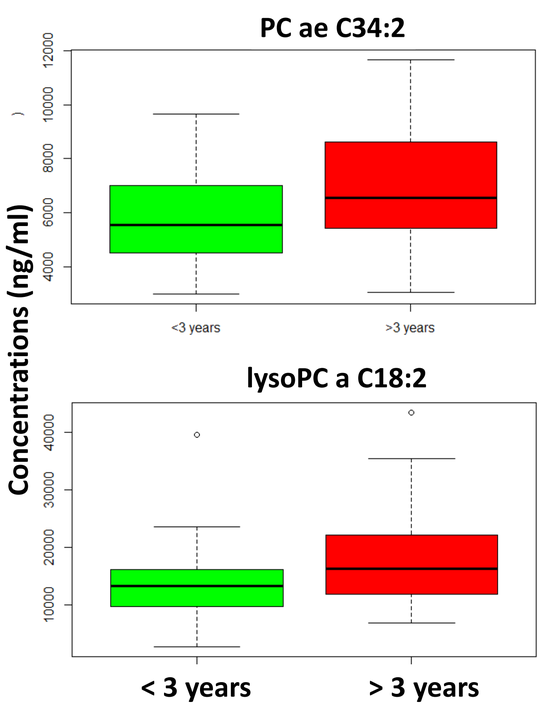
At least 12 metabolites may aid in the prediction of survival prognosis of HNSCC patients.

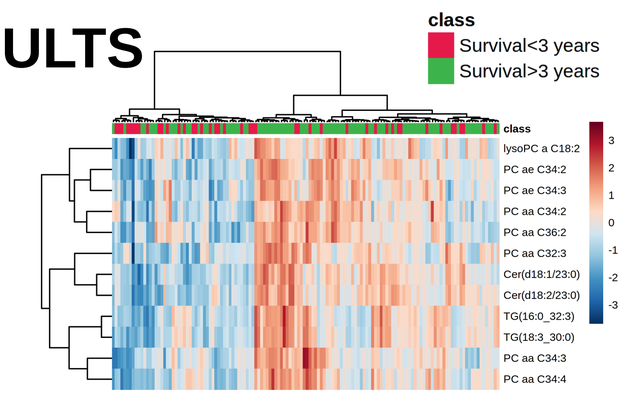
THE ROLE OF METABOLOMICS IN MSTARS (MULTIMODAL CLINICAL MASS SPECTROMETRY TO TARGET TREATMENT RESISTANCE). A STUDY FOCUSED ON HNSCC

INTRODUCTION

- Head and neck squamous cell carcinoma (HNSCC) is the sixth most common cancer. 5-year survival was at 66% during 2002-2006[1].
- Risk factors: Lifestyle (e.g. smoking), viral infections (e.g. HPV), patient sex, age.
- AIM: HNSCC prognosis biomarker discovery.

PRELIMINARY RESULTS





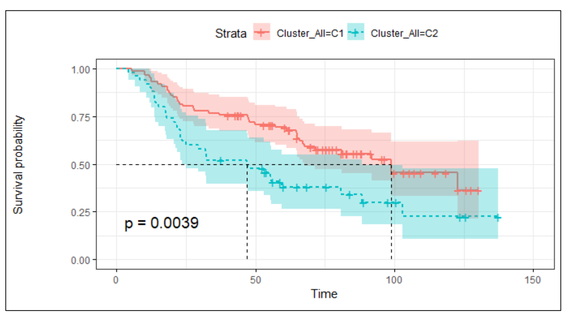


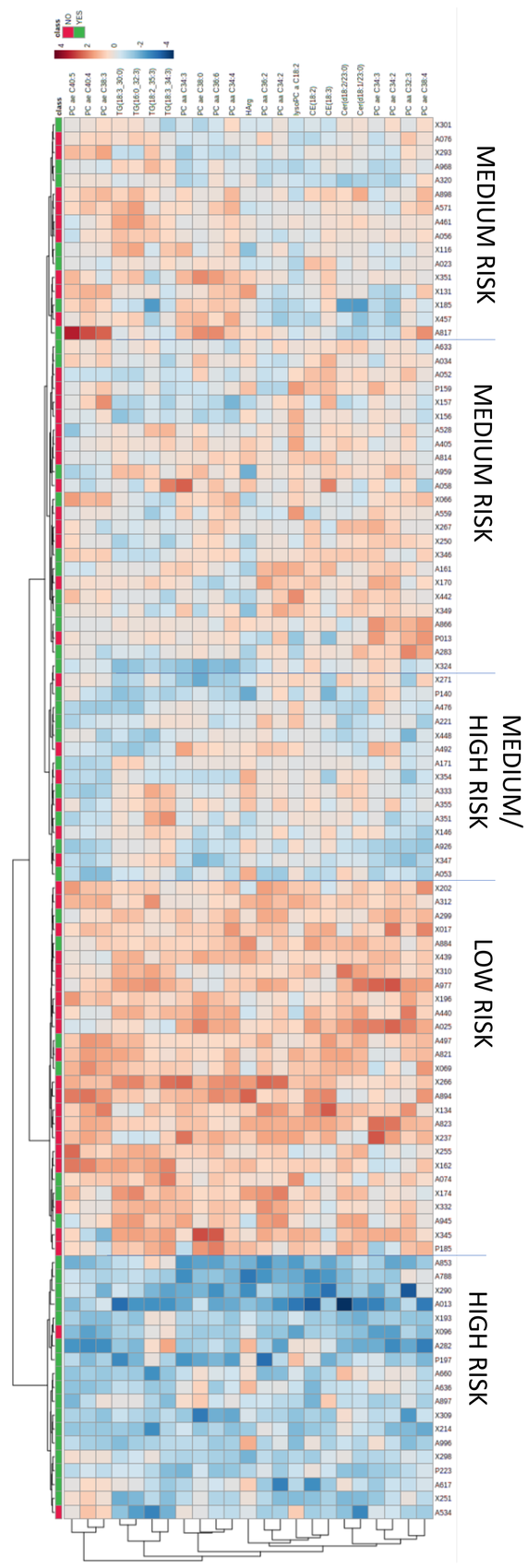
Fig 1: Results from preliminary analysis of subset of validation cohort (a) and (b) example boxplots of validated lipids which discriminate short versus long survival time, (c) Heatmap of significant metabolites depicting two separate clusters of patients, colored by survival <3 years (red) and > 3 years (green) (d) Kaplan-Meier survival analysis of the two groups identified by HCA.

METHODOLOGY

1. Semi-targeted approach: Biocrates Quant500 kit[2]
2. Training set: N = 101
3. Validation set: N = 365
4. Preliminary subset of validation set: N = 146
5. T-test for survival, PCA for overview[3]. HCA[4], PLS-DA[4], Survival analysis[5,6]

CONCLUSIONS

- Out of the original 23 metabolites from the training set, 12 metabolites (lipids) were validated as predictive of survival in the in subset of validation cohort from original 23
- Heatmap reveals similar clustering patterns in training & validation cohorts related to prognosis.
- Further modelling incorporating confounding factors and clinical covariates planned in larger cohort.



Heatmap of the 23 significant metabolites in the training cohort. Samples clustered in five clusters , with the last cluster having a notably higher mortality. This cluster indicates lower concentrations of key metabolites in these patients.

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