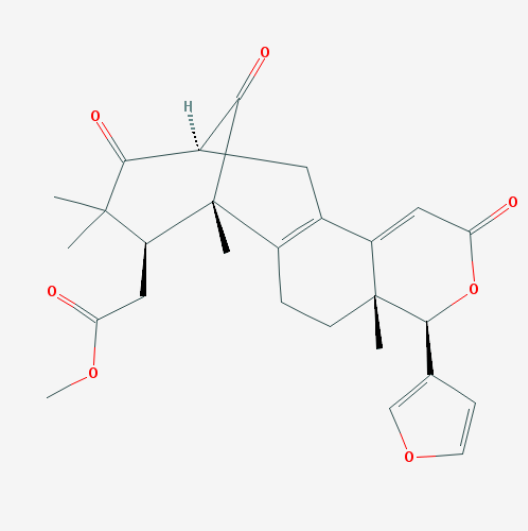


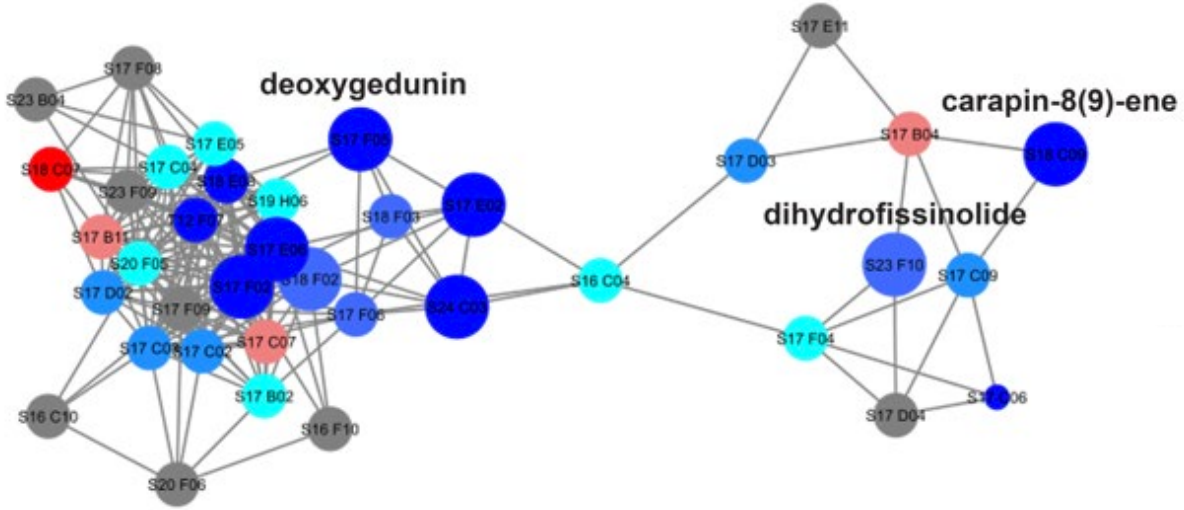


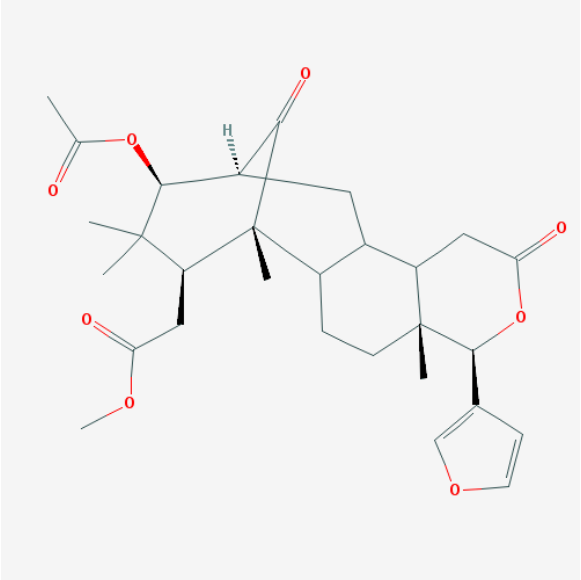


Gedunin related cluster









Interactive visualizations

Polar scatterplot

https://adlvdl.github.io/visualizations/polar_scatterplot_whitfield_vcanb.html

Compound network

https://adlvdl.github.io/visualizations/network_whitfield_vcanb_mbp/index.html

Conclusion

Consistency in presentation (colour, sizes, shapes) helps emphasize important information

In most cases, it is better to create different visualizations to focus on different aspects of the analysis