

## Auxiliary files (RData) folder:

“all params IPO CDF 7QC.RData”, “funcs params IPO CDF 7QC.RData”, “IPO\_optimiz\_ret\_align\_CDF\_7QC.RData”, “IPO\_optimiz\_xcms\_CDF\_7QC.RData” – files with optimized parameters by IPO.

“CROP.RData”, “mltpl\_depict.RData”, “mltpl\_detect.RData”, “mltpl\_remove.RData” – for CROP algorithm implementation.

“MetCorR.R” – for running MetCorR algorithm.

“Supp Code for MetCorR.R” – additional code related to MetCorR.

“Paramounter\_part1 (V2).R”, “Paramounter\_part2 (V2).R” – for Paramounter algorithm implementation.

“core\_SERRF\_only\_reduced.R”, “evaluationMethods.R”, “utils.R”, “normalizations.R” – for SERRF algorithm implementation.

## Datasets (csv) folder:

- 8 peaks.csv – dataset with selected features after entire processing steps.
- annotated 8 peaks.csv – as 8 peaks.csv but with metabolites name.
- metadata.csv – dataset with sample metadata (Age, Sex, Creatinine level, etc.).
- xcms after IPO MVI filter repeats annot.csv – dataset after xcms integration and alignment (with IPO optimized parameters), missing value imputation and averaging by technical repeats with annotation information.
- xcms after IPO MVI QC-XGB filter repeats annot.csv - dataset after xcms integration and alignment (with IPO optimized parameters), missing value imputation, QC-XGB correction, filtration by QC RSD and averaging by technical repeats with annotation information.
- xcms after IPO MVI QC-XGB filter repeats annot+filtr LMM adj KEGG.csv - dataset after xcms integration and alignment (with IPO optimized parameters), missing value imputation, QC-XGB correction, filtration by QC RSD, averaging by technical repeats with annotation information, annotation-based filtration and adjusting by LMM algorithm. This dataset is data table after entire processing scheme.
- xcms after IPO MVI QC-XGB filter repeats annot+filtr.csv - dataset after xcms integration and alignment (with IPO optimized parameters), missing value imputation, QC-XGB correction, filtration by QC RSD, averaging by technical repeats with annotation information and annotation-based filtration.

- xcms after IPO MVI QC-XGB filter repeats.csv - dataset after xcms integration and alignment (with IPO optimized parameters), missing value imputation, QC-XGB correction, filtration by QC RSD and averaging by technical repeats.
- xcms after IPO MVI QC-XGB filter.csv - dataset after xcms integration and alignment (with IPO optimized parameters), missing value imputation, QC-XGB correction and filtration by QC RSD.
- xcms after IPO MVI QC-XGB.csv - dataset after xcms integration and alignment (with IPO optimized parameters), missing value imputation and QC-XGB correction.
- xcms after IPO MVI.csv - dataset after xcms integration and alignment (with IPO optimized parameters) and missing value imputation.
- xcms after IPO.csv - dataset after xcms integration and alignment (with IPO optimized parameters).
- xcms CAMERA.csv – peaks annotation by CAMERA.
- xcms RAMClust.csv – peaks annotation by RAMClust.
- xcms xMSannotator KEGG.csv – peaks annotation by xMSannotator (KEGG database).
- xcms xMSannotator.csv – peaks annotation by xMSannotator (HMDB database).
- xcms mWISE.csv - peaks annotation by mWISE (KEGG database).